



Final Report and Recommendations
September 7th, 2011

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The Finding Sanctuary process has been designed and facilitated by Rob Angell of R K Partnership Ltd, supported by Lynn Wetenhall and Jim Welch. The facilitators hold no formal position on any of the substantive issues that have been, or might have been, considered. It was for the participants to decide what issues were raised, how they might be addressed and how any observations, conclusions and recommendations might be recorded and communicated.

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Cover Note

The Finding Sanctuary process was set up to inform Defra's decision making by providing stakeholder developed recommendations for MCZs in the south-west of England. The stakeholder process has involved a wide range of organisations and individuals interested in or concerned about Marine Conservation Zones (MCZs) in the south-west.

This report represents the work undertaken by the Finding Sanctuary Stakeholder Group in developing our recommendations for Marine Conservation Zones in the south-west. The report contains the agreements, comments and caveats regarding the sites we have put forward as part of a coherent network of MCZs. In order to get to this point we worked within the parameters given to us by Defra in the form of the Ecological Network Guidance published by Natural England and the JNCC. It is important to note that from individual perspectives these sites may not be our perfect or ideal choice, but we are satisfied that they represent the best negotiated outcome for an inter-linked and inter-dependent network given the time scale and parameters in which we had to work. We are making this report publicly available to ensure openness and transparency. We are not, however inviting comments on the report as this is not a public consultation but the outcome of a participatory planning approach. We are aware that Defra will run a public consultation later on in the process, after we have submitted our recommendations.

Merely by having participated in the process, no stakeholder is thereby bound to agree with every statement in the report.

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Part I – The Finding Sanctuary Process

I.1 Finding Sanctuary's origins and early work

I.1.1 The three phases of Finding Sanctuary

Finding Sanctuary was a regional stakeholder project tasked with delivering recommendations to the UK Government on the location, boundaries and conservation objectives for Marine Conservation Zones (MCZs) in south-west England. The project started as a regional pilot project with no official remit, which was subsequently formalised and given its official role by the UK Government.

Finding Sanctuary developed through three phases:

- A **project initiation phase** which developed a concept and raised funds between January 2005 and April 2007.
- A **pilot phase** from April 2007 which established an initial regional stakeholder group, started to develop a planning process, and began to formulate ecological parameters for the establishment of a coherent MPA network.
- A **formal phase**, during which the planning and delivery of the final MCZ recommendations took place. There was no single, specific point in time when the pilot phase ended and the formal phase began. Instead, there was a transition over the course of 2009. The formal phase ended in September 2011, with the delivery of the project's final recommendations for Marine Conservation Zones (MCZs), presented in part II.

The first section (I.1) describes the project initiation and pilot phases, as well as the transition period to the formal phase. From section I.2 onwards, this report describes the formal phase, from the end of 2009 to August 2011. Any references made to the earlier phases are the exception, and where they occur they are clearly indicated.

I.1.2 Project origins and initiation phase

Project origins

The idea for Finding Sanctuary originated from a recognition by staff at English Nature¹ that better stakeholder involvement and a strategic, regional-scale approach were needed for marine conservation planning in England, particularly for the design and planning of Marine Protected Areas (MPAs). Existing MPA processes in England (e.g. the Natura 2000 process, established to comply with the EC Habitats and Birds Directives) were top-down processes with no stakeholder involvement in the initial planning, and were largely being carried out on a site-by-site basis, aimed at protecting a limited number of features rather than a representative cross-section of marine biodiversity.

The concept of systematic conservation planning (developing coherent protected area networks which follow a set of common ecological design principles) had been around for several years (e.g. Cabeza and Moilanen, 2001; Pressey et al., 1993), and increasing effort was being directed by scientists and conservation practitioners internationally towards applying that concept to the marine environment (e.g. Airamé et al., 2003; Evans et al., 2004; Leslie et al. 2003; Murray et al. 2003; OSPAR 2005; Palumbi, 2003; Roberts et al., 2003; Sala et al., 2002). In the UK, the concept was

¹ Later to become Natural England

applied in the Irish Sea Pilot project, carried out for Defra's Review of Marine Nature Conservation (Vincent et al., 2004).

The Great Barrier Reef Marine Park Authority had just successfully completed an ambitious project to develop a comprehensive zoning plan for the Great Barrier Reef Marine Park², which came into effect in 2004 (Day et al., 2002; Day et al., 2005). In California, there had been a stakeholder process to develop MPAs in the Channel Islands (Airamé et al., 2003). In addition, the Marine Life Protection Act Initiative³ was being established, which has since embarked on a successful process of establishing a network of MPAs in the coastal waters of California.

The processes in Australia and in California differed from the approach being followed in the UK at that time in two ways: Not only did they approach MPA planning at a regional scale (applying reserve network design principles to create systematic regional MPA networks, rather than individual sites), but they also gave a significant and meaningful voice to a wide range of marine stakeholders within the planning process.

In 2003, a small area within Lundy Special Area of Conservation (SAC) was designated as the first marine no-take zone (NTZ) in the UK. Following the establishment of the Lundy NTZ, other sites started to be discussed for suitability in the south west by a variety of organisations. It was the combination of observing successful processes for developing MPA networks in other parts of the world, combined with the desire to build on the success of Lundy, that led English Nature to propose the South West MPA network project, which was to become Finding Sanctuary.

Project initiation phase

A small amount of funding was found through a new Area Based Delivery Programme within English Nature. At this stage there was no direct obligation from Government, nor any official mandate for the project. English Nature initiated the project in July 2004 through a partnership with Devon County Council, Cornwall County Council and South West Food and Drink. These organisations formed what became the Regional Project Board. The Project Development Officer, Tom Hooper was recruited in November 2004, and started work in January 2005.

Through 2005 the Regional Project Board was widened to include the Wildlife Trusts, Dorset County Council and the Joint Nature Conservation Committee (JNCC). At this early stage, the involvement of stakeholders at a regional and local level was established as a key principle of our approach. Seeking funding was also of particular importance, and the Project Development Officer was tasked with finding the necessary funds.

The project plan was developed through 2005 to incorporate MPA decision-making, data gathering, stakeholder liaison, education and communication. Meetings were held with many different organisations to help inform and learn from different perspectives and experiences. Funding from the National Trust, Financial Instrument for Fisheries Guidance (FIFG), Cornwall County Council and Esmée Fairbairn Foundation helped to launch the project at the beginning of 2007, marking the beginning of the project's pilot phase.

² http://www.gbrmpa.gov.au/corp_site/management/zoning/planners_info

³ <http://www.dfg.ca.gov/mlpa/intro.asp>

The project was first presented to the Defra Marine Biodiversity team in November 2006, and subsequently to the head of the Marine and Fisheries Directorate in December 2007.

I.1.3 Pilot Project Phase 2007 - 2009

Project launch and creation of the initial Steering Group

The Finding Sanctuary pilot project was launched through a regional stakeholder workshop on April 25th 2007. The workshop was attended by 107 delegates, with a broad representation of sectors from the south-west region. The principal objective for the workshop was to select a stakeholder group to participate in the planning of a regional MPA network, and to identify their broad remit. This stakeholder group became known as the Steering Group⁴.

The initial Steering Group was formed by asking delegates to identify the key organisations and sectors that should be represented, naming suitable representatives (persons) where possible. Delegates discussed a suitable size for the group, and ultimately settled on no more than 15 organisations, in order for the group to be small enough to be able to carry out the work effectively. As recorded in the meeting report, the conclusion was that the following 15 organisations should be represented on the initial Steering Group:

- Federation of Sea Anglers
- Natural England⁵
- Sea Fisheries Committee⁶
- Marine Science
- Marine NGO (Wildlife and Countryside Link)
- Inshore fishermen (boats less than 10m)
- Offshore fishermen (boats greater than 10m)
- Estuary and Coastal Forum/Partnership
- South West Tourism
- JNCC
- Professional Association of Diving Instructors/British Sub-Aqua Club (Recreational diving)
- Marine and Fisheries Agency
- The Crown Estate
- Energy Sector
- Ports and Harbours

Letters of invitation were sent out in May 2007, and the membership of individual representatives was established in July 2007. Sir Harry Studholme was invited to become the Chairman of the group. In this role he was responsible for chairing meetings and for resolving any individual disagreements or disputes.

⁴ The initial Steering Group was the direct outcome of the launch workshop. The initial Steering Group operated through the project's pilot phase. During the transition into the formal project phase, the Steering Group was expanded significantly, and this is explained later on in this document.

⁵ Previously English Nature

⁶ Now Inshore Fisheries and Conservation Agency

Establishment of the project team and work during the pilot phase

The two-year pilot phase of the project was an important opportunity for Finding Sanctuary to develop and learn within a process that had no formal responsibility. The project team was able to think and learn together with stakeholders for how group decisions could be made on an MPA network, and what components would be necessary to achieve this. The project team also focussed on gathering ecological and socio-economic spatial information, and on building awareness of the project amongst stakeholder groups.

An MPA planner was employed in April 2007, who began building the GIS capacity of the project, sourcing base mapping data, defining the study area and sourcing spatial data on the region's ecology and human uses from national and regional data providers. Work also began on formulating ecological guidelines for MPA network design and four science workshops were organised in early 2008 to help gather evidence and expertise in defining pragmatic design targets and priorities for protection. As a result, some initial ideas for network design targets were developed by the MPA planner, but the task was never fully completed. This was because it was becoming clear that the project was heading towards formalisation and that the ecological design criteria would have to be defined nationally, i.e. it would no longer be part of the remit of the project to define its own ecological guidelines. Nevertheless, the experience gathered during the science workshops proved to be useful input into subsequent discussions around the development of the national Ecological Network Guidance (section I.7.2).

The project identified a gap in the availability of spatial activity data for fishing and recreational activities and set out to collect and map this information through interviews with fishermen and recreational stakeholders. Gathering information about human use of the sea directly from stakeholders is an approach that had previously been used in the context of MPA planning in North America (see Ecotrust's work with Open OceanMap⁷). Finding Sanctuary developed the FisherMap project, based on a similar concept of interviewing fishermen about which areas they use, and getting them to draw those areas on charts for digitisation and subsequent GIS analysis. A GIS and data officer and two stakeholder liaison officers were employed later in 2007, to carry out this work. The FisherMap approach was later applied to recreational sea users, in the StakMap project (both FisherMap and StakMap are described in a bit more detail in section I.5.4).

This pilot phase was also used to research the experience of implementing the California Marine Life Protection Act (MLPA), a process that had failed twice because of a lack of adequate resources and stakeholder involvement, but which ultimately established a successful, stakeholder-centred process for planning a network of MPAs. The MPA Planner, Louise Lieberknecht, visited a number of key individuals and organisations involved in the stakeholder process run by the MLPA Initiative in September 2008, and attended one of their stakeholder meetings and one of their Science Advisory Team meetings as an observer. Her visit and report helped to inform the UK on the key factors that had caused the initial failures, and ultimate success, in California. Subsequently, Finding Sanctuary organised a conference on stakeholder participation and good decision making on 23rd October 2008. Two speakers that had in-depth knowledge and direct experience of the MLPA process were invited. On the following day, a workshop session chaired by Jeff Ardron aimed to further capture the advice and experiences of those involved in the California process.

⁷ <http://www.ecotrust.org/ocean/OpenOceanMap.html>

As the pilot phase progressed, Defra became increasingly interested in the project's stakeholder-centred, regional-scale planning model as a possible way of planning Marine Conservation Zones (MCZs), a new type of MPA designation planned under new national legislation (the Marine and Coastal Access Act, at the time known as the Marine Bill, as it had not yet been enacted by Parliament). The project team therefore increasingly worked with personnel from Natural England and the JNCC to help develop the national MCZ project. That included the formulation of the national Project Delivery Guidance, defining the official remit of the regional projects and regional stakeholder groups, providing feedback on the developing Ecological Network Guidance, and highlighting the data gathering support and the guidance that we would need from national partners in order to be able to achieve the task within the time available.

During the pilot phase, facilitation support was provided by Diana Pound of Dialogue Matters, who structured and facilitated the launch workshop in April 2007 and who facilitated the first meeting of the initial Steering Group, assisting them in formulating their terms of reference.

Meetings of the initial Steering Group during the pilot phase

The initial Steering Group met on the following dates:

- 23rd September 2007
- 28th November 2007
- 22nd May 2008
- 8th October 2008
- 11th March 2009 (at this time, the project had started its transition to the formal phase)

Initial Steering Group Meeting, 23rd September 2007

The first meeting of the group focussed on developing their terms of reference, i.e. defining the remit of the group, and how they wanted to work together. They agreed that meetings would be undertaken under Chatham House Rules, with comments non-attributed in the meeting reports, although they agreed to the reports being published on Finding Sanctuary's website for transparency.

The other key administrative discussions were around the role of the project team and the differentiation between the role of the Regional Project Board in managing the project and the role of the initial Steering Group in influencing decisions on MPA network design. There was also a first discussion about the role of a scientific expert group. They considered whether other organisations should be involved on the initial Steering Group, but postponed a decision for a subsequent meeting.

Initial Steering Group Meeting, 28th November 2007

At the next meeting on the 28th November 2007 there was continued discussion about the membership of the group and that many economic sectors were not represented. It was also noted that some representatives on the group were members and representatives of sectoral industry bodies or organisations, whereas other members were individuals representing sectors. At this stage the project had not been officially tasked with developing MCZs, but its aim nevertheless was to recommend a network of MPAs to Government. Many members also remained uncertain about what consensus decision making meant, and how decisions could be taken without voting.

Initial Steering Group Meeting, 22nd May 2008

At this meeting, the head of Defra's Marine Biodiversity team gave a presentation which highlighted that the Government was developing a national framework for MPA planning and designation. Finding Sanctuary was being looked at as a potential model for the delivery of recommendations for MCZs. This was the first time that the concept of a Marine Conservation Zone (MCZ) and the Government's aim to establish three regional projects based on Finding Sanctuary's model was introduced to the Steering Group. The international and national context of the MCZ work, and the need to work towards a coherent MPA network consisting of MCZs, and other MPAs designated under separate legislation (e.g. Special Areas of Conservation – SACs, designated under the habitats directive) was explained to the group. At the time, a process was underway to identify another round of SACs by Easter 2010. There was discussion about the quality of data, timescales for decision making and what information was proportionate to make planning decisions.

With some of the early results from FisherMap available (see section I.5.4), there were discussions about how this information would be used to aid decision making and how much more data would be collected. The group were brought up to date with the progress made by the science workshops that had been run by Finding Sanctuary to identify some basic ecological requirements (see above), which demonstrated how complex it is to gain useful guidance that can help with planning processes like this. There were also suggestions to have broad areas of search or site options to be considered to help initiate the work. The use of decision support software such as Marxan (Ball et al., 2009) was also highlighted as an important tool to help with decision making.

Initial Steering Group meeting, 8th October 2008

By the time of this meeting, the project was heading towards the transition to the formal phase and the national MCZ Project was beginning to be formed. Further clarity was given about the role of the regional projects within a national process. Concerns remained about the timescale and how the design of MCZs would relate to Marine Spatial Planning. National data contracts had been let to provide ecological and socio-economic data to all of the regional projects (section I.5.2). No network or potential areas of search existed at this stage and stakeholder focus remained on membership, wider stakeholder communications and data quality.

Initial Steering Group meeting, 11th March 2009

Finding Sanctuary's initial Steering Group met for the final time in March 2009. The group were told that Finding Sanctuary had been formally set up to provide MCZ recommendations to Defra, and that they as the stakeholders would have the central role in planning the MCZs through facilitated meetings. The development of the Ecological Network Guidance (see section I.7.2), which would set the ecological design parameters for the stakeholders' task, was being carried out by Natural England and the Joint Nature Conservation Committee. A project timetable with several planning iterations was presented and the need for an impact assessment was also introduced. The group discussed concerns about how the outcomes from Finding Sanctuary would be treated by Government and how environmental guidelines would be balanced with economic interests. They also discussed the expansion of the Steering Group to admit more members and make it more widely representative of stakeholder interests (see section I.3.2).

I.1.4 Transition to the formal phase in 2009

Establishment of the national MCZ project

There was no defined point at which the pilot project transformed into the formal phase. Rather, the transition occurred over the course of 2009, over the time period that the national MCZ project was being established.

A national workshop took place in March 2009, which discussed the process for the national MCZ project in detail, including, roles, remits, responsibilities and participants, as well as technical approaches to specific work areas and the gathering of best available data. The discussions held at this workshop fed into the national MCZ project's Project Delivery Guidance, a first draft of which was available in October 2009, and the final version of which was published in July 2010 (see section I.4.1).

The national Project Board was established in September 2009 and three other regional projects were formed through 2009: The Irish Sea Conservation Zone Project for the Irish Sea, Net Gain for the North Sea, and Balanced Seas for the English Channel and South East England. The requirement from Finding Sanctuary and the other regional projects was to provide recommendations for MCZ locations, boundaries and conservation objectives. National staff and the four regional project teams assembled together for the first time at a workshop on December 15th and 16th, 2009. The national MCZ project, including its participants and their roles, is described in more detail in section I.2.

Project team work during the transition period

In light of the establishment of the national MCZ project and Finding Sanctuary's changed responsibilities, the Finding Sanctuary project plan was revised, and the final version presented to the Regional Project Board in September 2009. Much of the Project Manager's and MPA planner's time over the transition period was spent liaising with national partners, to help shape the national process, and adapt Finding Sanctuary's process to reflect the project's new formal responsibilities.

The project team at this time consisted of a project manager, MPA planner, two GIS and data specialists, and liaison officers in Dorset and Devon. The recruitment of a new liaison officer for Devon in July 2008 allowed us to re-locate the current Devon officer to Cornwall. Stakeholder mapping work (the FisherMap project) continued, and expanded with further volunteer assistance, leisure sector mapping and the development of the Web GIS. A communications co-ordinator joined the project in October 2008.

The project team's data gathering role continued through this period. This included the development of the regional profile, a collection of maps showing ecological and socio-economic data for the regional project area, which was presented to the Steering Group members in November 2009.

Two key events took place during this transition period, which might be considered the beginning of the formal planning and delivery phase for Finding Sanctuary. One was the recruitment of facilitators to assist the project team and the Steering Group through the MCZ planning process. Another was the expansion of the Steering Group to its final membership (shown in appendix 2).

One of the main agenda items at the final meeting of the initial Steering Group in March 2009 was to discuss the expansion of the group to admit new members, in order to create a group that would be fully representative of marine stakeholder interests. Full details of the Steering Group membership decisions are presented in section 1.2.2.

New Steering Group members met for an induction in September 2009 and the full group met for the first time in November 2009. For Finding Sanctuary, the expansion of the Steering Group and the induction day for new members marks the end of the transition period.

The need for professional facilitation and process support was also discussed at the initial Steering group's final meeting in March 2009. A tender process was run to identify a professional facilitator for the project in June 2009, and Rob Angell from R K Partnership was selected in July 2009. A number of meetings took place through July and August with his team to familiarise them with the work and the task.

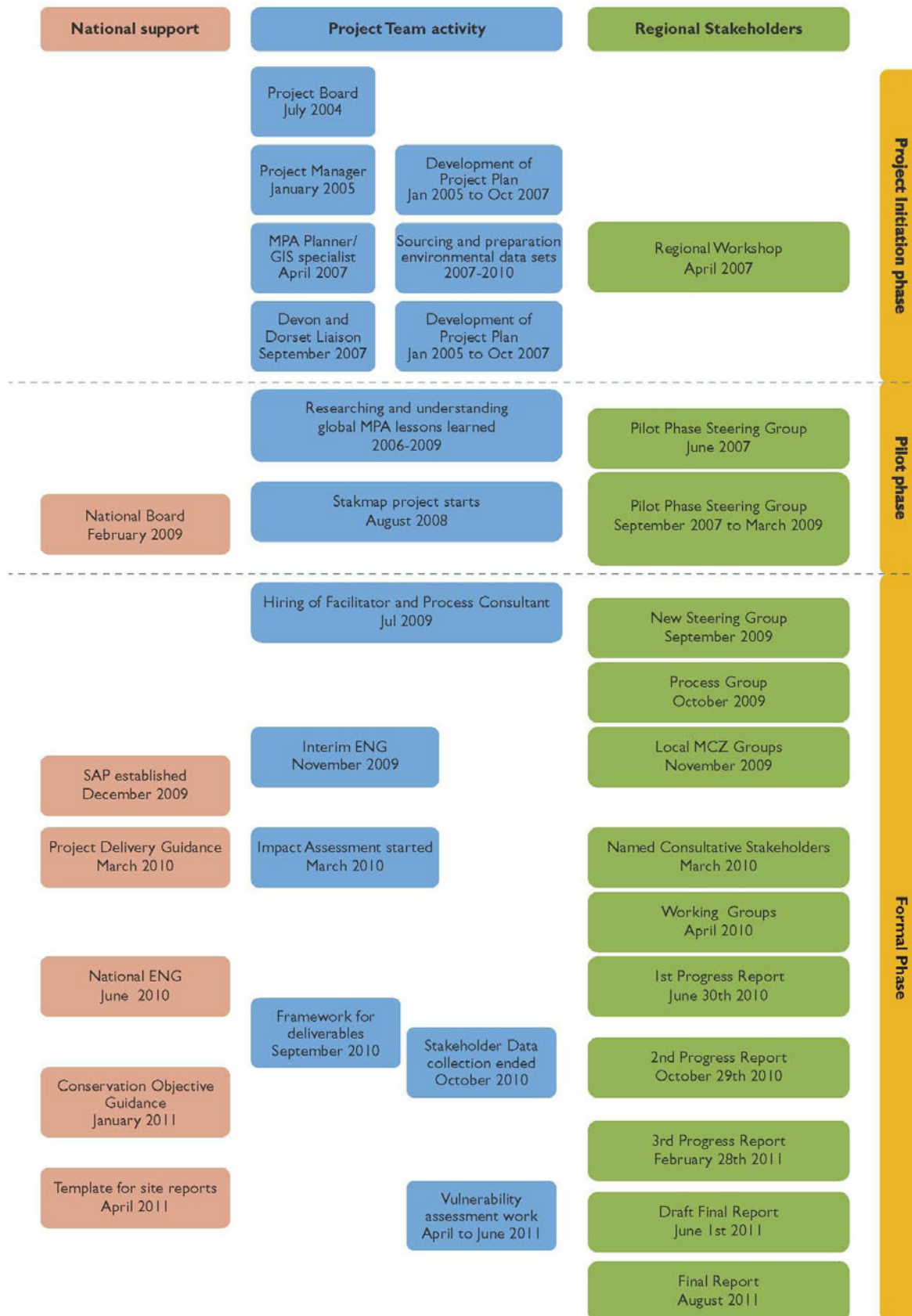


Figure 1: The chronology of the principal components in the Finding Sanctuary process

I.2 National MCZ Project 2009 - 2011: Participants and Roles

I.2.1 The four Regional Projects

The area covered by each of the four regional MCZ projects is shown below. Put together, the four projects covered English territorial waters, and UK offshore waters adjacent to England, Wales and Northern Ireland. The size of each region was chosen to reflect the ecological, social, economic and political differences between regional seas in England. When the four projects started work in January 2009 they all followed the same fundamental approach, which was to place a representative group of marine stakeholders at the centre of the MCZ planning process, and to approach the task in a systematic way, at a regional network scale using the same national guidance (see section I.7.2).

At a more detailed level, there were some differences between the four projects, e.g. in the way the stakeholder groups were structured, and in the way the process was designed in detail. These differences were largely the result of the different geographies of the four regions. The size and shape of each project region and its coastline meant that each project faced its own set of logistical challenges, and each region had its own balance of stakeholder interests to consider.

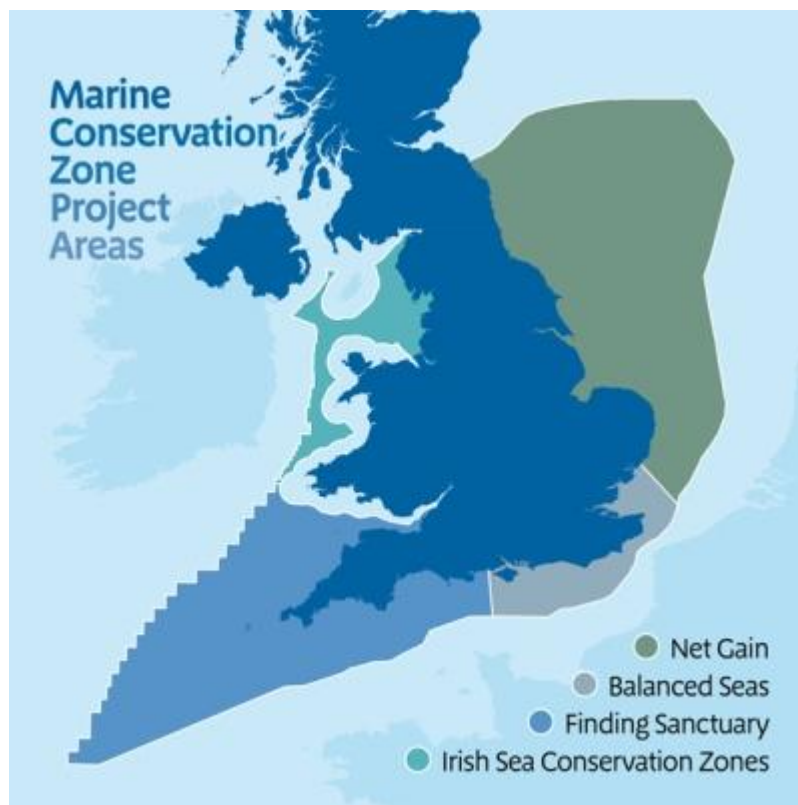


Figure 2: The Four regional projects

I.2.2 The National Project Board

The National Project Board was initially formed by JNCC, Natural England and Defra and met for the first time in February 2009. In March 2010, Defra left the National Board and became a 'critical friend'. The responsibility of the National Project Board was to provide strategic direction in the management of the MCZ project and to ensure there was cross-partner agreement on project planning, management and delivery of products across the four projects and to provide the funding.

The Terms of Reference of the National Project Board were set out in the Project Delivery Guidance (see section I.4.1), and focus on their role to deliver the Government's policy to establish an ecologically coherent network of MPAs by 2012.

The National Project Board membership comprised representatives from JNCC and Natural England at the level of Marine Director, Programme Leader and Project Manager and is chaired by Natural England, Marine Director James Marsden.

I.2.3 Science Advisory Panel

The Science Advisory Panel (SAP) was established as an independent panel consisting of well-respected scientists in December 2009. The SAP was appointed by Defra and chaired by Dr Peter Ryder, former Deputy Chief Executive and Director of Operations of the Met Office. The panel members were Professor Juliet Brodie (Natural History Museum, London), Professor Callum Roberts (University of York), Dr Keith Hiscock (Marine Biological Association, Plymouth), Professor Michel Kaiser (University of Wales, Bangor), Dr Jason Hall-Spencer (University of Plymouth), Professor Mike Elliott (University of Hull), Professor Graham Underwood (University of Essex) and Dr Beth Scott (University of Aberdeen).

The SAP's role was to 'offer objective scientific assessment of site proposals made by the four regional MCZ projects against criteria and guidance provided by the SNCBs and to provide independent scientific advice to Ministers'. (Defra SAP Factsheet) The SAP provided feedback to the regional projects following each progress report, and clarified questions regarding the interpretation of the national Ecological Network Guidance. Their advice was based on ensuring that the developing regional recommendations were meeting the ENG, and that shortfalls in the design of the network were addressed.

The Defra factsheet further stated that the SAP would, at the final stage of the process, report to the Secretary of State to help her make an informed decision on the implementation of the regional recommendations.

I.2.4 The multiple roles of SNCBs in the national and regional context

The Statutory Nature Conservation Bodies (SNCBs), JNCC and Natural England, played a number of roles within the process, acting as stakeholders, advisors to Government and funding partners. They also played a pivotal role in managing the gathering of national spatial data layers for the four regional projects, writing key guidance documents and provided assistance in the completion of the vulnerability assessments (see sections I.7, I.9), which defined draft conservation objectives at the end of the planning process.

As stakeholders, Natural England and the JNCC were represented on the stakeholder groups of the four regional projects, and therefore had a direct role in shaping the MCZ recommendations, along with representatives from other sectors. Within Finding Sanctuary, Natural England were represented on the Inshore Working Group and the JNCC on the Offshore Working Group (see section I.3.3).

As advisors to Government, formally it is the role of the SNCBs to provide advice on planning MCZs. This is why the final recommendations from Finding Sanctuary (and the other three regional projects) were submitted to the SNCBs, and not directly to Government. It will be the responsibility of the SNCBs to pass on the recommendations to Government, with any additional commentary they deem necessary.

Both the JNCC and Natural England were members of Finding Sanctuary's Regional Project Board (see section 1.3.1). In this role they were responsible for ensuring the successful delivery of the regional project, and for providing technical advice and guidance. As stated in section 1.2.2 the JNCC and NE are also the two organisations that make up the National Project Board.

Both organisations provided technical advice, data, and guidance, without which the regional projects would not have been able to fulfil their tasks. Including:

- The management of national data collation contracts which gathered environmental and socio-economic spatial datasets to underpin the planning in all four regional projects (see section 1.5.2).
- The writing of the Ecological Network Guidance (ENG), which was of fundamental importance to the process as it set out the ecological design criteria that the network configuration had to meet (see section 1.7.2).
- The writing of the Project Delivery Guidance (PDG), which set out the participants, remits, responsibilities and timelines of the national MCZ project (see section 1.4.1).
- The writing of the Conservation Objective Guidance (COG), which defined the way in which draft conservation objectives had to be developed and presented (see section 1.9).
- The management of the delivery of national sensitivity matrices, which were needed in order to be able to apply the COG (see section 1.8).
- The provision of direct advice and assistance to the four regional projects in applying the COG during the vulnerability assessments

1.3 Finding Sanctuary 2009 - 2011: Regional Project Participants & Roles

1.3.1 The Project Partnership (Regional Project Board)

The Finding Sanctuary Regional Project Board was set up in July 2004, initially consisting of English Nature (later to become Natural England), Cornwall County Council, Devon County Council, and South West Food and Drink. Dorset County Council joined in August 2005, the JNCC in February 2005, the Wildlife Trusts in August 2006, the National Trust and RSPB in November 2007, and Somerset County Council in February 2009. The addition of Somerset County Council to the Regional Project Board resulted in a small expansion of the project's previous study boundaries, extending them further eastwards within the Bristol Channel.

The Project Board was responsible for overseeing the delivery of the project and has overall legal, financial and management responsibility for the project. The Project Manager reported to the Project Board and through quarterly meetings the Board provided strategic and technical advice to support the team and its work.

The Finding Sanctuary Project Board made the decision to follow a stakeholder-driven process for the development of MPAs, rather than taking a direct role in designing MPAs themselves. After the project became formalised through 2009, the Regional Project Board took on a role which gave them responsibility for the effective delivery of the MCZ recommendations in the South West. This role has been embodied in section 2.2.1 of the Project Delivery Guidance, which states that Board members will 'not be directly involved in, and will not influence, the MCZ recommendations' (for details on what the Project Delivery Guidance is, see section 1.4.1).

The Project was hosted by South West Food and Drink, which provided the administrative support through the provision of a physical workspace, computer networking, financial accounting, payroll and general management and administration.

The Chairman of the Finding Sanctuary Project Board between July 2004 and May 2010 was English Nature/Natural England Regional Director, Janette Ward; between May 2010 and June 2011 Natural England Senior Marine Specialist Stephen Warman and since June 2011 South West Food and Drink Executive Director Christine Marshall.

I.3.2 The Steering Group

Role of the Steering Group

During the formal phase (from September 2009 onwards), the expanded Steering Group came together in a series of meetings, during which their responsibility was to develop MCZ recommendations in line with the ecological design criteria set out in the ENG, balancing the needs and interests of the different sectors represented. These meetings were designed and led by a professional facilitator (R K Partnership), although Sir Harry Studholme retained a formal role as the Steering Group Chairman during which he provided advocacy and support for the project within Government and the South West Region.

In order to manage the amount of work that was necessary, the Steering Group formed two smaller subgroups, the Inshore Working Group and the Offshore Working Group, which later merged to form the Joint Working group. The Working Groups had frequent meetings, during which they carried out the detailed MCZ planning work on behalf of the wider Steering Group, which met less frequently to review the progress made (this process of managing the Steering Group's work is described in detail in section I.3.5). The Steering Group's final MCZ recommendations are set out in part II of this report.

Steering Group Terms of Reference and Protocol

Following the expansion of the Steering Group at the beginning of the formal phase, the original Terms of Reference were updated and replaced with a new Steering Group Protocol (supplied with the additional materials listed in appendix 14). The Protocol set out the Steering Group's role in developing a set of MCZ recommendations to Government; the Group's responsibility in ensuring that different stakeholder views and perspectives were heard and considered, and that details on work progress were communicated back to constituents (i.e. other people within the wider sectors represented by each individual on the group). The new Protocol was developed by the project's new process consultants and facilitators, R K Partnership and amended and agreed by the Process Group and Steering Group (see section I.6.2) in October 2009. Subsequent changes and additions were made to it until September 2010.

The evolution of the Steering Group membership

The following sections outline how the Steering Group membership evolved through the formal phase, and the final Steering Group membership is fully detailed in Appendix 2.

In order to pro-actively widen the membership of the SG, The Finding Sanctuary team issued press releases and made direct contact to the following organisations and individuals:

- Dorset Fishermen
- Cornwall MPA Group
- Trinity House
- Water skiing
- English Heritage
- Isles of Scilly Sea Fisheries Committee
- Ministry of Defence (MOD)
- Dorset Coast Forum
- Professional Boatman's Association
- Devon Maritime Forum
- British Sub Aqua Club (BSAC)
- Royal Yachting Association (RYA)
- British Wind Energy Association
- Windsurf, Kitesurf and Wave surf
- National Federation of Fishermen's Organisations (NFFO)
- Cornish Federation of Sea Anglers (CFSA)
- Department for Energy and Climate Change
- British Marine Aggregates Producers Association
- United Kingdom Cable Protection Committee (UKCPC)
- British Canoe Union
- Spearfishing (British Spearfishing Association)
- Sub Aqua Association

In applying for membership, prospective members were required to detail which organisation, sector and geographical area they represented, whether they represented their sector on any other groups, why they felt that their interests were not already represented on the Steering Group, and why they felt that they were the best person to represent their sector.

The selection of new members was carried out by the original Steering Group members at a meeting in March 2009, under the guidance of the Steering Group Chairman, and with a set of criteria that was produced by the Project Manager. This detailed that there should be an assumption for selection if the sector was not already represented on the Steering Group, if there was more than one major group, organisation or association within a particular sector, or if a sector has a particular geographic distinction or importance. Further criteria explained that if there were more than two applicants, then the Steering Group would need to evaluate the application, and if necessary carry out interviews. For any application from a sector that was already represented, the group was asked to consider if further representation was appropriate.

Applications were accepted from:

- Bridget Betts (Dorset Coast Forum, representing Dorset Local Group)
- Jim Masters (Devon Maritime Forum, representing Devon Local Group)
- Elly Andison (Environment Agency)
- Jim Barnard (Independent consultant, representing Somerset Local Group)

- Peter Bartlett (Leisure Boating, RYA)
- Derek Blackmore (Water Skiing)
- David Bond (South West Handliners and Professional Charter Skippers)
- Sam Davis (Cornwall Sea Fisheries Committee, representing Cornwall Local Group)
- Rod Jones (MOD)
- Andy Green (British Canoe Union)
- Jane Maddocks (British Sub Aqua Club)
- Peter Madigan (Offshore Renewables, British Wind Energy Association, later changed to Renewable UK)
- Christopher Matthews (Duchy of Cornwall)
- Paul St. Pierre (RSPB)
- Mark Russell (British Marine Aggregates Producers Association)
- Nick Russell (English Heritage)
- Richard Stride (South Coast Fishermen's Association)
- Dave Thomasson (British Spearfishing Association)
- Armand Toms (Looe Fishermen's Protection Association)
- Steve Watt (Isles of Scilly Sea Fisheries Committee, representing Isles of Scilly Local Group)
- Richard Hill (UK Cable Protection Committee)
- Dale Rodmell (NFFO)

Applications were rejected from:

- Cornwall County Council, on the basis that sufficient feedback and communication with the council was already in place.
- Terry Mann (Dive Clean), with the recommendation that he should be invited to join the Devon Local Group.
- Jean Luc Solandt (Marine Conservation Society), on the basis that conservation NGOs were already represented and that this organisation should be represented nationally⁸
- Richard White (Devon Wildlife Trusts) on the basis that the County Wildlife Trusts should attend the Local Groups⁹
- Michael Wright (Handline fisherman) on the basis that this sector was already represented by David Bond

The Project Manager was asked to undertake interviews with Mike Concannon, Paul Taylor and Mike Bailey from the recreational angling sector, and subsequently made a recommendation for the Steering Group to accept Mike Bailey and Paul Taylor.

Following the appointment of R K Partnership as process consultants they advised on a process and structure for future decisions on SG membership. First, they undertook a structured stakeholder analysis in January 2010 with the Process Group. The purpose was to see if there were any critical gaps in the Steering Group make-up and to provide a clearer rationale for decisions over new members. This analysis showed a lack of involvement from those with international influence, the Department for Energy and Climate Change (DECC), environmental campaigning NGOs and raised

⁸ As explained below, Dominic Flint joined the Steering Group in July 2010 to represent the Marine Conservation Society

⁹ As explained below, Richard White replaced Joan Edwards to represent regional Wildlife Trusts in September 2009

questions about the level of involvement of Local Authorities. Ultimately it was agreed that the Local Authorities should be encouraged to get involved through the Local Groups (see section I.3.6). A further outcome of this consideration was that a category of Named Consultative Stakeholders was established. This was done to give organisations who didn't want to commit to attending the Finding Sanctuary meetings but who were deemed to be legitimate stakeholders a way of participating in the Finding Sanctuary process. (see I.3.4 for a more detailed description of the NCS role and remit).

New applications were received for Steering Group membership throughout the formal phase of the process. As per the Steering Group Protocol, these were first considered by the Process Group (see section I.3.5), and if agreed were then put forward to the Steering Group for their endorsement or rejection. The list below details each application and the decisions that were made:

- Marinet (January 2010): Process Consultants RKP advised the Process Group that an environmental campaigning organisation was identified in the stakeholder analysis, but currently missing from the Steering Group. However, The Process Group decided not to take this advice and recommended that they should be involved in Local Groups and through the Defra consultation.
- British Chamber of Shipping (January 2010): Agreed on the basis that commercial shipping was not represented.
- British Association of Shooting and Conservation (BASC) (January 2010): Agreed, but suggested that a Named Consultative Stakeholder place should be offered.

In order to ensure consistency between the regional projects, three more sectors were invited to join the Steering Group in April 2010: the Marine and Coastguard Agency (MCA), the University of Plymouth (to represent Geology and Geomorphology) and the Marine Conservation Society. The MCA and University of Plymouth ultimately took up Named Consultative Stakeholder status (see section I.3.4), and the Marine Conservation Society took up membership of the Steering Group in July 2010 following a long discussion and ultimate endorsement by the Steering Group.

A number of membership changes (replacements) also took place over the course of the project:

- Dick Appleton was replaced by Sandie Wilson in June 2010 to represent the ports sector.
- David Bond was replaced by David Marshall in April 2010 to represent the commercial handling sector.
- Armand Toms was replaced by Paul Trebilcock in April 2010 to represent the commercial fishing sector.
- Jonet Waldock was replaced by Colin Cornish in April 2010 to represent regional economy and development.
- Peter Bartlett was replaced by Caroline Price in March 2011 to represent recreational boating.
- David Tudor was replaced by Andrew Finlay in October 2010 to represent The Crown Estate.
- Mark Layton was replaced by Dale Spree in November 2009 to represent the Professional Association of Diving Instructors.
- Peter Madigan was replaced by Paul Reynolds in October 2010 to represent the British Wind Energy Association, which also changed its name to Renewable UK.
- Joan Edwards representing the Wildlife and Countryside Link was replaced by Richard White representing the Wildlife Trusts in September 2009.

- Emma Whittlesea, representative for the tourism sector, was replaced by Malcolm Bell in January 2011
- Cheryl Hiles was replaced by Johnny Gowdy in February 2010 to represent RegenSW
- Rachel Tallon representing British Water Ski left the group in February 2010 to become a Named Consultative Stakeholder
- Richard Hill representing United Kingdom Cable Protection Committee (UKCPC) left the group in February 2010 to become a Named Consultative Stakeholder
- Tom Pickerell representing the SAGB joined the group in June 2010 and left the group in February 2011 to become a Named Consultative Stakeholder.

Following a review of the task, the time available and the number of people on the Steering Group Process consultants R K Partnership recommended the formation of Working Groups to carry out the detailed planning of the network. They also recommended the creation of a Process Group to advise on the governance and process aspects of the work. The Process Group would also reduce the amount of time that process-related issues took within the Steering Group.

I.3.3 Subgroups of the Steering Group: The Working Groups

The Inshore, Offshore and Joint Working Groups

It was recognised early on by the facilitators, project team and Steering Group members that a Steering Group of 42 members was too large a group and was not appropriately constructed (according to the RKP stakeholder analysis) for carrying out detailed planning work, engaging with complex spatial data and guidance, and having in-depth and often contentious discussions that ultimately needed to be constructive in producing a recommended network configuration. Two small subgroups were therefore formed from within the Steering Group, whose task it was to meet much more frequently and carry out detailed deliberations and planning work. One focussed on planning within 12nm of the coast (the Inshore Working Group or IWG), and the other planned beyond 12nm (the Offshore Working Group or OWG). The Working Groups met every 4-6 weeks from March to December 2010.

In December 2010, the two groups merged to form the Joint Working Group (JWG), in order to combine the detailed planning work from each WG into a more holistic regional MCZ network. The Joint Working Group met six times, from December 2010 to June 2011 of which three occasions were two-day meetings.

Working Group formation and membership

The concept of the Working Groups was introduced at and agreed to at the November 2009 Steering Group meeting. With advice from the facilitator, the Process Group subsequently developed criteria for Working Group membership at their meeting in January 2010. The key criteria were that the Working Groups would be made up of Steering Group members, have a maximum of 10 people, and be cross-sectoral, maintaining a balance of interests similar to that of the wider Steering Group as far as possible.

At the Steering Group meeting in February 2010 SG members were asked to put themselves forward for membership of the two Working Groups. This resulted in the following nominations:

Inshore: Keith Bower (enforcement), Mike Bailey (sea angling), Nick Russell (heritage), Peter Bartlett (recreational boating), Rick Parker (charter skippers), Emma Jackson (marine science), Paul St. Pierre (conservation NGO), The Crown Estate (owners), Dave Cuthbert (commercial fishing), John Butterwith (commercial fishing), Dale Rodmell (commercial fishing), Roger Covey (statutory conservation), Richard Stride (commercial fishing)

Offshore: Beth Stoker (statutory conservation), John Butterwith (commercial fishing), The Crown Estate (owners), Dale Rodmell (commercial fishing), Jim Portus (commercial fishing) and Julian Roberts (enforcement)

Following this Steering Group meeting, Steering Group members (including those not present at the meeting) were asked whether they wanted to make any further additions. As a result, Oliver Wragg (BWEA) registered interest in joining the inshore group and Peter Macconnell (sea angling) asked to be added to both groups. Dale Spree (recreational diving) offered help and Sam Davis (Cornwall Sea Fisheries Committee) offered input if it was needed.

The project manager then worked with the process consultant to construct and come up with the Working Group membership, using the criteria agreed by the process group as closely as possible. The following was also done:

- Since there were five fishing representatives put forward between the Offshore and Inshore Working Groups, the Project Manager made a request for them to sort out amongst themselves two representatives to sit on each of the Working Groups. Jim Portus asked for his nomination to be removed.
- Peter Macconnell and Mike Bailey agreed between themselves for Peter to take a role in the Offshore Working Group and Mike on the Inshore Working Group
- The Crown Estate had initially requested to be represented on both Working Groups, but in consultation with the Project Manager withdrew the request, as time commitment involved was significant. This was with the proviso that they would be able to review the Working Groups progress regularly, and have the opportunity to influence the work through comments and feedback.
- The Wildlife Trusts and the RSPB wanted a seat on both the Inshore and Offshore Working Groups, they agreed between themselves for the Wildlife Trusts to sit on the Inshore Working Group, and the RSPB on the Offshore Working Group.
- Peter Bartlett and Dale Spree were invited to share a place, but since no response was received from Dale Spree, Peter Bartlett was given the place to represent the recreational boating sector.
- Since enforcement agencies (Sea Fisheries Committee and Marine and Fisheries Agency) had agreed between themselves not to pro-actively putting sites forward, the Project Manager judged that it was not sensible for them to be on the Working Groups.
- British Wind Energy Association and the South West RDA agreed between themselves that Colin Cornish, an independent marine energy consultant for SWRDA could represent renewable interests as part of a broader remit to represent South West economic interests.

The final groups were constituted as follows:

Inshore Working Group:

Name	Sector
Dave Cuthbert	commercial fishing
Richard Stride	commercial fishing
Rick Parker	charter skippers
Roger Covey	statutory conservation
Richard White	conservation NGOs
Mike Bailey	recreational sea angling
Colin Cornish	regional development and economy
Peter Bartlett	recreational boating
Nick Russell	heritage
Emma Jackson/Olivia Langmead	Marine Science

Offshore Working Group

Name	Sector
Beth Stoker	statutory conservation
Rick Parker	charter skippers
Paul St. Pierre	conservation NGOs
Peter Macconnell	recreational sea angling
Colin Cornish	regional development and economy
Dale Rodmell	Offshore fishing
John Butterwith	Offshore fishing

Membership changes and substitutions

- Andrew Finlay joined the Offshore Working Group in November 2010 to represent The Crown Estate
- Peter Bartlett was replaced by Caroline Price in January 2011 to represent recreational boating
- Peter Macconnell left the Offshore Working Group in October 2010
- Rick Parker also joined the Offshore Working Group in June 2010

At the June 2010 OWG meeting, the issue of substitution arose. It was recognised that having substitutes attend Working Group meetings was not ideal, since the Working Groups met frequently and the regular members built up knowledge, trust, and working dynamics that enabled them to operate effectively. However, it was agreed in this meeting to allow a named person as a substitute, on the basis that they must be well briefed, a member of the Steering Group, and from the same sector as the person they were substituting for.

Further requests were made for substitutes, so an update to the protocol was developed by R K Partnership and presented to the Working Groups in September which stated:

1. Working group members will make every effort to attend Working Group meetings.
2. If they cannot attend a meeting, they can send someone in their place, but must comply with the following criteria:

- a. The replacement person must come from the same sector as the Working Group member that they are standing in for
- b. The replacement should be a Steering Group member. A replacement who is not a Steering Group member *can only attend if the Working Group member has established that no Steering Group member from their sector is available*
- c. The replacement must be well briefed by the Working Group member, so they are able to add value to the meeting of the Working Group and not hold it back
- d. The Working Group member must inform the Project Team of the name and contact details of the replacement person

Inviting expert witnesses

The WGs also had to address a request from some stakeholders (sectors) to bring in expert witnesses or people with more detailed knowledge of particular sites under consideration. This was referred to the Process Group who decided that as long as the whole Working Group agreed that some additional knowledge or expert input was needed then that was acceptable.

The following was added to the Steering Group protocol:

‘If the Working Group, *as a whole*, believes that the presence of one or more people, who bring particular knowledge, is needed at one of its meetings, then the Group can invite any such expert witness, (whether a Steering Group member or not), to attend a meeting. This does not mean that the person then becomes a Group member.’

At the September meeting both Working Groups agreed to use the protocol on substitutes and invitations for expert witnesses.

Other membership issues

Before the October 2010 IWG meeting, representatives had objected to Paul Trebilcock attending from Cornwall and in the meeting fishing representatives highlighted that this would delay getting useful feedback from Cornwall on the building blocks. A need was also identified for input from The Crown Estate. A suggestion was made to organise a separate experts’ day in which experts could be invited to provide information and feedback on building blocks. This was agreed and a meeting was set up for the Environment Agency, Crown Estates, Renewables sector, Ports and Harbours and Commercial fishing to attend as experts.

At the October 2010 OWG, the fishing sector requested two people to attend the next meeting as experts. An idea for an expert workshop to learn from specialists from different sectors was discounted. The group were reminded to focus on the expertise that is needed to help them make decisions. The fishing industry felt that they did not have the required knowledge of fishing activity in South Devon, Dorset or Cornwall and that having experts would allow quicker decisions. A particular issue was identified around obtaining wider affirmation of decisions and ensuring that those fishermen who are not able to get to meetings are not disadvantaged. The group also noted that wider meetings took place with the fishing industry to help gain this affirmation and validation and fishing representatives highlighted the importance of gaining buy-in from their sector. Some members of the group remained concerned that having new fishing experts join the next meeting

would upset the dynamics and working relationships, so a decision was made for the OWG to offer to attend the next fisheries meeting.

The application from Jim Portus to join the Offshore Working Group was considered, but rejected because the group felt it was at too late a stage in their work and they judged it to be a risk to the existing group dynamics as well as his lack of understanding of other sectoral needs.

I.3.4 Named Consultative Stakeholders

Named Consultative Stakeholder (NCS) status was devised by the process consultant, RK Partnership, and introduced to the Process Group (see section I.3.4) in January 2010. The basis for this new status was to accommodate organisations and individuals who had been invited onto the Steering Group, but for different reasons chose not to take up their place. With membership of the Steering Group strictly limited, it was also a useful secondary status for those organisations which were not granted Steering Group membership. With this status, stakeholders were able to provide information to the Steering Group, and comment on work emerging from the Steering Group, but they had no direct participation in the network design process.

The NCS status was adopted by the Steering Group at a meeting in February 2010. Places were immediately offered to British Water Ski and the UK Cable Protection Committee, since they had already indicated that they would prefer a more consultative role. The British Association of Shooting and Conservation also subsequently opted to take up this status. Further applications were subsequently accepted from:

- EDF Energy (July 2010)
- Trinity House (August 2010)
- Marine and Coastguard Agency (September 2010)
- MPA Coalition (September 2010)
- Comité National des Pêches Maritimes et des Elevages Marins (October 2010)
- Irish South and West Fish Producers Organisation (October 2010)
- Pêcheurs de Manche et d'Atlantique (October 2010)
- Rederscentrale (November 2011)
- Angling Trust (December 2011)
- Cruising Association (January 2011)
- Surfers Against Sewage (February 2011)
- Pelagic Regional Advisory Council (February 2011)
- Cornwall Council (March 2011)
- The British Marine Federation's application for Steering Group membership was turned down, but they agreed to take up NCS status. (September 2010)
- Plymouth University School of Geography, Earth & Environmental Sciences application for Steering Group membership was turned down, but they agreed to take up NCS status. (April 2010)
- The Shellfish Association of Great Britain transferred from Steering Group to NCS status in February 2011

No NCS applications were rejected.

I.3.5 Process Group

Process Group Role

The Process Group had responsibility for process governance and was established as a way of delegating the responsibility for detailed process discussions away from the full Steering Group. This helped to reduce the amount of time that the Steering Group had to spend on process matters, freeing up time for MPA network design discussions at the Steering Group (and Working Group) meetings. The Process Group was set up in September 2009. Over the course of the project, it met regularly to guide the overall process, assist in planning Steering Group meetings and consider issues such as membership and Steering Group member conduct.

Process Group Membership

The membership comprised four Steering Group members from different sectors, three Project team members and the project's main facilitator, Rob Angell. The selection of Process Group members was made by the Project Manager and facilitator with the aim of including members who were judged to be committed to trying to make the process work, knowledgeable and representative of different sectoral interests.

- From the Steering Group the membership consisted of: Richard White (Wildlife Trusts, Conservation), Andy Green (British Canoe Union, Recreation), Dick Appleton (Poole Harbour Commissioners, Commercial), Jim Masters (Devon Maritime Forum, Local Groups).
- From the Project Team the membership consisted of: Tom Hooper (Project Manager), Louise Lieberknecht (MPA Planner), David Murphy (Devon Liaison Officer)
- From RKP: Rob Angell.

There were some changes to this membership: in January 2010 Spike Searle replaced David Murphy, in July 2010 Rick Parker replaced Andy Green, and Dave Cuthbert joined in July 2010 to shadow Dick Appleton who left in October.

Process Group meetings were held on 18th January 2010, 19th April 2010, 9th July 2010, 17th September 2010, 17th January 2011, and 5th April 2011.

I.3.6 Local Groups

Role of Local Groups

Local MCZ Groups were set up to ensure that Finding Sanctuary was able to operate effectively and engage at a scale that was meaningful to local stakeholders, and to ensure that local perspectives could be heard when the regional network was being shaped. They were also intended to help ensure that Finding Sanctuary had access to local ecological data, and other spatial data where relevant, such as estuary management plans.

Local Groups operated in both a proactive and reactive capacity: They provided site suggestions to the regional Steering Group, and they also reviewed the regional Steering Group's progress and provided feedback on the developing recommendations from a local perspective. Each local group was managed by a co-ordinator who worked in close collaboration with the Finding Sanctuary project team to organise meetings. The Local Group co-ordinators also sat on the regional Steering Group, to ensure effective two-way communications between the local and regional levels. Process

consultants R K Partnership joined the project after the role of the Local Groups had already been established. Their advice was that the role of the Local Groups should have been better defined to ensure it was crystal clear that the Steering Group was the decision taker and that the Local Groups could feed back on the Steering Group's work, but could not override it.

Formation of Local Groups

There were five Local Groups in total: Dorset, Devon, Somerset, Cornwall, and the Isles of Scilly. With the exception of Cornwall which already had an MPA group in existence, the groups were set up by Finding Sanctuary in collaboration with a local partner. Financial, administrative and technical support was provided by Finding Sanctuary. A planning meeting was organised with co-ordinators in November 2009 and a two-day training course in organising and running stakeholder meetings was designed and run by R K Partnership in February 2010. The purpose was to support the LG coordinators run more participative meetings and help them with approaches to group decision making so that the LGs were mirroring what was being done at the regional level.

The Cornwall MPA group was co-ordinated by Sam Davis at the Cornwall Sea Fisheries Committee. The remaining Local Groups were set up through autumn 2009 and were organised and co-ordinated as follows:

- Devon: co-ordinated by Jim Masters, Devon Maritime Forum
- Dorset: co-ordinated by Bridget Betts, Dorset Coast Forum
- Isles of Scilly: co-ordinated by Steve Watt, Isles of Scilly Sea Fisheries Committee
- Somerset: co-ordinated by Martin Syvret, Finding Sanctuary (on behalf of Jim Barnard)

A Terms of Reference for the Local Groups was written by Finding Sanctuary which set explained the role of the groups and how they should operate. In terms of membership, the aim was to establish a balanced and representative membership of stakeholders who have excellent knowledge of their sector and area. When Local Group membership was considered, the presumption was one of inclusion, since the aim was to bring a wide range of knowledge and experience to the group, in order to achieve a better outcome both from a local and a regional perspective. Public calls were made within the Devon Maritime Forum and Dorset Coast Forum and local media for stakeholders to join the Local Groups, and membership selection was undertaken jointly by each co-ordinator and the respective Finding Sanctuary liaison officer to ensure that all sectors and associations were adequately represented.

The Dorset Local Group

The Dorset MCZ Group was co-ordinated and managed by the Dorset Coast Forum through their permanent co-ordinator, Bridget Betts with support from the Finding Sanctuary Dorset Liaison Officer John Weinberg and GIS and Planning Specialist Alana Murphy. The group was set up in September 2009, specifically to carry out the MCZ work under Finding Sanctuary. New members were allowed to join half way through when there was not sufficient representation on the group to reflect these new members' concerns. The full membership list and organisations involved is detailed in Appendix 2

Meeting dates: 7th December 2009, 27th January 2010, 13th May 2010, 30th September 2010, 25th January 2011 and 17th February 2011

The Devon Local Group

The Devon MCZ Group was co-ordinated and managed by the Devon Maritime Forum through their permanent co-ordinator, Jim Masters with support from the Finding Sanctuary Devon Liaison Officer David Murphy and GIS and Planning Specialist Alana Murphy. The group was set up in September 2009 specifically to carry out the MCZ work under Finding Sanctuary. The full membership list and organisations involved is detailed in Appendix 2.

Meeting dates: 7th December 2009, 26th February 2010, 5th July 2010, 28th September 2010 and 1st February 2011

The Cornwall Local Group

The Cornwall MPA Group was first formed in 2004, although the membership at this stage was predominantly from the conservation sectors. The group was organised and hosted through the Environment Service of Cornwall County Council. The group was reconstituted in January 2007 and hosted by Cornwall Sea Fisheries Committee (later to become Cornwall IFCA). The membership was further expanded in March 2009 in recognition of the need to involve a wider range of sectors in the Finding Sanctuary process. The group was chaired by County Councillor, Nigel Walker and the co-ordinator and Steering Group representative was Sam Davis. Support was provided by Finding Sanctuary Cornwall and Isles of Scilly Liaison Officer Spike Searle and GIS and Planning Specialist Alana Murphy. The full membership list and organisations involved is detailed in Appendix 2.

Meeting dates: 13th April 2010, 8th July 2010, 29th September 2010, 10th November 2010, 20th January 2011 and 17th February 2011

The Isles of Scilly Local Group

The Isles of Scilly MCZ group was set up on 8th October 2009 and the first meeting was on the 11th January 2010. The group was hosted by the Isles of Scilly Sea Fisheries committee (later to become the Isles of Scilly IFCA). The group is co-ordinated by Chief Fisheries Officer Steve Watt and Chaired by Mike Hicks. The membership was selected by Steve Watt based on the criteria established by Finding Sanctuary. Support was provided by Cornwall and Isles of Scilly Liaison Officer Spike Searle and GIS and Planning Specialist Alana Murphy. The Isles of Scilly had previously been a member of the Cornwall MPA group, although attendance had always proved problematic because of the travel involved. The full membership list and organisations involved is detailed in Appendix 2.

Meeting dates: 11th January 2010, 26th March 2010, 16th June 2010, 4th August 2010, 16th November 2010, 26th January 2011, 13th April 2011, 27th April 2011

Somerset

The Somerset MCZ Group was set up and co-ordinated by Finding Sanctuary liaison officer, Martin Syvret with assistance from Finding Sanctuary GIS and Planning Specialist Alana Murphy. The full membership list and organisations involved is detailed in Appendix 2.

Meeting dates: 1st February 2010, 22nd April 2010, 29th Jul 2010, 27th Sep 2010, 12th Jan 2011

I.3.7 Project Team

The Project Team provided support to the decision-making process through the provision of data, communications and stakeholder outreach. The team was built up through the process as the need arose, and as funds were secured. The team (detailed in Appendix 3) remained in place through the formal phase of the project, and roles they were provided were as follows:

Stakeholder support

- Organising and preparing for planning meetings
- Responding to general process enquiries,
- Managing criticism and other feedback for the process
- Organising membership changes
- Supporting sector specific meetings such as those run by the South West fishing industry for which tables and maps were produced.

GIS and planning support:

- Sourcing and processing of relevant spatial data,
- Support of the FisherMap (Fishing activity mapping) and StakMap (Leisure activity mapping) projects (see section I.5.4),
- Development and management of stakeholder databases linked to the FisherMap and StakMap projects
- Preparation of a regional profile showing maps of ecological and socio-economic information for the region
- Preparation of hard copy and interactive maps for stakeholders to use during planning meetings Preparation of initial MCZ site options (referred to as focus areas and building blocks) in line with the ENG
- Digitising stakeholder site suggestions and updating maps of the developing network configuration following planning meetings
- Writing up of meeting records, development of network statistics and data reporting
- Development of ENG-related statistical feedback tools for use during planning meetings
- Preparation of progress reports, final report and presentations to the SAP

Liaison

- Collecting spatial activity data from fishing and recreational stakeholders at a club and individual level (FisherMap and StakMap – see section I.5.4)
- Communicating with stakeholders to ensure they were aware of the project and its progress, feeding back communications to the project team, supporting local and regional stakeholder group work

Communications

- Using web sites, forums and news media to ensure awareness of the project
- Help stakeholders communicate with their constituents
- Ensure co-ordination between other regional MCZ projects and within the national MCZ project

Impact Assessment

- Development of the Impact Assessment to communicate what the likely economic, environmental and social consequences of the recommended MCZs will be
- Development of financial models for fisheries impacts
- Meetings with stakeholders to check facts and figures

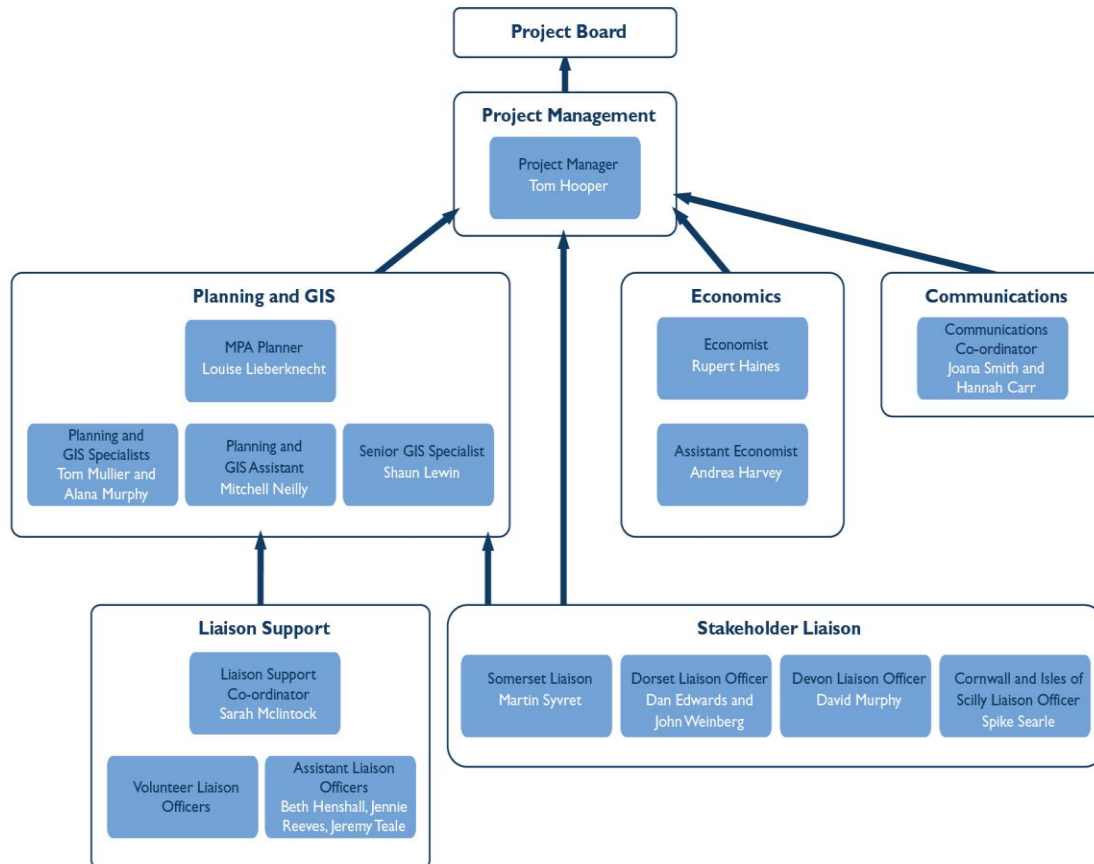


Figure 3: The Finding Sanctuary Project Team

I.3.8 Facilitators

Rob Angell from R K Partnership, together with two associates, Lynn Wetenhall and Jim Welch provided professional advice on the organisation and management of the overall process, to enable stakeholders to work effectively. This included providing advice on the sequence, number, participation and style of meetings to ensure that the work was completed on time. For each planning meeting (i.e. Working Group and Steering Group meeting), the facilitator worked in collaboration with the project team to design the agenda, to define the main tasks of the meeting, and determine the materials that would be needed to achieve the task.

The facilitator designed each stakeholder planning meeting in detail and then facilitated each of these deliberative sessions. His responsibility was to help stakeholders achieve the objectives of the meeting, guiding participants through the agenda, facilitating discussions and negotiations, and helping to ensure that any issues that arose were dealt with collaboratively and constructively.

The facilitator provided advice on process issues that arose within the project, to ensure that it maintained its integrity and impartiality. For example, there were questions over how to address specific dilemmas / disagreements that arose during the process, such as that of locating MCZs with offshore wind farms. The facilitator's advice meant that this was tackled both within and outside the deliberative sessions. Other examples included when to pass on information to stakeholders; and what information they would need in order to consider the issues at hand and therefore make informed choices or recommendations and; how to deal with the need for expert input to the deliberative sessions.



Figure 4: The relationships and role of the key regional stakeholder groups

I.4 Finding Sanctuary's remit, deliverables and key milestones

I.4.1 The Project Remit

When Finding Sanctuary was formalised through 2009, the national project partners drafted the Project Delivery Guidance (PDG), which set out the formal requirements of the project. A draft of the Project Delivery Guidance was initially released to the MCZ Technical Support Group in March 2009 and an updated working draft in September 2009. The final draft was produced in March 2010 and the final document published in July 2010. At that stage, the regional projects were required to develop and submit:

- recommendations for the locations and boundaries of MCZs, in line with the Ecological Network Guidance (which was yet to be written, a draft was available to stakeholders from March 2010 and final version signed off in June 2010), and
- recommendations for MCZ conservation objectives, in line with the Conservation Objective Guidance (which was yet to be written, a draft was initially released to the regional projects in September 2010 and the final version signed off in January 2011).

Regional projects were, at that stage, not to have any role in recommending or defining the management of human activities within recommended MCZs. The definition of management measures was to be the sole remit of responsible authorities (such as the Marine Management Organisation which was to be established in April 2010 and the Inshore Fisheries and Conservation Authorities which were to be established in April 2011), with advice from the SNCBs on which activities would require management in order to achieve the conservation objectives. The SNCBs were to work on their management advice in parallel to the work of the regional projects.

The requirement for an Impact Assessment to be delivered on the regional MCZ recommendations was made clear during the formalisation of the project in 2009. The Impact Assessment is an analysis of the likely costs and benefits of putting the MCZ recommendations in place. At the time of writing, the project plan foresees the impact assessment to be delivered as a separate report in January 2012. It is not possible to write a meaningful Impact Assessment without having a clear understanding of which activities will need to be restricted in what ways within MCZs. Stakeholder representatives had also been seeking clarity on this same issue, right from their earliest involvement in the project.

In May 2010, the remit of the projects was extended, allowing the regional projects to submit recommendations for management measures within MCZs (this is reflected in the final version of the Process Delivery Guidance, published in June 2010). The term 'management measures' strictly referred to the mechanism by which activity restrictions would be put in place, e.g. voluntary measures or byelaws (see appendix 12). In order to develop recommendations for management measures, as a preceding step it would have been necessary to clarify which activities would need restricting in what ways. However, it was not possible to reach clarity on what activities would need restricting within the time available, in part due to the complexities of the vulnerability assessment process required in the COG (see section I.9). Therefore, at the time of writing this report, Finding Sanctuary has not made specific recommendations for management measures. For a small number of sites, specific recommendations are made on what activities should be restricted in what ways, and in some cases, stakeholders have commented on what measures they consider might be appropriate (this is detailed in the site reports in part II, e.g. for Skerries Bank and surrounds rMCZ, Bideford to Foreland Point rMCZ, Isles of Scilly Sites rMCZ, and Torbay rMCZ).

Finding Sanctuary did, however, successfully complete its original remit, which was to recommend MCZ locations, boundaries and draft conservation objectives (see part II).

Several national MCZ project guidance documents were provided to regional projects, some of which were keys to achieving progress. In particular, the Ecological Network Guidance was of fundamental importance in the planning process, because it defined the task of the regional stakeholder groups in a manner that was clear and unambiguous. The stakeholder process would not have been able to function without the ENG and its simple, pragmatic, quantitative rules. Another guidance document referred to throughout this report is the Conservation Objective Guidance or COG (see section I.9.1). Some of the most important national guidance documents are discussed in a bit more detail in section I.7 and I.9 in the context of the timing of their delivery and how that affected planning, but no exhaustive list is provided in this report (an inventory completed by the national MCZ project partners in spring 2011 listed 59 different guidance documents and factsheets).

I.4.2 The Finding Sanctuary planning region

The Project Delivery Guidance states that ‘the scale of all four regional projects was chosen to reflect the ecological, social, economic and political differences between regional seas in England.’

At the start of the project’s pilot phase, Finding Sanctuary’s planning region (often referred to as ‘study area’) was defined to include coastline of the counties of Dorset, Devon and Cornwall, the surrounding territorial sea, and the UK Continental Shelf area beyond the 12 nautical mile limit, as far as the continental shelf break. The northern limit was drawn at the boundary between two JNCC regional seas, The Western Channel and Celtic Sea, and the Irish Sea. The north-western boundary was defined along the Welsh 12 nautical mile limit, and median line in the Bristol Channel.

When the project was formalised, and the partnership expanded, the project planning area was extended in the north-east, to include the shoreline of Somerset and North Somerset as far as Avonmouth, and the sea beyond as far as the median line with Wales. The Severn Estuary beyond Avonmouth was not included, as it is already protected under several designations.

During the project pilot phase, the landward baseline was defined as the high water mark (i.e. intertidal areas were included in the planning region). For practical purposes, the Ordnance Survey Boundary-Line mean high water mark was used to map the landward boundary, as this is a detailed coastline suitable for mapping at relatively close scale (1:10,000). At the time, a key consideration was that the licence fee for this GIS baseline was affordable, compared to purchasing a licence for OS MasterMap (Boundary-Line is now freely available as part of the OS OpenData products).

The requirements under the Marine Act are that the potential areas for MCZs extend up to the limit of saline intrusion. However, for all practical purposes, OS Boundary-Line mean high water continued to be used as the project’s GIS baseline.

The final planning area covered a total area of 93,000km², abutting the Balanced Seas MCZ project on the Hampshire border, and the Irish Sea Conservation Zones Project in the north.

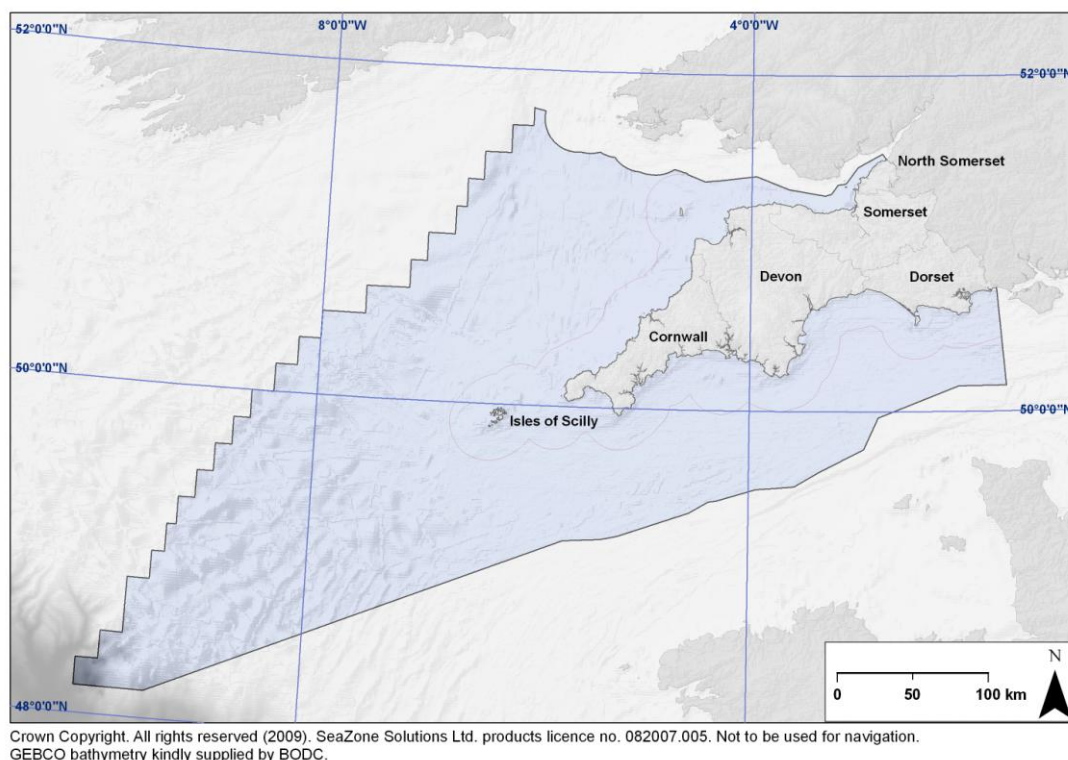


Figure 5: The Finding Sanctuary planning area

The area covered is a shallow productive shelf sea, with depths generally no deeper than 200m. Most of the offshore seafloor is covered in sediments, ranging from areas of coarse gravel and sand to muddy sediment, with some notable areas of rocky reef outcrops, such as Haig Fras.

There is a diverse and complex coastline of approximately 1500km. The southern coast is deeply indented, with numerous shallow, sheltered estuaries and mudflats, including many areas of importance for birds. There are different types of estuaries present, including shallow sandy estuaries and deep rias (drowned river valleys) with rocky shorelines. The northern coastline is more exposed, with rocky cliffs and sandy surf beaches. In the west and north, the coastline is exposed to the full force of Atlantic swells.

In the Atlantic Ocean, the tidal streams are very weak, but as they reach the shallower areas of the European continental shelf, their magnitude increases greatly. The coastline of the planning area is macrotidal, with strong tidal streams in many areas. Most of the area is characterised by well-mixed waters, due to shallow waters and tidal mixing. Seasonal tidal fronts form between tidally mixed and thermally stratified waters in the summer months, these frontal systems run through the study region from north to south and are characterised by high pelagic productivity.

The waters off south west England are strongly influenced by the North Atlantic Drift, which starts out as the Gulf Stream in the Caribbean, and brings warm waters and oceanic species to the study region. Lying at the junction of the English Channel, Irish Sea and the Atlantic Ocean, the seas off South West England straddle a biogeographic boundary, with both cold water Boreal species, and warmer water Lusitanian species present. As such, this region is of exceptional natural biodiversity, and is therefore considered a marine biodiversity hotspot.

Many species of conservation importance use this area for part or all of their life, including a number of cetacean species and rare and vulnerable invertebrates. The varied coastline provides nesting habitat for a number of seabird species. There are also areas of rare and important habitats such as maërl and seagrass beds, as well as excellent examples of broad-scale habitats representative of the UK seas, such as submerged rocky reefs supporting rich epifaunal communities, sand banks and gravel patches.

1.4.3 Key Milestones: Planning Iterations

The planning process of all four regional projects was iterative, with three main planning iterations. At the end of each planning iteration, regional projects produced a progress report to the Science Advisory Panel (SAP). The SAP provided feedback to the regional projects following each progress report, and this feedback was integrated into subsequent planning discussions with stakeholder representatives. The aim of this iterative planning approach was to allow iterative improvements to be made to the design of the network, through the integration of regular scientific review and feedback.

The iteration deadlines were as follows:

- Progress report 1: June 30th, 2010
- Progress report 2: October 29th, 2010
- Progress report 3: February 28th, 2011

Finding Sanctuary delivered all three progress reports on time, and made them all publically available via the project's website. This helped ensure transparency, as the progress reports presented a comprehensive overview of the work done by Finding Sanctuary up to those points in time. Named Consultative Stakeholders had the opportunity to feed back after each progress report.

As the deadlines for the progress report were the same for all four projects, it allowed a national-scale review of the developing recommendations to be undertaken by the SAP, as well as giving an opportunity for national stakeholders, national project partners, and Government departments (Defra and DECC) to review progress and provide feedback.

Following the three progress reports, all four projects were required to submit draft final recommendations to the SAP on June 1st, 2011. The work period between the third progress report and the draft final recommendations was regarded by some as a fourth planning iteration, because as with the progress reports, the SAP reviewed the draft final reports and provided feedback to the regional projects. However, it was not intended to be a fourth iteration, as the aim was to complete the planning of the network configuration in time for the draft final report. Finding Sanctuary published its draft final report on time, and did not carry out further boundary modifications after June 2011 (although a boundary modification was still discussed at this stage for one site, Skerries Bank and Surrounds rMCZ).

When the iterative process was initially planned, the intention was for the iterations to run in sequence, i.e. for each regional project to hold a series of stakeholder planning meetings, followed by the writing of the progress report, followed by SAP feedback, followed by another round of stakeholder meetings in the run-up to the next progress report. However, the three planning iterations got compressed into a short space of time at the end of the national MCZ project, in part due to delays in the delivery of key datasets, and key guidance such as the ENG.

Within Finding Sanctuary, each iteration consisted of a series of Working Group meetings, followed by a full Steering Group meeting at which the Steering Group reviewed and commented on the Working Group's progress. Because the project team needed time to write up the progress reports, we scheduled the Steering Group meetings to be at least three weeks before each SAP submission deadline. Following

the SAP deadlines, the SAP then needed a month to review the material and provide feedback to all four regional projects.

If the iterations were to have run in sequence, we would have needed to allow almost two months of time following each Steering Group meeting before starting the next round of Working Group meetings, as that is how long it took before the SAP feedback from the previous iteration became available. Given that the SAP deadlines were only 4 months apart, and we needed time to write up in advance of each deadline, running the iterations in sequence would only have left us with about a month's worth of time per iteration for stakeholder meetings. This would not have given stakeholders nearly enough time to complete their task, so the only way to get the work done was to allow the iterations to overlap in time. As a consequence, at the same time that each iteration was being written up into a progress report, the first Working Group meetings for the subsequent planning iteration were already taking place. This meant that the progress reports lagged behind the stakeholder work, and that SAP feedback from the previous iteration became available towards the end of the meeting series for the next iteration.

This put a lot of pressure on the project team, who had to support an ongoing series of planning meetings in parallel to producing progress reports of increasing length and complexity as the iterations progressed towards the draft final recommendations in June 2011. The top priority was always to support the ongoing planning meetings with stakeholders, in order to maximise the progress in each individual planning meeting, and achieve the best quality outcome possible at the end of the project.

Following the submission of each progress report, the MPA planner presented the project's progress directly to the SAP, which was an opportunity to provide a verbal update on initial progress that had already been made within the next planning iteration that had started while the progress report was being written.

I.4.4 Format of deliverables

At the start of the first planning iteration, cross-regional discussions were held to ensure some basic consistency in the format and content of the four projects' progress reports, especially with respect to the ENG-related statistics presented for the developing network configurations. These discussions continued through the second and third planning iterations, aiming to ensure basic consistency in content of the progress reports between the four regional projects, if not identical format.

In September 2010, the Finding Sanctuary Project Team and facilitator introduced a framework for what the materials in the project's final submission would look like, including the elements covered in this final report. It set out the two main parts of the final recommendations, the network report and the site report series (which are now both in part II). It highlighted the structure of the stakeholder narrative that would accompany the final recommendations (assumptions, implications, uncertainties etc. – see section I.8), as well as the content in terms of reporting ENG-related statistics (based on the cross-regional discussions for the progress reports). The aim was to deliver a final report that would build on the progress reports, so that there would be a clear thread running through the successive progress reports, the draft final report, to the final report, both in terms of the format and the content. The thinking was that this would help build ownership of the final product, as stakeholders would have a chance to become familiar with the structure and content over successive progress reports.

The project team faced a challenge when, late in the process, the SNCBs provided the regional projects with a standardised template for 'Selection Assessment Documents' (SADs), to be written up for each site in the recommendations. A draft SAD template was circulated in April 2011, and a final version on June 21st, 2011. The national SAD template required a much higher level of detail on some aspects of the

sites than we had envisaged or planned for (ecological information and scientific literature review in particular).

At the same time, the SAD structure did not encompass key aspects of our existing site reports, in particular, the stakeholder narrative. Finding Sanctuary gave stakeholders a central role in designing MCZ recommendations. This meant that it was important to capture the commentary that stakeholders provided throughout their planning discussions, and integrate it into the final recommendations. We have done this for the network and for the site reports in part II, which record assumptions, implications, uncertainties and additional comments highlighted by stakeholders.

For this reason, we did not adopt the SAD structure as a wholesale replacement of our existing site report structure, which had evolved over the course of the progress reports. Instead, we adapted the structure of our existing site reports to integrate the additional sections required in the national template, in as much as we were able to supply the extra information requested within the time available.

In order to be able to deliver the 'detailed site description', we employed a researcher at the Marine Biological Association (Esther Hughes), for a seven-week period prior to the deadline for this final report. She had access to scientific literature, and conducted a series of site-specific literature searches to write up this section for each site.

Another reason for not adopting the SAD wholesale was that we did not want to completely break the continuity with our previous reports so late in the process, although the integration of extra SAD sections made the site reports much longer and more detailed. The structure of the site reports has evolved over the course of the project. This evolution can be traced through the progress reports (published in June 2010, October 2010, and February 2011), and the draft final recommendations (published in June 2011).

I.5 Information Underpinning MCZ Planning

I.5.1 Accessing, using and presenting best available information

Having access to the best available spatial data on the region's ecology, environment, and human uses was a vital pre-requisite to being able to make good MPA network recommendations. The information presented here (and in appendix 8) is an overview of the key data that was used during the project, including a comprehensive description of the ecological data used to generate the ENG-related figures presented in part II. However, it is not a full description of every single dataset the project had access to and used over 4 ½ years. At the time of writing, the work plan for the project's wrap-up phase (following the submission of this final report) included the creation of a full project data inventory, to be supplied to the SNCBs by the end of October 2011.

The spatial information used by Finding Sanctuary came from a wide range of sources: national data gathering contracts, national stakeholders and project partners, regional stakeholders and data holders, publications, online resources, licensed data packages (e.g. SeaZone Hydrospace), and Finding Sanctuary's own research (FisherMap and StakMap).

In the early stages of the formal phase, the project team created a regional profile of maps and accompanying notes, aiming to display all spatial datasets the project team had access to. The regional profile was created to be much more than a data inventory. Its purpose was to make the process transparent, and to enable people coming into the process with different knowledge bases to have access to the same information. It was intended to be a resource that stakeholders could refer to

throughout their work, a folder of good-quality, visually intuitive maps with explanatory notes that would make the information accessible to the stakeholders who participated in the planning process.

However, keeping the regional profile fully updated throughout the process ultimately proved to be a task that would have placed too large workload on the project team, due to the volume of information available, the frequency of data updates, the variation in spatial scales between individual data sets, and the sheer number of maps that had to be created in order to present the information clearly (the last version of the regional profile, produced in June 2010, filled an A4 lever arch file to the point of structural failure). More importantly, it became clear that a huge lever arch file was not the most practical tool for stakeholder representatives to use during their meetings.

The regional profile was, therefore, no longer updated after June 2010. Instead, the project team switched to creating large (A2-format) hard-copy maps, as well as on-screen interactive PDF maps, for use during stakeholder meetings. Instead of attempting to map out a full inventory of all information held by the project team, the mapping work was prioritised, based on what key data updates were available at each point, the overall significance of datasets to the ENG and to stakeholder interests, and the importance of a given dataset to the specific tasks carried out at each meeting. Keeping to our principle of transparency, the maps created for each meeting were made available to stakeholder representatives and the Science Advisory Panel, in electronic form for download. When it was reasonably within the project team's capacity to do so, hard copy maps were also provided – in some cases, with bespoke modifications (e.g. displaying a specific combination of datasets) carried out for particular groups or individuals.

1.5.2 Ecological and Environmental Data

At the beginning of the pilot phase, the MPA planner devoted time and effort to accessing and collating environmental spatial information, from regional and national stakeholders and data holders. Some key datasets were accessed at the time, such as UKSeaMap modelled seabed habitat data, and the Marine Recorder benthic survey database, both supplied by the JNCC. Some regional datasets (from local records centres, amongst others) were also obtained.

However, initial data gathering proved difficult, due in part to the fact that the project was new at the time, and had no official mandate (which made it harder to approach data owners for access to their information). These difficulties were not unique to Finding Sanctuary: it has been widely recognised for some time that it can be difficult to gain access to comprehensive marine spatial datasets, as they are held by a large number of different organisations, often subject to costly licensing, and are not always well organised or have clear metadata. Over recent years efforts have been made to make marine data more accessible, e.g. through [MEDIN](http://www.oceannet.org/)¹⁰.

In late 2008, it was becoming clear that Finding Sanctuary was heading towards being given a formal role in developing MCZ recommendations. The Marine and Coastal Access Act (then referred to as the Marine Bill, as it had not yet been enacted) was under discussion and development, including its provisions for MCZs and wider marine spatial planning (MSP) – both of which would rely on spatial data being available. There was a recognition within Defra and the SNCBs that efforts to collect existing spatial datasets would most efficiently be carried out nationally, not only to support MPA planning, but also to support wider MSP under the new legislation.

As a result, several national data gathering contracts were funded by Defra. The aim was to deliver consistent, quality assured, best available information to all four regional projects. The main biophysical data layers contract was contract MB102, which was delivered by a consortium of organisations

¹⁰ <http://www.oceannet.org/>

managed by ABPmer. MB102 ran from October 2008 through to 2011, delivering data on geological and geomorphological features, biodiversity, and the distribution of habitats and species of conservation importance. It also delivered the sensitivity matrices referred to in section I.9. Full details of the contract, and the information it delivered at what points, can be found on Defra's website (here is a [direct link](#)¹¹).

There were two additional national environmental data gathering contracts. One was contract MB103, through which the British Geological Survey were tasked with updating their information on the distribution of rocky seafloor habitat. The updated rocky seafloor information was delivered early in 2009, and fed into subsequent updates of the JNCC's EUNIS level 3 habitat data (see paragraph below). The second was contract MB5301, which gathered data on spawning areas and nursery grounds for mobile species (including commercial fish). The final information was delivered in July 2010, and was very coarse-scale, so it had no direct bearing on the planning of the MCZ recommendations.

In order to avoid duplication of effort, Finding Sanctuary's project team scaled down its efforts to collate existing ecological datasets, while the national data layers work was ongoing. Once some of the key datasets had been delivered, these were cross-referenced with the information on the distribution of features of conservation importance that had already been collected during the pilot stage. Towards the end of 2010, additional information was provided regionally by Local Records Centres, local stakeholders, and the Wildlife Trusts. Our final datasets on species and habitats of conservation importance therefore consisted of an amalgamation of MB102 data and regional data, although most of it came from MB102. Appendix 8 gives a detailed account of the data sources used during the planning discussions, and to calculate the ENG-related statistics in part II.

One dataset that has been of key importance in Finding Sanctuary's planning work has been the EUNIS level 3 broad-scale habitats dataset. Most of this did not come from MB102, but was instead provided directly by the JNCC to all four regional projects. This initially consisted of survey data from the MESH project¹², and modelled data from the JNCC's UKSeaMap project, covering the entire study region except for the intertidal area. Later, data for the intertidal area was added, and this did come through MB102. Over the course of the project (from the pilot stage onwards), the combined EUNIS level 3 dataset underwent several updates and reviews, with improvements made to the UKSeaMap model and its underlying data - this meant that the final version of the data was much improved from the data that we initially had available in 2007. The final combined MESH / UKSeaMap dataset was made available by the JNCC in December 2010. Finding Sanctuary obtained additional high-quality intertidal survey data from the Environment Agency. This information was better quality than the intertidal data supplied through MB102, so we amalgamated the EA data with the combined data provided by the JNCC. Appendix 8 gives more details.

I.5.3 Existing socio-economic spatial data

Finding Sanctuary gathered existing socio-economic datasets from a range of sources. The following list gives examples, but is not exhaustive:

- At the start of the pilot phase, a licence for the SeaZone Hydrosatial data package was acquired, which gave us access to UKHO chart data in a GIS vector format. This provided us with our necessary base map information, including some information on human activities and their existing spatial management (e.g. shipping lanes, anchorages, danger areas, licensed disposal areas, MoD practice and exercise areas, Harbour authority jurisdictions). These data sets often

¹¹

<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=16368&FromSearch=Y&Publisher=1&SearchText=accessing&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>

¹² Mapping European Seabed Habitats –see <http://www.searchmesh.net/>

provided the basis for further research; for example, the MoD data supplied by the UKHO was used to define the spatial extent of MoD activities – information that had been collected in collaboration with the MoD.

- Boundaries of existing protected areas were obtained from the SNCBs, including via their websites.
- Data on protected wrecks was compiled from data supplied by English Heritage and data on the Maritime and Coastguard Agency website.
- Boundaries of existing fisheries byelaws and voluntary fishing agreements were compiled from information in the 2009 NFFO yearbook, information on Sea Fisheries Committee (now IFCA) websites, and personal communications with the SFCs, Environment Agency and the North Devon Fishermen's Association.
- The location of submarine cable routes was supplied by Kingfisher as part of the Kingfisher Cable Awareness (KIS-CA) charts, with additional information provided directly by The Crown Estate.
- Renewable energy resource distribution information from the Atlas of UK Marine Renewable Energy Resources¹³, and ORRAD indicative potential development areas (PMSS, 2010).
- License areas for renewable power generation, aggregate extraction and aquaculture supplied by The Crown Estate.
- Coastal defence and consented discharge locations supplied by the Environment Agency.

There was also a national contract (MB106) set up to collect socio-economic data layers, alongside the contracts that delivered environmental data which are described above. The most significant data layers that this contract delivered were offshore fishing activity maps produced from Vessel Monitoring (VMS) data, for UK and EU fishing vessels.

I.5.4 Gathering human activity data from stakeholders: FisherMap and StakMap

FisherMap

The project identified a gap in the availability of spatial activity data for fishing and recreational activities. This gave rise to the FisherMap project, and, subsequently, the StakMap project, which set out to collect and map this information through carrying out interviews with fishermen and recreational stakeholders.

Gathering information about human use of the sea directly from stakeholders is an approach that has been used in the context of MPA planning in North America (see Ecotrust's work with Open OceanMap¹⁴). Finding Sanctuary developed the FisherMap project, based on a similar concept of interviewing fishermen about which areas they use, getting them to draw those areas on charts, for digitisation and subsequent GIS analysis.

Work on FisherMap began in October 2007, initially funded by the Financial Instrument for Fisheries Guidance (FIG, now the European Fisheries Fund), the Defra Challenge Fund, the South West RDA, Natural England and Cornwall Council. It focussed on mapping fishing activity in Dorset and North Devon. A consultant from University College London, Dr Sophie des Clers was contracted to advise on the design of the research, including the design of the questionnaire. Liaison officers with a fishing background were recruited to build up links with the fishing industry and to collect information using the questionnaire and base maps. A GIS officer was also recruited to support this work through the production of maps, the digitising of the information provided by interviewees, and the design of a

¹³ <http://www.renewables-atlas.info/>

¹⁴ <http://www.ecotrust.org/ocean/OpenOceanMap.html>

database that could act both as a storage medium and as a data capture tool. A report on the initial work in Devon and Dorset was published in November 2008 (*des Clers et al., 2008*).

The report marked the end of an initial phase of the work, during which the technique was piloted and demonstrated to be effective. Following the publication of the report, the FisherMap questionnaire was modified, with an improved fishing gear classification system. The work continued in Devon and Dorset, using the updated questionnaire, until February 2010.

At the end of 2009, the other three regional projects had become established, and Finding Sanctuary's stakeholder mapping work was adopted nationally. This led to a series of discussions about how the existing technique might be improved and standardised across the regions. These discussions continued until February 2010, when a standardised questionnaire was implemented across all four projects. Over this transition period, Finding Sanctuary's GIS officer supported the national process through the creation of a national data collection tool and database structure for use by all four regional projects.

The standardised national FisherMap questionnaire included questions about earnings, as well as Finding Sanctuary's original questions, which were solely aimed at mapping the spatial footprints of inshore gear types, and relative intensities of usage. These new economic questions were never used by Finding Sanctuary, because the liaison officers considered them to be off-putting to interviewees, and did not trust that the information that might be received would be any more reliable than existing economic figures (landings statistics) held by the MFA (now MMO). Instead, the liaison officers continued to focus on the questions that had previously been included on the FisherMap questionnaires. The other three regional projects had mixed experiences with the economics questions. Ultimately, Defra gave a steer to regional project economists to use official MMO landings statistics for their Impact Assessment.

FisherMap interviews continued until October 2010. A total of 262 interviews were held, representing 320 fishing vessels number of vessels (approximately 30% of the Devon and Dorset fleet under 15m LOA).

Fisheries data in Cornwall was collected by the CFPO as part of a Defra funded project that mirrored FisherMap. The approach in Cornwall was more rudimentary and did not allow for mapping of activity and gear type, was of a coarser scale and only included the inshore area. Although Finding Sanctuary's Cornwall Liaison Officer worked with the CFPO to gather this information, on the basis that the data would be shared with Finding Sanctuary, data was not handed over until July 2010. It was limited to three classes of activity: static, mobile and all. There was no information on individual boat activity or home ports surveyed. This provided a challenge when it came to integrating the Cornish inshore fishing activity data into the MCZ planning process, as it could not be broken down into the same fine-scale categories as the FisherMap data in Devon and Dorset, so it was hard to represent consistent information at a regional scale.

At the time of writing this report, further work is underway using the FisherMap data, in combination with the VMS data supplied as part of MB106, to carry out spatial economic modelling of commercial fishing within the region for use in the Impact Assessment (due to be finished in January 2012). The project team is also planning to write a full technical report on the FisherMap (and StakMap) research, after the deadline for hand-in of the project's MCZ recommendations.

StakMap

In August 2008, the FisherMap approach was rolled out to recreational sectors, in a project that became known as StakMap (short for 'stakeholder mapping'). Questionnaires and explanatory brochures for

recreational boating, sea angling, charter boats, wildlife watching and recreational diving sectors were developed. The approach was piloted in North Devon and expanded from early 2009.

Given the very large number of target stakeholders within the recreational sector, clubs and organisations were targeted as a way of obtaining a representative sample of interviewees. Interviews were carried out on an individual, group or club basis which allowed us to cover large proportions of the region. The project recruited Volunteer Liaison Officers, who were trained in the basic techniques of the questionnaires, and who worked closely with the recreational representatives on the Finding Sanctuary Steering Group to target recreational sea users in an efficient way. From May 2009 until the completion of the StakMap project in October 2010, there were over 30 different Volunteer Liaison Officers based across the region. In addition, three assistant liaison officers were recruited in October 2009 to spend six months contacting and interviewing divers, anglers, sailors and watersports enthusiasts across the region. All of this work was led by a permanent member of staff, who ensured that the work was co-ordinated, properly recorded and supported.

Like the FisherMap project, StakMap was adopted by the other three regional projects when they became established in late 2009. At the same time as the discussions on the standardisation of the FisherMap questionnaire were held (late 2009 – February 2010), the same was done for the StakMap questionnaires. This resulted in the questionnaires being updated, but did not substantially alter the questions that were being asked.

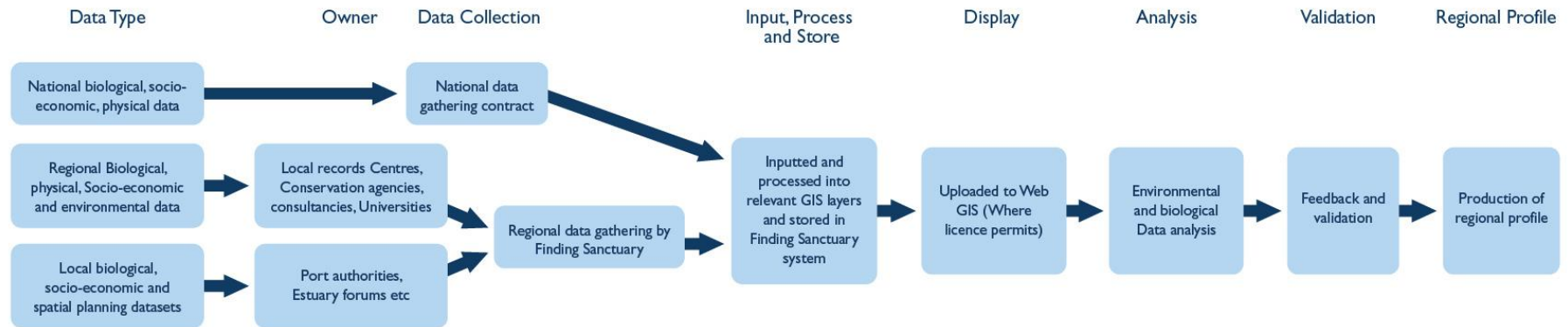
The StakMap interviews continued until October 2010. A total of 639 interviews were conducted. Many of those interviews were of club representatives, and if club membership is taken into consideration, the interviews represent 247,382 sea users.

Drop in Days took place throughout the region in which members of the Project Team held an open surgery at a particular venue from morning until evening. These were advertised locally, and allowed stakeholders to visit during or outside their working hours. Displays were provided to show particular information about the project, and liaison officers were on hand to explain the project and carry out a mapping interview. Drop in Days took place as follows:

- Exmouth, 18th December 2010
- Totnes, 2nd December 2009
- Weymouth, 11th January 2010
- Plymouth, 19th January 2010
- Bude, 25th February 2010
- Newlyn, 1st March 2010
- Instow, 10th March 2010
- Poole, 18th March 2010
- Bristol, 23rd March 2010

A workshop for leisure stakeholders was also held on the 23rd June 2010. The objective was to show and validate the outputs for the leisure maps and to ensure Steering Group members had an opportunity for feedback from their sector on the developing network and the activity maps being used.

Ecological Data Collection Process



Socio-economic Data Collection Process

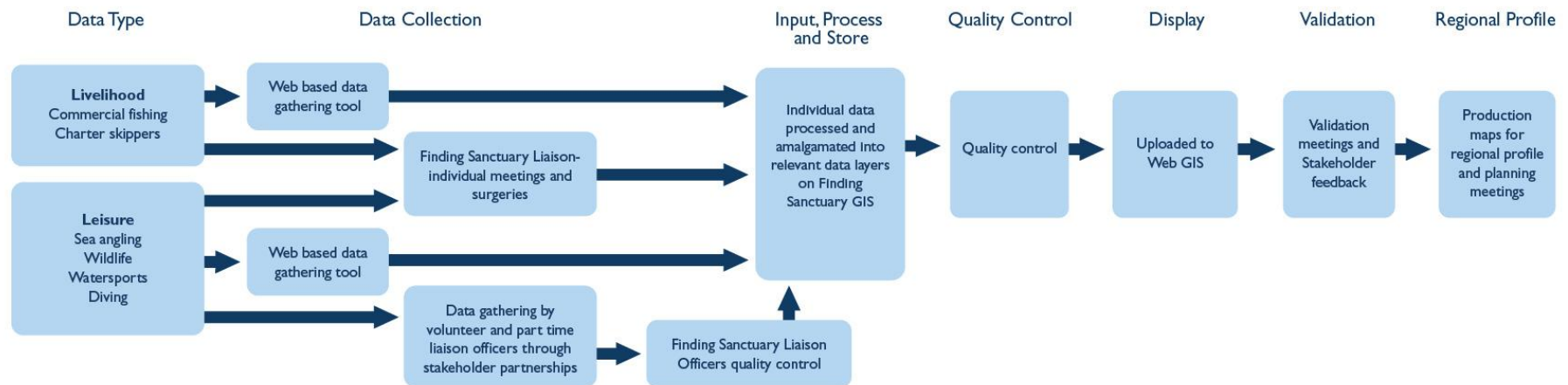


Figure 6: Flow diagram for data socio-economic and environmental data collection

I.6 Summary of planning meetings

I.6.1 Introduction to section 1.6

This section of the report sets out in chronological order all the stakeholder meetings that took place through the formal planning phase, beginning with the Steering Group meeting in September 2009. It provides a brief summary of the discussions that took place as the recommendations were being developed. This summary is necessarily brief, and should not be viewed as a replacement for the full report of each meeting (meeting reports are provided in the additional materials, listed in appendix 14).

I.6.2 Chronological list of all regional stakeholder meetings from September 2009

The following list includes the dates of all regional stakeholder meetings from September 2009 onwards, including regular planning meetings, Process Group meetings, and one-off events such as expert days. Brief notes on what each of these meetings covered are included in the section I.6.2.

Local Group meetings are listed separately, in section I.6.5

September 28 th , 2009	Steering Group induction meeting
October 15 th , 2009	Process Group meeting
November 24 th , 2009	Steering Group meeting
January 18 th , 2010	Process Group meeting
February 11 th , 2010	Steering Group meeting
April 7 th , 2010	Offshore Working Group meeting
April 19 th , 2010	Process Group meeting
April 27 th , 2010	Inshore Working Group meeting
May 6 th , 2010	Offshore Working Group meeting
June 9 th , 2010	Steering Group
June 17 th , 2010	Offshore Working Group
June 28 th , 2010	Inshore Working Group
July 9 th , 2010	Process Group
July 21 st , 2010	Offshore Working Group
July 27 th , 2010	Inshore Working Group
September 8 th , 2010	Offshore Working Group
September 9 th , 2010	Inshore Working Group
September 17 th , 2010	Process Group
October 7 th , 2010	Steering Group
October 14 th , 2010	Offshore Working Group
October 20 th , 2010	Inshore Working Group
November 18 th , 2010	Offshore Working Group
November 22 nd , 2010	Inshore Working Group expert workshop
November 24 th , 2010	Inshore Working Group
December 8 th , 2010	Inshore Working Group
December 15 th , 2010	Joint Working Group
January 6 th , 2011	Estuaries meeting
January 13 th , 2011	Joint Working Group
January 17 th , 2011	Process group
February 10 th , 2011	Steering Group

March 3 rd , 2011	Estuaries meeting
March 9 th and 10 th , 2011	Joint Working Group
April 5 th	Process Group
April 6 th and 7 th , 2011	Joint Working Group
May 5 th , 2011	Joint Working Group
May 24 th , 2011	Steering Group Drop-in day
June 14 th , 2011	Joint Working Group
July 26 th , 2011	Steering Group

I.6.3 Regional stakeholder meeting summaries from September 2009

The following sections provide a brief summary of Steering Group, Working Group and Process Group meetings from September 2009 onwards. Full meeting reports are available as additional materials (listed in appendix 14).

Steering Group Meeting, September 28th 2009

- **Agenda:** Introduction to MCZs, the project team, the project context, the timescales and the role of the Steering Group.
- **Information input:** Presentations to illustrate the above.
- **Conclusions and decisions:** The discussions at the meeting highlighted the need for Ecological Network Guidance (which was not yet available at the time), and the role of the other participants in the process, such as the SAP and Local Groups. The Steering Group asked for a letter to be sent to the National Board emphasising the need for the ecological guidance.

Process Group Meeting, October 15th, 2009

- **Meeting summary:** Considered some of the fundamental requirements about what the Steering Group was tasked to do. They also established some of the key principles of how the Process Group would operate. The Steering Group Protocol was updated and agreed to be submitted to the Steering Group for approval, and the role of Local Groups was discussed.

Steering Group Meeting, November 24th, 2009

- **Agenda:** Introduction to the key concepts and terminology; the interim Ecological Network Guidance (ENG) and Marxan decision support software. Selection of priority factors to input into Marxan.
- **Information input:** Process Group summary note, Interim Guidance, Regional Profile, Steering Group protocol
- **Conclusions and decisions:** The Steering Group identified 'Reviewing existing marine protected areas' and 'avoiding economic costs and impacts' as the most important areas for the Project Team to focus on. The Steering Group agreed updates to the terms of reference and a process to be followed regarding new applications to the Steering Group.

Process Group Meeting, January 18th, 2010

- A stakeholder identification and analysis exercise was carried out (see section I.3.2). The Process Group also agreed to the introduction of the Named Consultative Stakeholder status. The operation of the Working Groups (as subsets of the Steering Group) was discussed, and the plans for the 11th February 2010 Steering Group meeting were prepared.



Figure 7: Steering Group meeting, February 2011

Steering Group Meeting, February 11th, 2010

- **Agenda:** Identifying potential MCZs on a large format map, identifying areas which should be excluded from the network, discussion on process Governance and membership, introduction of Named Consultative Stakeholders and setting up Working Groups.
- **Information input:** Large format map (A0) to record suggestions for potential MCZs, Medium format maps (A2) showing relevant ecological and socio-economic information; information on Named Consultative Stakeholders (NCS), Presentation of Marxan outputs showing areas of high fishing importance; Process Group report.
- **Conclusions and decisions:** Steering Group members gained an understanding of the importance of having clarity on activity restrictions before choices could be made on MCZ locations. An action was given to communicate to the National Board that the Steering Group will need to recommend levels of protection. Agreement was reached to create a category of Named Consultative Stakeholders and to set up an Inshore and Offshore Working Group.

Offshore Working Group meeting, April 7th, 2010

- **Agenda:** Introducing the Working Group steps and ways of working, look at sites that need to be included in the network and have limited or no flexibility; identify sites that feel most contentious; identify sites that have the most advantages.
- **Information input:** A paper introducing the working approach and concepts such as the use of assumptions, uncertainties and implications; Interim Ecological Network Guidance; A set of focus areas for where broadscale habitat targets could be met avoiding highest impact on commercial fishing and building blocks that could be used for planning.
- **Conclusions and decisions:** Sites around the shelf break are ecologically important and uncontentious and will be considered further in the next meeting. A number of sites were identified as being contentious.

Process Group meeting, April 19th, 2010

- **Meeting summary:** The Steering Group membership was reviewed. A discussion was held on the conduct of Steering Group members regarding press, but at this stage it was not felt necessary to introduce any particular rules or sanctions. Further work took place on the planning of upcoming Working Group meetings, and the work to be undertaken by Named Consultative Stakeholders.

Inshore Working Group meeting, April 27th, 2010

- **Agenda:** Introducing the Working Group steps and ways of working, look at sites that need to be included in the network and have limited or no flexibility; identify sites that feel most contentious; identify sites that have the most advantages.
- **Information input:** A paper introducing the working approach and concepts such as the use of assumptions, uncertainties and implications; Interim Ecological Network Guidance; A set of focus areas for where broadscale habitat targets could be met avoiding highest impact on commercial fishing and building blocks that could be used for planning.
- **Conclusions and decisions:** To consider reference areas once inshore MCZs have been decided.

Offshore Working Group meeting, May 6th, 2010

- **Agenda:** Feedback from constituencies, Applying protection levels framework.
- **Information input:** Map of modified sites based on discussions from April meeting, protection levels framework, National Ecological Network Guidance, A2 ecological and socio-economic maps on the wall.
- **Conclusions and decisions:** The group also recognised how much the broad scale habitats influenced their work since data offshore was sparse. The group also used the Finding Sanctuary compatibility matrix for the first time and began to determine how this information would change a particular site.

Steering Group meeting, June 9th, 2010

- **Agenda:** Project Update, Process Governance and membership, Introduction to building blocks, Update on Working Groups, Feedback for Working Group members, and Introduction to progress report.
- **Information input:** Process Group report; Working Group reports; A2 ecological and socio-economic maps on the wall.

Offshore Working Group meeting, June 17th, 2010

- **Agenda:** Feedback from constituencies, Consideration of feedback from Steering Group, Overview of Impact Assessment, Network options, Compatibility matrices.
- **Information input:** Feedback from Steering Group; A2 ecological and socio-economic maps on the wall.
- **Conclusions and decisions:** Areas outside building blocks could be brought back into consideration when necessary.

Inshore Working Group meeting, June 28th, 2010

- **Agenda:** Feedback from constituencies, Consideration of feedback from Steering Group, Overview of Impact Assessment, Dorset Local Group input, FOCI and broad scale habitats, Areas of focus, compatibility matrix.

- **Information input:** Feedback from Steering Group, Comments from Dorset Local Group, Summed solutions from Marxan showing areas that were most frequently selected for meeting ENG targets; A2 ecological and socio-economic maps on the wall.
- **Conclusions and decisions:** A nascent network or 'array' emerged from considering suggestions from Local Groups and building block options. Feedback was requested on what percentage of ENG targets had been met.

Process Group meeting, July 9th, 2010

- **Meeting summary:** The previous Steering Group meeting was evaluated, and it was noted that there was a problem with substitutes and new members who were not fully briefed on the project and its progress. As a result, a proper system for named Steering Group member substitutes was put in place. The group reviewed the schedule of meetings and the key milestones for the project. At this stage, there was no clarity over the need for formal organisational 'sign-off' of the final recommendations by Steering Group members, so the Process Group spent time discussing how this might happen. The need was subsequently discounted. The agenda for the October Steering Group meeting was discussed.

Offshore Working Group meeting, July 21st, 2010

- **Agenda:** Updates and Constituency feedback; Working Group outputs; Selection of Building blocks.
- **Information input:** Briefing paper for what Working Group output might look like; Excel planning tool that allowed members to select building blocks and see how different combinations affect the percentages of targets met for each of the broad scale habitats and FOCI; A2 ecological and socio-economic maps on the wall.
- **Assumptions, implications and uncertainties:** Sub-groups detailed the implications that would result from particular site selections to their sector. They also detailed the assumption that fixed gear and charter anchoring would be allowed and that renewables are not expected to choose rocky sea beds for development.
- **Conclusions and decisions:** Working in two groups to identify a potential network; one group opted to build up sites from zero and the other removing sites from having all selected. The group became more confident with adding new building blocks or redesigning existing ones. Back together, both groups looked at sites that they had in common and habitats for which there was still a shortfall. A need was identified at the OWG for a table which provides more of a succinct rationale for why a building block was selected and its development in subsequent meetings.

Inshore Working Group meeting, July 27th, 2010

- **Agenda:** Updates and Constituency feedback; Working Group outputs; Selection of Building blocks.
- **Information input:** Briefing paper for what Working Group output might look like; Excel planning tool that allowed members to select building blocks and see how different combinations affect the percentages of targets met for each of the broad scale habitats and FOCI; A2 ecological and socio-economic maps on the wall.
- **Assumptions, implications and uncertainties:** Sub groups stated a number of assumptions during their discussion, in particular that static gear fishing and cabling will be allowed in MCZs. They also detailed the implications that would result to particular sectors.
- **Conclusions and decisions:** This meeting marked the point at which more substantive decisions started to be taken and Working Group members began to voice assumptions. Co-location of MCZs and renewables was introduced since renewable companies could not rule out co-location without knowing the management measures. The group agreed that pursuing both options is

the only way to progress until national guidance is available. The table in the report detailing the % targets reached, highlights the value of the spreadsheet tool (building block statistics calculator) and identifies that broad scale habitats which were falling short of targets. Both groups had quite a large shortfall for sublittoral sand and sublittoral coarse sediment and the role of the fishing industry in guiding the group towards areas of least contention was highlighted. A number of building blocks were selected by both groups.

Offshore Working Group meeting, September 8th, 2010

- **Agenda:** Updates; Framework for recommendations; Choosing building blocks; Preparing for Steering Group and agree protocol for substitutes and experts.
- **Information input:** Excel spreadsheet that allowed members to select building blocks and see how different combinations affect the percentages of targets met for each of the broad scale habitats and FOCI; A2 ecological and socio-economic maps on the wall; summary table showing evolution of sites; Framework for submission; inputs from SAP, NCS and Local Groups; A0 planning map.
- **Assumptions, implications and uncertainties:** A number of options had information detailing that there was no mandate from the fishing industry; that were contentious to the fishing industry; have additional value for seabirds and mobile species and helps to meet other targets. The group also noted that decisions are based on fishing data that is not complete or verified.
- **Conclusions and decisions:** The group decided to work on a single network option with co-location assumed possible, and to explore other options later if necessary. The group spent some time talking about uncertainties and options for how to approach the task. They built on an existing set of building blocks and trialled a broad range of options to meet the targets. At the end of the meeting, all targets have been met or exceeded with the exception of moderate energy circalittoral rock, sublittoral coarse sediment and low energy circalittoral rock. The group agreed on the new protocol for the use of substitutes and experts.



Figure 8: Offshore Working Group meeting October 2010

Inshore Working Group meeting, September 9th, 2010

- **Agenda:** Introducing new information; Choosing Building Blocks; Preparing for Steering Group
- **Information input:** Excel planning tool that allowed members to select building blocks and see how different combinations affect the percentages of targets met for each of the broad scale habitats and FOCI; A2 ecological and socio-economic maps on the wall; summary table showing evolution of sites; A0 planning map; Framework for submission; inputs from SAP, NCS and Local Groups; Update on compatibility matrices; Proposed sites from Environment Agency.
- **Assumptions, implications and uncertainties:** Some sites selected on the assumption that current management can continue; implications noted that more ground will be opened up for static gear fishing, that trawlers may be forced into MCZ to avoid traffic, that there is disproportionate economic impact on north coast.
- **Conclusions and decisions:** The use of two network options was causing concern amongst some members of the IWG. Although it was previously understood that co-location would be beneficial for the fishing industry there is also a concern that the presence of an MCZ within the Atlantic Array site could lead to loss of compensation from the wind farm developers. However, this view was not shared by other fishing representatives. Both options were therefore continued to be discussed. Local Group submissions were given particularly high profile at this meeting, and suggestions from Dorset and North Devon were considered, and a number of new sites were adopted. The IWG decided not to include any Cornwall site suggestions as there were no fishing representatives at the meeting. By the end of the meeting, the table shows that all except two BSH targets are met.

Process Group meeting, September 17th, 2010

- **Meeting summary:** A brief teleconference meeting on the 17th September 2010 looked at new NCS membership, and a new protocol for substitutes to attend Working Group meetings. The group also looked at the agenda for the October Steering Group meeting.

Offshore Working Group meeting, October 14th, 2010

- **Agenda:** Input from Steering Group, New compatibility matrix tool, refining the network, Reference Areas.
- **Information input:** Results of the Offshore Renewables Resource Assessment and Development (ORRAD) report which detailed the areas in the region which were likely to be developed for each renewable technology; A2 ecological and socio-economic maps on the wall; Work being undertaken to identify an offshore SAC on the Wight Barfleur reef.
- **Assumptions, implications and uncertainties:** Fishing industry had concerns about the use of the matrix and uncertainty over the management implications. A change was made on sites in the canyons on the assumption was compatible.
- **Conclusions and decisions:** Discussion focused on trying to ensure that areas of high productivity were included within the network in response to feedback from the SAP. New sites were identified for benthic and water column protection and gaps identified from VMS and shipping lane information. A requirement was given to the project team to ensure that minimum size and connectivity guidelines are met.

Inshore Working Group meeting, October 21st, 2010

- **Agenda:** Input from the Steering Group, Introduction to compatibility matrix tool, Refining the MPA network, Input from Environment Agency, Reference Areas
- **Information input:** Steering Group report, A more formalised feedback form was introduced at this point to request feedback from the Steering Group following the October meeting. Responses were received from The Crown Estate, BMAPA, SWRDA, Poole Harbour Commissioners, Dorset fishermen and Environment Agency, New data layers showing areas of

high biodiversity and species richness were presented to the Group. Results of the Offshore Renewables Resource Assessment and Development (ORRAD) report which detailed the areas in the region which were likely to be developed for each renewable technology; A2 ecological and socio-economic maps on the wall; Cetacean data from a report by the Whale and Dolphin Conservation Society; Access databases (PRISM and PISA).

- Conclusions and decisions:** A specific point from Cornwall Local Group recorded at the Steering Group meeting was that they felt their input had not been given enough consideration. The IWG wanted to reinforce that Cornwall LG suggestions were not taken into account as there were no fishing representatives at their last meeting. The IWG paid particular attention to feedback from the Local Groups during this meeting. Feedback from the ports and harbours sector was also considered following a report which was submitted showing concerns about locating MCZs in port authority areas. However, the group decided that it needed further clarification on which ports could be affected and further clarification was requested from the project team and the experts session. Further feedback was also received from The Crown Estate, and the IWG first recognised the need for a table to summarise these inputs since they were becoming quite overwhelming to deal with. During a session with the Environment Agency representative the IWG focussed on the estuaries and tried to determine the particular priorities and threats to those suggestions put forward. The EA were still keen to ensure that estuaries were protected as a whole. The EA were asked once more to provide a list of priority estuaries together with a rationale for why they have been selected. The PRISM and PISA databases and spreadsheets are obviously very complex and the IWG felt that the best way to use the tool would be to check the assumptions that have been made about activities, once the network is refined.



Figure 9: Inshore Working Group July 2010

Offshore Working Group meeting, November 18th, 2010

- **Agenda:** Refining the network based on biodiversity layers; amalgamating and naming building blocks; discussing expert input; Further work on narrative; Reference areas.
- **Information input:** A2 ecological and socio-economic maps on the wall; Outputs from PRISM and PISA to come up with assumed management within MCZs.
- **Assumptions, implications and uncertainties:** New assumptions at a network level were that MCZs will not affect existence or maintenance of existing cables. A number of implications were detailed for areas where MCZs co-locate with renewable sites: less attractive to funders, additional mitigation costs, delays to construction and additional monitoring costs. Uncertainties related to the impacts of bottom trawling on offshore habitats; changes to density of shipping lanes and compatibility of renewable activities were stated.
- **Conclusions and decisions:** Amalgamation and naming of several areas of building blocks was carried out and refinements were made to a number of sites.

Inshore Working Group expert workshop, November 22nd, 2010

- **Agenda:** This meeting was organised on the 22nd November for certain sectors to bring information for the Inshore Working Group. Presentations and Question were provided from ports and harbours, commercial fishing, the Crown Estate, Environment Agency and two offshore wind developers.

Inshore Working Group meeting, November 24th, 2010

- **Agenda:** Refining the MPA network based on inputs from experts, ensuring highly biodiverse areas and FOCI are included, amalgamating and naming building blocks, further development of narrative.
- **Information input:** A2 ecological and socio-economic maps on the wall; updates were provided on discussions taking place with the Atlantic Array developers and Eneco wind park developers together with Natural England. Review of how the developing network configuration fared against the ENG targets.
- **Assumptions, implications and uncertainties:** The need for reality checking from Natural England was also introduced at this point by the Project Manager. A general assumption was made that handlining could continue in all MCZs.
- **Conclusions and decisions:** A request was also made to gain feedback from those ports that had MCZs in their vicinity and this exercise was carried out in co-ordination with sector representative, Sandie Wilson. At this stage, some estuaries were already included as they had minimal port activity, but none had yet been ruled out. The lack of enforcement around Berry Head was also noted for the first time. Two sites were created to provide an alternative for the Atlantic Array if co-location proved to be impossible (although contentious for the fishing industry). Changes were made to the Hartland Point site to reduce impact to trawling grounds, although the area is also important for renewables. The Skerries site was requested to follow the Inshore Potting Agreement (IPA) boundary.

Inshore Working Group meeting, December 8th, 2010

- **Agenda:** Progress on meeting the ENG, key areas of SAP feedback, Fishing sector feedback, review of estuaries, Review of network to see if FOCI targets are met, Areas of Additional Ecological Importance, Refining site boundaries, Reference Areas.
- **Information input:** A2 ecological and socio-economic maps on the wall; Overview of where IWG has got to so far in reaching ENG targets; Interactive pdf showing new FOCI data; SAP feedback from second progress report.
- **Conclusions and decisions:** Changes to the following sites were made to incorporate fishing requirements: West of Portland and the Fleet, a trawl corridor in Hartland Point to Tintagel site,

extend the Padstow Bay site, remove the trawling corridor from Skerries Bank and surrounds. Refinements were made to South of the Shambles to incorporate renewable interests.

Joint Working Group Meeting, December 15th, 2010

- **Agenda:** Refining the network based on progress to meet ENG targets, input from Steering Group and input from NCS; options for Reference Areas; Agree what to put forward to Steering Group.
- **Information input:** A2 ecological and socio-economic maps on the wall; interactive PDF of draft network configuration; Progress towards meeting ENG targets; input from Named Consultative stakeholders; input from Steering Group members.
- **Conclusions and decisions:** South West Deep sites were amalgamated with a corridor between them and refined by the project team based on ENG targets and VMS data. Sites created as an alternative to the Atlantic Array were removed. The Celtic Deep site was moved. The Manacles site was brought closer to the feature. Considered suggestions for reference areas and drew some suggestions.

Estuaries meeting, January 6th, 2010

- A meeting was organised on the 6th January to bring together the Ports sector and the Environment Agency. It was facilitated by two members of the Inshore Working Group from the recreational boating sector and Natural England. The aim of the meeting was to select estuaries to take to the Joint Working Group by identifying intertidal FOCI species and habitats as well as areas of additional ecological importance for protection whilst considering areas of concern to Ports and Harbour Authorities and the Environment Agency. From this meeting, a table was created which showed the features of conservation importance, local group comments, port issues and overall comments. An initial agreement was reached regarding whether it should be taken forward to the Joint Working Group for inclusion as a potential MCZ in the developing network configuration. This information was provided as an update for the Joint Working Group in January 2011 and at this stage the Gannel, Otter, Erme and Axe were included in the DNC.

Joint Working Group Meeting, January 13th, 2011

- **Agenda:** Reference Area and Estuary planning.
- **Information input:** Large format maps showing broad areas of search for reference areas and potential reference area options, reference area checklist, zoomed in maps showing FOCI, FOCI key.
- **Conclusions and decisions:** Following the update from the Estuaries meeting, the JWG agreed to include the Otter, Erme, Gannel and Axe. Before making decisions on other estuaries the group agreed to wait for the outcome from the next Estuaries meeting on March 3rd. The fishing industry made a statement that they will not be proactively involved in proposing or supporting reference areas. A number of reference area suggestions were produced as work in progress.

Process Group Meeting, January 17th, 2011

- **Meeting summary:** The group reviewed problems that had been encountered with decisions over estuaries, and came up with some proposed solutions. The main focus of the meeting was a review of the sequence of meetings, and the new requirement to develop options for management measures within MCZs. The group considered how this work could be achieved, who should be involved and what the outcomes were likely to be. The group were also updated on the work that was planned for vulnerability assessments.

Steering Group Meeting, February 10th, 2011

- **Agenda:** Updates on: The timeline and final products, Working Groups and progress against ENG; Improving the supporting narrative; Feedback on reference areas.
- **Information input:** A2 ecological and socio-economic maps on the wall; Working Group reports, Reference Areas list and map; A3 tables of narrative for each site and blanks; Framework document, Management measures briefing, Process Group notes.
- **Assumptions, implications and uncertainties:** Recorded on the tables.
- **Conclusions and decisions:** New input to the narrative was recorded and incorporated into the 3rd Progress Report. A commentary on reference area options was provided.

Estuaries Meeting, March 3rd, 2011

- The Environment Agency and Ports sector both had an opportunity to summarise their current positions and issues. Further progress was made on each site with regards to whether it should be recommended for inclusion, not recommended or requiring further discussion. The group agreed at this stage only to put forward those estuaries that had been recommended for inclusion.

Joint Working Group Meeting, March 9th and 10th, 2011

- **Agenda:** Planning estuaries, Areas of Additional Ecological Importance and planning reference areas
- **Information input:** Proposed list of estuaries, work on estuaries carried out by Local Groups, suggestions from work carried out with individual ports and outputs from Ports/Environment Agency meeting; Interactive pdfs, 80 options for reference areas, inshore and offshore scale map of the network, a list of 21 reference areas as a starting point, zooms of the reference area options, reference area planning tool, printed matrix to help the groups identify which habitats and FOCI are present in each option. A presentation on some changes to help meet more Areas of Additional Ecological Importance.
- **Conclusions and decisions:** The group wanted to have further discussions on the location of MCZs based on input from conservation, renewables, fishing and some amendments from the project team. No agreement was reached on estuaries, and this discussion was postponed until April. 12 reference area options were agreed to go forward as recommendations, together with a non disturbance area in the Tean.

Process Group Meeting April 5th, 2011

- **Meeting summary:** The Group looked at a proposed extension to the originally planned series of Working Group meetings through May and June 2011, and the postponing of the final Steering Group meeting until the end of July. There was recognition that the site identification work had greater importance than the management measure work, particularly since the latter had limited choice about the available options. Since the decision was taken to extend the Working Group meetings, a Drop in Day for Steering Group members was planned, to ensure that they were not left behind. During this meeting the facilitator brought up two further points that needed to be shared and discussed-The first concerned an accusation that the facilitator was biased against the fishing industry. The group felt that this was more of a reflection of vulnerability felt by this particular sector and didn't think that the accusation bore any credibility. The second issue focused on feedback from the previous Joint Working Group meeting, in which participants felt that they could benefit from more flexibility in the way that the meetings were run.

Joint Working Group Meeting, April 6th and 7th, 2011

- **Agenda:** Network changes based on proposed changes and inputs from commercial fishing, renewables, Local Groups, Conservation, Estuary meetings, Project Team, SAP and NCS.
- **Information input:** Changes to timeline, SAP feedback, Interactive PDFs, Booklets detailing recommended changes, reference area planning tool
- **Conclusions and decisions:** A statement was read on behalf of RWE npower informing the group that they propose the Atlantic Array offshore renewable development can be co-located with a rMCZ with the caveat that other areas proposed as rMCZs in the no co-location network are removed from the final recommendations to minimise the socio-economic impacts. A number of sites modifications and removals were approved. The Fowey, Taw/Torridge and parts of the Camel, Dart and Tamar estuaries were added to the network.

Joint Working Group Meeting, May 5th, 2011

- **Agenda:** Finalise the network, Updates on work on Conservation Objectives and reality checking for assumptions; Review and improve implications in the narrative.
- **Information input:** Update on how network met ENG targets; Work carried out by the project team on Conservation Objectives through the vulnerability assessment.
- **Conclusions and decisions:** A number of network changes were made. Working Group were unhappy that they had not been able to engage in the work to develop Conservation Objectives. The Working Group were not able to agree whether to include Conservation Objectives for seabirds and cetaceans in the offshore areas.

Steering Group Drop in Day, May 24th, 2011

- **Agenda:** The agenda was developed by the attendees based on what items they want to discuss. Agenda items were: Overview of the network; Estuaries; Reference Areas; Co-location and SACs; Management Implications; Management Measures and Cross-Boundary interactions.
- **Summary:** The meeting was designed to ensure that Steering Group members and Named Consultative Stakeholders were brought up to date on progress since February. The meeting broadly consisted of Steering Group members and Named Consultative Stakeholders asking questions from Working Group members. Recreational users were encouraged to pass on information such as codes of conduct to help inform Vulnerability Assessment discussions.

Joint Working Group Meeting, June 14th and 15th, 2011

- **Agenda:** Update on the draft final recommendations, Vulnerability Assessment and boundary tidy-ups; FOCI in Conservation Objectives; Activity Restrictions; Preparing for the Steering Group.
- **Information input:** Map showing broad outcomes from Vulnerability Assessment meetings; Medium format (A2) zooms for sub-region and narrative for each MCZ; Potential fisheries management in MCZs with a summary matrix.
- **Conclusions and decisions:** It was agreed to keep Conservation Objectives for non ENG species included for inshore sites; with it noted that some of the group did not want these included. The group (except for the NFFO representative) agreed a statement which reflected their dissatisfaction with the way that the Conservation Objectives had been developed and how the outcomes undermined their work. The group were given a selection of materials showing likely management outcomes from the Vulnerability Assessment and asked to update the site level narrative with implications and benefits.

Steering Group Meeting, July 26th, 2011

- **Agenda:** Updates on changes to the network since February; Presentations from four Working Group members; Finalising the narrative.

- **Information input:** Statement from commercial fishing; narrative forms; update on the network and progress since February; presentations from Working Group.
- **Conclusions and decisions:** The group developed and agreed a final statement relating to the outcomes from the Vulnerability Assessment and the use of assumptions in the development of the network. An evaluation of their satisfaction with the network and narrative was carried out using dots on a scale and a brief discussion. Evaluation of the process was carried out using forms.

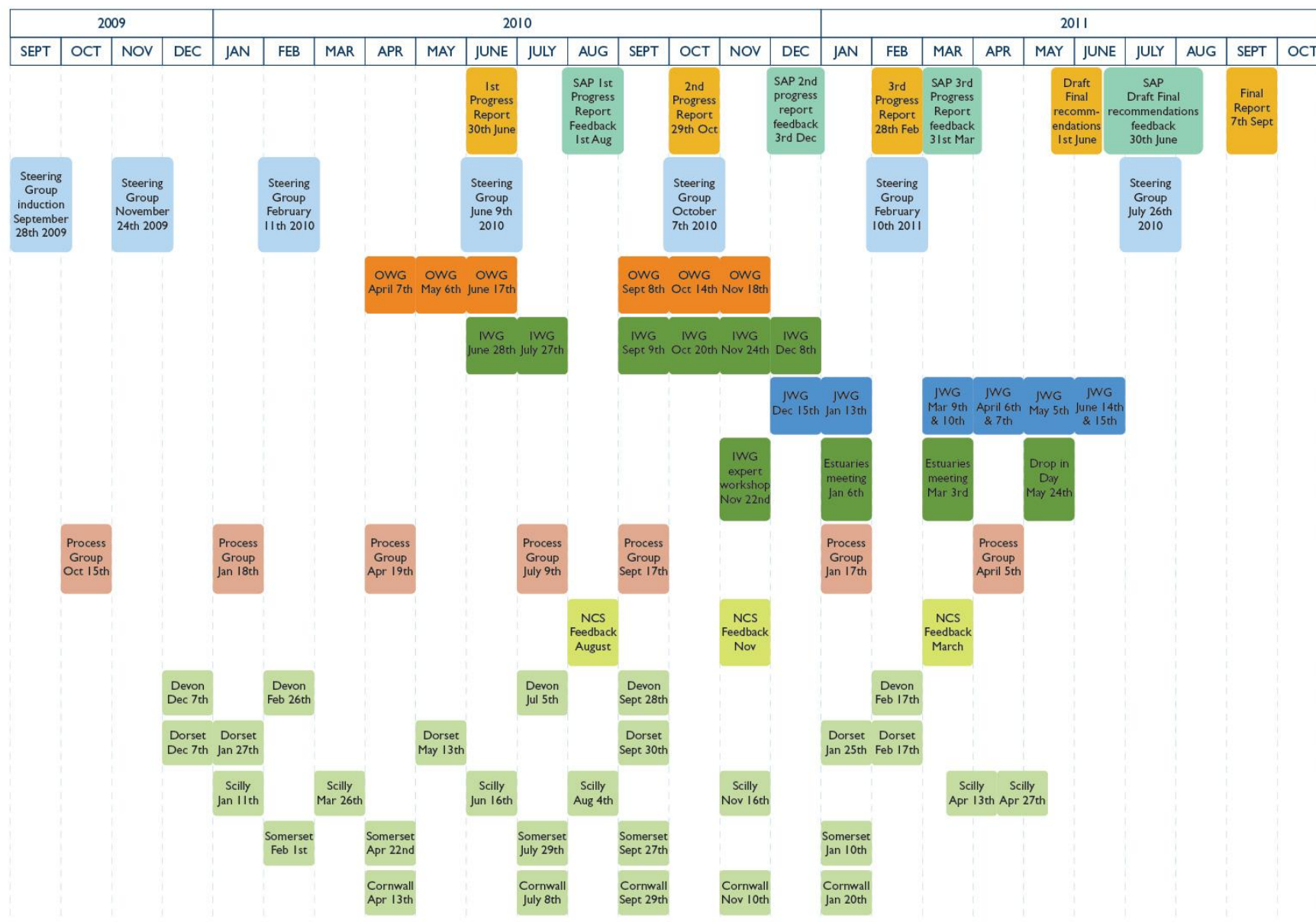


Figure 10: Chronology of all Finding Sanctuary stakeholder meetings from 2009 to 2011

I.6.4 Chronological list of all Local Group meetings

December 7 th , 2009	Devon	September 27 th , 2010	Somerset
December 7 th , 2009	Dorset	September 28 th , 2010	Devon
January 11 th , 2010	Isles of Scilly	September 29 th , 2010	Cornwall
January 27 th , 2010	Dorset	September 30 th , 2010	Dorset
February 1 st , 2010	Somerset	November 10 th , 2010	Cornwall
February 26 th , 2010	Devon	November 16 th , 2010	Isles of Scilly
March 26 th , 2010	Isles of Scilly	January 10 th , 2011	Somerset
April 13 th , 2010	Cornwall	January 20 th , 2011	Cornwall
April 22 nd , 2010	Somerset	January 25 th , 2011	Dorset
May 13 th , 2010	Dorset	January 26 th , 2011	Isles of Scilly
June 16 th , 2010	Isles of Scilly	February 17 th , 2011	Devon
July 5 th , 2010	Devon	February 17 th , 2011	Dorset
July 8 th , 2010	Cornwall	April 13 th , 2011	Isles of Scilly
July 29 th , 2010	Somerset	April 27 th , 2011	Isles of Scilly
August 4 th , 2010	Isles of Scilly		

I.6.5 Summary of Local Group meetings from September 2009

In their first mapping meetings, Local Groups were tasked with suggesting areas that should be included and those that should be excluded from consideration as MCZs. They were also asked to comment on their reasons for site selection and what activities should be allowed or restricted within them. All outputs from the Local Groups were digitised and presented on the wall during Working and Steering Group meetings, however it was also acknowledged that some suggestions couldn't be taken forward as views within the Local Group were conflicting. The exception was the Isles of Scilly Local Group which developed a network of sites that had been agreed across all sectors within the group.

Feedback was received in May 2010 that it was felt the Local Group views were not being fed into the Working Groups effectively. As a result, a session was allocated in each meeting for the Project Team to present the outputs from the various Local Groups and highlight sites with particularly strong support and similarly, those with particularly strong opposition.

In their second mapping meetings, the Local Groups were asked to work together on a more consensus-based approach, discussing areas for their ecological merit and in terms of the socio-economic costs and benefits. The outputs from these meetings were much more focused, and this coupled with the time allocated specifically for discussion at Working Group meetings resulted in a much greater uptake of Local Group ideas into the developing network configuration.

As Local Group work progressed, they commented on building blocks that were in the developing network configuration (by summarising their level of support/contention for each) and they continued to suggest amendments to the network, including boundary changes to make sites more practical at a local level. The focus of Local Group work was mostly concentrated on inshore sites which were being developed by the Inshore Working Group, as this was where the local interest lay.

By November 2010, inputs from Local Groups became more specific and consensual and maps and tables were used to show this feedback more clearly. The November report, in particular, shows how the IWG responded to local feedback and acted to move, remove or add sites accordingly. Notably, a new building block iQ6 (Morte Platform) was added, building blocks (iS1 and iS2) in the Severn Estuary were removed and changes were made to iH16 (The Manacles).

Local Group work culminated in the consideration of Reference Areas and where these should be cited. This was a difficult task and all Local Groups found that they struggled to put forward sites with consensus amongst a range of stakeholders groups. As a result, ideas were passed forward to the Working Group who also found meeting ENG targets for Reference Areas incredibly difficult.

Devon Local Group, 7th December 2009

Meeting summary: A question and answer session on the role of the groups and the information and support that would be provided. The Group agreed how meetings should be organised, chaired and administered. They also agreed to find out how the sea is used by their sector and how aware they are of MCZ plans.

Dorset Local Group, 7th December 2009

Meeting summary: The Finding Sanctuary project was introduced including the role of the Steering Group and Local Group. Issues were raised regarding policing, use of economic information, the make-up of the groups and how decisions would be reached. The group were then given a general introduction to Marine Protected Areas and the interim Ecological Network Guidance.

Isles of Scilly Local Group, 11th January 2010

Meeting summary: The Chairman and Vice-Chairman were elected and an explanation was given to the group about their role by the Finding Sanctuary liaison officer. In particular he stressed that the project was not about no-take zones and that the approach was 'bottom up'.

Dorset Local Group, 27th January 2010

Meeting summary: Seabed maps from the DORIS project were introduced to the group. Working in sub-groups the exercise for this meeting was to use medium format (A2) maps of the Dorset area and acetate overlays to identify areas around Dorset where an MCZ should be located and inshore areas where an MCZ should not be located.

Somerset Local Group, 1st February 2010

Meeting summary: The meeting introduced the Finding Sanctuary project, Marine Conservation Zones and the role of Local Groups in the planning process. Following a number of questions and general discussion, the group also agreed the practicalities of how the group would meet and work.

Devon Local Group, 26th February 2010

Meeting summary: The Group were given an update on project progress and an introduction to the base maps. Working in sub groups, the exercise for this meeting was to identify areas that were wanted as MCZs and areas where no restrictions on activities were wanted.

Isles of Scilly Local Group, 26th March 2010

Meeting summary: The Ecological Network Guidance was introduced. The group also had an update on progress within the Steering Group and the iterative planning approach that was being used. 12 sites were put forward and agreed by the group. A decision was taken to join some together to make larger zones to meet minimum viable sizes and to extend one of the sites over a seagrass bed. They proposed to restrict mobile gear within these sites.

Cornwall Local Group, 13th April 2010

Meeting summary: Using medium format (A2) maps and acetates the Group identified sites that should be included for protection together with a rationale and details of the activities allowed or restricted. An exercise was also carried out to identify areas that should not be included.

Somerset Local Group, 22nd April 2010

Meeting summary: The group were given an update of progress at a regional level and the formation of the new Working Groups. In the mapping exercise, sub-groups used medium format (A2) base maps, acetates and printed forms to record areas that they felt should be designated as an MCZ and areas where activity should not be limited. Polygons were drawn and digitised and the rationale was recorded in a table.

Dorset Local Group, 13th May 2010

Meeting summary: Working in sub-groups, the exercise for this meeting was to provide comments on building blocks in the Dorset area that had been generated by the Working Groups. There was also an opportunity to draw on the maps to change the size, shape or position of the building blocks. Comments were recorded in the form of negative, positive or neutral responses reached. These were qualified with a reason and a note for how it could be changed. Suggestions for further areas for potential MCZs were also identified.

Isles of Scilly Local Group, 16th June 2010

Meeting summary: Broad scale habitat building blocks outside the 6nm area were introduced and a decision was made to take these to fishing representatives outside of the meeting. The group were unanimous in their opposition to Reference Areas because of the scale of the islands and their potential impact on existing activities. They noted that goodwill for existing agreements would be lost if Reference Areas were imposed.

Devon Local Group, 5th July 2010

Meeting summary: There was a large group of stakeholders from North Devon attending this group; and sub groups were split for North and South interests. The sub groups provided commentary on building blocks generated by the Working Groups. They also had the opportunity to use the maps to change the size, shape and position of the building blocks. The North Devon group drew their proposed areas directly on to the map. The opinions are recorded and colour coded as positive, neutral or negative together with recommended changes.

Cornwall Local Group, 8th July 2010

Meeting summary: Working in four sub-groups, two tasks were carried out. Firstly to provide opinion on the building blocks which are currently under consideration together with a rationale and any recommended changes. Secondly the group were asked to discuss and put forward any new suggestions and detail their reasons. Medium format (A2) maps, acetates and printed tables were used to record the outputs. Fishing and port representatives were absent from this meeting, which meant that additional data had to be provided later.

Somerset Local Group, 29th July 2010

Meeting summary: Feedback was provided on how the previous meeting's mapped outputs had been used within the Working Groups. Working in three sub-groups, comments were provided on those building blocks that were relevant to Somerset. New suggestions were also recorded. The groups used medium format (A2) maps showing the building blocks and acetates to record changes. Tables were used and the outputs are colour coded to show where comments are positive and neutral.

Isles of Scilly Local Group, 4th August 2010

Meeting summary: The main discussion point at this meeting was feedback from the SAP following the second progress report. The SAP questioned the use of the 50m contour and that further discussion was needed for Reference Areas. The group felt that the 50m contour was the limit of precise knowledge. They also agreed that the current level of management and protection was generally sufficient.

Somerset Local Group, 27th September 2010

Meeting summary: The group were told how outputs from the previous meeting had been used at previous Working Group meetings. Key facts about the Impact Assessment were provided to the group and there was an opportunity for them to ask further questions. The Environment Agency had put forward suggestions for estuarine MCZs, but the group felt that these were too general and that the Severn Estuary already had sufficient protection. Further discussion was held on building blocks to provide reasons why sites should or shouldn't go forward as MCZs and to use the narrative headings to record assumptions and implications. These outputs are detailed and colour coded in the report.

Devon Local Group, 28th September 2010

Meeting summary: The group were told how their outputs had been used and adopted by the Working Groups and the current selection of building blocks was presented. Information on areas that were important for seabirds was presented which prompted a discussion on whether changes were necessary to the current building blocks. The Impact Assessment (IA) was introduced, followed by a lengthy discussion about how information for the IA would be gathered and used. Working in sub-groups and using basemaps, acetates and printed tables, the group gave further opinion on sites that should and should not go forward as MCZs together with assumptions and implications that they are making.

Cornwall Local Group, 29th September 2010

Meeting summary: The RSPB presented areas of high sea bird activity with a request for the group to use in further discussion for the building blocks. Data was also provided from the Identifying Significant Areas project. After having worked in small groups, feedback on building blocks around the Cornwall coast was gathered in a plenary group.

Dorset Local Group, 30th September 2010

Meeting summary: The group were given an update for how their outputs had been used and incorporated into the most recent developing network configuration. Updates were also provided on co-location with renewables, changes to broadscale habitat data and the SAP commentary on the 2nd Progress Report. The Impact Assessment was introduced and a number of questions were asked about how data would be collected and used. The mapping exercise was carried out in three sub groups using medium format (A2) base maps, acetates and a printed questionnaire. The groups recorded their reasons for why sites should and should not go forward as MCSs together with a narrative detailing their assumptions and the implications. The report details the commentary on building blocks in a colour-coded format.

Cornwall Local Group, 10th November 2010

Meeting summary: This additional meeting had been called to continue discussions about building blocks. No personnel from Finding Sanctuary were present, although maps and supporting information were provided. Further commentary was recorded for those sites that had not been included at the September meeting. Following the recommendation from the Environment Agency that all estuaries should be included in the Building Blocks; a general discussion took place, but no specific agreement was reached. The outputs have been colour coded, together with detail for how the responses were used by the Working Group.

Isles of Scilly Local Group, 16th November 2010

Meeting summary: Discussions at this meeting focused on a building block (iL16) just outside of the 6nm limit. With the Natural England Working Group representative present, a particular focus at this meeting was Reference Areas although the position remained that the Scillies would lose more than gain through creating them.

Somerset Local Group, 12th January 2011

Meeting summary: Updates were provided on the timeframes, current network recommendations and the status of reference areas. A presentation was given by the Environment Agency to highlight the importance of the Severn Estuary. Working in three sub-groups an exercise was carried out to look at a focus area for Reference Areas. Two groups presented a suggestion for a possible Reference Area together with a rationale; one group felt that there was insufficient time.

Cornwall Local Group, 20th January 2011

Meeting summary: Changes to the timeline and clarifications over activity restrictions and management measures were presented to the group. The main changes to the Developing Network Configuration (DNC) were highlighted. The group worked methodically through all estuaries in the County providing an opinion on whether they recommend it for inclusion, together with a rationale and a narrative for assumptions and implications.

Dorset Local Group, 25th January 2011:

Meeting summary: An update of the project timeline was presented to the group together with new details on the requirement to put forward management measures. A presentation was also given to the group on how the Developing Network Configuration had changed since the last meeting in September 2010. The group initially worked in plenary to focus on the Poole Bay and subsequently in six sub-groups to provide suggestions to the Inshore Working Group. A presentation was given on Reference Areas and discussion took place on those four focus areas (Lyme Bay, Chesil and the Fleet, Kimmeridge and Studland Bay) that were under consideration in Dorset.

Isles of Scilly Local Group, 26th January 2011

Meeting summary: An update was provided on the project timeline and an explanation of how assumptions that had been made for potential management are being reality checked. The group remained robust in their refusal to contemplate any Reference Areas.

Devon Local Group, 1st February 2011

Meeting summary: A general update was given to the group, focusing in particular on what the group had done and how their work will be taken forward in the future, since this was their last meeting. General points were gathered for the Developing Network Configuration with a number of specific recommendations made. An introduction was given to the group on reference areas and working in four sub groups an exercise was carried out to look at the focus areas and suggested reference areas to provide general feedback. A presentation on the need for Estuary MCZs was given by the Environment Agency representative; however the exercise to complete flip top style forms after the meeting was not carried out.

Cornwall Local Group, 17th February 2011

Meeting summary: The group worked around the whole coast to consider and agree any final changes that they wanted to put forward to the March Joint Working Group meeting. Natural England presented data showing areas of additional ecological importance using benthic and pelagic biodiversity maps. It

was noted that many of these hotspots are already within MCZs and that this data is appearing too late. General recommendations were made for a number of potential MCZs. The group discussed Reference Area options and put forward some suggestions of their own.

Dorset Local Group, 17th February 2011

Meeting summary: A presentation was given on the timeline and progress that is being made regionally towards meeting the ENG targets. An exercise was carried out in four sub-groups to decide what the group wanted to recommend for the Poole Bay site. A number of comments were recorded, and ultimately it was decided to reduce the site and to include just Poole rocks and Studland Bay. In the same groups, an exercise was also carried out to look at focus areas and suggested Reference Areas for Dorset and to provide advice back from the whole Local Group to the Working Group. A number of other suggested Reference Areas were also put forward.

Isles of Scilly Local Group, 13th April 2011

Meeting summary: The group had some initial discussions about extensions to two 'non disturbance areas' to meet minimum size criteria. Decision was postponed until local stakeholders had time to study the implications.

Isles of Scilly Local Group, 27th April 2011

Meeting summary: An extension to two non-disturbance areas was agreed and the planning work of the group was concluded.

1.6.6 Named Consultative Stakeholder feedback

1st Progress Report

- NCS were asked to comment on the 1st Progress Report between the 27th July and the 28th August 2010. There was no feedback from NCS on the first progress report.

2nd Progress Report

- NCS were invited to comment on the 2nd Progress Report on the 8th November 2010, with a request for feedback to be received by the 1st December so that it could be prepared for the Joint Working Group meeting on the 15th December. They were given links to all the relevant reports and documentation through an internet download site.
- Responses were received from Rederscentrale, EDF Energy, Pelagic RAC, Plymouth University School of Geography, Earth and Environmental Sciences, Comité National des Pêches Maritimes et des Elevages Marins and Pêcheurs de Manche et d'Atlantique.
- Responses were collated together with all relevant stakeholder feedback and taken to the Joint Working Group meeting in December.
- The NCS feedback questioned the rationale for MCZs and expressed concerns for a number of sites in the network, but did not provide any alternative suggestions for MCZ locations.
- At the meeting on the 15th December, the Joint Working Group therefore concluded that it was difficult to deal with the NCS responses, since no alternatives were proposed. The group did, however, agree to change and re-orientate the South West Deep site so that it was better able to accommodate European fishing interests.

3rd Progress Report

- For the 3rd Progress Report, Named Consultative Stakeholders were asked on the 4th March to provide feedback by the 24th March 2011. Once again, materials were made available on the internet download site and members were given a feedback form.

- Only the CNP-MEM and Pelagic RAC responded by the deadline, and their responses were collated and presented to the Joint Working Group meeting on the 6th and 7th April.
- The Working Group noted that changes they had agreed within the meeting went some way towards accommodating NCS comments.
- A further letter was subsequently received from SAS with concerns over restrictions to recreational activities in Kimmeridge Bay.
- Other responses were dealt with on an individual basis by the Project Manager, particularly since many potential MCZs or Reference Areas of concern had already been removed from the network.

Drop in Day

- Named Consultative Stakeholders were invited to the Steering Group Drop in Day on the 24th May 2011. The Drop in Day was an opportunity for the NCS to meet with members of the Working Group, ask questions and be guided through changes in the network since the last Steering Group meeting in February 2011.
- The following NCS attended: CNP-MEM, SAS, Angling Trust, Plymouth University School of Geography, Earth & Environmental Sciences.

Summary of Feedback

November 2010

Rederscentrale-All sites have implications, cumulative impact of blocks, massive economic impact on Belgian fishing fleet, loss of important fishing grounds specific to D2, D3, D6, D8, P3, P4, G3, J1, J2.

EDF Energy-iS1 identified as a potential issue, depending on what restrictions are put in place

PMA-Not sure about the nature of impact; but identifying that many of the blocks are important for the French fleet and in particular Haig Fras.

CNP-MEM-Lack of time, lack of information about the French fleet, uncertainties about about management, fishing vessels from Brittany and Normandy would be particularly affected. Identifying in particular Clusters A, B, C, D, J, M, N, P and H1, H2, H3, H4, H5, G1, G2, G3, G4, IA4, IA5, IA6, IL12, IL16, IL17, IL13, IL18, IK3, IK4. No alternatives offered.

Pelagic RAC-Concerns about potential unnecessary consequences for pelagic fisheries in particular for reference areas 9-16.

Malcolm Hart-General geomorphological information.

March 2011

Pelagic RAC-Expectation that pelagic fisheries would not be affected and preference to respond at 4th iteration.

CNP-MEM-Identifying sites with high levels of activity and detailing numbers, gear types and seasons of fishing vessels. In particular IA4, IA5, IA6, iH14 and reference areas 9, 17, 18, 19 and 29

Rederscentrale-Late submission (15th April) - General concerns about implications of all site, cumulative impact, reduced flexibility of fishing. Identifying sections of report II.3.7, 3.8, 3.10, 3.11, 3.12, 3.14, 3.15, 3.18, 3.32 as particular problematic for loss of fishing grounds and problems with lack of knowledge over management measures.

Surfers Against Sewage-Concerns over limits on recreational activities for Kimmeridge Bay.

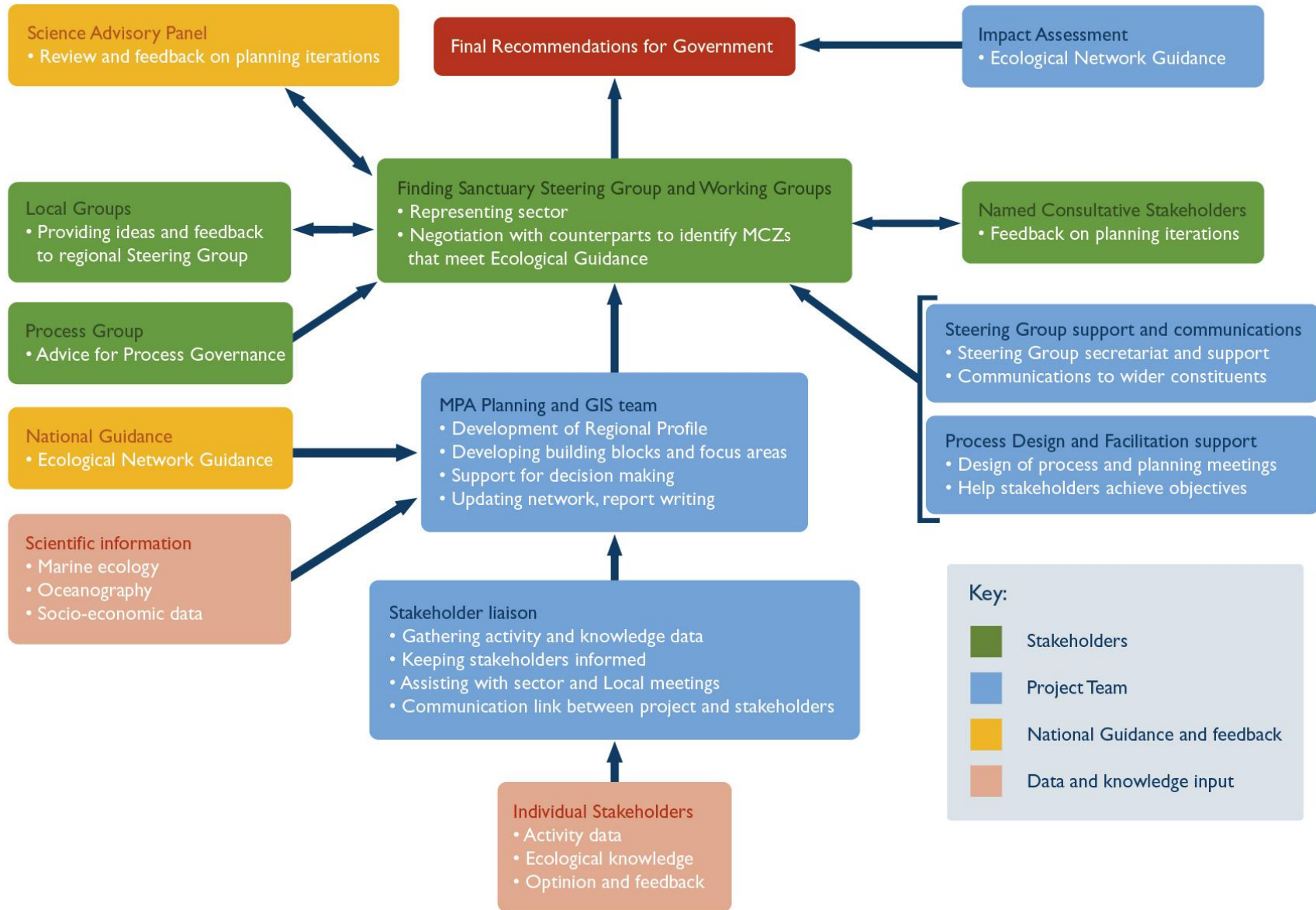


Figure 11: Key National and Regional project components and the flow of information and feedback between them.

I.7 Discussion of key emerging themes in MCZ planning

I.7.1 Introduction to section I.7

This section discusses some of the key themes that emerged during the MCZ planning process in a bit more detail, including technical aspects and process aspects (which were often interlinked). This section is not an exhaustive description of the whole process and the technical work carried out to support it, but it aims to provide an insight into some of the most prominent themes and issues dealt with.

It discusses some of the project's key guidance documents and datasets, and how the timing of their delivery influenced the planning process and the order in which specific aspects of the ENG were addressed. It discusses SAP feedback, and the way in which estuaries and reference areas were integrated into the network.

I.7.2 Guidance documents and datasets: impacts of delivery timing on planning

Ecological Network Guidance

The UK Government is committed to establishing an ecologically coherent network of MPAs under several agreements, including the OSPAR Convention, World Summit on Sustainable Development, and Convention on Biological Diversity. The regional project's task, therefore, was to develop MCZ recommendations in such a way that the configuration of MCZs, when combined with other types of MPA, would form an ecologically coherent MPA network. [The regional projects often used the term 'MCZ network' as a shorthand – technically, the term is misleading, as it is *MCZs plus other MPA designations for which regional projects had no responsibility* which will form the network. The shorthand reflected the fact that the regional projects planned MCZs in a systematic way, at a regional network scale, whereas other types of MPA designations had been planned more on a site-by-site basis.]

The Ecological Network Guidance (ENG), written by Natural England and the JNCC, was a document of key importance for the regional projects and their stakeholder groups, as it provided a translation of the term 'ecologically coherent MPA network' into a set of practical design guidelines that were based on the best data available at a regional level. It set out spatial design criteria, including quantitative targets for amounts and replicates of broad-scale habitats and features of conservation importance to be represented within the network, and guidance on the spacing between sites. Without this document, it was not possible for the Steering Group to embark on their task, as they did not know the 'rules of the game' which they needed to adhere to in their deliberations and negotiations.

There was a significant delay in the publication of the ENG. We had initially expected and planned for the ENG to be available in early 2009. A draft was made available to regional stakeholders in March 2010, and the final document was published in June 2010 (with some minor changes to habitat targets from the draft). At the time, the deadline for submission of the final recommendations was June 2011, so this only left a year within which to carry out the MCZ planning work. The (then still draft) national ENG were first used in the Inshore and Offshore Working Group meetings in April 2010.

The long delay to the publication of the national ENG caused a sense of frustration within the Steering Group, who felt that they were being asked to participate in a task without that task being defined in any practical sense. In order to overcome that sense of frustration and allow some degree of progress to be made, the Finding Sanctuary planner drafted an unofficial, interim set of ecological guidelines, prior to the release of the draft national ENG in March 2010. The interim guidelines were based on common protected area network principles, to enable some initial constructive and focussed discussions to take place in late 2009. This meant that when the official guidance became available, stakeholders had

already had an opportunity to understand basic network design principles, and were better placed to begin their planning work.

Nevertheless, the late publication of the ENG was one of the key reasons why the planning process was very much compressed in time, with the planning iterations overlapping rather than being run in sequence.

Conservation Objective Guidance

In addition to the ENG, the Conservation Objective Guidance (COG) was another document of key importance to the regional projects, as it defined the format in which conservation objectives had to be written in the final recommendations, and set out a process for defining them. The recommendation of conservation objectives was part of the regional project's remit from the beginning of the formal project phase (see section I.9.1).

The delivery of the COG came very late in the planning process: a first draft was circulated to regional project teams in September 2010, and the final version was officially published in January 2011. The process for defining conservation objectives laid out in the COG was highly laborious, and the project team considered it to be not realistically workable within stakeholder meetings, especially given that the guidance came so late in the process, and the large number of sites. Section I.9 goes into details on how this aspect of our work was completed.

Other national guidance

Over the course of the formal project phase, a total of 59 pieces of guidance and advice were issued by the SNCBs to the regional projects, as counted in a national inventory supplied to regional projects in spring 2011. They included relatively short documents such as factsheets and FAQs, as well as a number of long and complex documents, such as advice on management of MCZs (received through 2011) and national sensitivity matrices (see below). Many of these national guidance documents were made publically available by the SNCBs, others were made available only to project teams.

Of these guidance documents, there are two that had a really significant bearing on the recommendations in part II (in addition to the ENG and COG). The first is the draft reference area guidance produced in October 2010, and the second is the set of national sensitivity matrices produced in September 2010.

The draft reference area guidance was useful to stakeholders in that it was relatively unambiguous, with clear statements over which activities will be impacted in reference areas and which won't, giving stakeholder representatives a much firmer basis for their contribution to the planning than they had for MCZs in general. This meant that, during the difficult discussions around reference areas, much less time was spent discussing what activities may / will / could be impacted, and much more time was focussed on where reference area might be located. Given the contentious nature of the reference areas, it was important to have this clear guidance.

The sensitivity matrices were a series of tables developed by Defra, Natural England and the JNCC, and supplied to the regional MCZ projects in September 2010. The information in these tables was required in order to be able to apply the COG. One set of tables indicated levels of sensitivity of individual seafloor habitats and species to a range of pressures at defined benchmarks. Another table indicated which human activities cause what pressures. The information was highly complex, and ultimately did not provide the clarity that stakeholders were asking for from the beginning of the process, i.e. clarity on how MCZs would impact on human activities, which activities would be allowed within the sites, and

which ones would not be allowed. More details on how the COG was applied, and on how the information in the sensitivity matrices was used, are outlined in section I.9.

Key datasets

There were two spatial datasets that were so fundamentally important to the planning process and the ENG, that planning could not realistically begin without them being available. The most significant was the EUNIS level 3 broad-scale habitats dataset. The second was spatial information on the distribution of FOCI species and habitats.

The EUNIS level 3 broad-scale habitat data was provided directly to the project by the JNCC, and was updated several times over the course of the project, including with additional data supplied by the Environment Agency and from national data contract MB102. Appendix 8 gives more details. The fact that the broad-scale habitat was updated over the course of the planning period posed some challenges, as it affected the performance of the developing network configuration against ENG targets. However, these challenges were manageable, because the changes that affected our region were planned, predictable to some extent, and well communicated to the project team in advance. The broad-scale habitat layer being available early in the process (even in draft form and subject to subsequent updates) was important, as it allowed progress to be made towards meeting key representativity targets in the ENG, at a stage when other biophysical datasets were not yet available.

There were several delays to the delivery of the datasets from MB102, compared to the original planned timescale in the project specification. The delays ranged from one or two months to over a year. Data on benthic biodiversity, for example, was only delivered late in 2010, though it had been planned to be ready in September 2009 (it was delayed as a result of delays to preceding parts of MB102, which it was dependent upon). The final delivery of data on features of conservation importance (FOCI), without which it was not possible to address much of the ENG, was also delayed by almost a year (final versions were delivered in June 2010, when the initial plan stated a delivery date of September 2009). Several drafts of the FOCI datasets were made available before the delivery of the final product, and these drafts were vital in order to allow regional projects to make some progress, but the early drafts had not undergone the same quality assurance as the final product.

These delays posed some practical difficulties. The project had to proceed with the MCZ planning task based on the most up-to-date information we had available at any given time, and review the configuration of the network when new information became available. It is impossible to say how much of a bearing this had on the shape of the final network, but it is likely that it did have some impact, i.e. that the network may have looked different in some places if all the information that was available at the end of the process had been available at the outset.

Another data layer of ecological significance, which became available late in the process, was the outcome of an analysis of pelagic interest referred to as the pelagic 'APEI' dataset in appendix 8. Although information on seasonal fronts and sightings of megafauna (cetaceans, basking sharks, offshore birds) was available from early in the process, the combined 'APEI' dataset provided a more comprehensive picture that may have had an influence on the early shaping of the network if it had been available earlier in the process.

Information on existing protected areas: the gap analysis

Finding Sanctuary was not planning a protected area network from nothing. Several protected areas have been in place within the project's planning region for a number of years: Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), Special Protection Areas for Birds (SPAs), and

Ramsar sites. Over the course of the project, additional SACs were being planned (in a process separate from Finding Sanctuary's stakeholder process). MCZs had to be planned within the context of other types of MPA. In order to assess how well our developing network configuration performed against the targets set out in the ENG, we needed to understand how much the existing sites already contributed towards meeting the ENG targets.

This information on the existing protected areas was supplied to us by the SNCBs, referred to as the 'gap analysis'. There were several technical hitches with a GIS gap analysis tool that was developed nationally, and difficulties within the SNCBs in collating information about the conservation objectives of existing sites and translating these into contributions towards protecting ENG-listed features. This led to serious delays to the delivery of the gap analysis, which posed significant practical challenges to Finding Sanctuary. Without a definitive gap analysis, the project faced difficulty in reporting progress on the network configuration to stakeholders and to the Science Advisory Panel. The third progress report discusses this problem in some detail.

The final version of the gap analysis was received in May 2011, i.e. at the end of the planning process. Prior to that, the Finding Sanctuary project team carried out their own GIS-based analyses on the existing sites, based on interim advice. This added a great deal of uncertainty to the process, and it increased the workload of the project team, but it was a pragmatic solution that allowed the project to make progress.

1.7.3 SAP feedback

The Science Advisory Panel provided feedback to the project following each progress report, and following the submission of the draft final recommendations report. SAP feedback was received within a month of the submission date for each report. Because the planning iterations overlapped in time (see section 1.4.3), by the time SAP feedback was available, the first round of planning meetings for the subsequent iteration had usually already taken place, but we planned the second round of meetings for each iteration with SAP feedback dates in mind. SAP feedback was made available directly to the project Steering Group following its receipt by the project team, and also published on the project website.

Following the first iteration SAP feedback (received July 31st, 2010), the project team wrote a detailed document highlighting how the SAP feedback was being addressed in the planning process. This was made available on the project website in September 2010. The project team had planned to do the same following the SAP feedback for the second and third iterations, but because of the team's intense workload and limited time, this was de-prioritised (with preparation of stakeholder meetings given a higher priority). Instead, some of the key issues raised by the SAP feedback were referred to in subsequent progress reports and the draft final recommendations report, highlighting how they had been addressed or were going to be addressed.

Following each iteration, the SAP was discussed within the project team, who considered how best to address the issues raised. Key points were discussed with the project facilitators during the preparation for the stakeholder meetings, and this influenced how tasks were designed, and the materials prepared. In addition, time was made on meeting agendas for the planner to highlight key aspects of the SAP feedback to the Working Groups, to ensure the feedback was understood, and to give stakeholders an opportunity to ask questions.

Much of the SAP feedback was positive, recognising the efforts made by the stakeholder group and the project team to ensure best available information was used, and the ENG met. However, there were also several points of criticism, with constructive comments on how specific issues might be addressed. The issues raised in SAP feedback over the course of the project, and the ways in which they were

addressed, are too large in number and too complex to cover in full here. For details, please refer to the SAP feedback documents, the progress reports, and Finding Sanctuary's reaction to the first iteration SAP feedback. These documents have all been made available on the project's website, and are supplied in the additional materials (listed in appendix 14).

Following the draft final recommendations report, a final set of SAP feedback was received in July 2011, and circulated to the Steering Group. This no longer had the same degree of influence on the network as previous feedback, because by the time it was received, the planning process was complete. The network configuration did not change following the publication of the draft final recommendations, so this set of SAP feedback, in effect, provides an initial commentary on the final network. The next few paragraphs discuss some of this final set of SAP feedback, with a project team's perspective on the issues raised.

For the network as a whole, the final SAP feedback considered the key ENG criteria to be met, in as much as it is possible with the available information and biogeographic distribution of species and habitats in the planning region.

For the principle of representativity, the SAP note that many of the offshore rMCZs are located at or near the outer borders of the planning region. This is largely a result of a greater diversity of socio-economic interests (fisheries in particular) in the areas that were avoided (see the map series in the network report, section II.2). The SAP highlighted a concern that the avoidance of socio-economic costs took precedence over meeting the ENG. However, during stakeholder discussions, the ENG were always at the forefront, i.e. a lot of effort was spent on finding ways of meeting the ENG whilst minimising negative socio-economic impacts (the ENG come first in the statement). During the initial shaping of the network, much of the ENG-related effort focussed on benthic broad-scale habitats, many of which are widespread in the offshore.

For single biggest shortfall in meeting the ENG, as identified by the SAP following the draft final recommendations, is with respect to reference areas. This shortfall was recognised and acknowledged by the stakeholder group as well (this is commented on in the network report in part II). The SAP raised particular concerns over the very small size of a lot of the reference areas, many of which do not meet minimum viable size guidelines for some of the features contained within them. This is acknowledged, and reflected in the conservation objective summary table in section II.2.6.

The SAP acknowledged the efforts put in by the project team to identify and provide stakeholders with the best available evidence for the distribution of ENG-listed features within the planning region, and consider that the use of best available evidence has been achieved as effectively as possible for these features. This is a reflection not just of project team efforts, but also of the efforts of national project partners, and a large number of regional stakeholders who have provided information to the project (see appendix 8). The Isles of Scilly Local Group and the North Devon Biosphere Reserve Marine Working Group deserve particular acknowledgement, as do the Wildlife Trusts and the Environment Agency.

The SAP commented that in the site descriptions of the progress reports and the draft final recommendations, a great deal of detail on socio-economic aspects was provided, with a lot of rationale in terms of boundaries having been drawn to avoid specific impacts. Relatively speaking, less text was devoted to explaining efforts made to maximise the ecological benefits of the sites. To some extent, this is still the case in this final report. It is a reflection of the fact that much of the content of the site reports is a stakeholder narrative, reflecting the concerns of stakeholders who participated in the process – many of those concerns centred on possible negative socio-economic impacts. However, the finalised site reports in part II also contain new sections, the site summaries and detailed site descriptions, which

now contain much more detailed information on the ecology of each site, and the reasons why each site was included in the recommendations.

With respect to the areas of additional importance (AAEI) guidelines in the ENG, the SAP commented that Finding Sanctuary did not use the available information in the manner required by the ENG. They note that much of the area highlighted as having high pelagic interest (the pelagic 'APEI' layer referred to above) falls outside the network configuration (much of this area correlates with areas of particularly high interest to the fishing industry). Nevertheless, a lot of time and effort was spent on ensuring that areas of additional ecological importance were prioritised in the creation of the network, which is reflected in the effort made on estuaries (covered separately below).

1.7.4 Integrating estuaries into the developing network

Early scientific feedback highlighted the importance of estuaries as areas of high natural productivity, and areas that provide important spawning area and nursery grounds for many fish species. Within the ENG, there is no specification for how many estuaries to include, nor for representation of different types of estuary (e.g. ria, bar-built etc). However, given their importance in terms of productivity, and their spawning and nursery function, estuaries can be classified as areas of additional ecological importance (AAEI).

Two key stakeholders initially took polarised positions on making estuaries part of the network, which contributed to the difficulty of this aspect of the planning. The Environment Agency advocated the inclusion of all estuaries in the network, and provided supporting evidence for their ecological importance (see appendix 8, and the additional materials listed in appendix 14). The ports sector, on the other hand, did not want to include any estuaries where there were port activities. Given that most of the estuaries have ports in them, that excluded almost all of them, except for some very small estuaries on the south coast which were included in the network at a relatively early stage (see progress report 3). A great deal of work occurred (including outside of the formal Working Group meetings) to try and resolve this impasse. This began in September 2010, and reached a conclusion in April 2011.

At the expert workshop in November 2010, the ports sector explained that estuaries are already protected by a number of existing designations and highlighted the value of port operations. The ports sector has found it challenging to engage on a regional level and individual port authorities did not grasp the concept of using working assumptions to help overcome the lack of definition on activity restrictions. At the same meeting the Environment Agency reinforced the ecological importance of estuaries as fish nursery grounds and the need to provide better protection to meet some aspects of the Water Framework Directive.

There was further discussion around estuaries at the IWG meeting in November 2010. At this stage, the ports and harbourmasters did not want any estuaries to be included in the network recommendations, and the Environment Agency wanted all estuaries to be included. The Environment Agency had been requested to prioritise estuaries for inclusion, but had been unable to do so at that stage. It was acknowledged in the group that the lack of clarity on activity restrictions in MCZs could mean that the conflict was perceived rather than real. Discussions focused on potential restrictions to leisure activities. There was also a lot of discussion about the ecological rationale for inclusion of estuaries, and the potential for including parts of estuaries rather than whole estuaries was discussed. An agreement was reached at this meeting for ports and Environment Agency to meet separately, outside the Working Group meetings, to try and resolve this conflict.

A meeting was organised on the 6th January (postponed from December) to bring together the Ports sector and the Environment Agency. It was facilitated by two members of the Inshore Working Group,

from the recreational boating sector and Natural England. The aim of the meeting was to select estuaries to take to back to the Joint Working Group for inclusion in the network, by identifying FOCI species and habitats, and considering the additional ecological importance of specific estuaries, whilst also considering areas of concern to ports and harbour authorities. From this meeting, estuaries were listed in a table, showing the features of conservation importance, local group comments, port issues and overall comments. Initial agreement was reached on a small number of estuaries to take back to the Joint Working Group for inclusion in the developing network configuration. This information was provided to the Joint Working Group in January 2011. As a result, the Devon Avon, Otter, Erme and Axe were included in the developing network configuration (see progress report 3). The Gannel was also part of the network at that stage, as part of the Newquay and the Gannel site.

Cornwall Local Group spent a meeting looking at all Cornish estuaries in February 2011, with the objective of trying to determine which estuaries/parts of estuaries were most appropriate to be put forward for inclusion in the network. Previously, over the course of 2010, other Local Groups had considered estuaries and put various suggestions forward to the Inshore Working Group, but none of the other Local Groups went into the same amount of detail as the Cornwall Local Group.

In the meantime, the ports representative had requested specific feedback from individual harbour masters and port authorities to inform a subsequent meeting. Responses were received from Christchurch, Teignmouth, Dartmouth, Salcombe, Yealm, Plymouth, Fowey, Looe, Falmouth, St. Mawes, Truro, Hayle, St Ives, Nequay, Padstow, Torridge and Severn. A summary table was produced along with a comprehensive dossier of their feedback, to inform another estuaries meeting on March 3rd, 2011. The majority of responses stated that there were significant concerns over any possible MCZ designation, and that further dialogue was required. Many questioned the need for further protection in estuaries where existing protected areas have already been designated. Another common feature of dialogue with the ports sector during this period was their request for direct consultation, and criticism that they were not aware what activity restrictions would result from MCZ designation. On the other hand, Fowey were supportive of MCZ designation.

A further meeting between the ports sector, Environment Agency and representatives from the Joint Working Group was held on the 3rd March 2011. The Environment Agency and Ports sector both had an opportunity to summarise their current positions and issues. Further progress was made on each site with regards to whether it should be recommended for inclusion, not recommended, or whether it required further discussion.

Estuaries were one of the key agenda items for the Joint Working Group meeting on the 9th and 10th March 2011. In the plenary session, five estuaries were considered by the group: Tamar, Salcombe and Kingsbridge, Camel, Upper Fal and Restronguet, and Fowey and Pont Pill. The time for discussion ran out before definitive conclusions could be reached. The two Working Group members from Natural England and recreational boating sector were tasked with carrying out further individual meetings with seven specific ports, and reporting back to the Joint Working Group in April 2011. This session had been made particularly complex by the different inputs that had been made by Local Groups and port consultations.

Meetings took place between Working Group members Roger Covey and Rick Parker and Harbour masters from Fowey; Taw/Torridge; Camel; Dart; Salcombe and Kingsbridge and Tamar during the last two weeks of March 2011. The Working Group were particularly interested in establishing where rMCZs might be located in less contentious parts of a given estuary. The outcome of these meetings was presented to the Working Group at their meeting on the 6th and 7th April 2011. In addition to the Axe, Otter, Devon Avon, Erme and Gannel, the following estuaries were included in the network: Upper

Fowey and Pont Pill, Dart, and Taw Torridge. Further clarification how a suitable site boundary might be drawn for a site in the upper Tamar was requested from the Tamar Estuaries Consultative Forum (TECF), and a final confirmation was requested for the Camel Estuary at the meeting on 5th May, 2011. The estuaries that were ultimately included in the final recommendations are the Axe, Otter, Dart, Devon Avon, Erme, Tamar, Upper Fowey and Pont Pill, Gannel, Camel, and the Taw/Torridge.

1.7.5 Reference Areas

At the planning meetings early in the process, both the Inshore and Offshore Working Groups agreed to address reference areas later in the planning process. They considered it most logical to have the remainder of the network in place first, so they could plan reference areas within that context. The main reason, however, was that they felt reference areas were going to be difficult and contentious to address, so it would be best to focus on the less contentious aspects of the work first, in order to be able to make progress and reach some agreement.

In October and November 2010, both Working Groups discussed how to address the outstanding work on reference areas, and it was agreed that these should be addressed jointly within the Joint Working Group, starting at the meeting in December 2010. The project team were tasked with developing some options as initial starting points for the reference area discussion. These options were developed and presented to the JWG at the December 2010 meeting. Working in sub-groups, the Joint Working Group considered which of these they wanted to take forward. A small number of sites (e.g. Canyons and Haig Fras) were agreed as options to take forward to the next meeting. There was originally no Joint Working Group meeting planned for January 2011, but the group requested that this extra meeting be scheduled in order to allow them to carry out some more work on reference areas in advance of the February 2011 Steering Group meeting. The project team provided tools and materials to aid the task, but the exercise still proved challenging with a great deal of technical input to absorb in the decision-making.

The Fishing Industry stated that they would not be proactively involved in proposing or supporting reference areas. However, fishing representatives remained present during the reference area discussions, and had the opportunity to participate at any stage. Some input was made, centred on highlighting impacts that sites might have on the fishing sector.

At the time of the February 2011, Steering Group meeting, a large number of area options were still under discussion by the Joint Working Group. Each Steering Group member was provided with a list of options and a booklet of maps. The Steering Group was asked to work through the list of options to provide a commentary on each option, to help provide a further basis for the Joint Working Group to discuss during their meetings in spring 2011. The commentary is recorded as a table within the meeting report.

Further work on reference areas took place at the March 2011 Joint Working Group meeting. In addition to the options that had previously been generated and discussed in January and February, a further 50 options were created by the project team. The group was asked to consider these options and was given the following materials: An inshore and offshore scale map of the network, a series of close-up maps of the 80 reference area options, and interactive PDF maps showing ecological and socio-economic information. A matrix was provided to help the groups quickly identify which habitats and FOCI were present in each reference area option.

It was recognised that it may be difficult to meet the size criteria for broad-scale habitats in the inshore areas and estuaries, so the group were advised to work on the assumption that the size criteria need not apply for intertidal broad-scale habitats. The number of options under discussion was narrowed down

significantly during this meeting, to a total of 12. The option to locate a reference area in Studland Bay was considered, recognising that this location is ecologically very important, but also that a reference area there would prove highly controversial. The decision was taken to seek further input from the local MMO stakeholder group, but ultimately this did not happen, because at the subsequent meeting in April 2011, a decision was taken to put forward a reference area in the Fal instead, where seagrass bed habitat is also present.

With 12 reference areas selected in the March 2011 Working Group, the April 2011 Working Group meeting finalised the selection. The group was given a further set of options that would fully meet habitat and species targets. There was an uncomfortable feeling about the reality of recommending further reference areas and some felt that there was a lack of time for this task, and by including these further sites the project risked losing support for the network. The SNCB representatives proposed a way forward to prioritise the ENG requirements for reference areas, starting with representing each broad-scale habitat within a set of recommended site, then FOCI habitats, with FOCI species given lowest priority. This pragmatic advice made a big difference to the way the discussions went, meaning that progress was made more easily.

At both the March and April 2011 meetings, the group discussed whether or not to include the Tean 'non-disturbance area' (put forward as part of the Isles of Scilly Local Group proposals) within the set of recommended reference areas. The SAP had highlighted that there ought to be a reference area within the Isles of Scilly, because of the ecological richness of the area, and the high quality of habitat present. However, the Local Group have been strongly opposed to reference areas throughout the process, and the 'non-disturbance area' was put forward on the basis that handlining would be allowed to continue (this would contravene the draft reference area guidance, which allows no extractive activities in reference areas). The Working Group faced a dilemma in that they did not wish to turn the 'non-disturbance area' into a recommended reference area, thereby undermining the support of the Local Group. Ultimately, a decision was taken not to put forward any recommended reference areas in the Isles of Scilly, but to maintain the Tean 'non-disturbance area' (and another similar area) as a zone within the Isles of Scilly rMCZ proposal (see the site report in part II).

The Working Group and Steering Group recognised that the recommended set of reference areas falls short of meeting the ENG requirements, but they felt that the group had gone as far as they were able to within the time available.

I.8 Addressing uncertainty: the stakeholder narrative

I.8.1 Uncertainty over human activity restrictions in MCZs

From the point that it became clear to stakeholder representatives that they were being asked to actively participate in planning marine protected areas, two key questions were asked repeatedly from across the spectrum of interests. Essentially, they boiled down to:

- What do you want?
- What does it mean for me?

The answer to the first question was (eventually) provided, in the shape of the national ENG.

The answer to the second question was never provided to stakeholders within the timescale of the MCZ project, as there never was any unambiguous guidance or answer on what activities will be restricted within MCZs. This posed the single most significant obstacle to constructive discussions throughout the duration of the project. Most participants in the process found it very difficult to be faced with the task

of designing a network when they did not know what restrictions would be put in place, and how the sites would impact on themselves or others.

The uncertainty also posed a challenge for the project economist, tasked with writing an Impact Assessment without having clarity on what to assess. It also proved to be the key obstacle that prevented constructive discussions to take place over what management measures (as defined in appendix 12) might be put in place in order to achieve the activity restrictions necessary to meet conservation objectives (see section I.9.3).

I.8.2 The stakeholder narrative

One of the ways in which we addressed this uncertainty was to put time and effort into discussing and formulating a stakeholder narrative to accompany the final recommendations, which includes working assumptions on management implications of sites, additional uncertainties and comments.

Because of the lack of clear guidance on what activities will be restricted in MCZs, it was inevitable that planning discussions were going to be based on people's assumptions (and, predictably, 'worst-case-scenario' fears which meant that many stakeholders had a strong preference for MCZs to be located away from their areas of interest). These assumptions would have been made by participants in the process, irrespective of whether we had gone to the effort of getting people to articulate and discuss them in order to record them. The advantage of making this effort was that it brought issues out into the open, e.g. where different representatives were making different assumptions, or where people had particular wishes and fears about what MCZs might mean for them.

For recommended reference areas, much less time was spent on the narrative, as the draft reference area guidance greatly reduced the uncertainties around management, and there was no need to formulate detailed management assumptions.

The full set of rMCZ working assumptions on management were formulated in a joint effort by the stakeholder groups, with significant support from the project team. The project team input was requested by stakeholder representatives, who felt they needed advice on what activity restrictions were likely to be put in place. The project team input was based on information available at the time in draft national sensitivity matrices (see section I.8.3), and on the project team's own experience and expertise (the meeting reports from late 2010 contain further details). Not every stakeholder representative agreed with or supported every one of the working assumptions that were recorded, because in some cases, the assumptions went against people's interests and wishes. However, the criticisms were limited to a relatively small number of cases, and these are highlighted in part II. Broadly speaking, the assumptions were supported (in the sense that they were seen as realistic), and all stakeholder representatives agreed to work with them, which means that they were the assumptions that ultimately shaped the network configuration.

The basic configuration of the network was fundamentally in place by the time the third progress report was being written (early 2011), with later meetings carrying out modifications rather than whole-sale redesigns. The evolution of the network can be followed in a PowerPoint animation supplied with the additional materials (see appendix 14). Most of the final rMCZs had essentially been part of the developing recommendations for several months before the end of the project. The main work on developing the stakeholder narrative was carried out at the same time as the planning took place, which means that the working assumptions for most rMCZs are the product of several meetings worth of work. The way in which these working assumptions evolved through the process is traceable through the full series of meeting reports and progress reports, within some initial assumptions and implications recorded in the second progress report in October 2010.

However, a small number of new sites were added to the network configuration late in the planning process. These were mainly estuarine rMCZs, which were discussed in parallel to the main Working Group meetings, with the decision on which ones to add taken relatively late (see I.7.5). For the late additions, the project did not spend the same amount of time formulating and recording detailed assumption and implications, nor can their narrative be traced back through previous reports in the same way as for the other sites.

Nevertheless, implicit assumptions were made during the discussions around whether or not to include these late additions in the recommendations (which were basically the generic assumptions that are presented in the network report, part II.2). The project team made a judgement on what to include in the narrative of the site reports for the late additions, based on what had previously been recorded for the network as a whole, for sites nearby, or for precursors to the final sites in the same area (this is highlighted on a case-by-case basis in the site reports). The narratives for the late additions also reflect comments made in the final stakeholder meetings, when the network was no longer being modified.

I.8.3 Compatibility and sensitivity matrices

One of the ways in which the project team tried to provide stakeholders with more clarity on possible activity restrictions within MCZs was through the development of an interim compatibility matrix, in May 2010 (the Working Group meeting reports from May and June 2010 contain further details). The matrix considered the compatibility of ENG features with activities occurring or likely to occur in the future. It set out whether an activity would be likely to be able to continue whilst still protecting the feature in question. On one axis, the matrix listed marine activities, and along the other axis, it listed marine species and habitats to be protected in MCZs. It used a simple red/amber/green colour scheme to highlight which activities the project team considered to be incompatible with the protection of each feature (red), which activities might need mitigation (amber), and which activities would in all likelihood not have negative impacts on the protection of the feature.

It was intended to be used to help define the protection levels necessary to meet the conservation objectives of sites. The stakeholder representatives felt that it was suitable to use as a tool to help inform decision-making. However, they felt that it could not be formally used for decision-making until it had a full evidence-base and was supported by national partners.

The project team suggested the development of an 'official' national compatibility matrix to national project partners. The idea was that it would have a similar format to the interim matrix developed by Finding Sanctuary, and provide a practical tool for stakeholders to refer to during their planning discussions, giving them clarity on likely activity restrictions needed in the MCZs they were being asked to design and recommend. In order to be useful, the project team were keen for such a tool to be developed as quickly as possible, so that stakeholders would have the clarity they were seeking at the beginning of their task.

After a considerable amount of discussion, national data contract MB102 was extended to create national sensitivity matrices. A combination of the MB102 contract extension, and work carried out by the SNCBs, eventually developed three separate matrices:

Activities/pressures: this shows what pressures are caused by what activities (published in draft form in May 2010).

Pressures/sensitivities matrix: this shows which features (including ENG-listed features) are sensitive to which pressures.

Activities/features matrix: this is a combination of the above two matrices, setting out activities against features.

The final sensitivity matrices were delivered through September and October 2010. The activities / features matrix was not equivalent to the Finding Sanctuary compatibility matrix, as it makes no direct statement over whether a given activity will be deemed compatible with the protection of a given feature within an MCZ. The advice provided by the national project partners along with the national sensitivity matrices stated that the compatibility or incompatibility of features with activities will depend on a wide range of site-specific variables, such as location, intensity (frequency and duration), and current management of activity. They considered that using a matrix approach for predicting 'compatibility' would give spurious and in many cases misleading answers. They stated that the activities/features tables provided an initial indication of which activities are associated with pressures that can impact certain features. Decisions on management would ultimately require expert judgement on a case-by-case basis.

In late 2010, the Working Groups were presented with the national matrices, in the form of PRISM /PISA (MS Access-based versions of the matrices, developed by Steve Barnard of the Net Gain project). The feedback from stakeholders was that the information in the matrices did not provide the clarity they were seeking, and that they were too complex to be useful as a practical tool to refer to during the planning meetings. It was this discussion that led to a direct request from the stakeholders for the project team to use the guidance in the national sensitivity matrices to help elaborate a more comprehensive set of working assumptions, building on the narrative work the stakeholder groups had already started in the meantime.

I.9 Conservation objectives and management discussions

I.9.1 Developing conservation objectives

From the beginning of the formal phase, the remit of the project included developing recommendations for MCZ conservation objectives, as well as for the location and boundaries of MCZs. The national MCZ project Conservation Objective Guidance (COG) defined the format in which conservation objectives had to be written in the recommendations, and set out a process for defining them. It was officially published in January 2011, although a first draft was circulated to regional project teams for discussion in September 2010.

Prior to the publication of the COG, developing conservation objectives were loosely defined as the contribution each site made towards meeting the ENG. During stakeholder discussions, sites were drawn based on two considerations. One was to find locations that contained the broad-scale habitats and FOCI records needed to meet the ENG (the other was to minimise negative socio-economic impacts). Therefore, the features contained within each site were always a key part of the discussion – without the right features present, sites would not have been included in the recommendations. From the second progress report onwards, the site reports contained a heading entitled 'developing conservation objectives', which highlighted the reasons why the site was selected as part of the developing network, and the ENG features it contained and would therefore serve to protect.

I.9.2 The vulnerability assessment meetings

When the COG became available, it became clear that the definition and writing of draft conservation objectives was going to be a much more laborious process than originally expected by the project team. The COG required a condition assessment to be carried out on each feature in each rMCZ, in order to determine whether or not the feature is currently in 'favourable condition'. On the basis of that assessment, the COG required the conservation objective to be either to 'maintain' the feature in

‘favourable condition’, or ‘recover’ it to ‘favourable condition’. For reference areas, the COG requires all conservation objectives to be ‘recover to reference condition’.

A condition assessment would require recent survey data, which was not available for virtually all of the features in any of the sites. In the absence of direct survey-based evidence, the COG set out an alternative ‘vulnerability assessment’ process, to be carried out for each seafloor feature in each site. The vulnerability assessment required the use of the national sensitivity matrices (described in section I.8.3). The process is described more fully in the COG.

For each feature in each site, the vulnerability assessment had to define whether or not the feature was likely to be in favourable condition based on best available evidence on human activities present in the site, the distribution and intensity of those activities, the individual and cumulative pressures of each activity, whether the pressure benchmarks defined in the national sensitivity matrices are likely to be reached as a result of the activities, and the sensitivity of each feature to each pressure.

This process had to be carried out for 478 combinations of seafloor features and rMCZs, a task that could not feasibly be carried out within stakeholder meetings, because of its complexity, inherent uncertainties, and time required. Many broad-scale habitats and FOCI are listed for multiple rMCZs and recommended reference areas, with each occurrence needing to be individually assessed.

The above figure (478) does not count draft conservation objectives for mobile FOCI or for non-ENG listed species, for which no guidance was contained in the national sensitivity matrices or the COG. It also does not count conservation objectives for features in recommended reference areas, for which the COG advises a draft conservation objective of ‘recover to reference condition’.

Because it was not possible to carry out vulnerability assessments and define draft conservation objectives during stakeholder meetings, a separate set of meetings was set up between SNCB staff, project team, and public authority representatives (IFCA, MMO, EA). Public Authorities were invited to attend in order to provide advice on the intensity of activities present, and on appropriate management. SNCBs attended in order to provide advice on feature sensitivity and draw conclusions on feature condition. Project Team members were present to facilitate and record the meeting, and to provide the necessary materials and data. The aim of the vulnerability assessment meetings was twofold:

- To define draft conservation objectives for ENG-listed features in rMCZs, i.e. decide between ‘recover’ and ‘maintain’ objectives for the features listed.
- To discuss the likely activity restrictions needed in order to achieve the conservation objectives.

Feature lists for each rMCZ were defined in the same way as feature lists for the developing conservation objectives had previously been defined, based on an analysis of the GIS datasets for ENG features present in the site, and site-specific additional knowledge in some instances (as highlighted in site reports).

The second objective (the discussion of activity restrictions) was included because the vulnerability assessment required a review of human activities causing pressures in each site, which goes hand-in-hand with considerations over what activities will need restricting. It was envisaged that these discussions would provide better clarity on this matter. Although the timing of the vulnerability assessment discussions was too late for the outcome of the second objective to have a direct bearing on the shaping of the network by stakeholders, it would have at least provided better clarity for the Impact Assessment, and for the expanded remit of the project on management measures (as defined in appendix 12, and discussed in more detail in section I.9.3).

For offshore rMCZs, vulnerability assessments were completed in a two-day meeting on April 12th and 13th 2011, between project staff and JNCC advisers (Beth Stoker, Declan Tobin and Laura Cornick). An MMO representative was invited but unable to attend.

For inshore rMCZs, meetings were grouped by county. A preparatory meeting was held for each county, between Natural England regional advisers and project staff. This was followed by a main meeting for each county, where public authority staff were also present. Rhiannon Pipkin from Natural England (Truro office) attended all inshore meetings, to provide a degree of consistency in the format and content of advice provided. Regional project staff present at the meetings were Rupert Haines (all meetings), Louise Lieberknecht (most meetings) and Shaun Lewin (most meetings). Meeting dates were as follows:

- April 18th, 2011: General preparatory meeting for inshore vulnerability assessments; project staff, Sarah Wiggins and Rhiannon Pipkin (Natural England regional and national).
- April 28th, 2011: Dorset preparatory meeting, project staff and Rhiannon Pipkin, Natural England
- May 5th, 2011: Dorset main meeting; project staff and Simon Pengelly (southern IFCA), Neil Watson (Environment Agency), Alex MacKenzie (MMO Southern District), Rachel Waldock, Fiona McNie, Susan Burton, Rhiannon Pipkin (Natural England)
- May 6th, 2011: Devon preparatory meeting, project staff and Rhiannon Pipkin, Natural England
- May 9th, 2011: Devon main meeting, project staff and Sarah Clarke, Bill Lawrence (Devon & Severn IFCA), Jay Rowntree (EA), Nick Wright (MMO South Western District), Andrew Knight, Gavin Black, Rhiannon Pipkin (Natural England)
- May 11th, 2011: Cornwall preparatory meeting, project staff and Rhiannon Pipkin, Natural England
- May 16th, 2011: Cornwall main meeting, project staff and Simon Cadman (Cornwall IFCA), Simon Toms (Environment Agency), Justin Williams (MMO Western District), Sangeeta McNair, Rhiannon Pipkin (Natural England)
- May 26th, 2011: Regional review meeting of inshore work, project staff, Roger Covey and Rhiannon Pipkin (Natural England)
- May 31st, 2011: Isles of Scilly preparatory meeting, regional project staff and Rhiannon Pipkin, Natural England
- June 2nd, 2011: Isles of Scilly main meeting, project staff and Steve Watt (IoS IFCA), Sangeeta McNair, Rhiannon Pipkin (Natural England)

Because of the complexity of the vulnerability assessment process, and the complexity and inherent uncertainty within the sensitivity matrices, the discussions on activity restrictions did not have any clearly defined outcomes, in terms of any definitive management proposals. At the time of writing this report, it is clear that the process of defining activity restrictions and site management within MCZs will continue beyond the end of the Finding Sanctuary project, and that the vulnerability assessment meetings might be seen as a first step in that process. At the time of writing, it is not clear what role (if any) the regional stakeholder groups will be given in this process.

Nevertheless, the outcome of the discussions on activity restrictions and site management from the vulnerability assessment meetings was written up and shared with stakeholders (in addition to the draft conservation objectives) – this is the ‘VA snapshot’ referred to throughout part II of this report. The VA snapshot consists of a short table for each site, summarising the outcome of the activity restriction and site management discussions held during the vulnerability assessment meetings, and a visual representation of the same information on maps in appendix 13.

The project team considered it important to include a record of the VA snapshot in this report, even though it is clear that the discussions will be ongoing, because it provides a record of the point that the process had reached at the time that the stakeholder groups provided their final comments for the stakeholder narrative in this report. The VA snapshot information and the draft conservation objectives in this report reflect the status of the discussions at the time of the final Joint Working Group meetings in June 2011. Any subsequent amendments discussed since then by SNCBs or other bodies are not included, since there was no time for stakeholder representatives to see and comment on them. A full audit trail of the discussions held at the regional vulnerability assessment meetings is provided in the additional materials (see appendix 14).

I.9.3 Impact Assessment and future work on management

The Finding Sanctuary economist, Rupert Haines, joined the project in March 2010 with the role of leading the development of the Impact Assessment. It was introduced to the Steering Group and Working Groups for the first time in June 2010. The first two iterations of the impact assessment in June and October were generally quite contextual, but there was still an expectation that the impacts would start to be described by the third iteration in February. The Project Delivery Guidance equally expected that the IA would allow iterative development of policy costs to stakeholders and would be a component that would inform the revision and refinement of sites. However, because the location of sites in the developing network configuration was subject to change, the production of an Impact Assessment that provided costs to stakeholders was not possible.

Work has been ongoing between the regional projects to ensure that the methodology used for describing and costing different activities were consistent. A model was developed by Finding Sanctuary to use VMS, Fishemap data and landings records to model the value of fishing grounds and to record the value of landings affected within the recommended MCZs. At the time of writing, work is focussing on obtaining quantitative and qualitative information of the impacts to all sectors potentially affected by the recommended MCZs. Those stakeholders who have been involved in this process are expected to have the opportunity to review and feedback on a draft of the Impact Assessment.

The vulnerability assessment process between April and June 2011 attempted to define the likely management restrictions within recommended MCZs. The outputs from this were not definitive and were disputed by a number of stakeholders. Therefore, the Impact Assessment reverted back to making management assumptions in order to provide illustrative costs of MCZs based on the outputs from the vulnerability assessment and additional advice from the JNCC and Natural England. At the time of writing, discussions about the management assumptions are still ongoing for some sectors. The Impact Assessment will not be making any management recommendations.

The project's remit was extended late in the process, to produce recommendations for management measures (e.g. byelaws, voluntary measures). This was not achieved, partly because the uncertainty around what activities would need restricting was not resolved within the timeframe of the project. At the time the MCZ recommendations are being submitted and the project is coming to its end, the uncertainty around management therefore persists.

I.10 Stakeholder commitment in the process

Between September 2009 and July 2011 stakeholders participated in 41 regional and 29 local meetings. This represents an enormous commitment on behalf of those stakeholder representatives to ensure that the task was carried out properly. The importance of these planning decisions was very evident from the time committed. On a number of occasions stakeholders requested extra meetings be organised; for example Cornwall Local Group in November 2010, Dorset Local Group in February 2011,

the Inshore Working Group in December 2010 and the Joint Working Group in January, May and June 2011. The time spent attending and travelling to meetings was only a small part of the total stakeholder commitment to the process, since a great deal of work took place outside of meetings, in numerous sector meetings or discussions and correspondence with constituents.

To gain an estimate of the total time involved, a calculation has been made of the total number of hours spent, based on an average of 8 hours per meeting (except Local Groups) and not including travel time or time spent with sector constituents or external meetings:

- Steering Group: 7 meetings with an estimate of 30 people on average: 1680 hours
- Inshore Working Group: 7 meetings with an estimate of 9 people attending on average: 504
- Process Group meetings: 7 meetings with an estimate of 4 people attending on average: 63
- Offshore Working Group: 7 meetings with an estimate of 5 people attending on average: 280
- Joint Working Group: 9 days of meetings with an estimate of 13 people attending on average: 936
- Local Groups: 30 meetings with an estimated duration of four hours and an estimated average of 25 people attending: 3000 hours

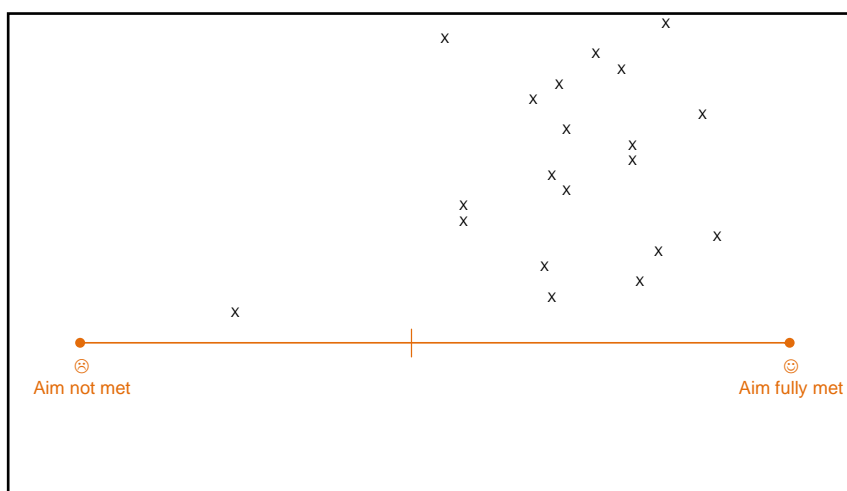
Total: **6488 person hours or 811 person days**

I.11 Evaluating Success

I.11.1 Process

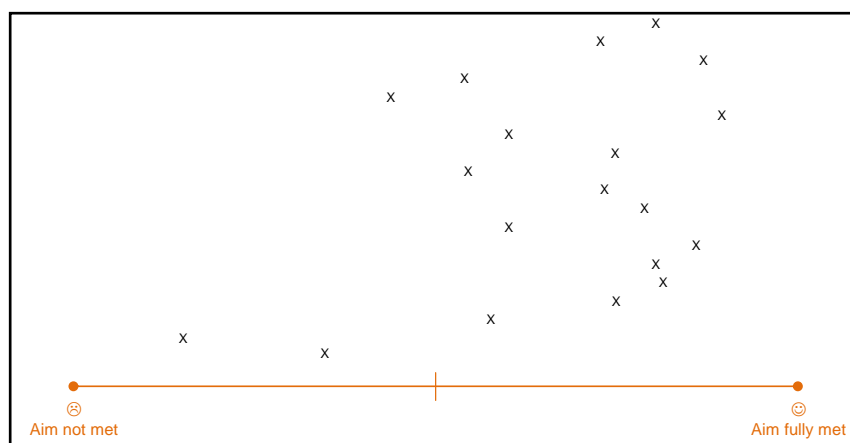
At the final meeting in July 2011, Steering Group members were given an opportunity to provide feedback on the process considered against the original parameters and aims for the process. The full results are shown in the July 2011 report and a summary of the responses is shown below:

A representative group of regional stakeholders drew up proposals for a regional MCZ network, following a set of ecological design guidelines signed off by Government.



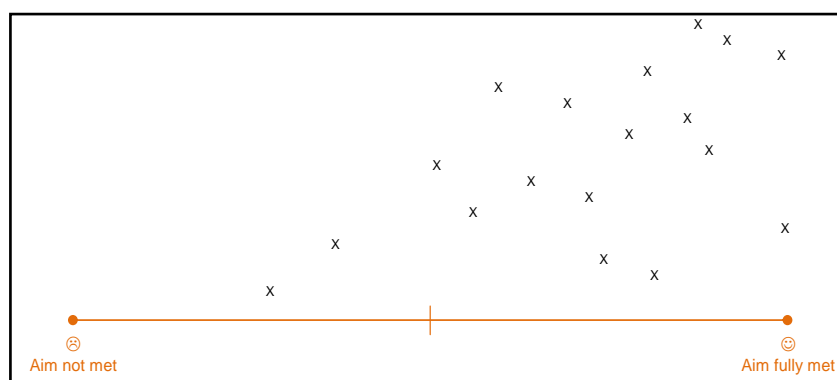
The results show a skew towards the upper half for this aim being met. Further comments highlighted that good progress has been made despite the difficulties and uncertainties encountered. Generally the comments seem to reflect that the Steering Group and Working Groups have done a good job in challenging circumstances.

There was a structured, coherent and transparent process that allowed the Steering Group to build up a knowledge base and an understanding of the issues, the data used and the guidance guidelines; explore potential solutions to these issues; have a central role in planning and have a process of negotiation and resolution of conflict between differing needs and interests.



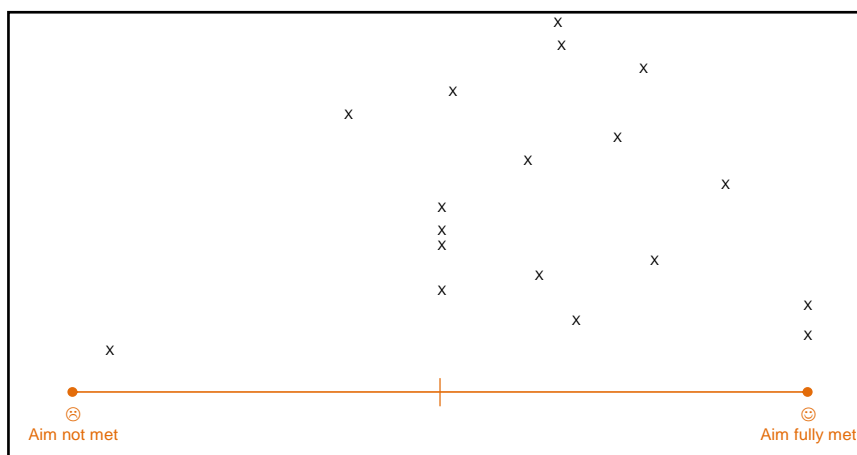
The distribution on the scale again shows the majority of responses in the upper half of the scale, but with a wider scatter and slight skew towards the median line. Two responses are in the lower half. Further comments highlighted problems with the large volume of information and delayed guidance; and that there was some initial mistrust amongst certain sectors but this improved as the project developed. There was a general desire to get the task done and stakeholders worked with integrity and respect for others.

There was good decision making to identify the location for MCZs and the decisions were taken by stakeholders



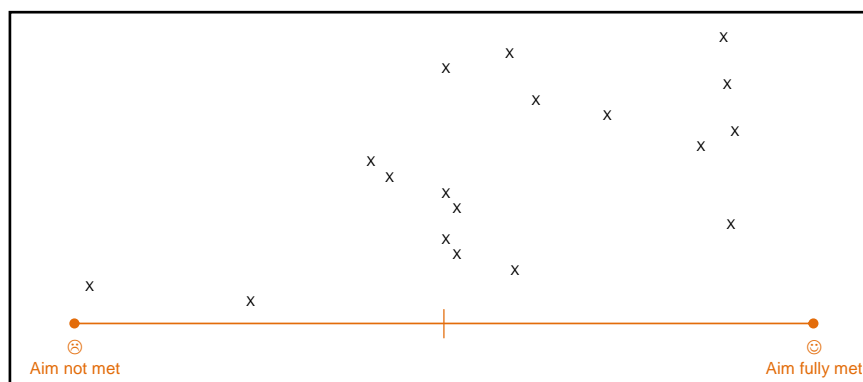
The distribution on the scale is much the same as above, with the majority of marks on the upper end of the scale, split between the 50% and 100% brackets. There is a slight skew towards the upper end of the scale, although two marks remain in the 30%-40% bracket. Some felt that the approach had not been consistent and that decisions have been flawed by lack of time and knowledge. Others noted that decisions were generally taken within Working Groups. Two Steering Group members emphasised the role of Local Group members.

The process and final recommendations are understood by a wide range of stakeholders, especially those who will, or are likely to be impacted by the advent of an MCZ network. This includes stakeholders who have national, regional and local interests.



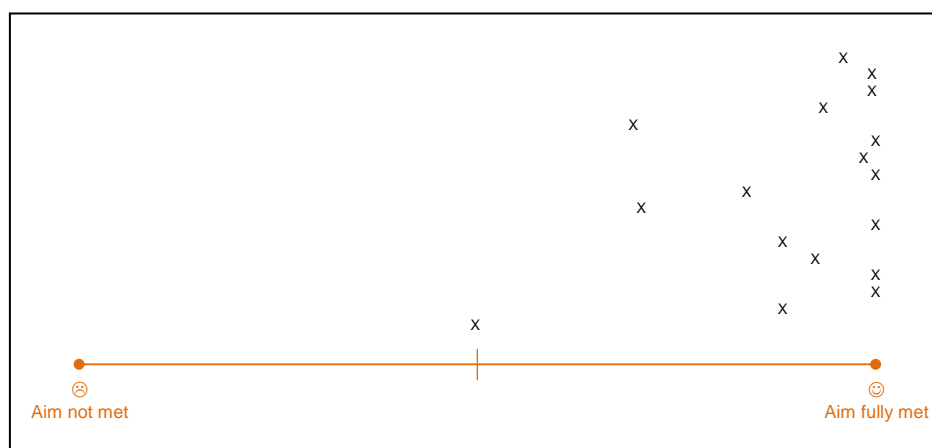
The distribution is skewed towards the middle of the scale, but with a very wide distribution of response. Comments noted that there are still many assumptions and uncertainties and that the process remains poorly understood by those people not directly involved in the SG process. In contrast, others noted that the process was transparent and easy to follow, although communication with some more diverse sectors was challenging.

The best available data was used



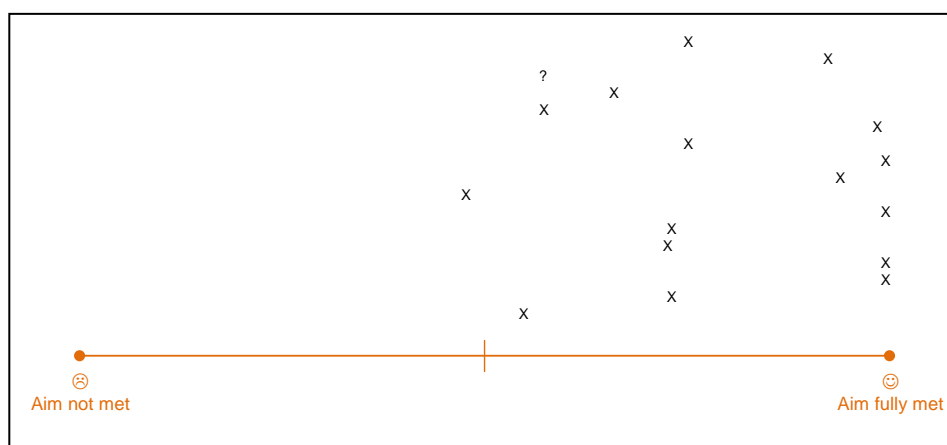
The distribution is skewed towards the middle of the scale, but with a wide distribution of responses. Commentary noted that socio-economic data is lacking and that there was too much reliance on non-peer reviewed anecdotal information on economic value. Others noted that data arrived late and that there was too much; however one comment states that the best available data was used, but many gaps still exist.

How do you rate the support given to you as stakeholders by the Project Team?



The responses show a skew towards the higher end of the scale, with one response on the median line. Further comments were that the support from the project team had been exceptional, professional and clear.

How do you rate the value to the process of the facilitation and process design?



The responses show a scattering of responses within the upper half of the scale. Further comments include that it would not have been achievable without this support and it was an essential part of the process. However, others felt that too much time was spent on trivial issues or that did not reflect the true priorities of stakeholders.

General comments on the process

In making further more general comments, Steering Group members stated that the project was delivered well and in a really tight time scale and that there was good utilisation of local partnerships. Others felt that the process has been very complicated and that large issues remain to be answered and that the efforts to understand, recognise and accommodate the needs of others is the real achievement of the process. One member stated that the stakeholder driven proves was a brave, visionary and challenging way forward to produce a network of MCZs and the result is a network that could be supported and lived with.

I.11.2 Stakeholder Support for Recommendations

In this final report, the project team were requested by Defra to provide information on ‘levels of support’ for the site recommendations.

Finding Sanctuary’s task was to deliver recommendations for MCZs, with draft conservation objectives. In addition, the project was asked by Defra to report on ‘levels of stakeholder support’ for individual sites in the final report (see section I.11.2 below). There was no formal requirement to develop a more detailed stakeholder narrative. However, the narrative is an integral part of the recommendations, as it reflects the context within which stakeholders took certain decisions, and the nature of stakeholders’ concerns about particular sites and the recommendations as a whole. By providing detail on the nature of stakeholder concerns, the narrative provides decision-makers with more useful information than would be contained within a simple score of ‘levels of support’.

Towards the later stages of the process, the national MCZ project discussed the possibility of using a consistent ‘scoring’ system to assess levels of stakeholder support for individual rMCZs in all four regional projects, and to present these scores in a standardised fashion. Ultimately, we did not do this, because of the potential risks inherent in this simplified approach: Not only would it have run the danger of ‘pulling apart’ the recommendations, which are for a whole network and not for individual sites – it would also have tended to elicit a retreat to positional statements, giving outcomes that are predictable, based on the interests of the different sectors involved in the process.

If asked to ‘score’ their support for each individual site in the network, some of the commercial sector representatives would, in all likelihood, never be able to state a ‘high’ score, not least because of the way that might impact on their reputation within the sector they represent.

On the other hand, if conservation representatives were asked to ‘score’ support for the recommendations, it is possible that they would either state ‘high’ across the board, or give lower scores on the basis that they think a lot more could and should have been achieved for biodiversity conservation.

Positional ‘scores’ of support might very well mask the reality that, despite the fundamental differences between the sectors represented on the stakeholder group, representatives from these sectors have ultimately been able to work together constructively throughout the process. This has resulted in some sense of collective ownership by a group of representatives from across a diverse spectrum of interests.

Finally, a score from ‘high’ to ‘low’ would, in itself, not provide any understanding about the reasons why a particular score was given, i.e. the underlying nature of concerns that stakeholders have. By spending a lot of effort on recording a stakeholder narrative as part of the final recommendations, we have aimed to provide an insight into the nature of these concerns, thereby providing a much richer (albeit more complex) source of information for decision-makers.

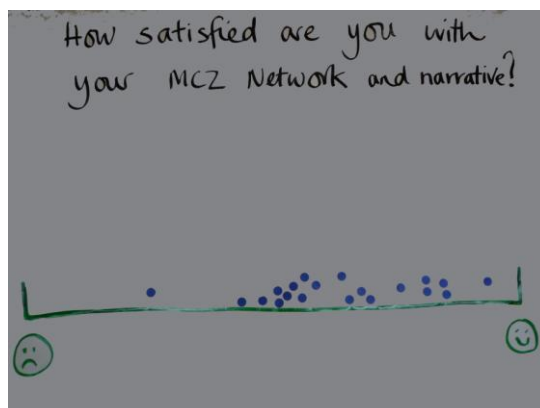


Figure 12: Photo showing response from Steering Group on 27th July 2011

An evaluation was undertaken at the Steering Group meeting on the 26th July 2011 to determine how satisfied the group was with their network. The group used sticky dots on a flip-chart (see figure 12). In discussion, those Steering Group members who had been particularly positive elaborated that they were happy because the conclusions ‘far oustripped original expectations’. Those with more of a median point of view explained that they were pleased with the outcomes, but the success of the process will depend on how the uncertainties play out. A more negative point of view highlighted that there was too much uncertainty around management and that stronger guidance and greater certainty about implementation was needed. Not all Steering Group members attended this last meeting or were present at the end when this exercise was carried out.

I.12 Beyond the Regional Project Recommendations

Finding Sanctuary submitted its final report to the SAP and the Government Statutory Nature Conservation Bodies, NE and the JNCC on the 7th September. By the beginning of October, the SAP will provide their final assessment of the extent to which the Regional Project recommendations meet the ENG.

On 16th January 2012, JNCC and NE will provide their statutory advice to Government. This advice will contain:

- Advice on the creation of an ecologically-coherent network of MPAs
- An overview of the Regional Project process used to identify possible MCZs
- JNCC and NE’s view of the Regional Project recommendations
- An assessment of the most at risk sites/priority sites for protection
- An assessment of the scientific certainty of the Regional Project recommendations.

The Regional Projects will continue to work with the JNCC and NE to deliver an Impact Assessment on the 16th January 2012.

I.12.1 Public Consultation and Designation

Once the regional project recommendations, the Impact Assessment, and the SNCB statutory advice has been received, ministers will consider the supporting evidence and potential environmental, social and

economic impacts, before deciding sites to take forward for designation in 2012. The factors considered in reaching the Government's decisions will be clearly stated in the public consultation documentation, alongside the sites Government proposes to designate in 2012. Public consultation is expected to take place during summer 2012, and will be an opportunity for stakeholders to review, comment and provide feedback to Government on the proposed designations before they are finalised.

I.12.2 Management and Enforcement

From a very early stage, stakeholders have stated how important it is for them to understand what the management implications would be for a site. The lack of some basic management frameworks has been one of the biggest failings of this process. It has meant that stakeholders have operated in uncertainty about what restrictions might be introduced. They have overcome this void, by stating their own assumptions about what restrictions might take place, and have generally tried to make these as realistic as possible.

The danger with this approach was always that once the level of management was decided, any disjoint between the stakeholder assumptions and the outcomes from the vulnerability assessment could lead to an undermining of the stakeholder ownership of the work if stakeholders didn't have time to review their work in the light of decisions on activity restrictions. This became a reality in June 2011, when the outcomes from the vulnerability assessment showed that many inshore sites might restrict mobile fishing gear. Working Group members were frustrated to find that their work had apparently been undermined and criticised the way in which these top-down decisions had been made.

I.12.3 Monitoring

No details are available at this time on the methodology and timescales for monitoring. At the time of writing, the JNCC are implementing a project to start a monitoring project in 2014. At the Joint Working Group meeting in June 2011 a brief discussion took place about monitoring and made a number of observations. These included ensuring that monitoring take place at a site based and a network level. It was also suggested that existing monitoring is utilised with cross over between ecological and socio-economic monitoring.

I.12.4 Review Process

Reviews of the network will take place, but the process and timescales through which these occur is currently uncertain.

I.12.5 Future Role of Stakeholders / Regional Stakeholder Groups

There is currently no clarity on how individual stakeholders or Regional Stakeholder Groups will be involved in any future developments of the network. Following the delivery of the final report, the Regional Stakeholder Group will be given an opportunity to review and comment on the Impact Assessment in October.

During the Steering Group meeting on 26th July 2011 a brief session was held to determine stakeholder's own views on the role that they should have. They stated that the group represented a particularly valuable resource of knowledgeable people, who had developed particular experience of working together and using maps and technical guidance. Although they were keen to be proactive in putting themselves forward for subsequent parts of the process, they also noted that someone would be required to manage and co-ordinate their work. It was also noted that their role could evolve from MCZs to becoming more involved in Marine Spatial Planning.

Future involvement in the short term would include an ability to provide further narrative once the management implications had been completed, to input ideas for management measures (as was originally intended during the process) and to provide feedback on the Impact Assessment. Post

designation, Steering Group members could prove to be valuable in being given responsibility to ensure that the management is effective and enforced.

Since the management implications and management measures remain to be defined, the Steering Group also emphasised that they want to be involved in a review of the management implications following the completion of the sense-checked vulnerability assessment.

The overriding message therefore is that the group are keen to maintain their role in the MCZ network, but Defra, as the overall owner of the project would have to define what that role would be, and to create a secretariat for it.

Part II – Finding Sanctuary’s Network Recommendations

II.1 Introduction to Part II

II.1.1 The fundamental importance of the network concept

This second part of the final report describes the project's final MCZ recommendations. It is split into a network report (which describes the network configuration as a whole), followed by a series of individual site reports (which contain more specific details on each one of the rMCZs and recommended reference areas within the network configuration).

We have aimed to ensure that each site report contains all the key information that is relevant to a given rMCZ or recommended reference area, including information that is the same for many or all sites (e.g. many of the working assumptions apply to most or all rMCZs, and these are repeated in each site report). However, the site reports cannot be regarded as a series 'stand-alone documents'. Each individual site report will only make sense within the context of the full final report, which describes the recommended network as a whole.

This is because Finding Sanctuary's final recommendations are for a *network* of sites, not for a series of individual protected areas which someone might pick and choose from: Finding Sanctuary was tasked with delivering recommendations for Marine Conservation Zones (MCZs) that would, together with existing MPAs, form an *ecologically coherent network of marine protected areas*. Some of the individual rMCZs are not 'special' in any ecological sense, but each one makes its own important contribution towards creating a protected area network configuration that represents the full range of marine biodiversity, as required by the principles outlined in the ENG. The stakeholder comments in this report also reflect the fact that each site was planned to sit within a wider network. This is referred to explicitly in the cover note, which states that '*...we are satisfied that they represent the best negotiated outcome for an inter-linked and inter-dependent network...*'.

In order to maintain the integrity of Finding Sanctuary's final recommendations, the content of individual site reports should never be presented in isolation from the content of the remainder of the document, nor should individual sites be evaluated in isolation from the network configuration they form part of.

II.1.2 The stakeholder narrative

The importance of the stakeholder narrative

The development of a stakeholder narrative to form part of the final recommendations was a key component of Finding Sanctuary's work (see part I). The stakeholder narrative is important, as it describes the working assumptions that underpinned the stakeholders' planning work, implications of potential sites which stakeholder representatives highlighted during their discussions and negotiations, uncertainties, and additional comments made about the developing network configuration as the planning progressed. It draws together the work carried out by the Working Groups, the wider Steering Group, the Local Groups and the project team over the course of the whole planning period. The narrative recorded in this final document was developed over the course of many months of planning work, and its development can be traced back through progress reports and meeting reports from 2010 onwards.

The implications that are highlighted in the stakeholder narrative are those that were highlighted during the planning discussions. At the time of writing up these final recommendations, an much more in-depth and comprehensive Impact Assessment is being conducted by the project economist,

which is due to be finalised in January 2012. The impact assessment work continues to engage with key stakeholders who may be affected by the recommended sites, including many of those who were represented on the Steering Group and Local Groups.

Integrating the vulnerability assessment into the narrative

As described in part I, at the very end of the project (between April and June 2011) a series of vulnerability assessment (VA) meetings took place, which in addition to defining draft conservation objectives also began discussing what management would actually be needed within each site. The outcome of the management discussions held during the VA is separate from the working assumptions that had underpinned the planning of the network.

At the final stakeholder meetings in May, June and July 2011, the initial outcomes of the VA discussions were shared with the stakeholder representatives on the Joint Working Group and the Steering Group. This included the draft conservation objectives as well as the outcome of the discussions about site management and activity restrictions. Because we knew that the process for defining management would carry on beyond Finding Sanctuary, and because the VA discussions did not result in definitive management options, what was presented at the final meetings was simply a snapshot of where the VA management discussions had got to at the time (hence we refer to it as the 'VA snapshot'). The VA snapshot elicited a lot of feedback from stakeholder representatives.

In writing up the stakeholder narrative for this final report, the project team faced a challenge: The narrative had to include a comprehensive description of the working assumptions that had previously underpinned the planning process, as well as a description of the VA snapshot. The stakeholder comments in the final narrative refer to both, sometimes linking them. The challenge in writing up lay in drawing a clear distinction between the two. Appendix 13 includes the VA maps that were provided to stakeholder representatives in their final meeting, showing a visual representation of the VA snapshot. This has been included so that readers have a record of the information that stakeholders had available at the time they made their final comments within this process.

II.1.3 Structure of the network report

The network report describes the final recommended network configuration as a whole. The first sections of the network report cover stakeholder narrative, followed by sections that describe the network configuration and its performance against ENG criteria.

The network reports starts with a statement that the Steering Group made at their final meeting, largely in response to the VA snapshot (section II.2.1). This is followed by a generic narrative that had been formed over the whole of the planning process, i.e. mainly before the VA process had started. Section II.2.2 covers rMCZs, and section II.2.3 covers recommended reference areas. The generic narrative is a project team reflection on issues that came up repeatedly for many or all of the sites in the network, and includes some stakeholder comments made on the network as a whole. It is not a replacement for the more detailed narrative contained in the individual site reports, though it provides context. The next section (section II.2.4) is a project team perspective on levels of support for the network as a whole.

Section II.2.5 is a general description of the network configuration, including a summary list of all rMCZs and recommended reference areas. Section II.2.7 is a summary of the draft conservation objectives for all rMCZs and recommended reference areas. The final sections of the network report

describe the network's performance in meeting the ENG, with a summary of the contribution of existing MPAs (the gap analysis – section II.2.7), followed by figures and statistics for the network as a whole (section II.2.8), and figures specifically for recommended reference areas (section II.2.9).

II.1.4 Structure of the rMCZ site reports

Following the network report, there is a series of site reports, one for each rMCZ (and each recommended reference area). The site report structure is as follows:

- **Site name:** title of the site report
- **Basic site information:** site centre location, site surface area, biogeographic region, site boundary description, related sites
- **Features proposed for designation within the site:** summary list of draft conservation objectives, and statistics calculated from GIS data on how much of ENG-listed features have been recorded within the site
- **Site summary:** brief description of ecological and topographic characteristics of the site
- **Detailed site description:** more detailed description of the ecological characteristics of the site, based on a quick review of scientific literature
- **Stakeholder narrative: Assumptions and Implications:**
 - This provides a comprehensive overview of the working assumptions and implications recorded over the course of the process, in a table format. The first column shows assumptions about activity restrictions, i.e. whether or not activities would be allowed to continue within a site, or whether they might need to be restricted or excluded. The second column lists implications, based on the assumptions made, as highlighted by stakeholders during Working Group meetings and Steering Group meetings. This column reflects the considerations that were recorded and discussed during the planning discussions. It is not a replication of the Impact Assessment, and is not intended to be comprehensive.
 - The assumptions / implications table is followed by a short table showing the site-specific management outcome of the VA discussions.
- **Stakeholder narrative: Uncertainties and Additional Comments:** site-specific uncertainties and additional comments, some of which relate to the VA snapshot
- **Levels of support:** a project team perspective on levels of support for the site, based on discussions at stakeholder meetings (rather than just reflect how much the site is supported, this includes a description of the nature of specific concerns, and in some cases this overlaps to a degree with the content of the stakeholder narrative sections)
- **Supporting documentation:** description of the sources of ecological information used in the site report
- **Site map series:** main site map with boundary coordinates, additional maps with ecological and socio-economic information

This site report structure integrates the requirements of a nationally prescribed MCZ Site Assessment Document (SAD) structure with the site report structure that Finding Sanctuary had developed over the course of the project (see progress reports).

II.1.5 Structure of site reports for recommended reference areas

The site reports for recommended reference areas are structured in the same way as site reports for rMCZs. The main difference is a much shorter and less complicated stakeholder narrative. There was much clearer guidance available on what activities will be restricted in reference areas (see the national MCZ project [draft reference area guidance](#)¹⁵), compared with MCZs in general. This meant that the work on assumptions (see below) and the vulnerability assessment was not needed.

¹⁵ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

II.2 Network report

II.2.1 Steering Group commentary on its work

At their final meeting on July 26th, 2011, the Finding Sanctuary Steering Group agreed to make the following statement about their work. The statement was made in the context of having seen the initial outcomes of the vulnerability assessment meetings (the VA snapshot). It followed on from the suggestion that most members of the Joint Working Group had made at their final meeting in June 2011, in response to the VA snapshot, which was for the Steering Group to make an explicit recommendation that all mobile bottom-towed fishing gear should be excluded from all rMCZs (based on the working assumption that had underpinned the planning process).

FINDING SANCTUARY STEERING GROUP COMMENTARY ON ITS WORK

We have worked hard as a group to achieve the targets set by ENG guidance. As a project we have worked with a set of assumptions that enabled us to construct a network of MCZs.

As an example, although a blanket ban on bottom trawling was used by the group as a working assumption, we are not comfortable turning this into a recommendation because of the reasons below, and also because different gear types have different impacts on different sea bed types and habitats. Therefore there could be different management measures for different gear types providing evidence on impacts can be risk assessed.

The VA process appears to be an attempt to provide the certainty that we used our assumptions for. We are not comfortable with the VA outputs (in particular for the inshore sites) because:

- The information and evidence arrived too late so we have had no time to consider what it means and to review our decisions in the light of it
- The evidence underpinning it is too scant
- for at least some sites (e.g. Torbay), applying the VA outputs appears to go against input from, and agreement by, local stakeholders
- in some cases local knowledge has led us to believe that management measures don't seem to support the draft conservation objectives
- some draft conservation objectives are wrong, e.g. set as maintain when should be recover and vice versa

SUGGESTIONS ON NEXT STEPS

To achieve meaningful implementation and necessary levels of buy in to MCZs:

There should be a review of the MMs proposed from the final (sense checked) VA process. This should include us as regional stakeholders, enabling us to work through them in the appropriate level of detail. This should take place before the SNCB advice to DEFRA and therefore well before the public consultation, and the results from it fed into the public consultation. We would want to have time to take the results of this to the local stakeholders that participated in the Finding Sanctuary process for their views and response.

The public consultation process would encompass conservation objectives and management measures. The rationale for each management measure should also be provided.

In order to fully understand the context within which this statement was recorded, please refer to the process description in part I, the stakeholder narrative in section II.2.2, and the full reports from the Steering Group meeting on July 26th and the sixth Joint Working Group meeting in June 2011.

II.2.2 Stakeholder narrative for rMCZs

Working assumptions and implications

Fundamental working assumption

At the time that the network configuration was being shaped, before the vulnerability assessment process had started, several working assumptions were formulated. The fundamental working assumption was that current activities within an MCZ would be allowed to continue, unless they prevent the conservation objectives of the site from being achieved. This applied to all activities.

For reference areas, it was understood that high levels of restrictions would be placed on ongoing activities, because this was clearly set out in the draft reference area guidance. For wider MCZs, it was more difficult to try and formulate more specific assumptions on what the fundamental assumption might translate to in practice, in terms of what activities would need restricting in what ways. The following paragraphs summarise, in generic terms, what the more specific assumptions were for rMCZs (not including reference areas). They are not exhaustive, and readers should always refer to site reports for a full site-specific narrative.

Commercial Fishing

A generic assumption was made early on in the process that mobile bottom-towed fishing gear would not be permitted in any MCZs. Offshore fisheries representatives did not agree that this assumption was realistic, and asked for an alternative wording to be used, which in essence stated that ‘all fishing activities can continue unless it prevents conservation objectives from being achieved’. Whilst accurate, that wording goes no further than the fundamental working assumption that applied to all activities.

In reality, the assumption that mobile bottom-towed gears would not be permitted in any MCZs ran through the entire planning process, and this is acknowledged by fishing representatives. As a consequence, the planning process avoided areas most intensively used by benthic mobile gear fishermen, in as much as it was possible to meet the ENG elsewhere. This has had a direct bearing on the final configuration of the recommended network (map FR_080). Implications that stakeholders highlighted as arising from an assumed closure of MCZs to these gear types centred around the loss of fishing grounds to mobile gear fishermen, negative displacement effects, and negative economic consequences to fishermen.

For other types of fishing activity, the generic assumption was that present levels of activity would be allowed to continue in MCZs, although stakeholders discussed and acknowledged that there may need to be an upper limit on intensity of use (should activity levels increase and evidence show that the activity is preventing conservation objectives from being achieved). This upper limit was discussed, specifically, for static gear types that make contact with the seafloor, as the conservation objectives for rMCZs centre on the protection of the seafloor.

Note that for the Skerries Bank and surrounds rMCZ, one of the areas most intensively fished by static gears within the region, the recommendation for the rMCZ is explicitly made only on the condition that current management is maintained – any additional restrictions resulting from an MCZ designation would seriously compromise levels of support for the site (see site report for more details).

In terms of implications of MCZ designation for fishing activity other than bottom-towed gears, stakeholder representatives highlighted potential risks to local fishermen should the working assumption not hold true, i.e. should current levels of use not be allowed to continue as a result of the MCZ being designated. These centred on concerns about economic losses, especially for local inshore fishermen operating small boats, who have limited capacity to travel longer distances in order to seek alternative fishing grounds.

On the other side of the argument, science and conservation representatives commented that there could be economic benefits to the fishing sector as a result of MPAs being put in place, if the protection levels within MPAs are high enough. These benefits could result from a healthier ecosystem, and spillover of larvae and fish (e.g. see PISCO, 2011). A more practical benefit was also suggested, which was that the incorporation of effectively managed MPAs into local fisheries management may increase the likelihood of sustainability certification.

Renewable energy developments

For renewables, two alternative sets of working assumptions were recorded for a period of time during the planning process, resulting in two variations of the network (e.g. see the third progress report, published in February 2011). The ‘no co-location’ variation of the developing network assumed that renewable developments would not be compatible with MCZs and would therefore not be allowed within site boundaries. The ‘co-location’ variation assumed compatibility.

In the final recommendations, a single network configuration is presented, based on the assumption of compatibility, i.e. the assumption that renewable energy installations (wind, wave and tidal) will be permitted within MCZs. The assumption includes a caveat based on SAP feedback, i.e. that renewable energy installations should not be constructed on all instances of any particular broad-scale habitat type protected in the network. In effect this means that the assumption cannot be applied simultaneously to every site in the network, despite it being recorded in every site report (a caveat to this effect is included in the site reports).

Several implications are recorded which would arise if the assumption on compatibility turned out to be wrong, which centre on the costs to the energy sector as well as the possible compromising of the UK’s renewable energy targets. The narrative presented in individual site reports also highlights which sites in the network coincide with renewable energy resource, based on feedback received from the renewables sector.

Despite the ultimate assumption of compatibility, during the planning discussions the renewables sector was keen to steer the location of rMCZs away from areas of high renewables interest, wherever it was possible to meet the ENG elsewhere. This was a direct result of the ongoing uncertainty on what implications an MCZ designation might have for potential future renewables developments within or near the boundaries of a given site. The uncertainty meant that the sector found it hard to quantify risks posed by the process and by signing up to a given set of rMCZ recommendations, and tended towards assuming a ‘worst-case scenario’ even when the Working Group was explicitly recording the assumption of compatibility. On the other hand, in the one

specific case where it was possible to reduce the uncertainty and for developers get a better understanding of the true risks (the case of the Atlantic Array planned wind farm), the developers were able to agree to the recommendation that the Atlantic Array area be included in the network recommendation (see the statement made by RWE in the site report). This illustrates how the high levels of uncertainty inherent in the MCZ planning process might have led to lost opportunities for biodiversity conservation in finding synergies and ‘win-wins’ within the context of wider marine spatial planning.

Submarine cables

For submarine power and telecommunications cables, the assumption was made that existing cables would be allowed to stay operational within rMCZs, and that new cables would be permitted with no additional need for mitigation beyond those that would be required anyway under current management and licensing regimes. Stakeholder representatives highlighted implications that would arise from that assumption not holding true, including some of the added costs that might be faced by cable operators and renewables developers.

Aggregate extraction

Aggregate extraction was assumed to be incompatible with MCZs, and as a consequence, the rMCZs were sited away from currently licensed aggregate extraction areas.

Dumping and disposal

Dumping and disposal was assumed to be incompatible with MCZs, and generally, rMCZs were located away from active disposal sites, in some cases with boundary adjustments made to increase buffer zones (e.g. for Mounts Bay rMCZ). The one exception is Padstow Bay and surrounds rMCZ, which overlaps with a small part of a current disposal site – this was highlighted as a potential problem by stakeholder representatives at the end of the process, but there was no more time to make further boundary adjustments at that stage.

Recreational activities

Recreational activities, including recreational angling, were assumed to be permitted within MCZs, as was the passage of vessels. Anchoring and its potential damage to the seafloor were discussed, and a generic assumption was recorded that anchoring of large vessels would not be permitted in MCZs, but that for small vessels, it would generally be permitted, with a possible exception if particularly sensitive seafloor habitats were present. In one instance in particular (Studland Bay rMCZ), a possible restriction on anchoring over sensitive seagrass areas has been the subject of a long-standing conflict between local stakeholders, and this is discussed further in the relevant site report.

Several stakeholder representatives highlighted that there could be benefits to recreational activities from effectively managed MCZs, especially for coastal sites. There is potential for an increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc), and a local MCZ might provide a selling point that could attract visitors to a particular area.

Coastal activities

A series of assumptions were formulated that apply to coastal sites in particular, such as an assumption that aquaculture installations would be permitted in MCZs (with mitigation if necessary), that wastewater management and the location of wastewater outfalls would not be affected by MCZs (given that mechanisms are already in place to improve and maintain good coastal water quality, e. g. through the Water Framework Directive), and that coastal management and defence would not be impacted by MCZ designation. The implications arising around these assumptions are detailed in site reports.

The Environment Agency highlighted that all lengths of the coast, including estuaries, have a flood risk and coastal management policy assigned to it in shoreline management plans (e.g. hold the line, managed retreat, extend the line), and will have more detailed plans and activities within strategies (Flood Risk and Erosion Management or FERM). The basic assumption during the network planning was that Flood and coastal risk management activities can continue in coastal MCZs. The EA were concerned that this should be the case, and that it should cover:

- beach replenishment (including the pumping of material onto a beach by metal pipe from vessels within 200 to 300m of the shore),
- Access to, and maintenance of, flood risk management assets and structures on the foreshore, e.g. groynes,
- An assumption that the withdrawal of an activity is acceptable – e.g. managed retreat of flood risk management. There is a potential, for example, that the sediment regime may change as a result.

However, in general the Environment Agency have been supportive of MCZ proposals, and see benefits arising from sustainably managed, healthy coastal and marine ecosystems which MCZs could help deliver. Several stakeholders highlighted that MCZs in general, and coastal MCZs in particular, could result in improvements for the local economy at coastal locations, as a result of the enhanced leisure opportunities highlighted above, and because MCZs would bring benefits for science, education opportunities, and a focus for voluntary groups.

Ports

Like the renewables sector, the ports sector faced a great deal of uncertainty of the risk associated with MCZs, both in terms of what ports-related activities might be impacted, and in terms of what additional regulatory hurdles might result from MCZ designations in order to be able to carry out port-related activities and operations within or close to a given MCZ. As a result, the ports sector was keen to steer the selection of MCZs away from ports, wherever possible. This meant that the selection of estuarine MCZs was delayed significantly in the planning process (see part I.7.5). The ports representative collated a great deal of information with respect to possible implications of MCZs to ports, and these are included in the relevant site reports.

Assumptions relating to draft conservation objectives for mobile species

Finally, some of the inshore rMCZs have draft conservation objectives for seabirds, basking sharks or cetaceans. In order to protect such species within the relevant sites, it was assumed that the management necessary would centre on education, awareness raising, and putting in place voluntary codes of conduct to avoid disturbance and wildlife collisions. Earlier on in the process, assumptions had been recorded that some types of fishing (netting and longlining) may need restriction or mitigation strategies to avoid bycatch of seabirds and cetaceans, but the validity of these assumptions was strongly questioned by many stakeholder representatives early on, so these early assumptions became invalid (refer to previous progress reports).

Key uncertainties

Uncertainties about site management and activity restrictions

As referred to several times in this report, the most significant uncertainty faced by the project was the lack of knowledge on management of MCZs. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

This fundamental uncertainty threatened to undermine effective stakeholder participation in the project from the beginning. We spent a lot of time discussing this uncertainty within stakeholder groups, and this is what gave rise to the need to formulate the management assumptions discussed above. These assumptions helped stakeholders make progress on designing rMCZ sites and boundaries and meeting the ENG, in the face of uncertainty.

Data gaps

Another area of uncertainty that applies to most of the components of the network relates to gaps in ecological and socio-economic data. These gaps in knowledge have been widely discussed and acknowledged as a reality during the planning process. Nevertheless, the project had the clear remit to pursue the delivery of MCZ recommendations based on the best available information, accepting that this information is often less than perfect. Appendix 8 discusses the ecological datasets that underpinned the project's work in detail.

Additional comments

Comments on meeting the ENG

For some FOCI species and habitats, the minimum ENG replication targets are exceeded in the network configuration. In part, this is because all ENG-listed features reliably recorded within sites have been given draft conservation objectives. A commercial fishing representative raised the question whether the group would have any opportunity to revise the draft conservation objective list for each site, and remove 'excess' features from the list in some of the sites, leaving the sites to protect only those features for which there would otherwise be a shortfall. A statement was recorded to say that commercial fishing cannot support the inclusion of 'excess' features in the conservation objectives, and for the same reason, they do not support the inclusion of non-ENG listed mobile species (seabirds and cetaceans) on the draft conservation objectives list. Similarly, the commercial fishing sector strongly questioned the inclusion of a large number of estuaries in the network, because the ENG does not stipulate any quantitative guidelines for the number or types of estuary to be represented, or for areas of additional ecological importance to be included in the network. Therefore, they viewed the large number of estuarine MCZs as being surplus to the requirements of the ENG.

Named Consultative Stakeholder feedback

Named Consultative Stakeholders (NCS) were invited to provide feedback for each of the three progress reports in July/August 2010, November 2010 and March 2011. They were provided with an ftp link to all the relevant reports and additional documentation and a form to record feedback. No responses were received for the 1st Progress report. Feedback from the 2nd Progress report was

primarily from European fishing interests as well as some comments from EDF Energy and information relating to geological conservation. The feedback expressed concerns for a number of sites, but did not provide alternative suggestions or changes. NCS feedback following the 3rd progress report came from three European fishing organisations, highlighting a number of sites where there were concerns. Many of these sites had already been discounted. Further details can be found in section I.6.6.

Fisheries management beyond 6 nautical miles and the Common Fisheries Policy

One comment that was highlighted from the earliest stakeholder meetings was that it would not be acceptable to have in place any measures that unilaterally prevented UK fishermen from fishing in certain areas, while other European vessels still had access to those areas. Given that in many areas, non-UK vessels have historic fishing rights beyond the 6nm limit, and that beyond the 12nm limit all EU vessels have equal rights to fish, this effectively means that in all MCZs beyond 6nm, fishing restrictions would need to be implemented through the CFP.

At the time of the third progress report, we had received the following statement from the SNCBs and Defra: ‘When considering the impacts of fishing restrictions on non UK vessels, it is the Government’s intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.’

This assurance led to a related concern being voiced by fishing representatives. Based on the assumption that implementing management through the CFP may be more difficult and take longer than implementing management within 6nm, there was concern that this might lead to a ‘tranching’ approach where inshore sites would be implemented in preference to offshore sites, or earlier than offshore sites. This would not be acceptable to inshore UK fishermen, especially small-scale fishermen with small boats and limited capacity to find alternative grounds, who would be disproportionately affected compared to offshore UK and EU fishermen.

Reactions to the vulnerability assessment

The most significant additional comments from stakeholders with respect to the network recommendations as a whole relate to the vulnerability assessment (VA) process and its initial outcomes. After having played a central role in determining a configuration of rMCZs and recommended reference areas that would meet the ENG, and spending a lot of time formulating the accompanying narrative, stakeholder representatives felt sidelined in the vulnerability assessment process, especially with respect to the discussions on site management.

At the sixth Joint Working Group meeting in June 2011, results from the regional vulnerability assessment discussions were presented to the stakeholder group. The meeting report contains a full record of the discussion that ensued, but some key comments are recorded here.

- *Reactions to the VA recorded during the June 2011 Joint Working Group meeting:*
 - With respect to all rMCZs, certain activities (e.g. bottom-towed fishing) should be restricted altogether within rMCZs, even if they are not currently occurring or are

happening at a low level. If they are not restricted and these activities begin in a rMCZ, they could destroy conservation efforts. We shouldn't wait for monitoring to identify a problem (i.e. a degradation in species/habitat condition) before we act on managing these activities.

- Decisions on boundaries /site locations have been based on a working assumption of no bottom-towed fishing gear. As such, recommendations should be based on this because that has always been the premise of the discussions. The network (of rMCZs) is the result of months of work and previous working assumptions should not be ignored.
- Not all stakeholder representatives agreed with these additional comments – the offshore fishing representative stated that the offshore fishing sector had never accepted a complete exclusion of mobile bottom-towed gears from all MCZs as a realistic or appropriate assumption, even though the assumption had been used during the planning process (please refer to the meeting report for more details).
- *Reactions recorded after the June 2011 Joint Working Group meeting:*
 - The results of the regional VA discussions seemed to indicate that mobile demersal fishing gear might be permitted in many sites. As a result, representatives of conservation NGOs, Natural England, the scientific community, and the recreational sector, made the following comments, which are relevant to this site.
 - There are two overarching issues which pertain to rMCZs where mobile demersal gear will still be permitted:
 - The assumption that natural disturbance (e.g. sites in/near the Bristol Channel) is greater than disturbance caused by fishing activity is based on the condition of habitats that are already impacted by fishing activity.
 - Sites which are trawled, even at low levels of intensity, are exposed to physical disturbance pressures that means they are likely to be altered and it is therefore difficult to assess their condition as favourable.
 - In both cases, removing the pressure caused by fishing activity is likely to allow stabilisation of the habitats. This would be a more precautionary approach and could be reviewed at the first MCZ review. Conversely if demersal fishing activity is not restricted at these sites, there is a risk of maintaining sites in a degraded condition and therefore not allowing them the potential to improve.
 - The above members of the Joint Working Group do not consider that these broad-scale habitats are currently in 'favourable condition'. They feel that the Conservation Objectives should be reconsidered and changed from 'maintain' to 'recover'.

The vulnerability assessment process, combined with this reaction of the Joint Working Group, gave rise to a discussion during the last Steering Group meeting in July 2011, which resulted in the statement in section II.2.1 being agreed.

The above comments, and the statement in section II.2.1, reflect stakeholders' concern about two issues: one was the process by which the VA was carried out, and the other was the outcome (albeit an outcome with no final answers). As stated above, process concerns centred on the lack of involvement of the stakeholder group in the vulnerability assessment process.

Concerns about the activity restriction and management outcome (the VA snapshot) centred on the lack of alignment with the working assumptions. The latter concerns were particularly strong for

inshore sites. For sites far offshore, some stakeholder representatives considered there to be a higher uncertainty about the impacts of some types of bottom trawls, depending on the seabed substratum, depth, and natural energy affecting the seabed. To some extent, the mismatch between the working assumptions and the content of the VA snapshot can be explained by the fact that their formulation and recording took different approaches. The vulnerability assessment discussions only focussed on a limited number of activities in each site (depending on which activities are carried out at high levels), whereas the assumptions were more comprehensive and covered activities that may not always currently be present in each site. In addition, it was recognised by some stakeholders that the shaping of the network had avoided areas where human activities (especially mobile bottom-towed fishing gears) take place at high intensities, thereby making it less likely that those activities would have been identified as causing a problem during the vulnerability assessment discussions.

II.2.3 Stakeholder narrative for recommended reference areas

Many stakeholder representatives felt uncomfortable with the high levels of restrictions to be put in place within reference areas, and fishing representatives stated outright that they do not support their inclusion in the network. The process of developing reference area recommendations therefore focussed on finding locations with limited ongoing human activities, that were also efficient and valuable in terms of their contribution to the ENG. Despite significant time and effort having been spent on developing reference area recommendations, the set of 13 sites included in the network recommendations fall short of meeting the ENG requirements for reference areas (see section II.2.9).

In total, 157 different reference area options were drawn during the process. This is the number of GIS shapes that were created, so it includes shapes that overlap where boundaries were adjusted, or where several options were considered at the same location – nevertheless, this large number illustrates how much effort was spent on the task. At their final meeting in July 2011, the Steering Group stated that they wished the final recommendations to highlight that the Joint Working Group got as far as they could with a challenging piece of work, and that the rationale and the reason for not going further was the high socio-economic impact of inshore reference areas. Any attempt to ‘fill in the gaps’ from outside the stakeholder group would risk the agreement and compromise reached between stakeholders on the sites that were included in their final recommendations (rMCZs as well as reference areas).

More site-specific commentary is included in the site reports for recommended reference areas. Appendix 10 includes a table of activities which, in the draft reference area guidance, are listed as not compatible or requiring possible management in reference areas. This table is laid out in the same way as the assumptions / implications tables in rMCZ site reports, and was used to capture stakeholder comments on the implications of individual recommended reference areas during meetings. The intention was to include one of these tables in each site report. Ultimately, however, a lot of the stakeholder narrative on the recommended reference areas was recorded during plenary sessions rather than on the tables, and the table format proved somewhat unwieldy and unnecessary. The table is therefore not replicated in each recommended reference area site report.

II.2.4 Project team reflection on levels of support for the network as a whole

In this final report, the project team were requested by Defra to provide information on ‘levels of support’ for the site recommendations. In order to meet the request, the project team have written their own reflection on ‘levels of support’ for the recommendations, both in this section (for the recommendations as a whole), and in each of the site reports. Whilst what is written here is based on stakeholder discussions that took place over the course of the project, it is a project team

interpretation and synthesis, and not a direct record of statements made by stakeholder representatives.

As reflected in the cover note, not all stakeholder representatives necessarily support all aspects of the project's final recommendations. Nevertheless, there is a general view that the recommendations, if implemented as recommended, constitute a set of sites that most stakeholders involved in the process could support, live with, or (as a minimum) accept as 'less bad than it might have been had we not been involved in the process'. This statement applies to the network recommendations as an integral whole, including the narrative and the working assumptions that underpinned the planning. It is based on the need to meet the ENG, and an acknowledgement that the work was carried out based on the best available (often less than perfect) data, within the timeframe available. The statement cannot be taken out of this wider context, nor would it apply to any isolated parts of the recommendations (e.g. site boundaries without the accompanying narrative, changes to the underpinning assumptions on management, or a subset of the recommended sites).

With respect to recommended reference areas, the fishing industry representatives stated clearly that they do not support reference areas. They made the following statement with respect to reference areas:

'Commercial fishing stated that the fishing industry representatives are adamantly opposed to the Government policy to include reference areas as part of the network of MCZs and they consider there to be no legitimate requirement under the Marine and Coastal Access Act. They believe it is a disproportionate measure and unnecessary for monitoring the ecological performance of MCZs and is a policy that has careless disregard for peoples' livelihoods. There is also insufficient time and information available to the regional projects to make robust selections of sites. Fishing industry representatives on the JWG are therefore not proactively identifying sites though they are responding in terms of highlighting what harm selections may cause.'

Fishing representatives largely chose not to participate in the planning discussions for reference areas, although some of them were present during the Joint Working Group meetings when this work happened, and they were given the opportunity to participate in or comment on the discussions at any stage.

At their last meeting in July 2011, the Steering Group were asked to mark on a simple scale how satisfied they felt with the network. This task was carried out at the very end of the meeting, and not all group members were present (please refer to the meeting report for details). Of those that were present, most marked their satisfaction near the middle or slightly above the middle of the scale. Several people commented that the reason for not placing the mark higher was based on what they considered to be failings of the process: the lack of clarity on management in particular, the lack of opportunity to review the outcomes of the VA process, and uncertainty around what happens next. Reasons for placing the mark higher than the middle included a sense that the recommendations were as good as they could have been within the process and time available, that stakeholders genuinely had an influence on the recommendations, and that the outcome had outstripped expectations.

It is worth reflecting on the initial purpose of bringing together a wide range of stakeholders and giving them a central role in making MPA recommendations: to build understanding and ownership of the sites, to allow the best available information and knowledge to underpin the planning process, and to avoid unnecessary conflicts, thereby maximising support for the network. However, the

purpose of the stakeholder process was not to turn every person or sector involved into a conservationist and MPA advocate, nor was it necessarily to get everyone to agree on and support every aspect of the final recommendations.

Our Steering Group representatives reflect great diversity in interests, values, attitudes to conservation, and fears / expectations of the MCZ process. There are sectors represented on the Steering Group who are fundamentally sceptical about marine protected areas, and about whether they should exist at all. This does not apply exclusively to the varied commercial fishing sectors (although they are traditionally seen as the most vociferous opponents of MPAs, and they tend to feel that they have more to lose from MPAs than others). As reflected in the stakeholder narrative, several other commercial sectors have shown scepticism with respect to MPAs, and have shown a preference for MPAs not to overlap with their areas of interest.

Other stakeholder group members represent conservation interests and are inherently strong advocates of MPAs. Some of these people represent organisations that would prefer to see MPAs designed based on biodiversity criteria alone, without any regard to wider socio-economic impacts, and would prefer higher levels of protection to those being discussed for MCZs.

Despite the fundamental differences between the sectors represented on the stakeholder group, representatives from a wide diversity of sectors have ultimately been able to work together constructively throughout the process. Many have put their own time (and, therefore, money) into the project, and all have worked hard to find a way of meeting the ENG, listening to each other, understanding and taking each other's interests into account. As stated, there are still plenty of uncertainties, conflicts of interest, misgivings about the process, and misgivings about the need for MPAs in the first place – but despite all of it, this stakeholder process has resulted in a set of recommendations that is underpinned by a sense of collective ownership by a group of representatives from across a diverse spectrum of interests.

II.2.5 The network configuration (overview)

In addition to the existing MPAs, the network configuration consists of 58 recommended new sites: 45 rMCZs, and 13 recommended reference areas. They are shown on maps FR_001a to c and FR_002a to c, and listed in table II.2.5a below.

We have loosely split the 45 rMCZs into 32 'inshore' and 13 'offshore' sites. In this final report, this is for presentational purposes, as the whole network cannot be represented legibly on a single A4-sized map. The split loosely follows the 12nm limit as the dividing line, but not strictly so (e.g. one 'inshore' site – South-east of Falmouth rMCZ – lies almost entirely outside the 12nm limit). Several rMCZs straddle the 6nm and 12nm limits (see table II.2.5a and map FR_002a)¹⁶.

Of the 45 rMCZs, some consist of several, spatially separate areas. The Taw Torridge Estuary rMCZ, Tamar Estuary Sites rMCZ and Upper Fowey & Pont Pill rMCZs each consist of two spatially separate areas. The Isles of Scilly Sites rMCZ consists of 11 separate areas, and is a particularly complex case, as each one of the 11 areas has its own list of draft conservation objectives (in some ways, the Isles

¹⁶ There was a division between 'inshore' and 'offshore' work at various stages in our process, and this is reflected in earlier maps and reports. This has generally been done for pragmatic reasons, such as managing work load / Working Group sizes, rather than being a strict or consistent split along administrative boundaries. In fact, through the Joint Working Group we actively tried to prevent the 12nm boundary within the region leading to an artificial disjoint in the shaping of the network (see part I of this report).

of Scilly recommendations might be considered as 11 separate sites, albeit small ones – this would bring the total number of newly recommended sites in this report to 69).

Some of the inshore rMCZs contain zones – areas within the site that have differences in the lists of features to be protected, and / or in terms of assumed activity restrictions:

- Two of the areas within the Isles of Scilly Sites rMCZ have been zoned to include ‘non-disturbance areas’, where there is a recommendation for higher levels of restriction of human activities than elsewhere within rMCZs (but not as high as within reference areas).
- The Padstow Bay and surrounds rMCZ includes a zone with seabird conservation objectives (in addition to conservation objectives for seafloor ENG features within the whole site).
- The Hartland Point to Tintagel rMCZ includes a zone where cetacean protection was considered in addition to the seafloor features.
- The Torbay rMCZ includes a zone around Berry Head that is recommended solely for the protection of cetaceans and loafing birds (this is the only area that remains in our current network configuration that is suggested solely for mobile non-ENG species, after careful consideration by the JWG, on the basis that there are known problems in this area with speeding leisure craft causing disturbance and wildlife collisions).

Of the 13 recommended reference areas, three are located offshore (beyond 12nm), within rMCZ boundaries: The Canyons, Greater Haig Fras, and Celtic Deep. The remaining 10 recommended reference areas are located inshore (within 12 nm), with 8 on the south coast and 2 off the north coast. Six of the inshore recommended reference areas are not located within rMCZ boundaries, but instead lie within existing MPAs (SSSIs, SACs or SPAs).

Table II.2.5a List of all sites in the current network. The individual site reports contain more comprehensive details about related protected areas, this table indicates the main ones only.

Offshore rMCZs	
The Canyons	Located within the far south-west corner of the UK Continental Shelf limits. Contains The Canyons recommended reference area.
South West Deeps (West)	Abuts the UK Continental Shelf limit.
South West Deeps (East)	Abuts the UK Continental Shelf limit.
North-West of Jones Bank	
Greater Haig Fras	Contains Greater Haig Fras recommended reference area and the Haig Fras cSAC
East of Jones Bank	
East of Haig Fras	
North-East of Haig Fras	Abuts the UK Continental Shelf limit.
South of Celtic Deep	Abuts the UK Continental Shelf limit.
Celtic Deep	Contains Celtic Deep recommended reference area
East of Celtic Deep	
Western Channel	
South of the Isles of Scilly	Straddles the 12nm limit
Inshore rMCZs	
Poole Rocks	
Studland Bay	Includes intertidal area.
South Dorset	Straddles the 12nm limit. Contains South Dorset recommended reference area.
Broad Bench to Kimmeridge Bay	Intertidal site. Located within Purbeck VMCA.

South of Portland	Intersects Studland to Portland dSAC.
Chesil Beach and Stennis Ledges	Includes intertidal area.
Axe Estuary	Includes intertidal area.
Otter Estuary	Includes intertidal area.
Torbay	Includes intertidal area. Intersects Torbay to Lyme Bay cSAC.
Dart Estuary	Includes intertidal area.
Skerries Bank and surrounds	Includes intertidal area. Intersects with Prawle Point to Plymouth Sound & Eddystone cSAC, and the Start Point Inshore Potting Agreement. The southern tip of the site extends beyond 6nm.
Devon Avon Estuary	Includes intertidal area.
Erme Estuary	Includes intertidal area. Intersects with a SSSI
Tamar estuary sites	Includes intertidal area. Consists of 2 parts, intersects with a SSSI, SAC and SPA
Whitsand and Looe Bay	Includes intertidal area. Intersects with an existing voluntary marine conservation zone
Upper Fowey and Pont Pill	Includes intertidal area. Consists of 2 parts
South-East of Falmouth	Lies almost entirely outside the 12nm limit
South of Falmouth	Lies almost entirely outside the 6nm limit
The Manacles	Includes intertidal area.
Mounts Bay	Includes intertidal area.
Land's End	Includes intertidal area. Located on the Land's End peninsula, but not at Land's End itself (closer to Porthcurno).
Isles of Scilly Sites	Consists of 11 parts, all sit within the Isles of Scilly complex SAC, some intersect with SSSIs, most include intertidal areas.
Cape Bank	Straddles the 12nm and the 6nm limits, contains Cape Bank recommended reference area , and the Cape Bank section of Land's End and Cape Bank cSAC
Newquay and the Gannel	Includes intertidal area.
Padstow Bay and surrounds	Includes intertidal area.
Camel Estuary	Includes intertidal area.
Hartland Point to Tintagel	Includes intertidal area, and part extends beyond 6nm.
Lundy	MCZ already designated, boundary is identical to Lundy SAC. Contains Lundy recommended reference area, the boundary of which is identical to the existing Lundy no-take zone
Taw Torridge Estuary	Includes intertidal area. Consists of 2 parts, intersects with SSSI
Bideford to Foreland Point	Includes intertidal area.
Morte Platform	
North of Lundy (Atlantic Array area)	Straddles the 12nm and 6nm limits, follows boundary of planned Atlantic Array wind farm
Recommended reference areas – offshore (beyond 12nm)	
The Canyons	Within The Canyons rMCZ
Greater Haig Fras	Within Greater Haig Fras rMCZ
Celtic Deep	Within Celtic Deep rMCZ
Recommended reference areas – inshore (within 12nm)	
South Dorset	Within South Dorset rMCZ
South-East of Portland Bill	Within Studland to Portland dSAC
The Fleet	Within a SSSI, SPA and SAC

Lyme Bay	Within Lyme Bay to Torbay cSAC
Erme Estuary	Within the Erme Estuary rMCZ and SSSI
Mouth of the Yealm	Within Plymouth Sound and Estuaries SAC and the Yealm Estuary SSSI
The Fal	Within the Fal and Helford SAC
Swanpool ¹	Within Swanpool SSSI
Cape Bank	Within Cape Bank rMCZ and cSAC
Lundy	Within Lundy MCZ and SAC, the boundary is that of the existing no-take zone

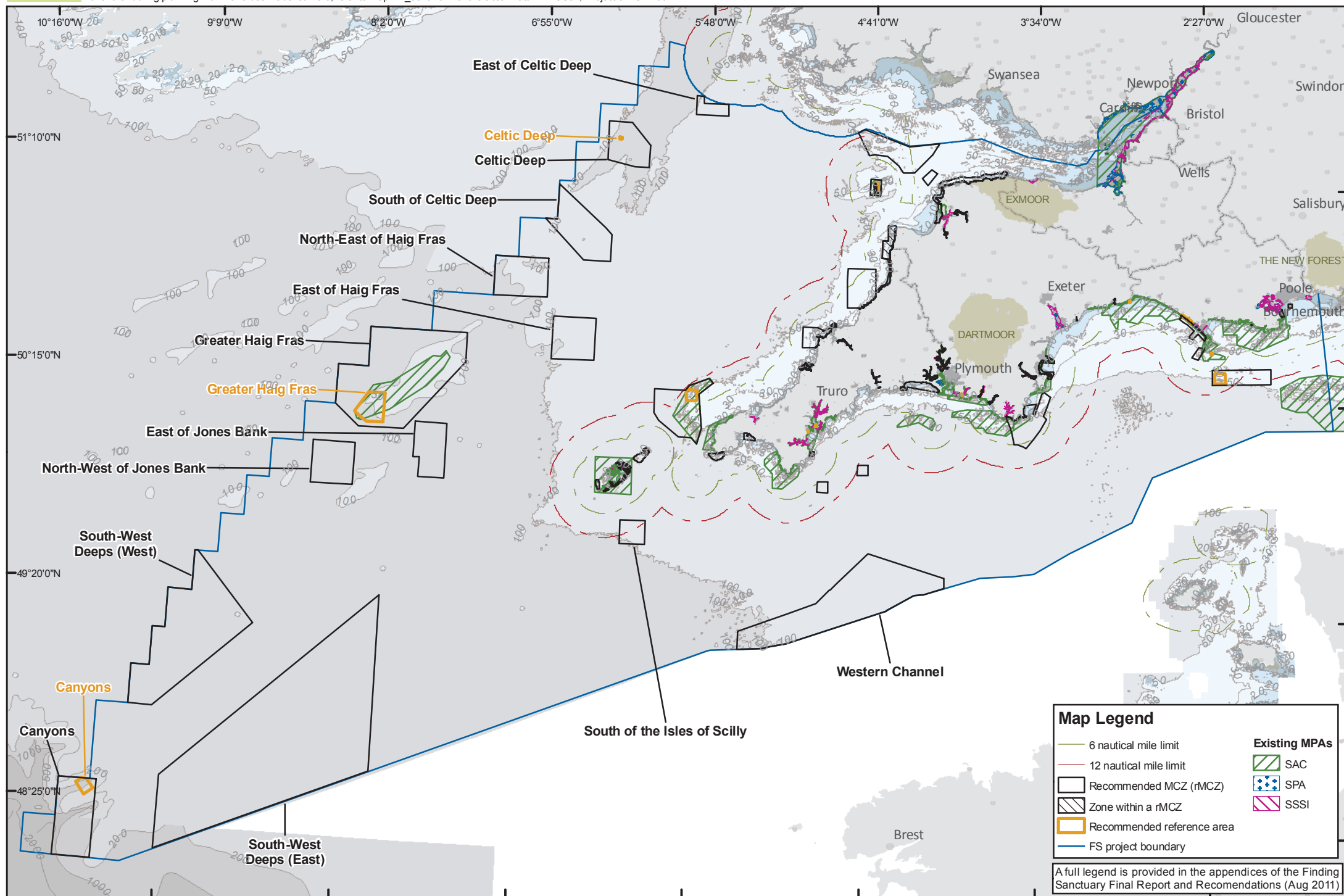
¹ The Swanpool Lagoon is the only place in England where the trembling sea mat *Victorella pavidia* is recorded. However, it sits above the OS Boundary Line mean high water line, which we are using as the limit of our project area – so, technically, it is not within our region.

Finding Sanctuary's MCZ Recommendations (offshore map)

This map shows Finding Sanctuary's network configuration (August 2011). Only recommended MCZs and reference areas considered "offshore" during planning work have been labelled here; refer to map FR_002a for inshore sites. Datum: WGS84; Projection: UTM30N.

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0 25 50 100 km

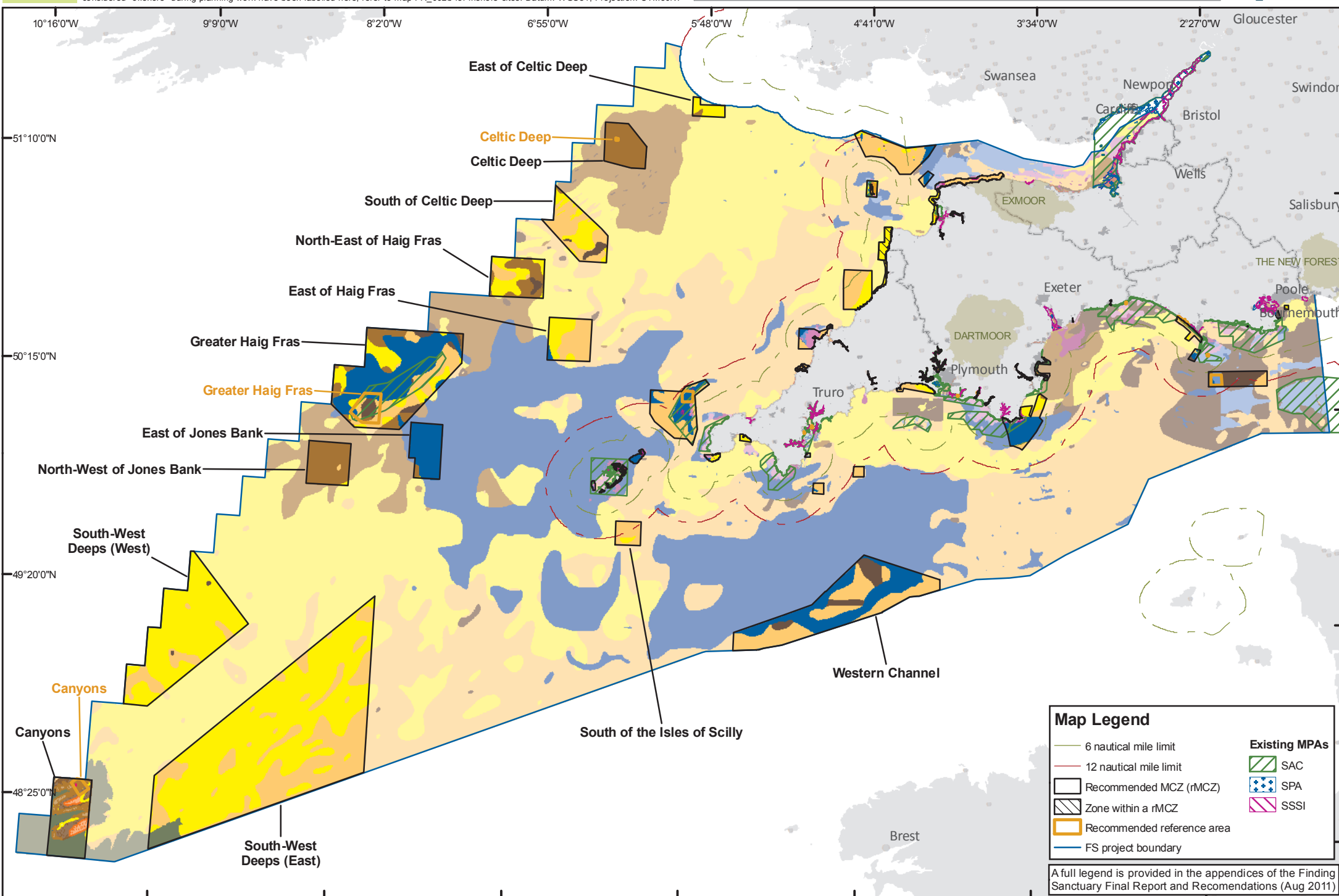


Finding Sanctuary's MCZ Recommendations (offshore map)

This map shows the broad-scale habitats in Finding Sanctuary's network configuration (August 2011). Only recommended MCZs and reference areas considered "offshore" during planning work have been labelled here; refer to map FR_002b for inshore sites. Datum: WGS84; Projection: UTM30N.

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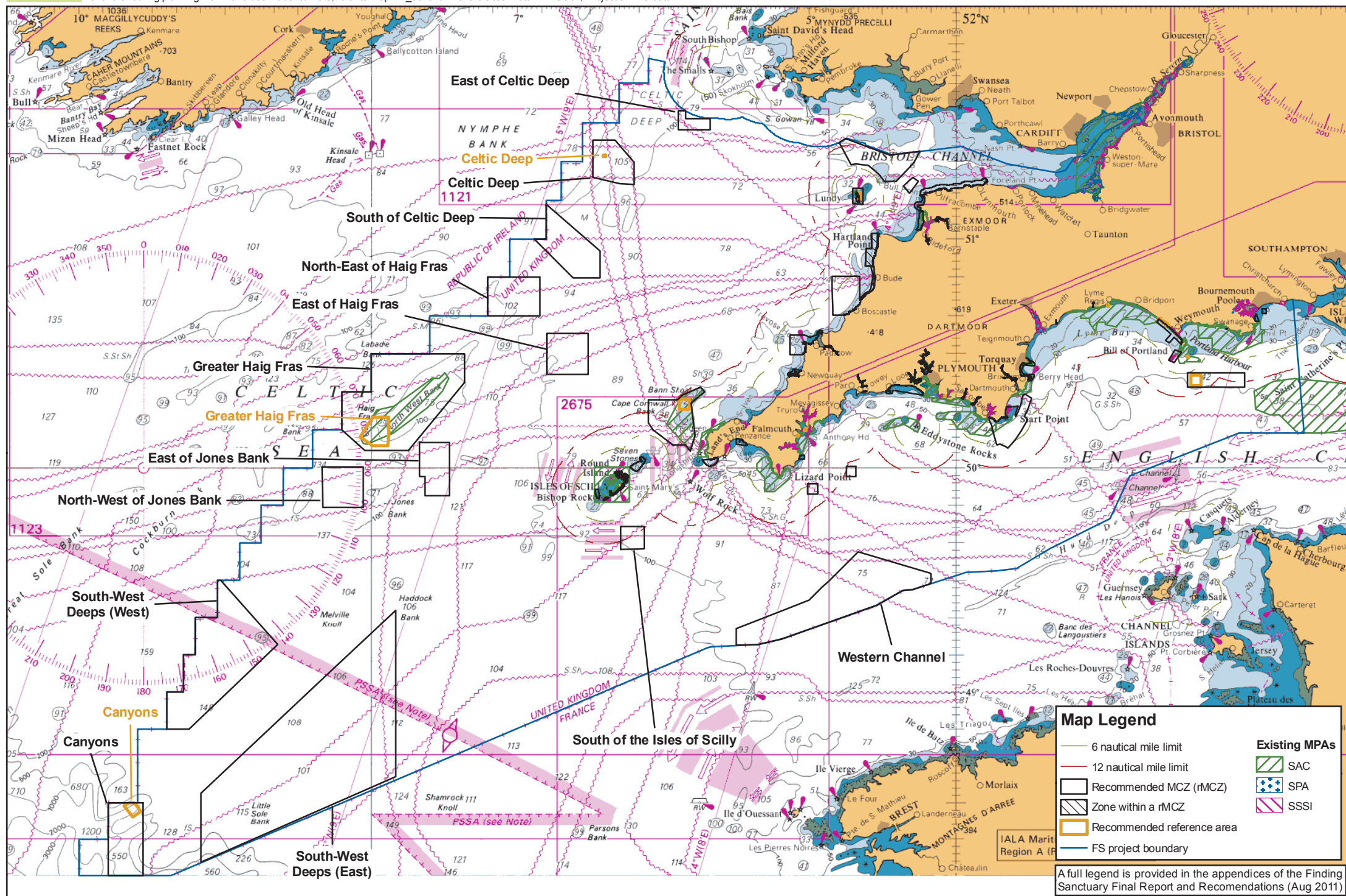
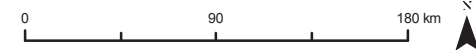
0 50 100 km



Finding Sanctuary's MCZ Recommendations (offshore map)

This map shows Finding Sanctuary's network configuration (August 2011). Only recommended MCZs and reference areas considered "offshore" during planning work have been labelled here; refer to map FR_002c for inshore sites. Datum: WGS84; Projection: Mercator.

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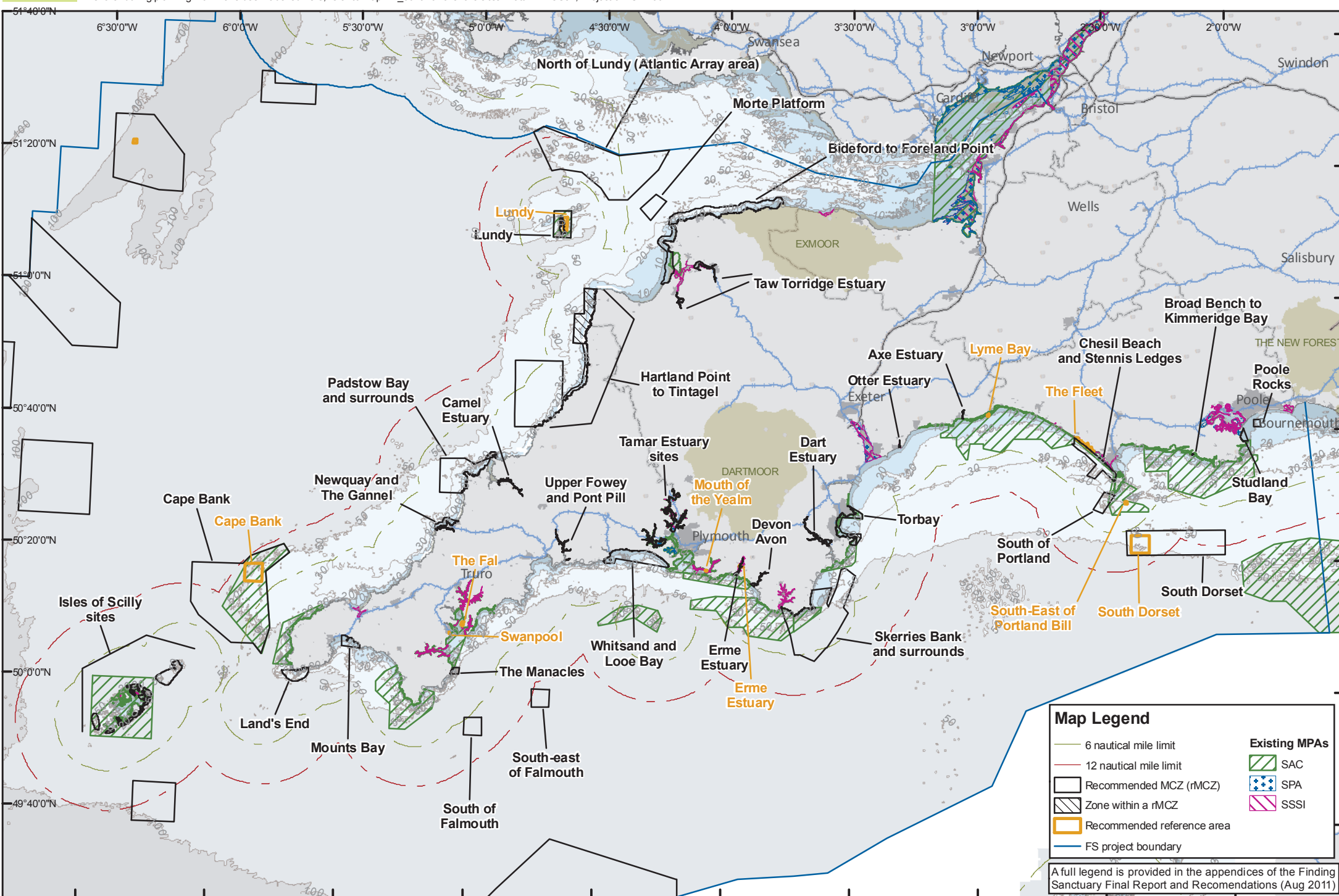


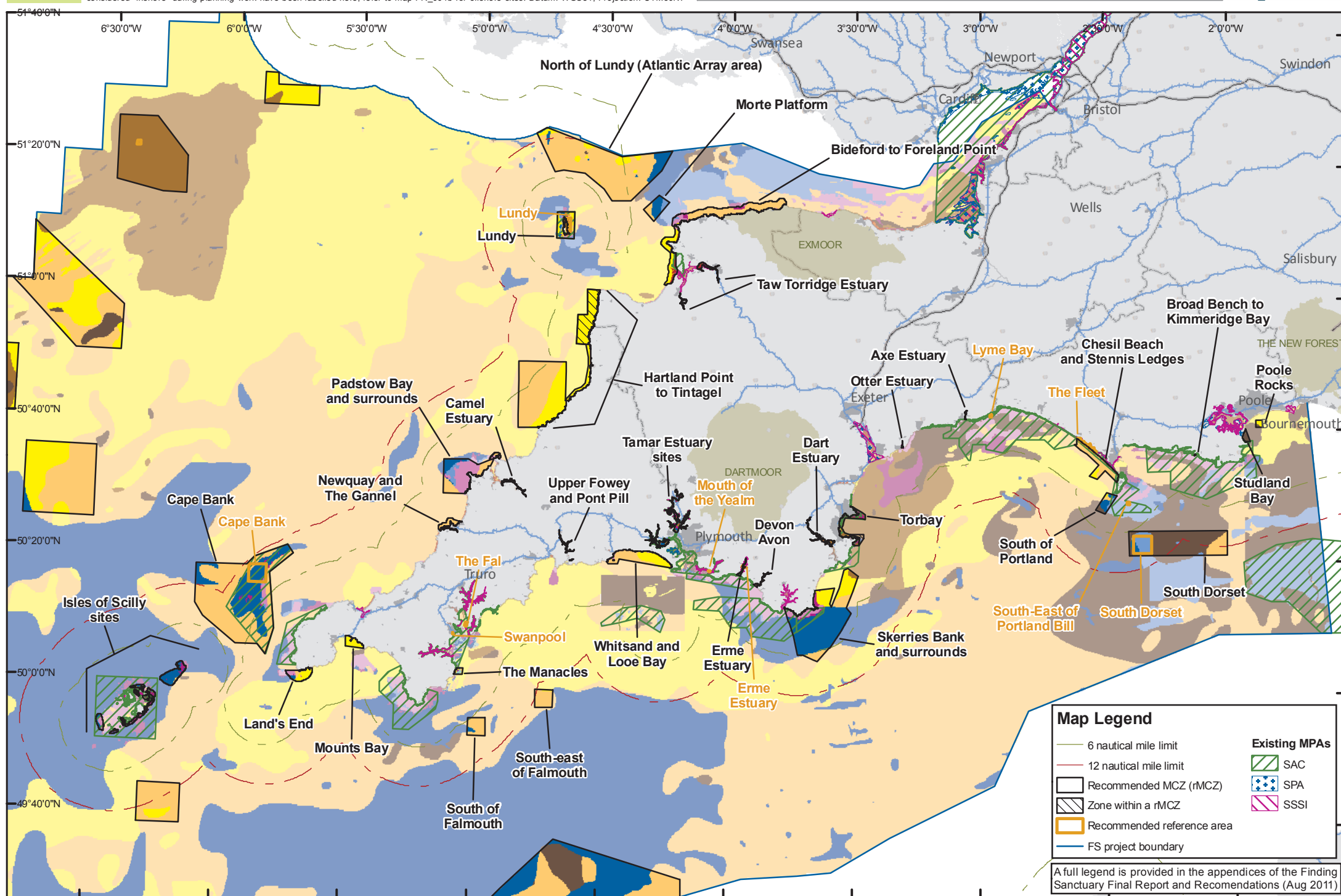
Finding Sanctuary's MCZ Recommendations (inshore map)

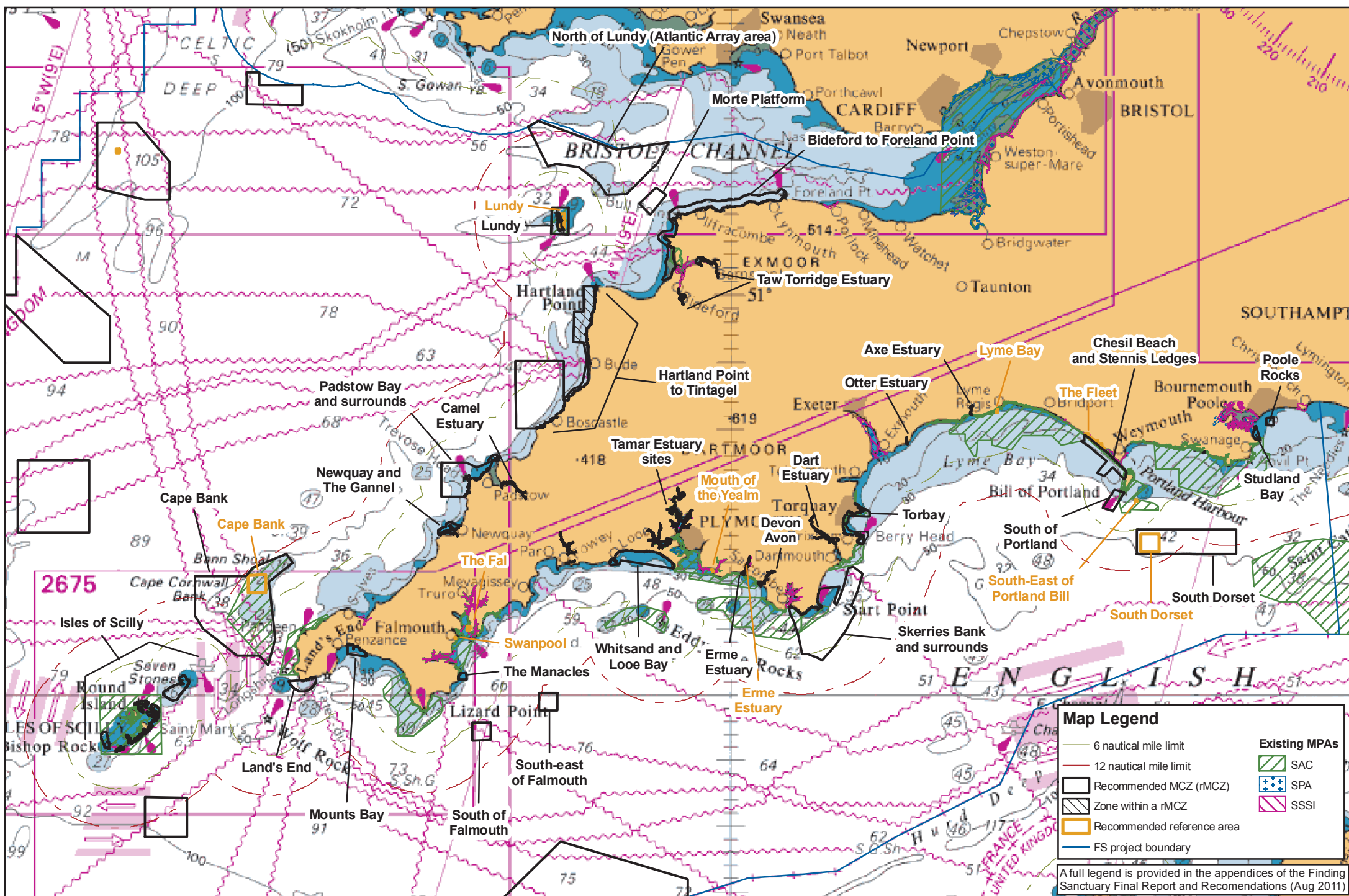
This map shows Finding Sanctuary's network configuration (August 2011). Only recommended MCZs and reference areas considered "inshore" during planning work have been labelled here; refer to map FR_001a for offshore sites. Datum: WGS84; Projection: UTM30N.

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0 30 60 km



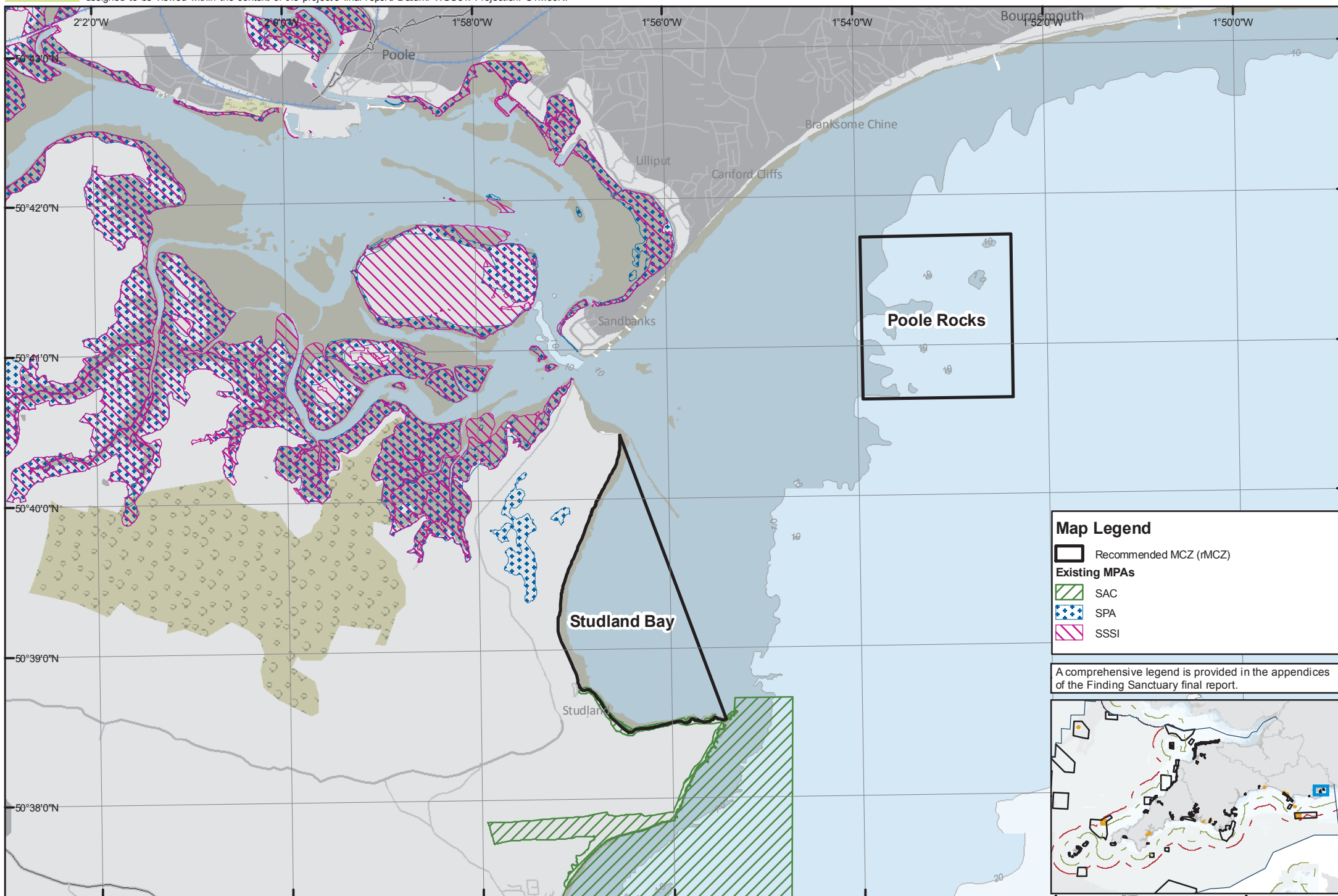
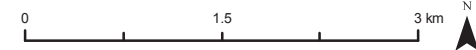




Overview Map: Poole Rocks and Studland Bay rMCZs and surrounding coast

This is one of a series of maps showing Finding Sanctuary's final MCZ and reference area recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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Map Legend

Recommended MCZ (rMCZ)

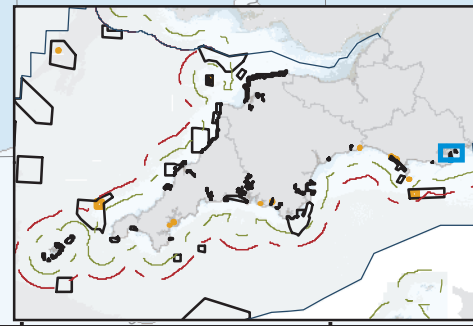
Existing MPAs

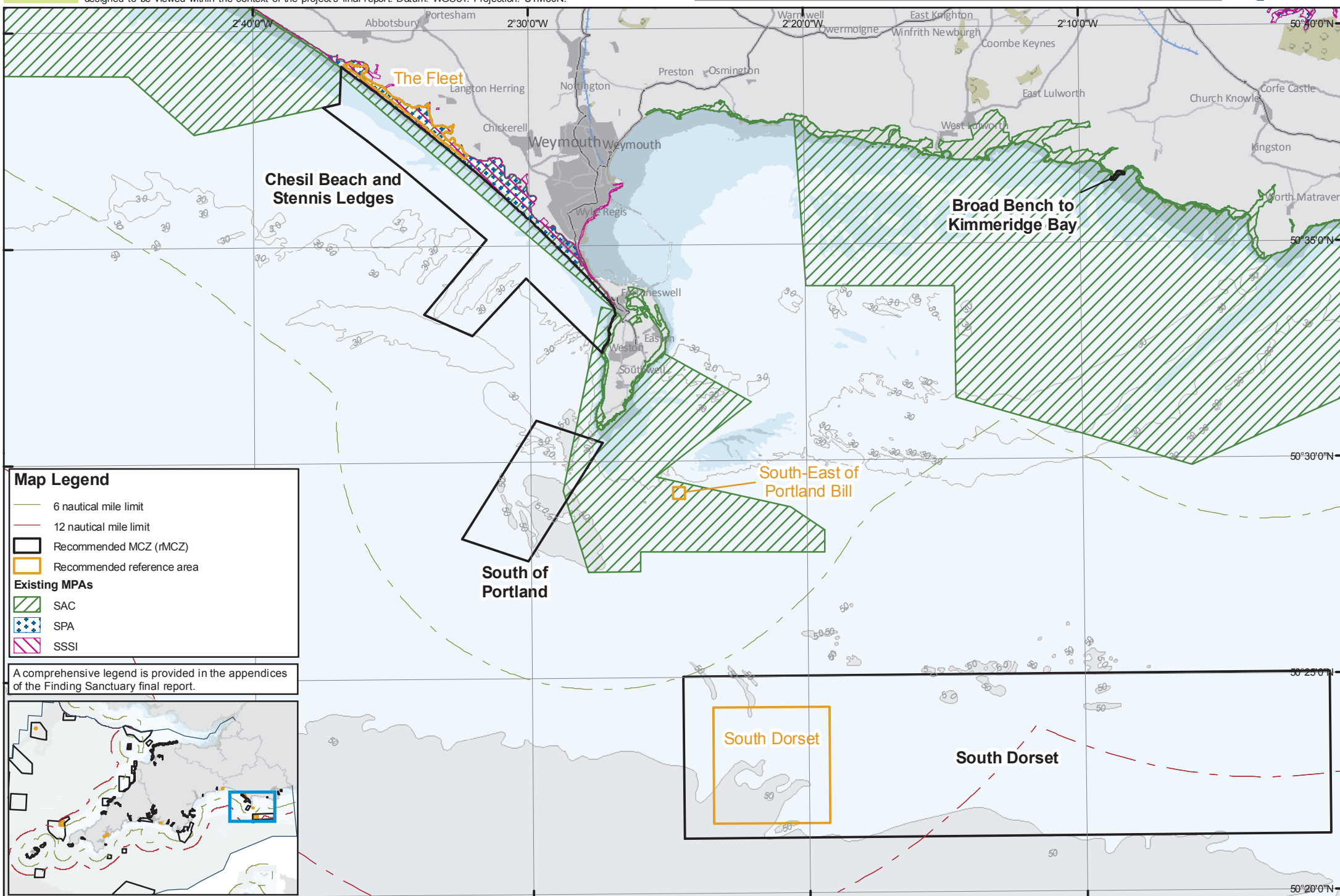
SAC

SPA

SSSI

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





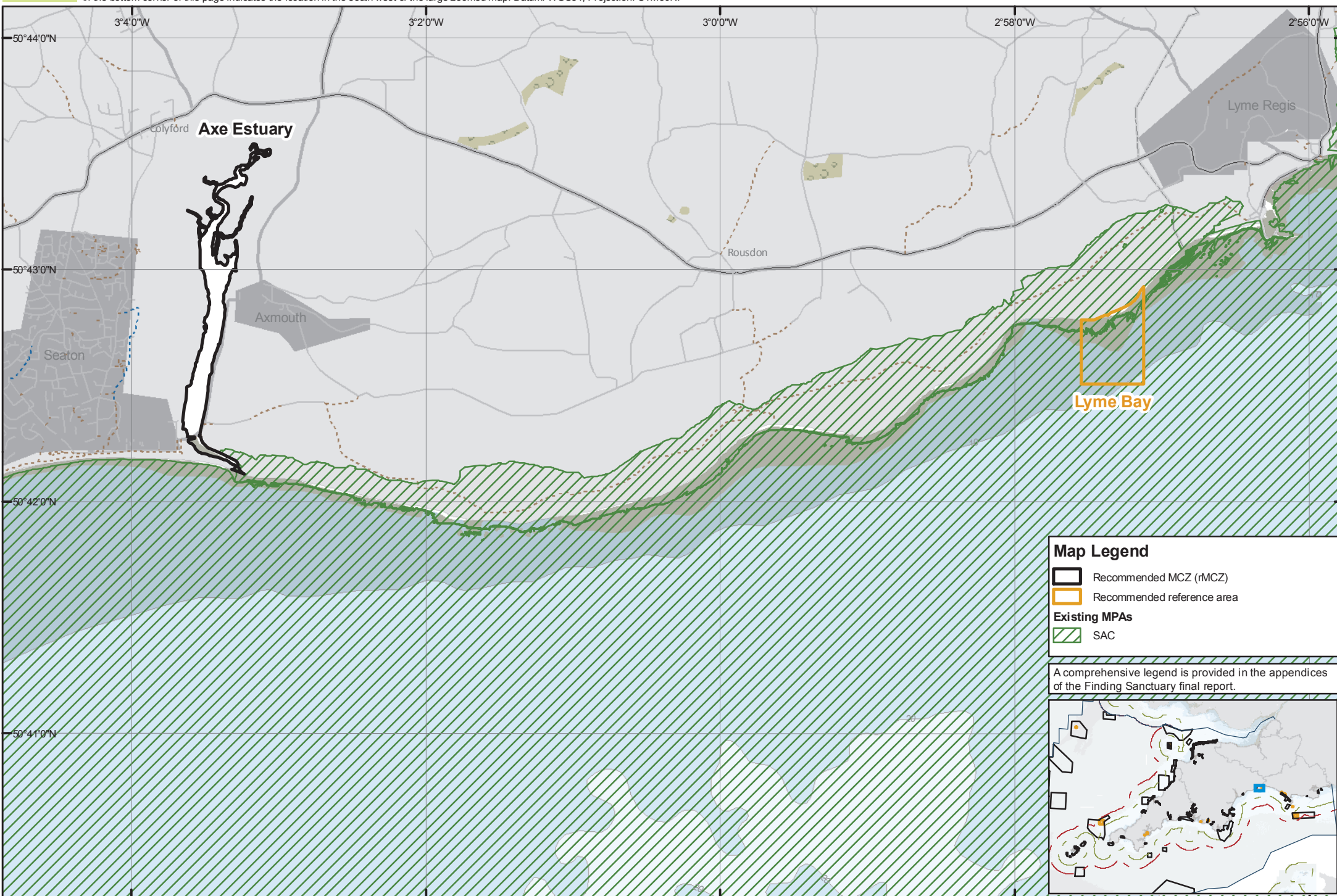
Overview Map: Axe Estuary rMCZ and Lyme Bay Recommended Reference Area and surrounding coast

This is one of a series of maps showing Finding Sanctuary's Network Configuration at 1 June 2011. The blue rectangle on the small map in the bottom corner of this page indicates the location in the south west of the large zoomed map. Datum: WGS84; Projection: UTM30N.

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0 0.4 0.8 1.6 km

N



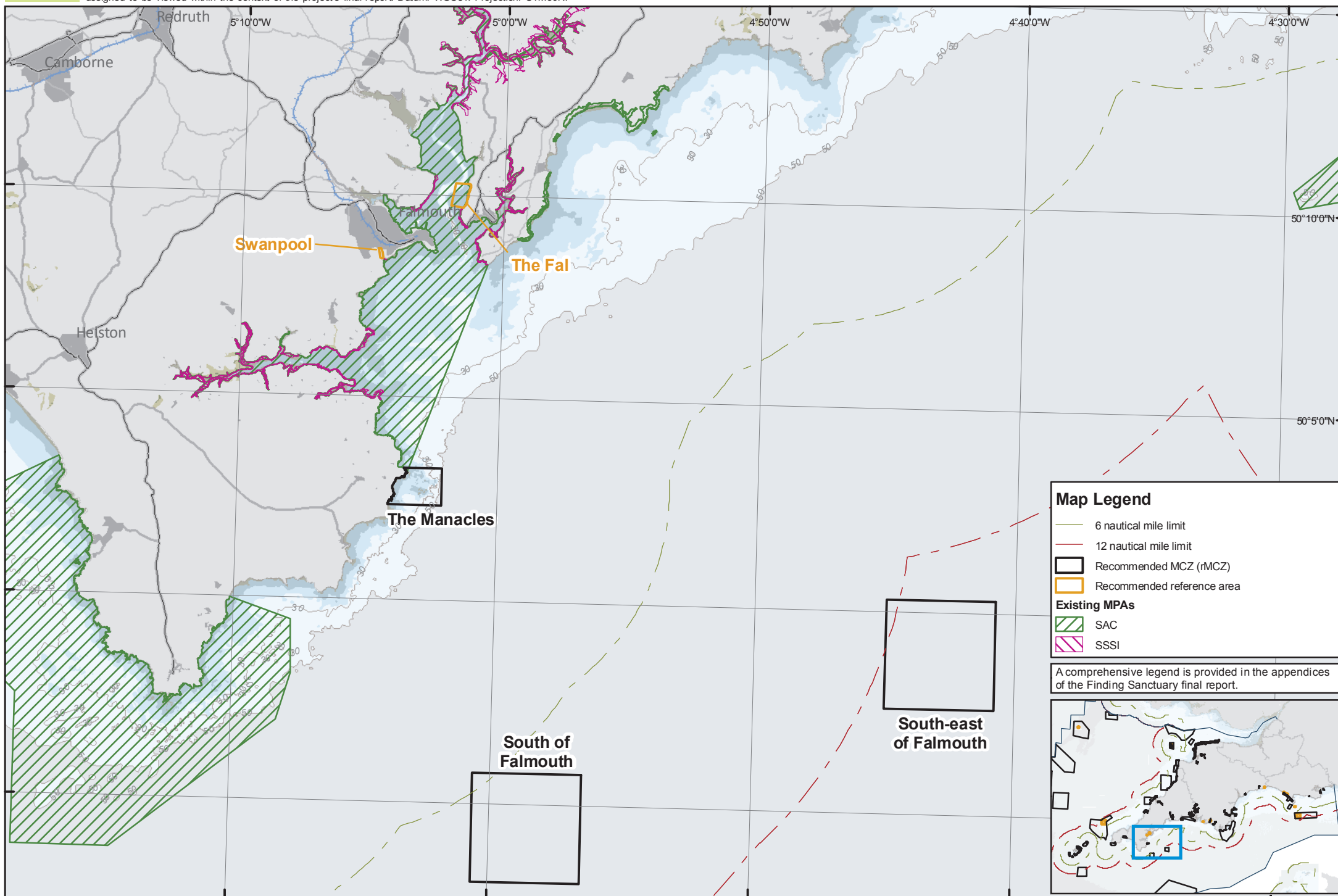
Overview Map: rMCZs and Recommended Reference Areas around the Fal and Helford

This is one of a series of maps showing Finding Sanctuary's final MCZ and reference area recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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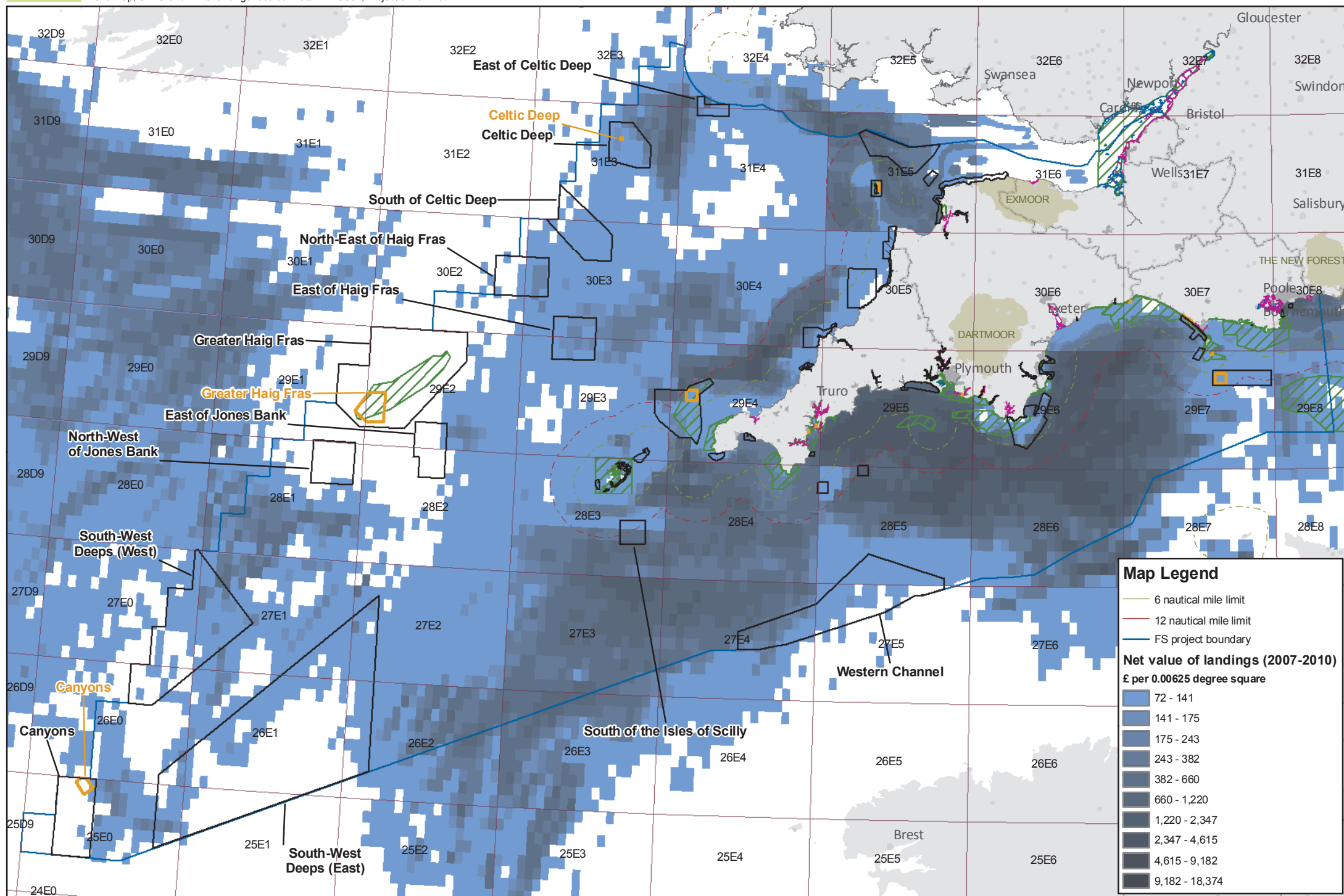
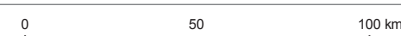
0 2.5 5 10 km

N



This map shows the landing values for 673 boats operating out of south-west ports using bottom towed gear. Data is derived from VMS, FisherMap, CFPO and MMO landings records. Datum: WGS84; Projection: UTM30N.

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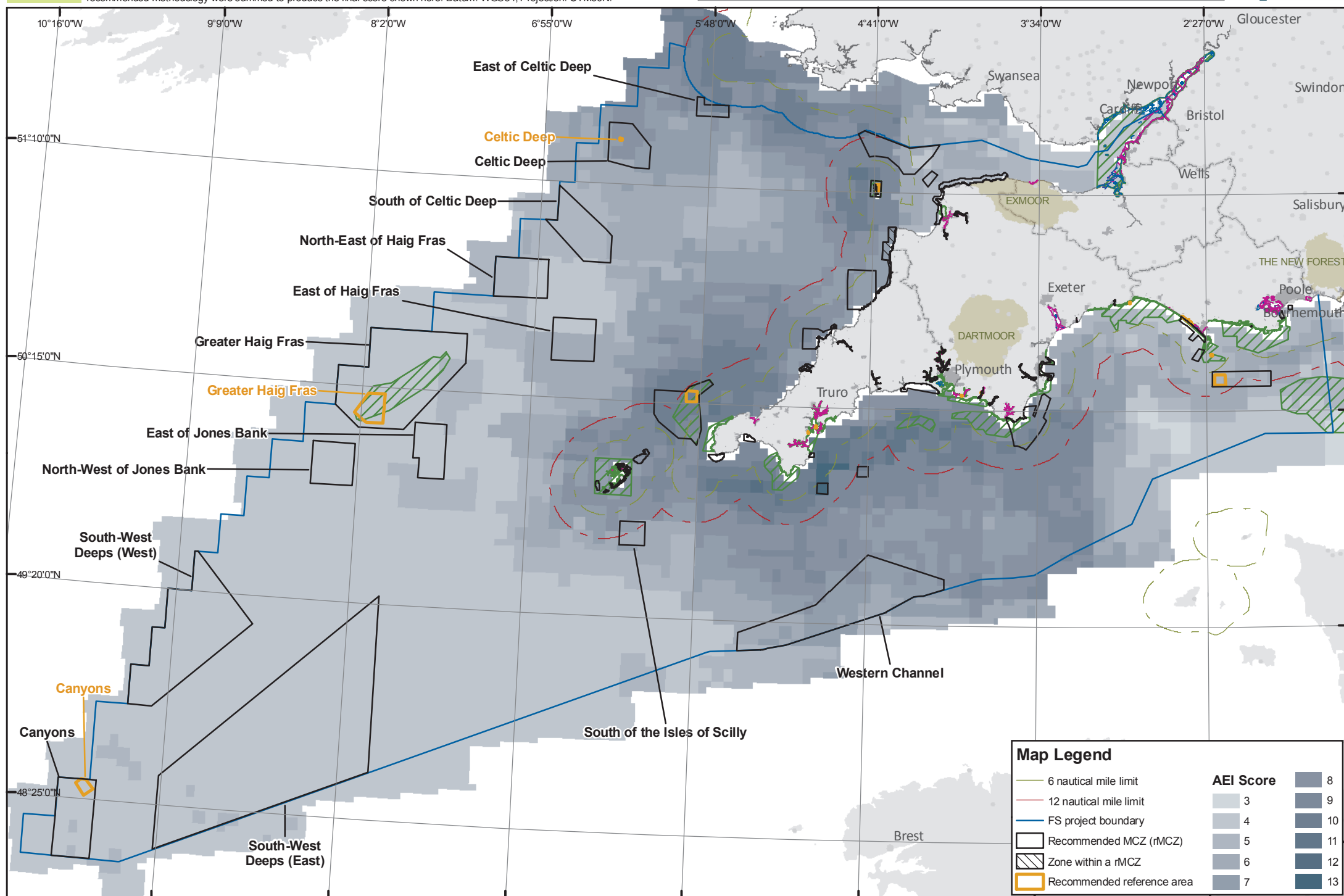


Areas of additional pelagic ecological importance

This dataset was created from several NGO datasets and two data layers provided by JNCC. Data were classified based on JNCC recommended methodology were summed to produce the final score shown here. Datum: WGS84; Projection: UTM30N.

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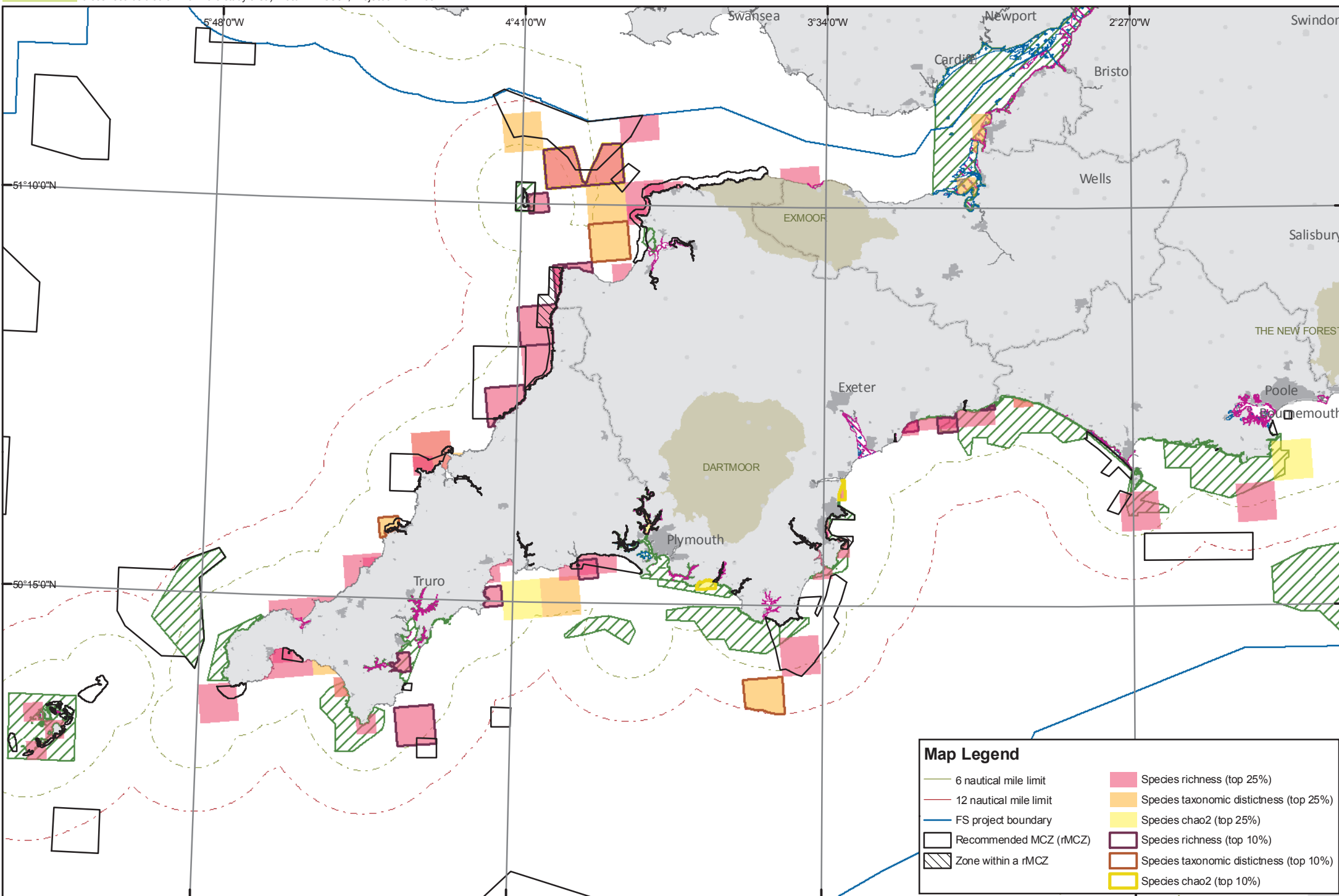
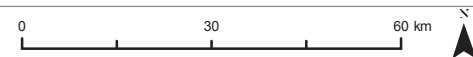
0 50 100 km



Regions of high benthic biodiversity (species)

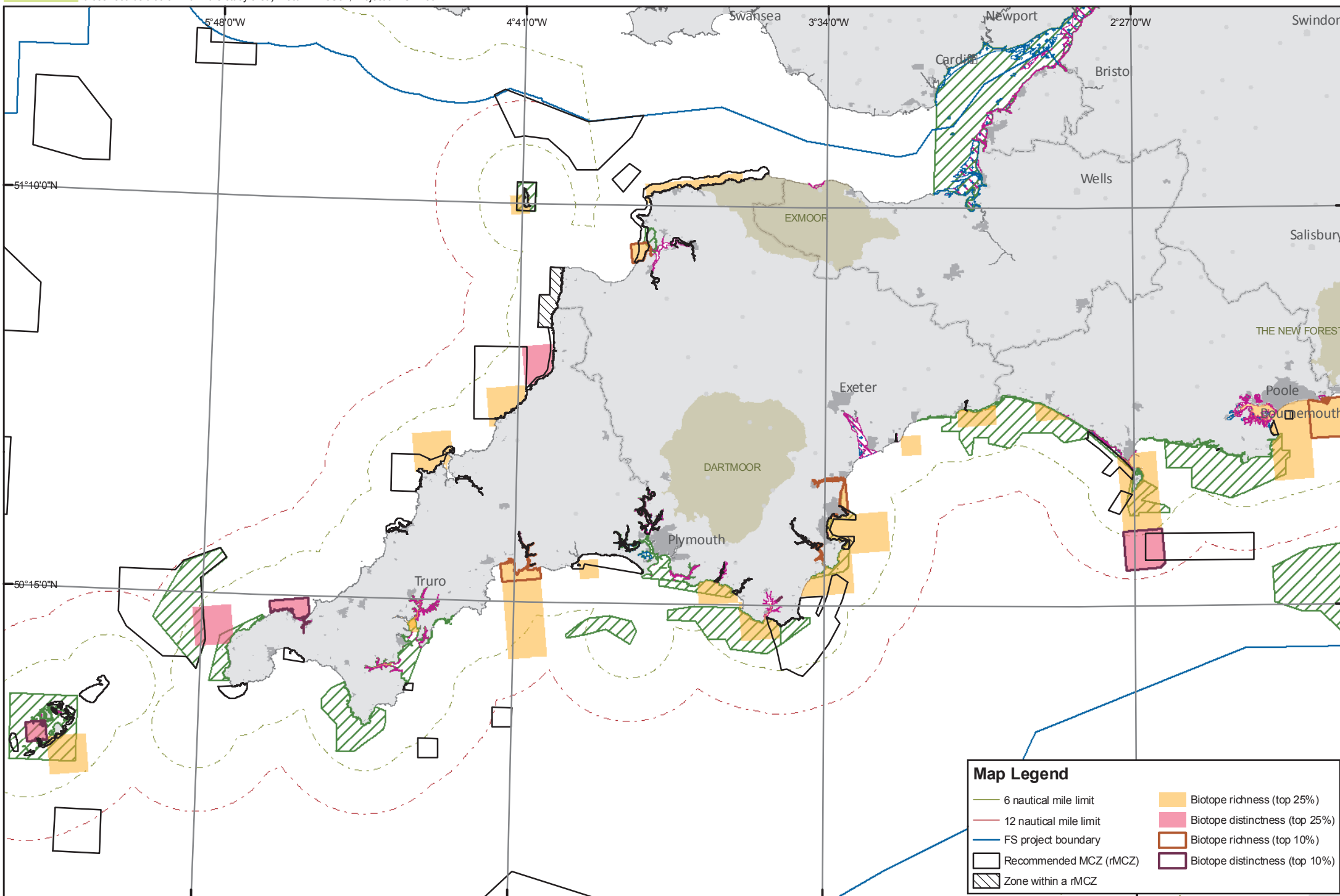
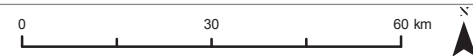
This map shows the top 10% and 25% of three species biodiversity metrics provided through MB102 task 2f (calculated from those records that fall within the study area). Datum: WGS84; Projection: UTM30N.

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Regions of high benthic biodiversity (biotopes)

This map shows the top 10% and 25% of three biotope biodiversity metrics provided through MB102 task 2f (calculated from those records that fall within the study area). Datum: WGS84; Projection: UTM30N.



II.2.6 Draft conservation objective summary

The tables on the following pages provide a summary of the draft conservation objectives for each rMCZ and each recommended reference area in the south-west. The vulnerability assessment process through which the draft conservation objectives were determined is described in part I.

In general, draft conservation objectives have been set for all ENG-listed features present within each site (species, habitats, geological and geomorphological features): The presence of these features was the basis on which the sites were selected. There are some exceptions, which are noted in the individual site reports. One exception that applies across the whole network is that no conservation objectives have been included for the FOCI habitat 'subtidal sands and gravels', either for inshore or offshore sites, even where the habitat has been recorded. It is a very widespread and broad-scale feature, and we consider that by including conservation objectives for broad-scale habitats listed in the ENG, any conservation requirements of this habitat would be met.

For some inshore sites, draft conservation objectives have also been included for non-ENG listed seabirds and cetaceans.

There are three draft conservation objective summary tables in this section: one for offshore rMCZs, one for inshore rMCZs, and one for recommended reference areas. In essence, the three tables contain the same information, but there are differences in presentation between them:

- The offshore rMCZ table simply lists site name, feature name, and whether the objective is 'maintain' in or 'recover' to 'favourable condition' (as defined in the national MCZ project [Conservation Objective Guidance](#)¹⁷ or COG).
- The inshore rMCZ table essentially does the same, but has extra columns for common species names and comments.
- The reference area table splits features into two columns, depending on whether or not the site is large enough to meet the minimum viable size criteria for the feature. Features in both columns have draft conservation objectives, which are always 'recover to reference condition' – so there is no 'maintain / recover' column.

The full text of the draft conservation objectives (following the layout required in the COG) is in appendix 15.

On all three tables below, the different feature types are colour-coded as follows:

Broad-scale habitat (no colour)
FOCI habitat
FOCI species
Mobile species not listed in ENG
Geological / geomorphological feature

¹⁷ <http://jncc.defra.gov.uk/PDF/MCZ%20Project%20Conservation%20Objective%20Guidance.pdf>

Table II.2.6a Conservation Objectives: summary table for offshore sites. In the last column, 'recover' stands for 'recover to favourable condition', and 'maintain' stands for 'maintain in favourable condition'. Where a question mark is recorded, the Joint Working Group discussed at length whether or not to include conservation objectives for seabirds or cetaceans (for the whole site or a zone within the site. However, the JWG could reach no agreement on whether or not this was appropriate (refer to the report from the 5th Joint Working Group meeting in May 2011).

Site name	Feature	Conservation Objective
Canyons	Deep-sea bed	recover
	Subtidal coarse sediment	recover
	Subtidal sand	recover
	Cold-water coral reefs	recover
	Seabirds ?	?
	Cetaceans ?	?
South-West Deeps (West)	Subtidal coarse sediment	recover
	Subtidal sand	recover
	Subtidal mixed sediments	recover
	Celtic sea relict sandbanks	maintain
	Seabirds (summer, zoned) ?	?
South-West Deeps (East)	Subtidal coarse sediment	recover
	Subtidal sand	maintain
	Deep-sea bed	recover
	Celtic sea relict sandbanks	maintain
North-West of Jones Bank	Subtidal sand	recover
	Subtidal mud	recover
	Subtidal coarse sediment	recover
	Seabirds (zoned)?	?
Greater Haig Fras	Moderate energy circalittoral rock	recover
	Subtidal coarse sediment	recover
	Subtidal mixed sediments	recover
	Subtidal mud	recover
	Subtidal sand	recover
	Fragile sponge & anthozoan communities on subtidal rocky habitats	To be confirmed ¹
	Haig Fras rock complex	maintain
East of Jones Bank	Moderate energy circalittoral rock	recover
	Subtidal mud	recover
	Subtidal sand	recover
East of Haig Fras	Moderate energy circalittoral rock	recover
	Subtidal coarse sediment	recover
	Subtidal sand	recover
North East of Haig Fras	Subtidal coarse sediment	recover
	Subtidal mixed sediments	recover
	Subtidal mud	recover
	Subtidal sand	recover
South of Celtic Deep	Subtidal coarse sediment	recover
	Subtidal mixed sediments	recover
	Subtidal mud	recover
	Subtidal sand	recover

Celtic Deep	Subtidal mud	recover
	Mud habitats in deep water	recover
	Seabirds ?	?
	Common dolphins ?	?
East of Celtic Deep	Subtidal sand	recover
	Subtidal mud	recover
	Subtidal coarse sediment	recover
	Seabirds ?	?
	Cetaceans ?	?
Western Channel	Subtidal coarse sediment	recover
	Subtidal mixed sediments	recover
	Moderate energy circalittoral rock	recover
	Seabirds ?	?
	Cetaceans ?	?
South of the Isles of Scilly	Subtidal sand	recover
	Subtidal coarse sediment	recover

¹Pending check; presence of records outside SAC boundary to be confirmed.

Table II.2.6b Conservation Objectives: summary table for inshore sites. Latin and common species names are listed in the second column. M = 'maintain in favourable condition', R = 'recover to favourable condition'. The individual parts of the Isles of Scilly rMCZ are listed separately at the end of the table, each has its own list of draft conservation objectives. Based on Local Group feedback, the draft conservation objectives lists for the Isles of Scilly sites include features that are listed as protected within the Isles of Scilly SAC (see appendix 11). These features are marked in red. This is inconsistent with other rMCZs, where features that are already protected by an existing designation have not been included here.

Site name / feature	Common name	Maintain / Recover	Comments
Poole Rocks			
Subtidal mixed sediments		M	Included based on local knowledge and on the basis of charted sea feature.
Subtidal sand		M	
Moderate energy circalittoral rock		M	
<i>Gobius couchi</i>	Couch’s goby	M	
<i>Ostrea edulis</i>	Native oyster	M	Single record, species difficult to identify. However, species is known to occur in Poole Bay (media reports), and the habitat in this site is appropriate.
Studland Bay			
Subtidal mixed sediments		M	
Subtidal sand		M	
Intertidal mud		M	
Intertidal sand and muddy sand		M	
Seagrass beds		R	
<i>Hippocampus hippocampus</i>	Short snouted seahorse	R	
<i>Ostrea edulis</i>	Native oyster	M	
<i>Raja undulata</i>	Undulate ray	R	
South Dorset			
High energy circalittoral rock		R	
Moderate energy circalittoral rock		R	
Subtidal coarse sediment		M	
Subtidal mixed sediments		M	
Subtidal chalk		R	

Broad Bench to Kimmeridge Bay		
Intertidal coarse sediment	M	
Moderate energy intertidal rock	M	
<i>Padina pavonica</i>	Peacock's tail seaweed	M
<i>Paludinella littorina</i>	Sea snail	M
South of Portland		
High energy circalittoral rock	M	
Moderate energy circalittoral rock	M	
Subtidal coarse sediment	M	
Subtidal mixed sediments	M	
Subtidal sand	M	
Portland Deep	M	ENG-listed geological / geomorphological feature
Chesil Beach and Stennis Ledges		
High energy infralittoral rock	R	
Subtidal coarse sediment	R	
Subtidal sand	R	
High energy intertidal rock	M	
Intertidal coarse sediment	M	
<i>Eunicella verrucosa</i>	Pink sea-fan	R
<i>Ostrea edulis</i>	Native oyster	R
Axe Estuary		
Subtidal mixed sediments	M	
Coastal saltmarshes and saline reedbeds	M	
Intertidal coarse sediment	M	
Intertidal mixed sediments	M	
Intertidal mud	M	
<i>Anguilla anguilla</i>	European eel	? M / R (tbc)

Otter Estuary			
Subtidal sand		M	
High energy infralittoral rock		M	
Coastal saltmarshes and saline reedbeds		M	
Intertidal coarse sediment		M	
Intertidal mud		M	
<i>Anguilla anguilla</i>	European eel	? M / R (tbc)	
Torbay			
Subtidal mud		R	Probably sandy mud and muddy sand, not pure mud
Intertidal coarse sediment		M	
Intertidal mixed sediments		M	
Intertidal mud		M	likely to be predominantly sandy habitat.
Intertidal sand and muddy sand		M	
Low energy intertidal rock		M	
Moderate energy intertidal rock		M	
Intertidal under boulder communities		M	
<i>Sabellaria alveolata</i>	Honeycomb worm reefs	M	
Seagrass beds		R	
<i>Hippocampus guttulatus</i>	Long snouted seahorse	M	
<i>Ostrea edulis</i>	Native oyster	M	
<i>Padina pavonica</i>	Peacock's tail seaweed	M	This is a single record older than 30 years but habitat is right for this species so kept this on the CO list.
<i>Paludinella littorina</i>	Sea snail	M	
<i>Gavia arctica</i>	Black throated diver	M	Only within zone around Berry Head. Wintering divers and grebes.
<i>Gavia immer</i>	Great northern diver	M	"
<i>Podiceps cristatus</i>	Great crested grebe	M	"
<i>Podiceps nigricollis</i>	Black necked grebe	M	"
<i>Podiceps grisegena</i>	Red necked grebe	M	"
<i>Podiceps auritus</i>	Slavonian grebe	M	"
<i>Uria aalge</i>	Guillemot	M	"
<i>Phocoena phocoena</i>	Harbour porpoise	M	"

Dart Estuary				
Subtidal mud		M		
Intertidal mud		M		
Low energy intertidal rock		M		
Coastal saltmarsh & saline reedbeds		M		
Estuarine rocky habitats		M		
Intertidal under boulder communities		M		
Alkmaria romijni	Tentacled lagoon-worm	M	No records in our dataset but NE knowledge of recent survey finding this species, presence to be confirmed	
Anguilla anguilla	European eel	? M / R (tbc)		
Skerries Bank and surrounds				
Subtidal coarse sediment		M		
Subtidal mud		M		
Subtidal sand		M		
Moderate energy circalittoral rock		M		
Moderate energy infralittoral rock		M		
High energy infralittoral rock		M		
Moderate energy intertidal rock		M		
High energy intertidal rock		M		
Intertidal coarse sediment		M		
Intertidal mixed sediments		M		
Intertidal mud		M		
Intertidal sand and muddy sand		M		
Intertidal under boulder communities		M		
Eunicella verrucosa	Pink sea-fan	M		
Hippocampus hippocampus	Short snouted seahorse	M		
Palinurus elephas	Spiny lobster	R		

Devon Avon Estuary				
Subtidal mud		M		
Subtidal sand		M		
High energy infralittoral rock		M		
Coastal saltmarshes and saline reedbeds		M		
Intertidal coarse sediment		M		
Intertidal mud		M		
Intertidal sand and muddy sand		M		
Moderate energy intertidal rock		M		
<i>Alkmaria romijni</i>	Tentacled lagoon-worm	M		This is a single record but habitat is right for this species so kept this on the CO list.
<i>Anguilla anguilla</i>	European eel	? M / R (tbc)		
Erme Estuary				
Subtidal mud		M		
Subtidal sand		M		
Low energy infralittoral rock		M		
Moderate energy infralittoral rock		M		
High energy infralittoral rock		M		
High energy intertidal rock		M		
Intertidal coarse sediment		M		
Intertidal mixed sediments		M		
Low energy intertidal rock		M		
Moderate energy intertidal rock		M		
Estuarine rocky habitats		M		
Sheltered muddy gravels		M		
<i>Anguilla anguilla</i>	European eel	? M / R (tbc)		

Tamar estuary sites		
Intertidal biogenic reefs		M
Intertidal coarse sediment		M
Blue Mussel beds (including intertidal beds on mixed and sandy sediments)		M
<i>Ostrea edulis</i>	Native oyster	M
<i>Osmerus eperlanus</i>	Smelt	? M / R (tbc)
<i>Anguilla anguilla</i>	European eel	? M / R (tbc)
Whitsand and Looe Bay		
Subtidal coarse sediment		M
Subtidal sand		M
Moderate energy circalittoral rock		M
High energy infralittoral rock		M
High energy intertidal rock		M
Intertidal coarse sediment		M
Intertidal mixed sediments		M
Intertidal sand and muddy sand		M
Low energy intertidal rock		M
Moderate energy intertidal rock		M
Seagrass beds		M
<i>Amphianthus dohrnii</i>	Sea-fan anemone	M
<i>Arctica islandica</i>	Ocean quahog	M
<i>Eunicella verrucosa</i>	Pink sea-fan	M
<i>Gobius cobitis</i>	Giant Goby	M
<i>Haliclystus auricula</i>	Stalked jellyfish	M
<i>Hippocampus guttulatus</i>	Long snouted seahorse	M
Upper Fowey and Pont Pill		
Coastal saltmarshes and saline reedbeds		M
Intertidal coarse sediment		M
Intertidal mud		M
Intertidal sand and muddy sand		M

Low energy intertidal rock		M
Estuarine rocky habitats		M
Sheltered muddy gravels		M
<i>Anguilla anguilla</i>	European eel	? M / R (tbc)
South-East of Falmouth		
Subtidal coarse sediment		R
Subtidal sand		R
South of Falmouth		
Moderate energy circalittoral rock		R
Subtidal coarse sediment		R
The Manacles		
Subtidal coarse sediment		M
Subtidal macrophyte-dominated sediment		M
Subtidal mixed sediments		M
Subtidal sand		M
Moderate energy circalittoral rock		M
Moderate energy infralittoral rock		M
Intertidal coarse sediment		M
Intertidal mixed sediments		M
Intertidal mud		M
Intertidal sand and muddy sand		M
Moderate energy intertidal rock		M
Maërl beds		M
<i>Amphianthus dohrnii</i>	Sea-fan anemone	M
<i>Eunicella verrucosa</i>	Pink sea-fan	M
<i>Halicystus auricula</i>	Stalked jellyfish	M
<i>Leptopsammia pruvoti</i>	Sunset cup-coral	M
<i>Palinurus elephas</i>	Spiny lobster	R
<i>Cetorhinus maximus</i>	Basking sharks	M
<i>Phocoena phocoena</i>	Harbour porpoise	M

Mounts Bay		
Subtidal mixed sediments		M
Subtidal sand		M
High energy infralittoral rock		M
High energy intertidal rock		M
Intertidal coarse sediment		M
Intertidal mixed sediments		M
Intertidal sand and muddy sand		M
Moderate energy intertidal rock		M
Seagrass beds		M
<i>Arctica islandica</i>	Ocean quahog	M
<i>Gobius cobitis</i>	Giant Goby	M
<i>Halicystus auricula</i>	Stalked jellyfish	M
<i>Lucernariopsis campanulata</i>	Stalked jellyfish	M
<i>Lucernariopsis cruxmelitensis</i>	Stalked jellyfish	M
Land's End		
Subtidal coarse sediment		M
Subtidal sand		M
Moderate energy circalittoral rock		M
Moderate energy infralittoral rock		M
High energy circalittoral rock		M
High energy infralittoral rock		M
High energy intertidal rock		M
Intertidal coarse sediment		M
Intertidal mud		M
Intertidal sand and muddy sand		M
<i>Eunicella verrucosa</i>	Pink sea-fan	M
<i>Paludinella littorina</i>	Sea snail	M
<i>Cetorhinus maximus</i>	Basking shark	M
<i>Tursiops truncatus</i>	Bottlenose dolphin	M
<i>Phocoena phocoena</i>	Harbour porpoise	M

more likely to be sand

Seabirds		M	Species to be confirmed
Cape Bank			
Moderate energy circalittoral rock	-	R	protected within SAC boundaries, some unprotected feature occurs within rMCZ
Subtidal coarse sediment		R	
<i>Palinurus elephas</i>	Spiny lobster	R	
Newquay and the Gannel			
Subtidal coarse sediment		M	on exposed beaches, this is sand not mud
Subtidal mud		M	
Subtidal sand		M	
Coastal saltmarshes and saline reedbeds		M	
High energy intertidal rock		M	
Intertidal coarse sediment		M	
Intertidal mud		M	
Intertidal sand and muddy sand		M	
Low energy intertidal rock		M	
Moderate energy intertidal rock		M	
<i>Eunicella verrucosa</i>	Pink sea-fan	M	
<i>Gobius cobitis</i>	Giant Goby	M	
<i>Ostrea edulis</i>	Native oyster	M	
<i>Paludinella littorina</i>	Sea snail	M	
<i>Anguilla anguilla</i>	European eel	? M / R (tbc)	
Padstow Bay and surrounds			
Subtidal coarse sediment		M	
Moderate energy circalittoral rock		M	
Moderate energy infralittoral rock		M	
High energy circalittoral rock		M	
High energy infralittoral rock		M	
High energy intertidal rock		M	
Intertidal coarse sediment		M	
Intertidal mud		M	
			likely to be sand

Intertidal sand and muddy sand		M
Moderate energy intertidal rock		M
<i>Arctica islandica</i>	Ocean quahog	M
<i>Eunicella verrucosa</i>	Pink sea-fan	M
<i>Haliclystus auricula</i>	Stalked jellyfish	M
<i>Lucernariopsis cruxmelitensis</i>	Stalked jellyfish	R
<i>Palinurus elephas</i>	Spiny lobster	M
<i>Tursiops truncatus</i>	Bottlenose dolphin	M
<i>Fulmarus glacialis</i>	Fulmar	M
<i>Uria aalge</i>	Guillemot	M
<i>Fratercula arctica</i>	Puffin	M
<i>Alca torda</i>	Razorbill	M
<i>Rissa tridactyla</i>	Kittiwake	M
Camel Estuary		
Coastal saltmarshes and saline reedbeds		M
Intertidal coarse sediment		M
Intertidal mud		? M / R (tbc)
Low energy intertidal rock		M
Estuarine rocky habitats		M
<i>Anguilla anguilla</i>	European eel	? M / R (tbc)

Hartland Point to Tintagel				
Subtidal coarse sediment		M		
Subtidal sand		M		
High energy infralittoral rock		M		
Coastal saltmarshes and saline reedbeds		M		
High energy intertidal rock		M		
Intertidal coarse sediment		M		
Intertidal mixed sediment		M		
Intertidal mud		M		unlikely to be present, this is probably sand
Intertidal sand and muddy sand		M		
Moderate energy intertidal rock		M		
Fragile sponge&anthozoan communities on subtidal rocky habitats		M		
<i>Sabellaria alveolata</i> reefs	Honeycomb worm reefs	M		No records in our dataset but there is pers. comm. of MarClim records near Bude, to be pursued
<i>Eunicella verrucosa</i>	Pink sea-fan	? M / R (tbc)		
<i>Padina pavonica</i>	Peacock's tail seaweed	M		
Lundy				
<i>Palinurus elephas</i>	Spiny lobster	R		
Mud habitats in deep water		M		
<i>Puffinus puffinus</i>	Manx shearwater	M		
<i>Uria aalge</i>	Guillemot	M		
<i>Alca torda</i>	Razorbill	M		
<i>Fratercula arctica</i>	Puffin	M		
North of Lundy (Atlantic Array area)				
Moderate energy circalittoral rock		M		In NW, probably coarse sediment
Subtidal coarse sediment		M		
Subtidal mixed sediments		M		
Subtidal sand		M		

Morte Platform		
High energy circalittoral rock		M
Moderate energy circalittoral rock		M
Subtidal coarse sediment		M
Bideford to Foreland Point		
Subtidal coarse sediment		M
Subtidal sand		M
Moderate energy infralittoral rock		M
High energy circalittoral rock		R
High energy infralittoral rock		M
High energy intertidal rock		M
Intertidal coarse sediment		M
Intertidal mixed sediments		M
Intertidal mud		M
Intertidal sand and muddy sand		M
Low energy intertidal rock		M
Moderate energy intertidal rock		M
<i>Sabellaria alveolata</i> reefs		M
<i>Eunicella verrucosa</i>	Pink sea-fan	M
<i>Paludinella littorina</i>	Sea snail	M
<i>Phocoena phocoena</i>	Harbour porpoise	M
<i>Halichoerus grypus</i>	Grey Seals	M
<i>Uria aalge</i>	Guillemot	M
<i>Alca torda</i>	Razorbill	M
Taw Torridge Estuaries		
Subtidal mud		M
Subtidal sand		M
Coastal saltmarshes and saline reedbeds		M
Intertidal coarse sediment		M
Intertidal sand and muddy sand		M
Low energy intertidal rock		M
<i>Anguilla anguilla</i>	European eel	? M / R (tbc)

Isles of Scilly sites <i>RED = feature protected BLACK = feature is not protected by SAC</i>		
by SAC;		
Bristows to the Stones		
High energy infralittoral rock	R	Based on local data
High energy circalittoral rock	R	Based on local data
Moderate energy circalittoral rock	R	
Moderate energy infralittoral rock	R	
Subtidal coarse sediment	M	
Subtidal mixed sediments	M	
Fragile sponge & anthozoan communities on subtidal rocky habitats	R	
<i>Eunicella verrucosa</i>	R	Based on local data
<i>Palinurus elephas</i>	R	Based on local data
Men a Vaur to White Island		
Subtidal sand	M	
Moderate energy circalittoral rock	M	
Moderate energy infralittoral rock	M	
High energy infralittoral rock	M	
High energy circalittoral rock	M	Based on local data
High energy intertidal rock	M	
Intertidal coarse sediment	M	
Intertidal mud	M	
Intertidal sand and muddy sand	M	
Moderate energy intertidal rock	M	Based on local data
Fragile sponge & anthozoan communities on subtidal rocky habitats	M	
Intertidal under boulder communities	M	
Seagrass beds	M	
Tide-swept channels	M	Based on local data
<i>Amphianthus dohrnii</i>	M	

<i>Eunicella verrucosa</i>	M	
<i>Haliclystus auricula</i>	M	
<i>Lucernariopsis campanulata</i>	M	
<i>Palinurus elephas</i>	R	
Teian		
Subtidal macrophyte-dominated sediment	M	
Subtidal mixed sediments	M	
Subtidal sand	M	
Moderate energy infralittoral rock	M	
High energy infralittoral rock	M	
High energy intertidal rock	M	
Intertidal coarse sediment	M	
Intertidal mud	M	Check accuracy of record for IoS
Intertidal sand and muddy sand	M	
Moderate energy intertidal rock	M	Based on local data
Fragile sponge & anthozoan communities on subtidal rocky habitats	M	
Intertidal under boulder communities	M	
Seagrass beds	M	
Tide-swept channels	M	Based on local data
A stalked jellyfish (2 species)	M	Based on local data; to be confirmed by LG
Teian non-disturbance area		
Subtidal macrophyte-dominated sediment	M	
Subtidal mixed sediments	M	
Moderate energy infralittoral rock	M	
Intertidal coarse sediment	M	
Moderate energy intertidal rock	M	Based on local data

Fragile sponge & anthozoan communities on subtidal rocky habitats	M	Based on local data
Intertidal under boulder communities	M	Based on local data
Seagrass beds	M	
Tide-swept channels	M	Based on local data
A stalked jellyfish (2 species) to be confirmed by LG	M	Based on local data
Hanjague to Deep Ledge		
Subtidal mixed sediments	M	
Subtidal sand	M	
Low energy circalittoral rock	M	
Low energy infralittoral rock	M	
Moderate energy circalittoral rock	M	
Moderate energy infralittoral rock	M	
High energy infralittoral rock	M	Based on local data
High energy circalittoral rock	M	Based on local data
High energy intertidal rock	M	
Intertidal coarse sediment	M	
Moderate energy intertidal rock	M	Based on local data
Fragile sponge & anthozoan communities on subtidal rocky habitats	M	
Intertidal under boulder communities	M	Based on local data
<i>Amphianthus dohrnii</i>	M	
<i>Eunicella verrucosa</i>	M	
<i>Leptopsammia pruvoti</i>	M	Based on local data
<i>Palinurus elephas</i>	R	

Higher Town		
Subtidal macrophyte-dominated sediment	M	
Subtidal mixed sediments	M	
Subtidal sand	M	
Moderate energy infralittoral rock	M	
High energy infralittoral rock	M	
Intertidal coarse sediment	M	
Intertidal mud	M	Check the accuracy of this record
Intertidal mud and muddy sand	M	Check the accuracy of this record
Low energy intertidal rock	M	
Moderate energy intertidal rock	M	Based on local data
Intertidal under boulder communities	M	
Peat & clay exposures	M	
Seagrass beds	M	
Tide-swept channels	M	Based on local data
<i>Halicystus auricula</i>	M	
<i>Lucernariopsis campanulata</i>	M	
Lower Ridge to Innisvouls		
Subtidal macrophyte-dominated sediment	M	
Subtidal mixed sediments	M	
Subtidal sand	M	
High energy circalittoral rock	M	
High energy infralittoral rock	M	
Moderate energy circalittoral rock	M	
Moderate energy infralittoral rock	M	
Moderate energy intertidal rock	M	Based on local data
Fragile sponge & anthozoan communities on subtidal rocky habitats	M	
Tide-swept channels	M	Based on local data
Seagrass beds	M	To be checked
<i>Eunicella verrucosa</i>	M	
<i>Amphianthis dohrnii</i>	M	Based on local data
<i>Palinurus elephas</i>	R	Based on local data

<i>Leptopsammia pruvoti</i>	M	
Peninnis to Dry Ledge		
Subtidal coarse sediment	M	
Subtidal mixed sediments	M	
Subtidal sand	M	
Moderate energy circalittoral rock	M	
Moderate energy infralittoral rock	M	
High energy infralittoral rock	M	
High energy circalittoral rock	M	Based on local data
Intertidal coarse sediment	M	
Intertidal mixed sediments	M	
Intertidal mud	M	Check the accuracy of this record
Intertidal sand and muddy sand	M	"
Low energy intertidal rock	M	
Moderate energy intertidal rock	M	
Fragile sponge & anthozoan communities on subtidal rocky habitats	M	
Intertidal under boulder communities	M	
<i>Amphianthus dohrnii</i>	M	
<i>Arctica islandica</i>	M	
<i>Eunicella verrucosa</i>	M	
<i>Gobius cobitis</i>	M	
<i>Halicystus auricula</i>	M	
<i>Leptopsammia pruvoti</i>	M	
<i>Lucernariopsis campanulata</i>	M	
<i>Palinurus elephas</i>	R	
<i>Paludinella littorina</i>	M	
Plympton to Spanish Ledge		
Subtidal sand	M	
Moderate energy circalittoral rock	M	
Moderate energy infralittoral rock	M	
High energy circalittoral rock	M	Based on local data
High energy infralittoral rock		
High energy intertidal rock	M	
Intertidal sand and muddy sand	M	
Moderate energy intertidal rock	M	
Fragile sponge &	M	

anthozoan communities on subtidal rocky habitats		
Intertidal under boulder communities	M	
<i>Amphianthus dohrnii</i>	M	
<i>Eunicella verrucosa</i>	M	
<i>Leptopsammia pruvoti</i>	M	
<i>Palinurus elephas</i>	R	Based on local data
Smith Sound Tide Swept Channel		
Subtidal sand	M	
Moderate energy circalittoral rock	M	Based on local data
Moderate energy infralittoral rock	M	
High energy infralittoral rock	M	
High energy intertidal rock	M	
Moderate energy intertidal rock	M	Based on local data
Tide-swept channels	M	Based on local data
<i>Cruoria cruoriaeformis</i>	M	
<i>Eunicella verrucosa</i>	M	Based on local data
<i>Amphianthus dohrnii</i>	M	Based on local data
<i>Gobius cobitis</i>	M	
<i>Lucernariopsis cruxmelitensis</i>	M	
<i>Palinurus elephas</i>	R	Based on local data
Smith Sound non-disturbance area		
High energy infralittoral rock	M	
Moderate energy infralittoral rock	M	
Moderate energy intertidal rock	M	Based on local data
Tide-swept channels	M	Based on local data
<i>Eunicella verrucosa</i>	M	Based on local data
<i>Amphianthus dohrnii</i>	M	Based on local data
<i>Palinurus elephas</i>	R	Based on local data
Gilstone to Gorregan		
High energy infralittoral rock	M	
High energy circalittoral rock	M	Based on local data
Moderate energy circalittoral rock	M	
Moderate energy infralittoral rock	M	
Subtidal coarse sediment	M	
High energy intertidal rock	M	Based on local data
Moderate energy intertidal rock	M	Based on local data
Fragile sponge & anthozoan communities on subtidal rocky habitats	M	
Tide-swept channels	M	Based on local data

<i>Eunicella verrucosa</i>	M	
<i>Amphianthus dohrnii</i>	M	
<i>Gobius cobitis</i>	M	
<i>Haliclystus auricula</i>	M	
<i>Palinurus elephas</i>	R	
<i>Paludinella littorina</i>	M	
Bishop to Crim		
High energy circalittoral rock	M	
High energy infralittoral rock	M	"
Moderate energy circalittoral rock	M	"
Moderate energy infralittoral rock	M	"
Subtidal coarse sediment	M	
Fragile sponge & anthozoan communities on subtidal rocky habitats	M	Based on local data
<i>Eunicella verrucosa</i>	M	
<i>Palinurus elephas</i>	R	Based on local data

Table II.2.6c Conservation Objectives: summary list for recommended reference areas. All features listed have a draft conservation objective of 'recover to reference condition', irrespective of which column they are listed in. For features in the right-hand column, the site does not meet minimum viable size guidelines listed in the ENG, so these features are only counted towards the representation figures in section II.2.9 if explicitly stated (see footnotes and site reports).

Site name	Viable size guidelines met	Viable size guidelines not met
The Canyons		
<i>Broad-scale habitats</i>	Deep-sea bed	
<i>FOCI habitats</i>	Cold water coral reefs	
Greater Haig Fras		
<i>Broad-scale habitats</i>	Moderate energy circalittoral rock Subtidal coarse sediment Subtidal mixed sediments Subtidal mud Subtidal sand	
Celtic Deep		
<i>Broad-scale habitats</i>		Subtidal mud
<i>FOCI habitats</i>	Mud Habitats in Deep Water	
South Dorset		
<i>Broad-scale habitats</i>	High energy circalittoral rock Moderate energy circalittoral rock Subtidal mixed sediments	
<i>FOCI habitats</i>	Subtidal chalk	
South-East of Portland Bill		
<i>Broad-scale habitats</i>		High energy circalittoral rock
<i>FOCI habitats</i>	Blue Mussel beds	
The Fleet		
<i>Broad-scale habitats</i>		Subtidal coarse sediment Coastal saltmarshes and saline reedbeds ¹ Intertidal coarse sediments ¹ Intertidal mud ¹ Intertidal sediments dominated by aquatic angiosperms ¹
<i>FOCI habitats</i>		Seagrass Beds
<i>FOCI species</i>		<i>Tenellia adspersa</i> ²
Lyme Bay		
<i>Broad-scale habitats</i>		High energy infralittoral rock Subtidal mixed sediments Intertidal coarse sediments ¹
<i>FOCI habitats</i>	<i>Sabellaria alveolata</i> reefs	
<i>FOCI species</i>	<i>Haliclystus auricula</i> <i>Padina pavonica</i>	

Erme Estuary		
Broad-scale habitats		Low energy infralittoral rock Subtidal mud Coastal saltmarshes and saline reedbeds ¹ Intertidal mixed sediments ¹ Intertidal mud ¹
FOCI habitats	Sheltered muddy gravels	
FOCI species	Anguilla anguilla ³	
Mouth of the Yealm		
Broad-scale habitats		High energy intertidal rock ¹ Intertidal coarse sediments ¹ Moderate energy intertidal rock ¹
FOCI habitats	Estuarine rocky habitats ⁴ Seagrass Beds ⁴	
The Fal ⁵		
Broad-scale habitats		Subtidal coarse sediment Subtidal macrophyte-dominated sediment Subtidal sand Intertidal coarse sediments ¹ Low energy intertidal rock ¹
FOCI habitats	Maërl Beds Seagrass Beds	
FOCI species	Lithothamnion corallioides	Cruoria cruoriaeformis
	Ostrea edulis	Gobius couchi
	Phymatolithon calcareum	Grateloupia montagnei
	Anguilla anguilla ³	
Swanpool ⁶		
FOCI species	Victorella pavida	
Cape Bank		
Broad-scale habitats	High energy circalittoral rock High energy infralittoral rock Moderate energy circalittoral rock Moderate energy infralittoral rock Subtidal coarse sediment	
FOCI species	Palinurus elephas ⁷ Eunicella verrucosa ⁷	

Lundy		
<i>Broad-scale habitats</i>		Moderate energy circalittoral rock Moderate energy infralittoral rock Subtidal coarse sediment Subtidal sand
<i>FOCI habitats</i>	Fragile sponge & anthozoan communities on subtidal rocky habitats	Mud Habitats in Deep Water
<i>FOCI species</i>	<i>Amphianthus dohrnii</i> <i>Leptopsammia pruvoti</i> <i>Phymatolithon calcareum</i>	<i>Eunicella verrucosa</i> <i>Palinurus elephas</i>

¹ None of the intertidal broad-scale habitats are represented in recommended reference areas that meet the minimum size guideline (5km), but recent SAP and SNCB advice has recognised that the size guideline is not realistic for intertidal habitats. The intertidal habitats have been highlighted in green to show that we are considering these to be represented within the current set of recommended reference areas, i.e. they are counted towards the figures presented in section II.2.9, unlike the other features listed in the right hand column.

² The minimum patch size for *Tenellia adpersa* is the whole feature (to be interpreted as meaning the whole lagoon that the species is found in). As this recommended reference area does not cover the entire Fleet Lagoon, this site does not meet the minimum size guidance for this species. However, the site is included as a replicate for this species in section II.2.9.

³ The European eel is included in draft conservation objectives for estuarine sites on the basis of evidence provided by the Environment Agency (see appendix 8). No minimum viable patch size for the species is included in the ENG. Both sites with eel listed have been counted as replicates in section II.2.9.

⁴ The Mouth of the Yealm recommended reference area only covers the intertidal. Estuarine rocky habitats and seagrass beds may be present in the intertidal, or they might only be found only in the subtidal area. If the latter is the case, the features should come off the list for this site.

⁵ The Fal recommended reference area is a little smaller than the minimum size requirement of 1km for *Cruoria cruoriaeformis*, *Gobius couchi* and *Grateloupia montagnei*, and the site is not counted as a replicate for these species in section II.2.9. Enlarging this site westwards, however, would not capture more of the same habitat (maërl and seagrass beds), as the depth increases to the west – so enlarging the site to meet the minimum size guidelines would probably not provide more habitat suitable for these species.

⁶ The Swanpool Lagoon in Falmouth is the only place in English waters where the trembling sea mat *Victorella pavidia* has been recorded. It would need to be a reference area in order to meet the ENG. However, the site falls above the OS Boundary Line mean high water line, which is the line we use to define the limit of our study region. The site is counted as a replicate for the species in section II.2.9.

⁷ There are no records in our spatial datasets of these species within the boundaries of this site, but a recent NE SAC survey (Natural England, 2010) confirmed the presence of both species on Cape Bank. We therefore assume these species are represented within this site.

II.2.7 Summary of the contribution of existing protected areas

There are 46 relevant existing marine protected areas in the south-west region, most of which are small, coastal sites. They consist of Natura 2000 sites (Special Areas of Conservation – SACs, and Special Protection Areas for birds, SPAs) and Sites of Special Scientific Interest (SSSIs). They are shown on map FR_003.

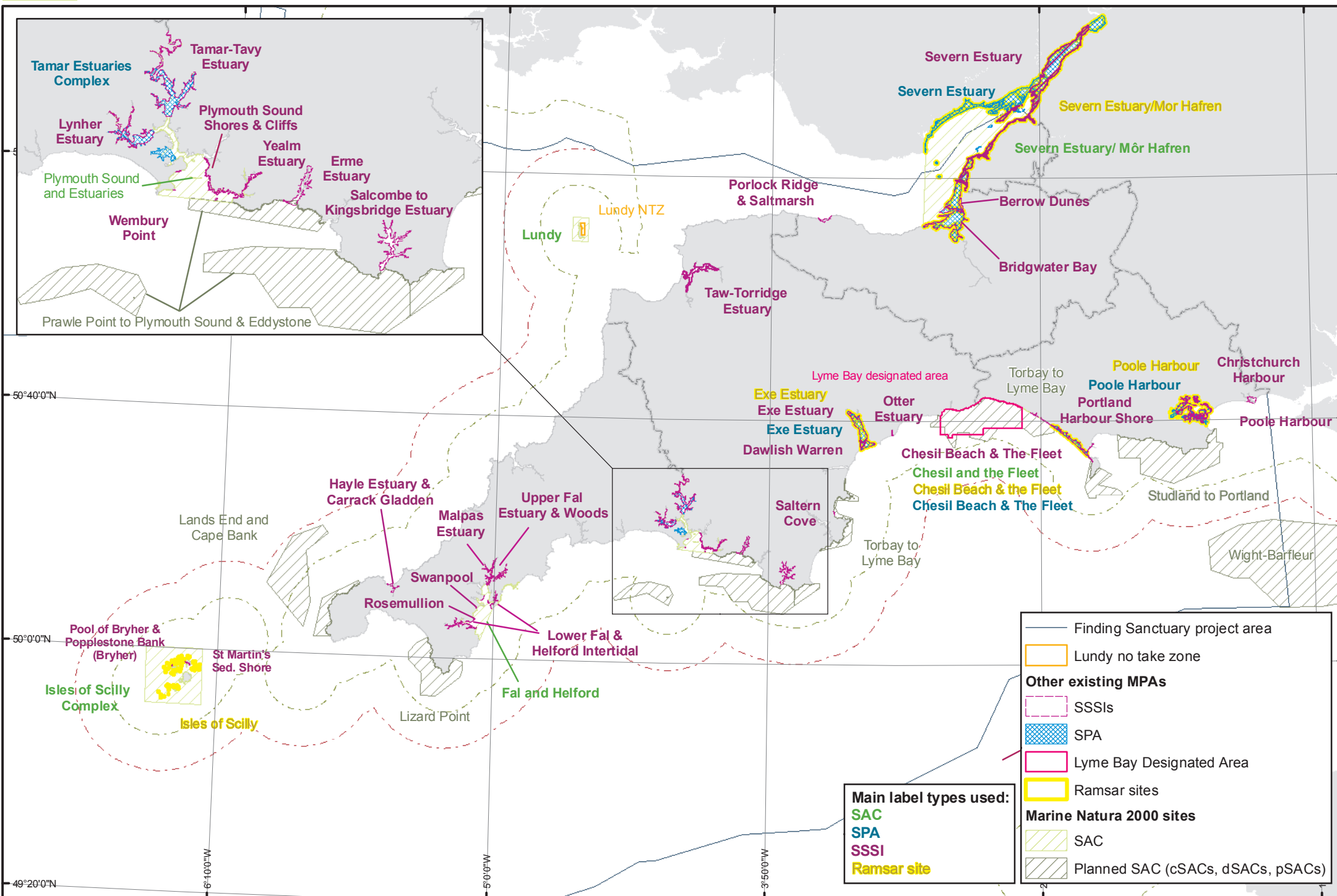
Existing protected areas contribute significantly towards meeting the network design principles. This has been taken into account when assessing the performance of the network as a whole, especially in relation to intertidal broad-scale habitats (see section II.2.8 and charts II.2.8.a to II.2.8.d).

A national 'gap analysis' has been carried out by the SNCBs, quantifying what the existing sites contribute to the replication and adequacy targets in the ENG. The full gap analysis report for the region contains figures summarising how the existing MPAs contribute towards the adequacy and replication targets in the ENG. While we have not replicated the figures and tables here, a table describing the broad-scale habitats and FOCI protected in existing protected areas can be found in appendix 11.

Existing and proposed MPAs in the south-west

This map shows existing and planned marine protected areas in the south-west. Many sites overlap, so label colours match the legend symbology. Please refer to Finding Sanctuary's final report for more detail. Datum: WGS84; Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062006.004. Land basemap part
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II.2.8 ENG-related statistics for the network configuration

Introduction

The network-level statistics here reflect features that are protected within existing MPAs, rMCZs and rRAs, unless indicated otherwise. Where rMCZs overlap with existing protected areas, features that are already protected in the existing MPA are not counted towards the figures for the rMCZ.

We have presented statistics relating to the network design principles followed by the ENG, except for network level viability (e.g. average size, average maximum and minimum dimensions) - as we do not consider the viability principle particularly meaningful at the network level. Site-level reports (sections II.3 and II.4) map the size and dimensions of each rMCZ and recommended reference area. Recommended reference areas are included in this section where they contribute features that are otherwise not protected within the surrounding rMCZ or existing MPA.

Figures have only been reported for features named specifically in the ENG, i.e. the EUNIS level 3 broad-scale habitats and species/habitat FOCI. We have not reported figures against any measures of 'areas of additional ecological importance' (such as predictable seasonal fronts) or mobile FOCI. Instead, we are providing interactive PDF maps with this report that overlay the outlines of the network configuration over data layers describing features of additional ecological importance, and the mobile FOCI data we received from the data gathering contract MB102.

Statistical methods

Network statistics were calculated using ESRI ArcGIS version 9.3.1 in ETRS89/LAEA (European Terrestrial Reference System 1989 with Lambert Azimuthal Equal Area projection). As the reporting datasets were composed from multiple sources we calculated our own version of the figures in the gap analysis report. Following this, the EUNIS level 3 broad-scale habitat dataset, FOCI habitats and FOCI species datasets were split into those habitats protected in existing MPAs and those not.

Prior to calculations, two versions of the network configuration were created. One where rMCZs and rRAs were amalgamated into a single shape for generating network level statistics and one where relevant rMCZs and rRAs were copied into new feature classes for the generation of individual site statistics.

Note that the figures in the national gap analysis for existing MPAs take into account non-spatial data. For example, in the replication figures, sites are counted as a replicate whenever a given feature is listed for protection under the existing designation, even if there are no records of that feature in the national GIS data layers.

The network level statistics were generated by intersecting the broad-scale habitat, FOCI and geological data layers with the overall network shape. Pivot tables were created showing those habitats that were represented within existing MPAs and within the MCZ network. These were then used to generate tables II.2.8b, d, h, i, l and o.

The individual site statistics were generated in the same way, using feature classes that kept rMCZs separate. The pivot tables generated also included the site names, enabling the site statistical tables to be created.

The replication figures for the network level reports (II.2.8c, e, f and k) were calculated by summing the appropriate conservation objectives from tables II.2.6a and II.2.6b.

General statistics

Table II.2.8a shows the number of sites and the area covered within the network, split into existing MPAs, rMCZs and recommended reference areas. Existing marine protected areas consist of SACs, SPAs and SSSIs with marine components. The total area listed below only includes that which intersects the Finding Sanctuary study area.

Table II.2.8a. General statistics for the network, all areas are in km².

	Existing MPAs	rMCZs	Recommended reference areas
Total area	3,173.79	16,823.60	241.13 ²
Number of sites	46	45 ¹	13

¹ There are 45 rMCZs, one (Isles of Scilly Sites rMCZ) consists of 11 spatially distinct areas, and three further ones consist of two spatially distinct areas (Tamar Estuary Sites, Upper Fowey and Pont Pill, and the Taw Torridge Estuary).

² Reference areas fall within rMCZs and existing MPAs, as such this figure should not be added to the total area protected.

The total footprint of the MPA network (MCZs, reference areas and existing protected areas) is 19,078.42 km² - 20.1% of the total area available.

Broad-scale habitats: representativity, replication and adequacy

The figures for broad-scale habitats within the network are presented separately for subtidal and intertidal habitats in tables II.2.8b to II.2.8c and charts II.2.8a to II.2.8d. Subtidal broad-scale habitat representativity, adequacy and replication targets are very well met by the network (tables II.2.8b and II.2.8c and charts II.2.8a and II.2.8b). Reviewing the figures calculated from the combined EUNIS level 3 habitat layer, all subtidal broad-scale habitats listed in the ENG are present in the network (table II.2.8b). Only three habitat types do not fully meet adequacy and replication targets. These are: Low energy circalittoral rock, Subtidal biogenic reefs and Deep-sea bed.

Low-energy circalittoral rock is mapped only in small patches on the combined EUNIS level 3 habitat layer. Given the coarse resolution of the modelled data, these small patches come with a degree of uncertainty, and we have not focussed on meeting any targets for this habitat.

Subtidal biogenic reefs are not represented at all in the figures presented here, as it is not found in the combined broad-scale habitat dataset. However, we have represented several FOCI habitats in the network that are considered to fall within this broad category (Ecological Network Guidance table 6, p. 38). These are cold-water coral reefs (in The Canyons rMCZ), blue mussel beds, *Sabellaria spinulosa* reefs, and *Sabellaria alveolata* reefs (table II.2.8f and II.2.8g).

The Deep-sea bed broad-scale habitat is only replicated in two sites. This habitat only occurs in one location in the far south-west (off the continental shelf break) and meeting the 'minimum 3-5 replicates' target would be artificial. No adequacy target is included in the ENG for this habitat. The SAP had previously advised that there is a case for including all of the study area beyond the shelf

break in the network, as this broad-scale habitat is so rare in southern UK waters. Some stakeholder representatives have questioned the rationale for this, as the actual extent of the shelf break and deep sea habitat is large (extending far beyond UK waters). Overall, rMCZs cover almost half of the available deep-sea bed habitat within the study region.

Stakeholder discussions around two sites led to areas within them not being counted towards broad-scale habitat targets. Within the Skerries Bank rMCZ the broad-scale habitats inside trawling corridors are not counted, and within the Bideford to Foreland Point rMCZ the area within a potential dredge channel has not been counted.

Table II.2.8b. Subtidal broad-scale habitats represented in the network. All area figures are in km². Total area available shows the total area of habitat in the study region. Red text highlights targets that have not been met.

Habitat Name	ENG target	Total area available	Existing MPAs	rMCZs and rRAs	Total area protected
High energy infralittoral rock	15 - 31%	727.56	463.49	61.19	524.68 (72.1%)
Moderate energy infralittoral rock	17 - 32%	314.19	142.22	13.04	155.25 (49.4%)
Low energy infralittoral rock	16 - 32%	7.79	4.30	0.47	4.77 (61.2%)
High energy circalittoral rock	11 - 25%	1294.31	398.86	48.26	447.12 (34.5%)
Moderate energy circalittoral rock	13 - 28%	18778.99	744.90	1931.44	2676.34 (14.3%)
Low energy circalittoral rock ¹	16 - 32%	3.50	0.61	0	0.61 (17.4%)
Subtidal coarse sediment	17 - 32%	28623.73	54.89	4871.03	4925.92 (17.2%)
Subtidal sand	15 - 30%	33567.34	146.25	6760.47	6906.72 (20.6%)
Subtidal mud	15 - 30%	6295.15	95.37	1209.67	1305.05 (20.7%)
Subtidal mixed sediments	16 - 32%	3569.19	127.15	504.59	631.74 (17.7%)
Subtidal macrophyte-dominated sediment	No target	20.26	14.70	1.12	15.82 (78.1%)
Subtidal biogenic reefs ²	No target	0	0	0	0
Deep-sea bed	No target	1594.84	0	782.27	782.27 (49.0%)

¹ Low energy circalittoral rock has a very limited distribution in the South-west.

² We do not have subtidal biogenic reefs mapped as broad-scale habitats, however areas of *Sabellaria* reef and blue mussel bed have been captured as habitat FOCI.

Table II.2.8c. Replication of subtidal broad-scale habitats. Replication refers to the number of sites within the network that contain the habitat and has been calculated from the conservation objectives derived from the vulnerability analysis and the gap analysis of existing protected areas. Red text highlights a shortfall in meeting ENG targets.

Habitat Name	Existing MPAs	rMCZs and rRAs	Total replicates
High energy infralittoral rock	11	11	22
Moderate energy infralittoral rock	11	7	18
Low energy infralittoral rock	5	2	7
High energy circalittoral rock	8	7	15
Moderate energy circalittoral rock	11	17	28
Low energy circalittoral rock ¹	1	0	1
Subtidal coarse sediment	7	28	35
Subtidal sand	6	29	35
Subtidal mud	4	14	18
Subtidal mixed sediments	4	14	18
Subtidal macrophyte-dominated sediment	2	1	3
Subtidal biogenic reefs ²	0	0	0
Deep-sea bed ³	0	2	2

¹ Low energy circalittoral rock has a very limited distribution in the South-west.

² We do not have subtidal biogenic reefs mapped as broad-scale habitats, however areas of *Sabellaria* reef and blue mussel bed have been captured as habitat FOCI.

³ Deep-sea bed only occurs in one part of the south-west, so the replication target cannot be met.

Charts are included that describe how the network performs against the ENG broad-scale habitat targets. Charts II.2.8a and II.2.8c show percentage figures in comparison to ENG targets. Charts II.2.8b and II.2.8d show actual areas covered, using a logarithmic scale (base 10) on the y-axis. Logarithmic scales were chosen as the area of different habitats covered vary widely and presenting these on a linear scale limit the usability of the charts. Note that the use of a log scale dictates that values less than 1 km² will not be visible and the relative distance between large and small values will be compressed.

Chart II.2.8a. Percentage of subtidal broad-scale habitat represented with lower and upper ENG adequacy targets shown. The figures are derived from those shown in table II.2.8b. There are no ENG adequacy targets for the subtidal macrophyte-dominated sediment or deep-sea bed habitats.

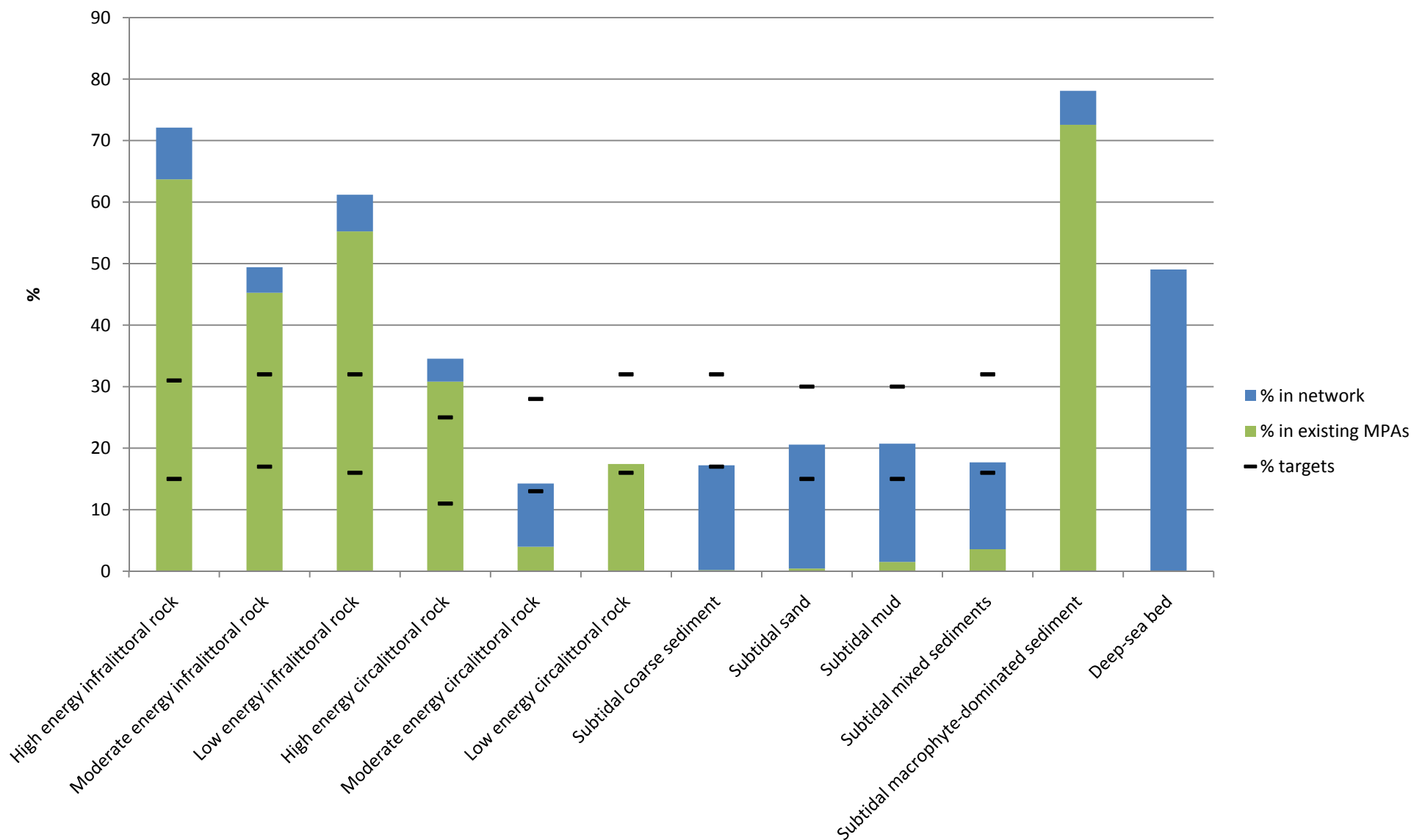
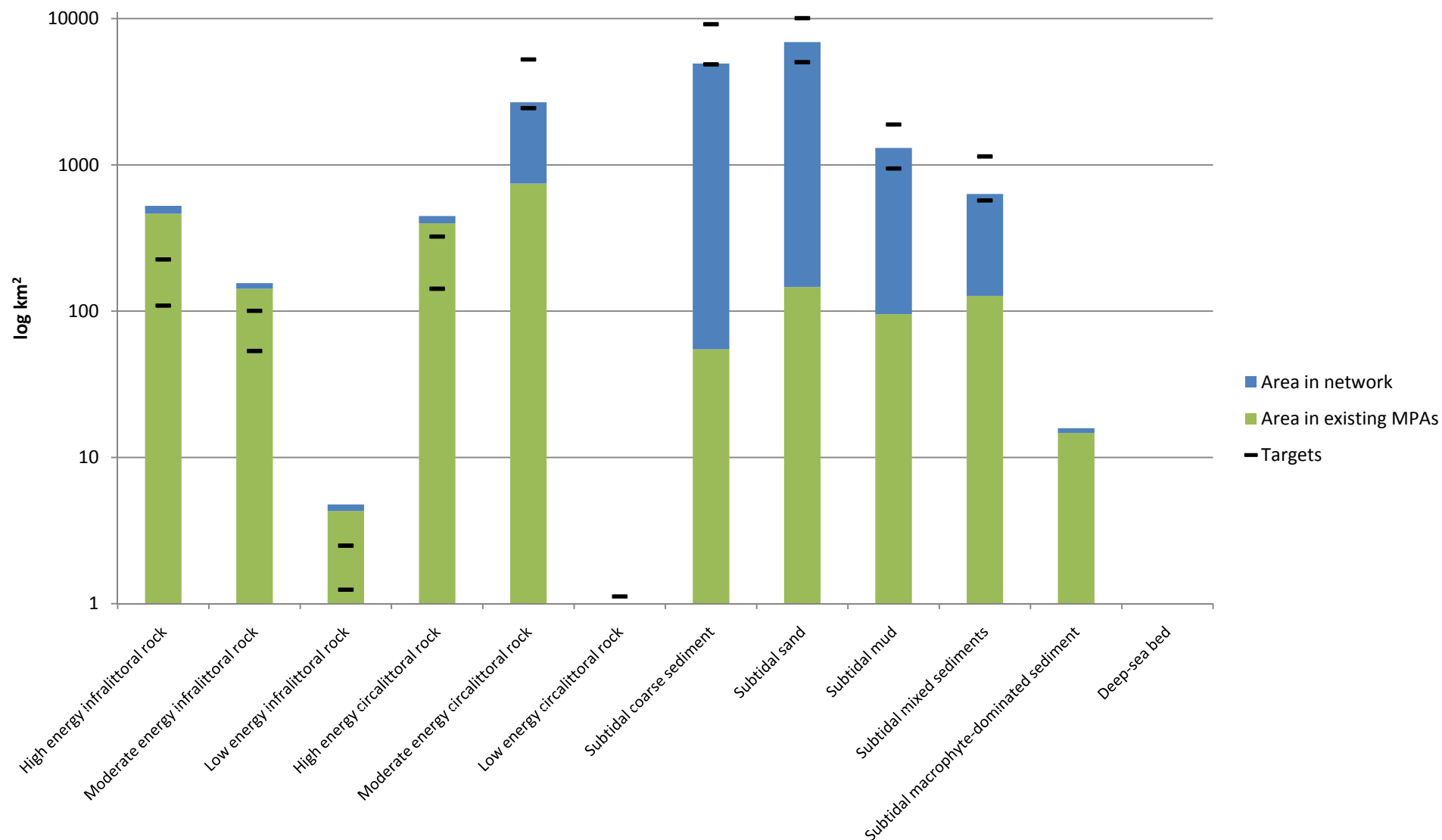


Chart II.2.8b. Area of subtidal broad-scale habitat represented with lower and upper ENG adequacy targets shown. The figures are the same as those shown in table II.2.8b. The y axis is represented as a logarithmic scale as the area of habitats represented vary significantly - as a result any areas less than 1km² are not visible. There are no ENG adequacy targets for the subtidal macrophyte-dominated sediment or deep-sea bed habitats.



Intertidal broad-scale habitat representativity is also well achieved (table II.2.8d and charts II.2.8c and II.2.8d). Eight out of ten intertidal broad-scale habitats listed in the ENG are represented in the network, using figures from the combined EUNIS level 3 habitat layer. The two habitats that are not represented are intertidal sediments dominated by aquatic angiosperms and intertidal biogenic reefs. Both consist of very small areas within the broad-scale habitat dataset and have not been priorities at this level. Instead, we focussed on the FOCI habitats that are considered to fall within these categories (Ecological Network Guidance table 6, p. 38). For intertidal sediments dominated by aquatic angiosperms we have represented the FOCI habitat seagrass beds, and for intertidal biogenic reefs we have represented *Sabellaria alveolata* reefs.

Adequacy and replication targets are also well met for intertidal broad-scale habitats (table II.2.8e). Existing protected areas contribute significantly to these targets.

Table II.2.8d. Intertidal broad-scale habitats represented in the network. All area figures are in km². Total area available shows the total area of habitat in the study region.

Habitat Name	ENG target	Total area available	Existing MPAs	rMCZs and rRAs	Total area protected
High energy intertidal rock	21 - 38%	7.26	0.23	3.80	4.02 (55.4%)
Moderate energy intertidal rock	21 - 38%	4.94	0.97	0.88	1.85 (37.5%)
Low energy intertidal rock	22 - 39%	3.28	1.23	0.38	1.61 (49.3%)
Intertidal coarse sediment	25 - 42%	19.37	2.56	4.16	6.73 (34.7%)
Intertidal sand and muddy sand	25 - 42%	11.50	6.74	1.38	8.12 (70.6%)
Intertidal mud	25 - 42%	169.96	122.03	19.86	141.89 (83.5%)
Intertidal mixed sediments	25 - 42%	4.50	0.13	2.01	2.14 (47.6%)
Coastal saltmarshes and saline reedbeds ¹	No target	3.07	2.55	0.37	2.93 (95.4%)
Intertidal sediments dominated by aquatic angiosperms	No target	0.02	<0.01	<0.01	<0.01 (0.3%)
Intertidal biogenic reefs	No target	0.05	<0.01	0.01	0.01 (15.4%)

¹ This overlaps with the habitat 'coastal saltmarsh' which is not listed in the ENG as a Habitat of Conservation Importance, but has been included in the figures provided in the national gap analysis.

Table II.2.8e. Replication of intertidal broad-scale habitats. Replication refers to the number of sites within the network that contain the habitat and has been calculated from the conservation objectives derived from the vulnerability analysis and the gap analysis of existing protected areas. Red text highlights a shortfall in meeting ENG targets.

Habitat Name	Existing MPAs	rMCZs and rRAs	Total replicates
High energy intertidal rock	2	10	12
Moderate energy intertidal rock	5	13	18
Low energy intertidal rock	5	10	15
Intertidal coarse sediment	3	21	24
Intertidal sand and muddy sand	7	15	22
Intertidal mud	16	16	32
Intertidal mixed sediments	2	10	12
Coastal saltmarshes and saline reedbeds ¹	7	9	16
Intertidal sediments dominated by aquatic angiosperms ²	0	0	0
Intertidal biogenic reefs ²	0	1	1

¹ This overlaps with the habitat 'coastal saltmarsh' which is not listed in the ENG as a Habitat of Conservation Importance, but has been included in the figures provided in the national gap analysis.

² There are only very small areas of these habitats within the broad-scale habitat data layer, however seagrass beds and Sabellaria reef have been captured as habitat FOCl.

Chart II.2.8c. Percentage of intertidal broad-scale habitat represented with lower and upper ENG adequacy targets shown. The figures are derived from those shown in table II.2.8d. There are no ENG adequacy targets for the coastal saltmarshes and saline reedbeds, intertidal sediments dominated by aquatic angiosperms or intertidal biogenic reef habitats.

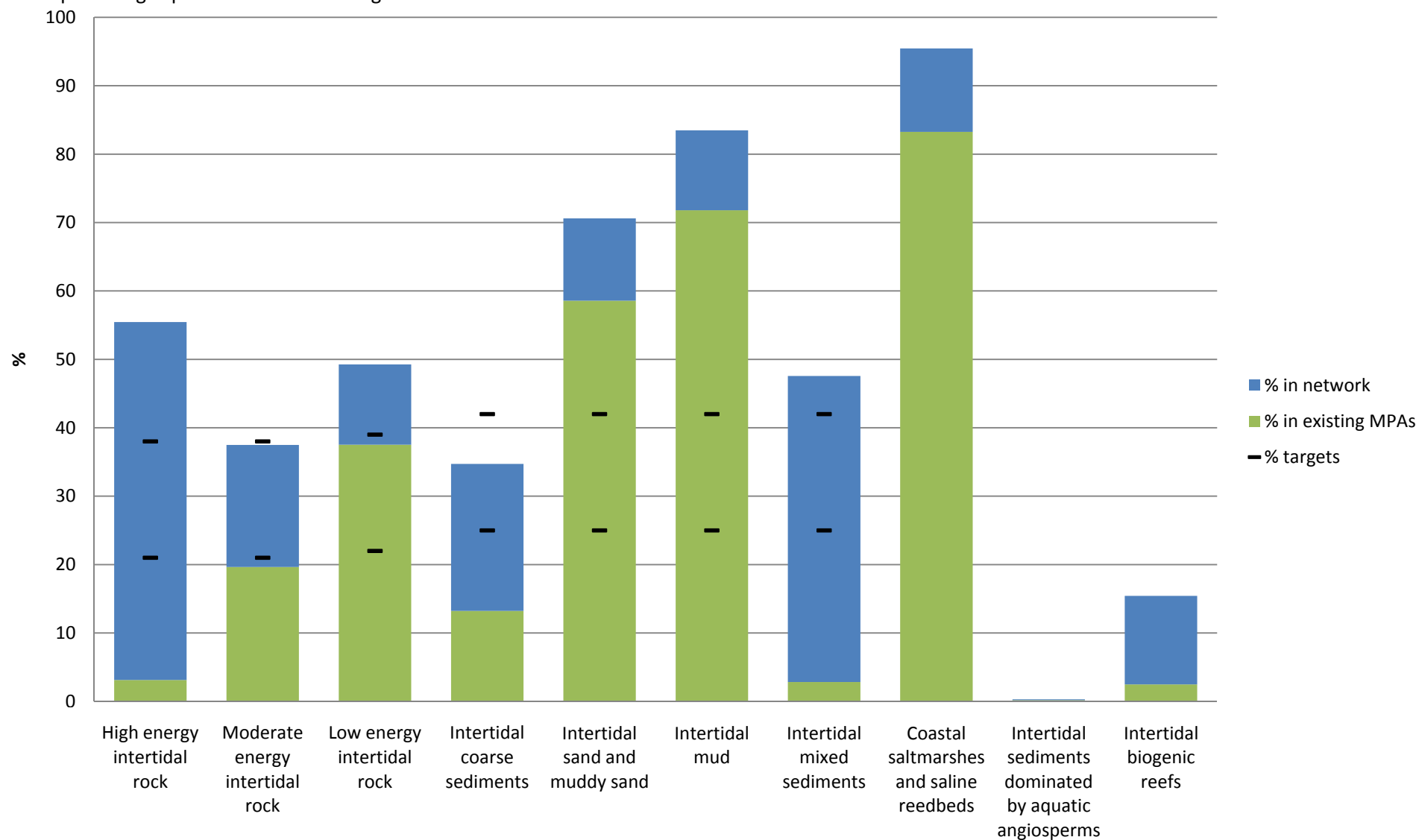
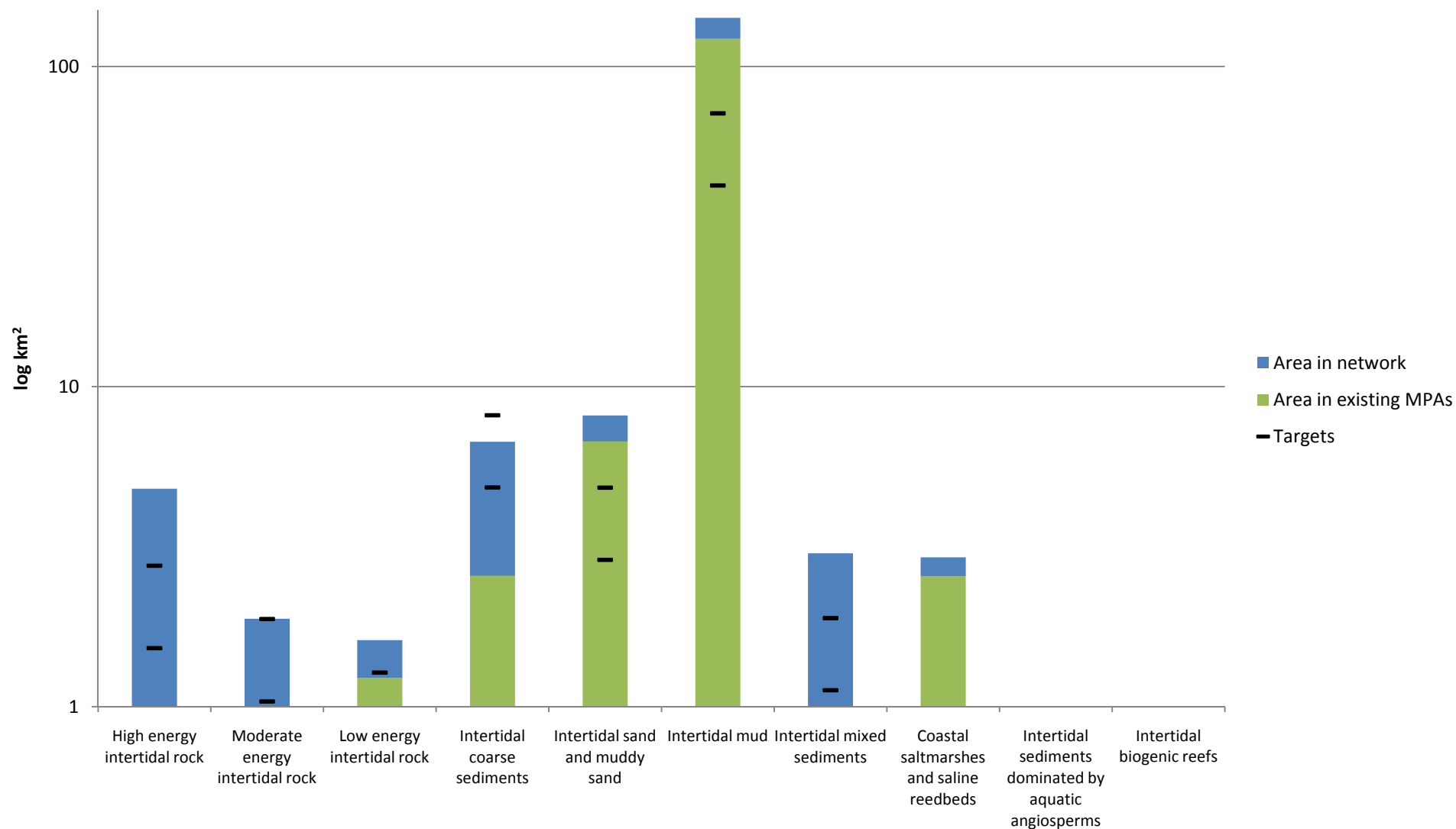


Chart II.2.8d. Area of intertidal broad-scale habitat represented with lower and upper ENG adequacy targets shown. The figures are the same as those shown in table II.2.8d. The y axis is represented as a logarithmic scale as the area of habitats represented vary significantly - as a result any areas less than 1km² are not visible. There are no ENG adequacy targets for the coastal saltmarshes and saline reedbeds, intertidal sediments dominated by aquatic angiosperms or intertidal biogenic reef habitats.



Habitats of Conservation Importance: representativity, replication and adequacy

The network has achieved good replication of Habitats of Conservation Importance, within the confines of the data available and the distribution of the species in the region. Table II.2.8f shows which FOCI habitats are represented in the network, and how many sites they are replicated within. The table accounts for existing protected areas (data from the gap analysis) as well as rMCZs. Note that most of the FOCI habitat data dates from 1980 onwards.

At first glance, table II.2.8f shows that thirteen out of twenty two Habitats of Conservation Importance do not meet the targets for replication within the network, and of those thirteen, seven are not represented at all. However, closer inspection of the data shows that for many of these habitats, we have either no records or only a very limited number of records within the region. Bearing in mind these limitations, the network performs well for habitat FOCI. The bullet points below provide summary comments for those habitats which do not meet their targets.

- Cold-water coral reefs are only recorded in one small patch, within The Canyons rMCZ.
- There are no records of Coral Gardens, Deep-sea sponge aggregations, File shell beds, Littoral Chalk communities, Horse Mussel (*Modiolus modiolus*) beds, Sea pen and burrowing megafauna communities, or Native oyster (*Ostrea edulis*) beds in our region within the datasets we have available. Whilst we have no records describing Native oyster beds, we are aware of this feature existing in the Fal, where we have many records of the species (which are protected by the existing SAC).
- We only have six records of Peat and clay exposures in our datasets. One single record is located in Poole Harbour (outside the SSSI/SPA boundaries), three records are located in the Salcombe to Kingsbridge estuaries SSSI (but the habitat is not listed in the designation), and two in the Isles of Scilly SAC (again, the habitat is not protected by the existing designation). One of the Isles of Scilly records is located within one of the rMCZs in that area and one replicated is counted within the network.
- Our data only shows Ross worm (*Sabellaria spinulosa*) reefs along the coast of Dorset. Several records are located within the Studland to Portland dSAC (but the habitat is not listed as protected). An older version of the gap analysis listed this habitat as protected within the Lyme Bay to Torbay cSAC, though this has been removed in the most recent edition.
- We have a very limited dataset for subtidal chalk. The habitat is listed as protected within the Plymouth Sound and Estuaries SAC (though we have no records for the habitat in this area). We have additional records for the habitat located within the South Dorset rMCZ, and there is one single additional record located within the Lyme Bay portion of the Lyme Bay and Torbay cSAC (where it is not listed as a protected feature).
- The only location where we have records of tide-swept channels is the Isles of Scilly, where we have records of the BAP habitat from recent Seasearch data (provided through Cornwall Wildlife Trust), and additional polygon data for the habitat mapped by the Isles of Scilly Local Group. Tide-swept channels are considered protected within the Isles of Scilly SAC, though this record was omitted from the official gap analysis. As such, there is one replicated counted in the network.

- Maërl beds have a limited distribution within the study area. The best examples of maërl beds in the area are found in the Fal and Helford estuaries where they are listed in the Fal and Helford SAC. We have also captured additional records in The Manacles rMCZ.

The interactive PDF supplied with this report allows the exploration of the exact location of the FOCI records referred to above.

Note that subtidal sands and gravels was not treated as a FOCI habitat during the planning process - it was not included on FOCI maps or reported against during stakeholder meetings. This is a very broad category and we were confident that the network would meet the requirements for this habitat through focussing on the relevant broad-scale habitat targets. There are three conservation objectives written for this habitat, resulting in three replicates in table II.2.8f, however the habitat is found in more than half of the rMCZs and covered by conservation objectives for the relevant broad-scale habitats.

The gap analysis provided us with replication figures (within existing MPAs) for three additional habitats, which although they are not on the FOCI list in the ENG, are considered of wider conservation importance. These are coastal saltmarsh, intertidal mudflats, and saline lagoons. We have included these figures here for context, and consider the coastal saltmarsh figures particularly relevant, given that the ENG stipulates replication targets for a broad-scale habitat called 'Coastal saltmarshes and saline reedbeds'. Although the target for this broad-scale habitat has been met, the replication figures for coastal saltmarsh in table II.2.4g might better reflect how well the feature is represented within the network (Ecological Network Guidance table 6, p. 38).

For additional information we have included a table showing the number of records of habitat FOCI represented within rMCZs (table II.2.8h). Records of habitats protected within existing MPAs have not been counted and the total number of 'unprotected' records is shown for reference. Table II.2.8i shows the equivalent for area figures calculated using polygonal FOCI habitat data and the percentage of total unprotected habitat captured.

Table II.2.8j shows all the point records for habitat FOCI in the region (including those representing habitats that are already protected within existing MPAs), broken down by decade. Polygonal data is not included in this table, as all habitat polygon data we have falls in the 2000s bracket.

Table II.2.8f. Replication of FOCI habitats (the number of rMCZs and existing protected areas within which records of FOCI habitats are located). Habitats highlighted in green have met their replication target.

Habitat name	Total replicates	Replicates in eMPAs	Pre 1980 replicates
Blue mussel beds ¹	3	1	
Cold-water coral reefs ¹	1		
Coral gardens ²			
Deep-sea sponge aggregations ²			
Estuarine Rocky Habitats	7	3	
File shell beds ²			
Fragile sponge & anthozoan communities on subtidal rocky habitats	14	11	
Intertidal underboulder communities	8	4	
Littoral chalk communities ²			
Maërl Beds	2	1	
Horse Mussel (<i>Modiolus modiolus</i>) beds ²			
Mud Habitats in Deep Water ¹	2		
Sea-pen and burrowing megafauna communities ²	1	1	
Native oyster (<i>Ostrea edulis</i>) beds ²			
Peat and clay exposures ¹	1		
Honeycomb worm (<i>Sabellaria alveolata</i>) reefs	4	1	
Ross worm (<i>Sabellaria spinulosa</i>) reefs ¹			
Seagrass beds	8	4	
Sheltered muddy gravels	4	2	
Subtidal chalk ¹	2	1	
Subtidal sands and gravels ³	3	3	
Tide-swept channels ¹	1	1	

¹ Habitats with a limited distribution, a very small number of records or where all locations are already protected and further work to incorporate them into the network is not needed, not possible or not appropriate.

² There are no records for this habitat in the Finding Sanctuary area.

³ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.2.8g. Non-ENG habitats within the gap analysis.

Habitat	Replicates in existing MPAs
Coastal saltmarsh	9
Intertidal mudflats	6
Saline lagoons	2

Table II.2.8h. Number of point records of Habitats of Conservation Importance in the south-west region and within the network. This table reflects the number of currently 'unprotected' records, not those that are protected within existing MPAs.

Habitat	Total unprotected records		Records captured in network	
	All	Pre-80	All	Pre-80
Blue mussel beds	25	1	1	
Cold-water coral reefs				
Coral gardens				
Deep-sea sponge aggregations				
Estuarine Rocky Habitats	76		23	
File Shell beds				
Fragile sponge & anthozoan communities on subtidal rocky habitats	5	1	1	1
Intertidal underboulder communities	26		8	
Littoral chalk communities				
Maërl Beds	97			
Horse mussel (<i>Modiolus modiolus</i>) beds				
Mud Habitats in Deep Water	40	14	29	14
Sea-pens and burrowing megafauna communities				
Native oyster (<i>Ostrea edulis</i>) beds				
Peat and clay exposures	9		1	
Honeycomb worm (<i>Sabellaria alveolata</i>) reefs	21	1	3	
Ross worm (<i>Sabellaria spinulosa</i>) reefs	12			
Seagrass beds	65		9	
Sheltered muddy gravels				
Subtidal chalk	6		4	
Subtidal sands and gravels				
Tide-swept channels	11		7	

Table II.2.8i. Area of Habitats of Conservation Importance in the south-west region and within the network. This table reflects the number of currently 'unprotected' records, not those that are protected within existing MPAs.

Habitat	Total unprotected area	Area captured in network
Blue mussel beds	0.12	
Cold-water coral reefs		
Coral gardens		
Deep-sea sponge aggregations		
Estuarine Rocky Habitats	0.01	<0.01 (15.5%)
File Shell beds		
Fragile sponge & anthozoan communities on subtidal rocky habitats		
Intertidal underboulder communities	<0.01	
Littoral chalk communities		
Maërl Beds	9.38	1.01 (10.8%)
Horse mussel (<i>Modiolus modiolus</i>) beds		
Mud Habitats in Deep Water	103.56	101.42 (97.9%)
Sea-pens and burrowing megafauna communities		
Native oyster (<i>Ostrea edulis</i>) beds		
Peat and clay exposures		
Honeycomb worm (<i>Sabellaria alveolata</i>) reefs	0.02	
Ross worm (<i>Sabellaria spinulosa</i>) reefs	0.95	
Seagrass beds	16.33	1.83 (11.2%)
Sheltered muddy gravels	0.49	0.07 (14.8%)
Subtidal chalk		
Subtidal sands and gravels ¹	58267.48	10665.43 (18.3%)
Tide-swept channels		

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.2.8j. Age distribution of habitat FOCI records. This table includes those records that fall within the protection afforded by existing marine protected areas. Only habitats for which we have point data have been included on this table. Note that all habitat polygon data falls in the 2000s bracket and is not included.

Habitat	1970s	1980s	1990s	2000s	Total
Blue Mussel Beds	1	22	3	1	27
Estuarine Rocky Habitats	4	67	10		81
Fragile sponge & anthozoan communities on subtidal rocky habitats	7	5	28	99	139
Intertidal underboulder communities		26	23	22	71
Maërl Beds		32	9	106	147
Mud Habitats in Deep Water	14	6	6	14	40
Peat and Clay Exposures		3		6	9
Honeycomb worm (<i>Sabellaria alveolata</i>) reefs	1	34	11		46
Ross worm (<i>Sabellaria spinulosa</i>) reefs			5	7	12
Seagrass beds	1	61	16	521	599
Subtidal chalk			2	4	6
Tide-swept channels				11	11

Species of Conservation Importance: representativity, replication and adequacy

The network has achieved good replication of Species of Conservation Importance, within the confines of the data available and the distribution of the species in the region. Table II.2.8k shows which benthic FOCI species are represented in the MPA network, and how many sites they are replicated within. For the existing protected areas, the gap analysis stated the number of replicate sites for each species, but no indication was given of the age of records within those sites.

At first glance, table II.2.8k shows that 16 out of 29 benthic Species of Conservation Importance do not meet the targets for replication within the network, and of those 16, 4 are not represented at all. Closer inspection of the data shows that for many of these species, we only have a very limited number of records in the region, or no records at all. Bearing in mind these limitations, the network performs well for benthic species FOCI. The bullet points below provide summary comments for those species which do not meet their targets.

- The lagoon sandworm *Armandia cirrhosa* is only recorded in one location in our region, the Fleet lagoon, where it is already has protected status through the SAC designation.
- The fan mussel *Atrina pectinata* has been recorded in several locations along the far south-west coastline of our study region, including in the Isles of Scilly. The majority of the records are historic (including from as far back as the 19th Century). More recent records are located within estuaries, bays and inlets in south Cornwall, and most of these locations already have protected status (though the fan mussel is not listed as protected within them). This includes records within the Fal and Helford SAC, the Eddystone portion of the Prawle Point to Plymouth Sound & Eddystone cSAC, the Plymouth Sound SAC, and the Salcombe to Kingsbridge Estuaries SSSI.

- We have a single record of Defonlin's lagoon snail *Caecum armoricum* in the Fleet lagoon, where the species is already protected through the SAC designation.
- There are only 2 locations in the south-west with records of the burgundy maërl paint weed *Cruoria cruoriaeformis*. There is one replicate in the network, within the Isles of Scilly rMCZ. It has also been recorded in the Fal/Helford SAC, where it is not listed as a protected species, however it is associated with maërl beds, and maërl beds are a listed protected feature within the SAC. Given the maërl is protected, we might consider the Fal/Helford as another replicate.
- There are only five records of *Gammarus insensibilis*, the lagoon sand shrimp. Three of these are off Chesil Beach and, as this is a lagoon species, can be considered a positional error - they are likely to fall within the Fleet lagoon, where the SAC already affords protection for this species. The other records are inside Poole Harbour and outside Christchurch harbour.
- There are only two single records of the amphipod shrimp *Gitanopsis bispinosa* in our region, both of which might be considered serendipitous records. These have not influenced the location of rMCZs.
- There are a limited number of records of Couch's goby, *Gobius couchi*. These include two SACs, though the species is not specifically listed as protected (the Fleet lagoon and the Fal/Helford). There is a single replicate from a single record in the Poole Rocks rMCZ.
- Grateloup's little-lobed weed (*Grateloupia montagnei*), like the burgundy maërl paint weed, is a red seaweed associated with maërl beds. Most of the records in the south-west are located in the Fal/Helford, where the maërl beds are protected by the SAC designation. This indicates that the associated red seaweeds are unlikely to need additional protection (even though they are not specifically listed as protected species in the SAC). In addition to the Fal/Helford records, the only other records in the region are located in the Isles of Scilly (two records within one of the rMCZs), and a single record in the estuary near Salcombe.
- We have limited records of *Hippocampus guttulatus* in the study area, however The Seahorse Trust has indicated that these species are more widespread than our point data indicates.
- *Lithothamnion corallioides* and *Phymatolithon calcareum* are species of maërl. We have focussed on meeting the targets for the FOCI habitat, maërl beds, than for the individual maërl species. Outside the Fal/Helford SAC (where the species is already protected), the other location where a large number of records of *L. corallioides* are present is in Poole Bay. A small number of additional individual records exist.
- The largest concentration of records of the stalked jellyfish *Lucernariopsis campanulata* are found in the Isles of Scilly, where records are located in three of the rMCZs. Additional records are in Mounts Bay, which is a rMCZ. The other records are within the Fal/Helford SAC, Plymouth Sound SAC, an additional three records off North Cornwall, and one record in Whitsand Bay.
- We only have four records of *Nematostella vectensis* (the starlet sea anemone), two in Poole harbour and one in the Fleet lagoon (the species is protected in both locations through existing designations), and an additional record just north of Weston-super-Mare.

- The gooseneck barnacle, *Pollicipes pollicipes*, has only been recorded in a single location in the region - the Land's End peninsula (i.e. the coastline between Newlyn and St. Ives), including at Land's End itself and Tater Du.
- The lagoon sea slug *Tenellia adspersa* has only been recorded in the Fleet, where it is protected through the SAC designation (an additional record exists in our data, off Chesil Beach, but as this is a lagoon species, this is likely to be a positional error).
- The trembling sea mat *Victorella pavidia* has only been recorded in one location in the south-west - Swanpool lagoon in Falmouth. This is already a SSSI, which protects the species. The lagoon lies above the mean high water line (OS Boundary Line) used to delimit our study region, so technically it might be seen to lie outside our planning area.

The interactive PDF supplied to the SAP along with this report allows the exploration of the location of the FOCI records referred to above.

For additional information we have included a table showing the number of records of benthic species represented within rMCZs (table II.2.8l). Records of species protected within existing MPAs have not been counted and the total number of 'unprotected' records is shown for reference. The table also includes figures calculated from the seahorse distribution polygon data that was mapped by the Seahorse Trust - (this is in a separate row, labelled *Hippocampus sp.*). Refer to Appendix 8 for details of data sources.

Table II.2.8m shows all the point records for benthic species FOCI in the region (including those representing species that are already protected within existing MPAs), broken down by decade. All polygonal information we hold for species distribution dates from 2000 and later, and is not included in this table. It consists of the Seahorse Trust polygon data referred to above, and additional localised polygon data for the distribution of *Eunicella verrucosa* off Dorset (the *E. verrucosa* polygon data does not overlap with any rMCZs).

Table II.2.8n shows replication figures for mobile FOCI. Information sources are found in the footnotes. We have not considered the mobile FOCI data provided through the national data layers contract (MB102), as the scale is too coarse to be meaningful.

Note that during meetings and in stakeholder communications the spiny lobster, *Palinurus elephas*, was often referred to as crawfish.

Table II.2.8k. Number of replicates of Species of Conservation Importance in the south-west region and within the network. This table reflects the number of currently 'unprotected' records, not those that are protected within existing MPAs. Green rows indicate that ENG targets have been met for that species. Note that the gap analysis did not include information on the age of records within existing protected areas.

Species name	Total replicates	Replicates in eMPAs	Pre 1980 replicates
<i>Alkmaria romijni</i> (Tentacled lagoon-worm) ¹	3	1	
<i>Amphianthus dohrnii</i> (Sea-fan Anemone)	3	1	
<i>Arctica islandica</i> (Ocean quahog)	4		1
<i>Armandia cirrhosa</i> (Lagoon Sandworm) ¹	1	1	
<i>Atrina pectinata</i> (Fan Mussel) ¹			
<i>Caecum armoricum</i> (Defolin's lagoon snail) ¹	1	1	
<i>Cruoria cruoriaeformis</i> (Burgundy maërl paint weed) ^{1,2}	1		
<i>Eunicella verrucosa</i> (Pink Sea-fan)	18	8	
<i>Gammarus insensibilis</i> (Lagoon sand shrimp) ¹	1	1	
<i>Gitanopsis bispinosa</i> (Amphipod shrimp) ¹			
<i>Gobius cobitis</i> (Giant Goby)	4		
<i>Gobius couchi</i> (Couch's goby) ¹	1		
<i>Grateloupia montagnei</i> (Grateloup's little-lobed weed) ^{1,2}			
<i>Halicystus auricula</i> (stalked jellyfish)	5		2
<i>Hippocampus guttulatus</i> (Long snouted seahorse)	1		
<i>Hippocampus hippocampus</i> (Short snouted seahorse)	3		
<i>Leptopsammia pruvoti</i> (Sunset Cup Coral)	6	5	
<i>Lithothamnion corallioides</i> (Coral Maërl) ^{1,3}	1	1	
<i>Lucernariopsis campanulata</i> (stalked jellyfish) ¹	2		1
<i>Lucernariopsis cruxmelitensis</i> (stalked jellyfish)	3		1
<i>Nematostella vectensis</i> (Starlet sea anemone) ¹	2	2	
<i>Ostrea edulis</i> (Native Oyster)	7	1	2
<i>Padina pavonica</i> (Peacock's tail)	3		2
<i>Palinurus elephas</i> (Spiny Lobster)	6		1
<i>Paludinella littorina</i> (Sea snail)	7	1	2
<i>Phymatolithon calcareum</i> (Common Maërl) ³	1	1	
<i>Pollicipes pollicipes</i> (Gooseneck Barnacle) ¹			
<i>Tenellia adspersa</i> (Lagoon sea slug) ¹	1	1	
<i>Victorella pavida</i> (Trembling sea mat) ¹	1		

¹ Species with a very small number of records or where all locations are already protected and further work to incorporate them into the network is not needed, not possible or not appropriate.

² Red seaweeds that are associated with maërl beds.

³ Coral maërl - included in habitat FOCI.

Table II.2.8I. Number of records of Species of Conservation Importance in the south-west region and within the network. This table reflects the number of currently 'unprotected' records, not those that are protected within existing MPAs.

Species name	Total unprotected records		Records captured in network	
	All	Pre-80	All	Pre-80
<i>Alkmaria romijni</i>	16		1	
<i>Amphianthus dohrnii</i>	52	1	17	1
<i>Arctica islandica</i>	59	20	9	2
<i>Armandia cirrhosa</i>	1			
<i>Atrina pectinata</i>	64	26		
<i>Caecum armoricum</i>				
<i>Cruoria cruoriaeformis</i>	8	2	3	
<i>Eunicella verrucosa</i>	353	51	119	19
<i>Gammarus insensibilis</i>	2			
<i>Gitanopsis bispinosa</i>	2			
<i>Gobius cobitis</i>	88	23	14	5
<i>Gobius couchi</i>	14	3	2	
<i>Grateloupia montagnei</i>	8		3	
<i>Halicystus auricula</i>	127	60	23	9
<i>Hippocampus guttulatus</i>	23	9	2	
<i>Hippocampus hippocampus</i>	10		2	
<i>Hippocampus sp.</i> ¹	386.39 km ²			
<i>Leptopsammia pruvoti</i>	6		2	
<i>Lithothamnion corallioides</i>	17	2		
<i>Lucernariopsis campanulata</i>	31	18	7	5
<i>Lucernariopsis cruxmelitensis</i>	9	5	3	1
<i>Nematostella vectensis</i>	2			
<i>Ostrea edulis</i>	191	30	22	6
<i>Padina pavonica</i>	35	27	8	6
<i>Palinurus elephas</i>	73	32	25	8
<i>Paludinella littorina</i>	44	8	7	2
<i>Phymatolithon calcareum</i>	150	10	1	
<i>Pollicipes pollicipes</i>	11	2		
<i>Tenellia adspersa</i>	1			
<i>Victorella pavida</i> ²	102		102	

¹ Polygon data for the distribution of seahorses in the south-west as provided by the Seahorse Trust (local knowledge).

² Records of *Victorella pavida* technically fall outside of the study area. As Swanpool is the only location in the UK where this species is found, it has been considered as a suitable location for a recommended reference area.

Table II.2.8m. Age distribution of non-mobile species FOCI records. This table includes those records that fall within the protection afforded by existing marine protected areas. Note that all species polygon data falls in the '2000s' bracket and is not included.

Benthic Species of Conservation Importance	18th Century	19th Century	1900s	1910s	1920s	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s	Total
<i>Alkmaria romijni</i>											12	4		16
<i>Amphianthus dohrnii</i>									1		3	5	44	53
<i>Arctica islandica</i>	1	6	2	1			2	1	2	5	12	12	15	59
<i>Armandia cirrhosa</i>												3		3
<i>Atrina pectinata</i>		15	10	1						1	2	18	18	65
<i>Caecum armoricum</i>											1			1
<i>Cruoria cruoriaeformis</i>										2	6			8
<i>Eunicella verrucosa</i>		4	4		1	1			28	82	91	115	649	975
<i>Gammarus insensibilis</i>						2					2		1	5
<i>Gitanopsis bispinosa</i>												2		2
<i>Gobius cobitis</i>			2					10	2	9	8	52	5	88
<i>Gobius couchi</i>									2	1	6	2	3	14
<i>Grateloupia montagnei</i>											8			8
<i>Haliclystus auricula</i>		1	5					3	9	42	30	15	22	127
<i>Hippocampus guttulatus</i>		1	1		1	1		1	4	1	2	7	5	24
<i>Hippocampus hippocampus</i>											1		10	11
<i>Leptopsammia pruvoti</i>										1	13	5	57	76
<i>Lithothamnion corallioides</i>									2	3	27	4	11	47
<i>Lucernariopsis campanulata</i>			3						8	7	7	1	5	31
<i>Lucernariopsis cruxmelitensis</i>									1	4	1	1	2	9
<i>Nematostella vectensis</i>											4	1		5
<i>Ostrea edulis</i>		15	4		12		4	7	10	27	113	65	134	391
<i>Padina pavonica</i>		4	3		1				5	14		3	5	35
<i>Palinurus elephas</i>		1	4	2				5	11	9	12	3	26	73
<i>Paludinella littorina</i>		1	2	2					2	2	1	10	25	45
<i>Phymatolithon calcareum</i>		1	2					1	11	10	31	7	142	205
<i>Pollicipes pollicipes</i>		2									3		6	11
<i>Tenellia adspersa</i>												1	1	2
<i>Victorella pavidia</i>												102		102

Table II.2.8n. Replication of mobile Species of Conservation Importance. These figures have been calculated from the conservation objectives developed during the vulnerability assessment process.

Mobile Species of Conservation Importance	Replicates
<i>Osmerus eperlanus</i> (Smelt) ¹	1
<i>Anguilla anguilla</i> (European eel) ²	10
<i>Raja undulata</i> (Undulate ray) ³	1

¹ Environment Agency surveys have found smelt in the Tamar Estuary.

² Information supplied by the Environment Agency indicates that migratory species including eel are common to all of the estuaries along the south coast of Cornwall and Devon.

³ A recent report from the Shark trust indicates that Studland Bay is a breeding area for undulate ray (Richardson, 2011).

Geological and geomorphological features

The ENG lists geological and geomorphological features of importance, as well as coastal Geological Conservation Review (GCR) sites, which should be considered for MCZ designation.

The geological datasets have not been a driver in our planning process. Nevertheless, all three geological and geomorphological features of importance that fall within our region are represented within the network, one of them in full (table II.2.8o).

Table II.2.8o. Geological and geomorphological features of interest.

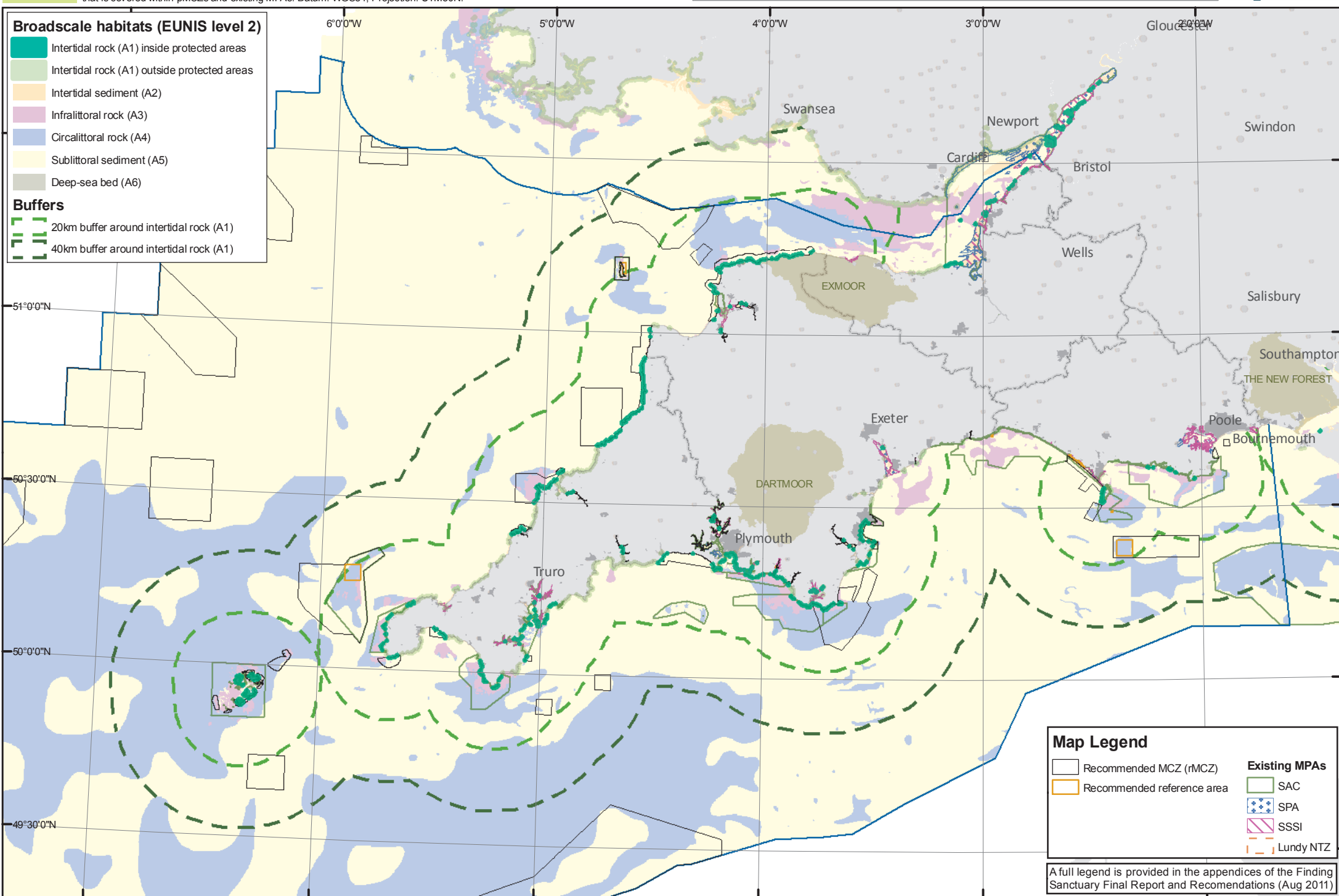
Feature	Total area available (km²)	Area within rMCZs (km²)
Celtic Sea relict sandbanks	1308.38	550.53 (42.1%)
Haig Fras rock complex	74.73	74.73 (100%)
Portland Deep	15.85	8.72 (55.0%)

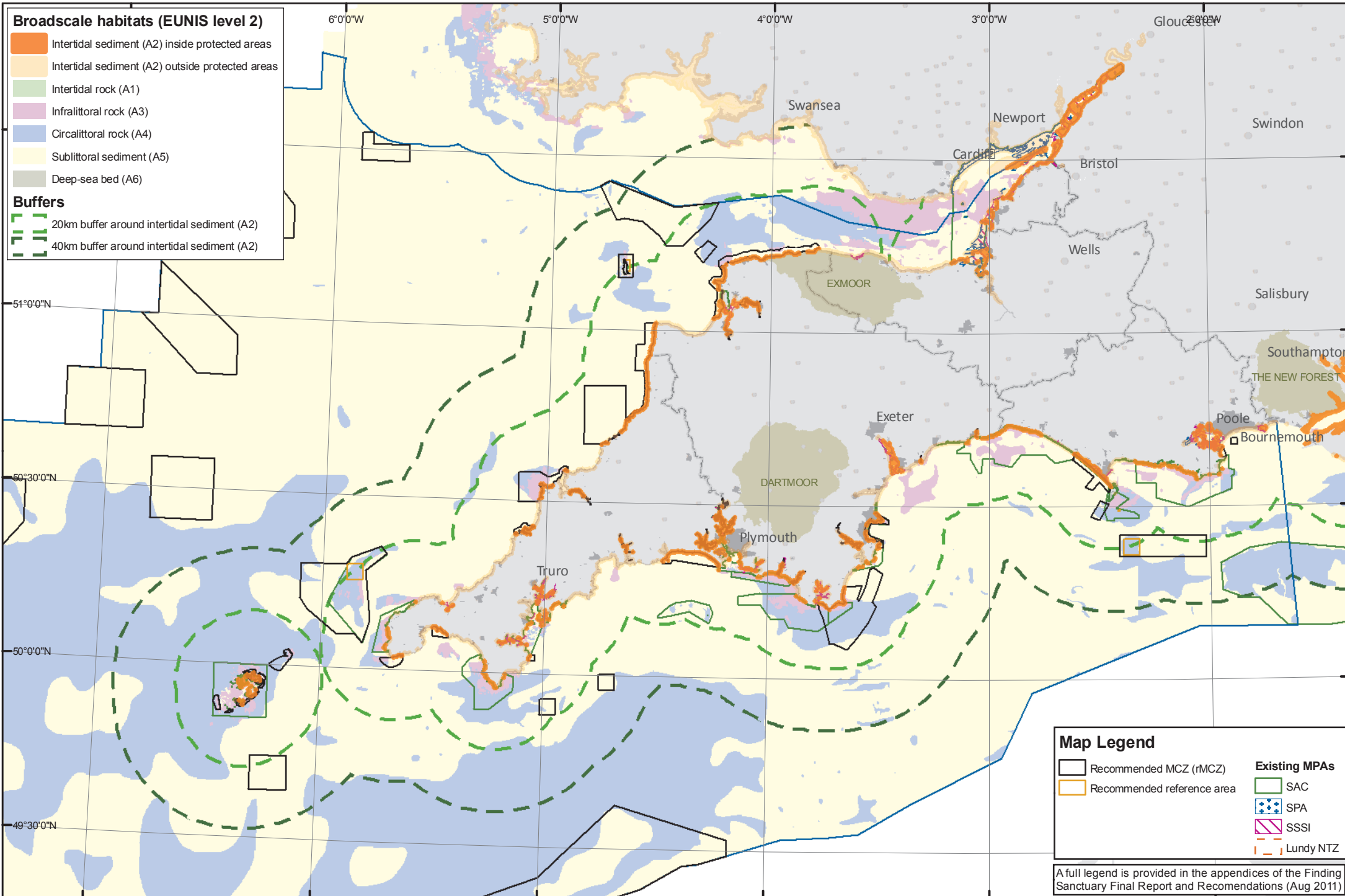
When our planning process started, no geographical boundary data existed for the GCR sites listed in the ENG. As this only became available late in the process, GCR sites were not considered during the stakeholder meetings. Nevertheless, the network intersects with the following coastal Geological Conservation Review (GCR) sites: Axmouth to Lyme Regis Undercliffs, Eastern Isles, Northam Burrows, Rame Head & Whitsand Bay, Slapton Ley/Hallsands to Beesands, Tean.

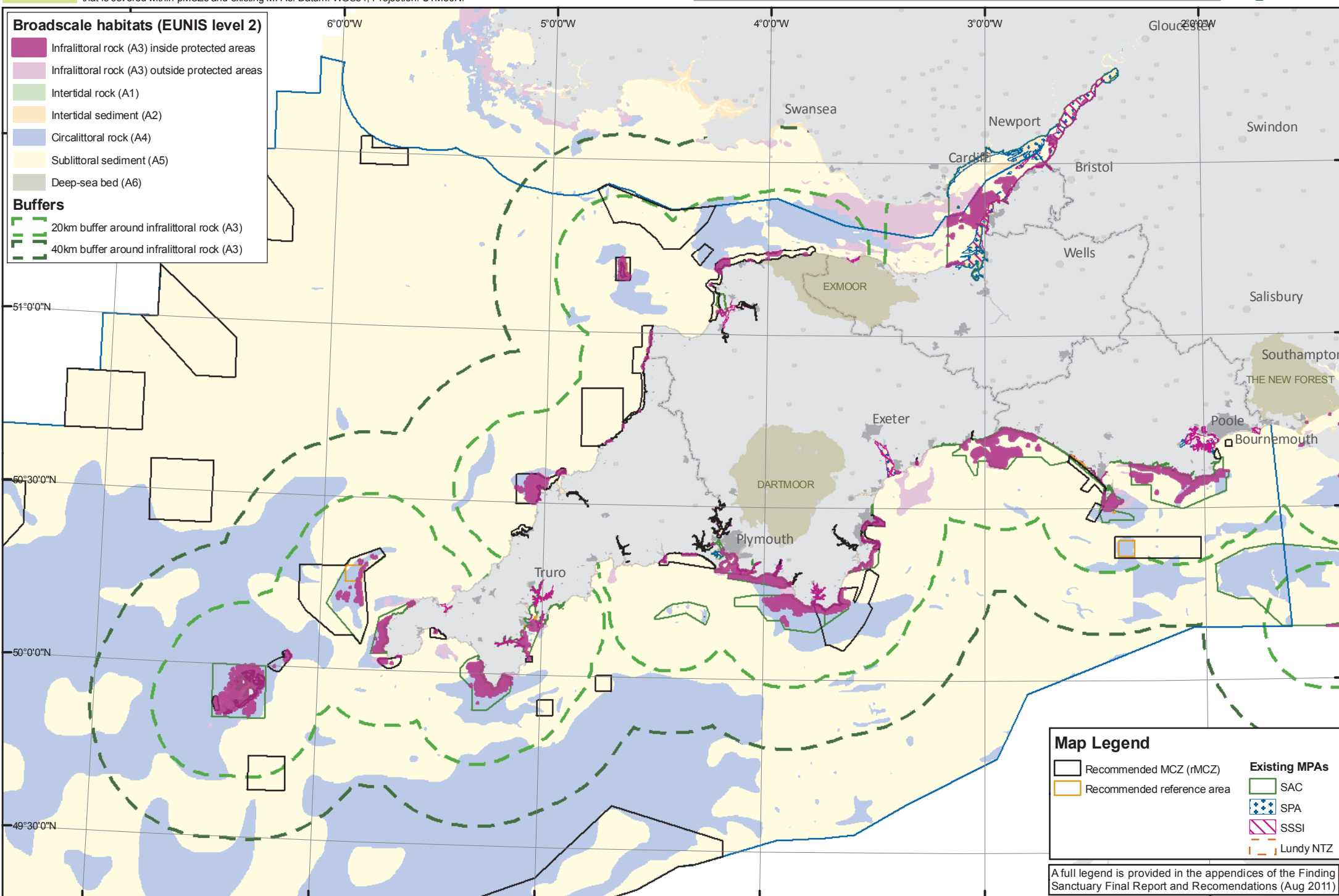
Connectivity

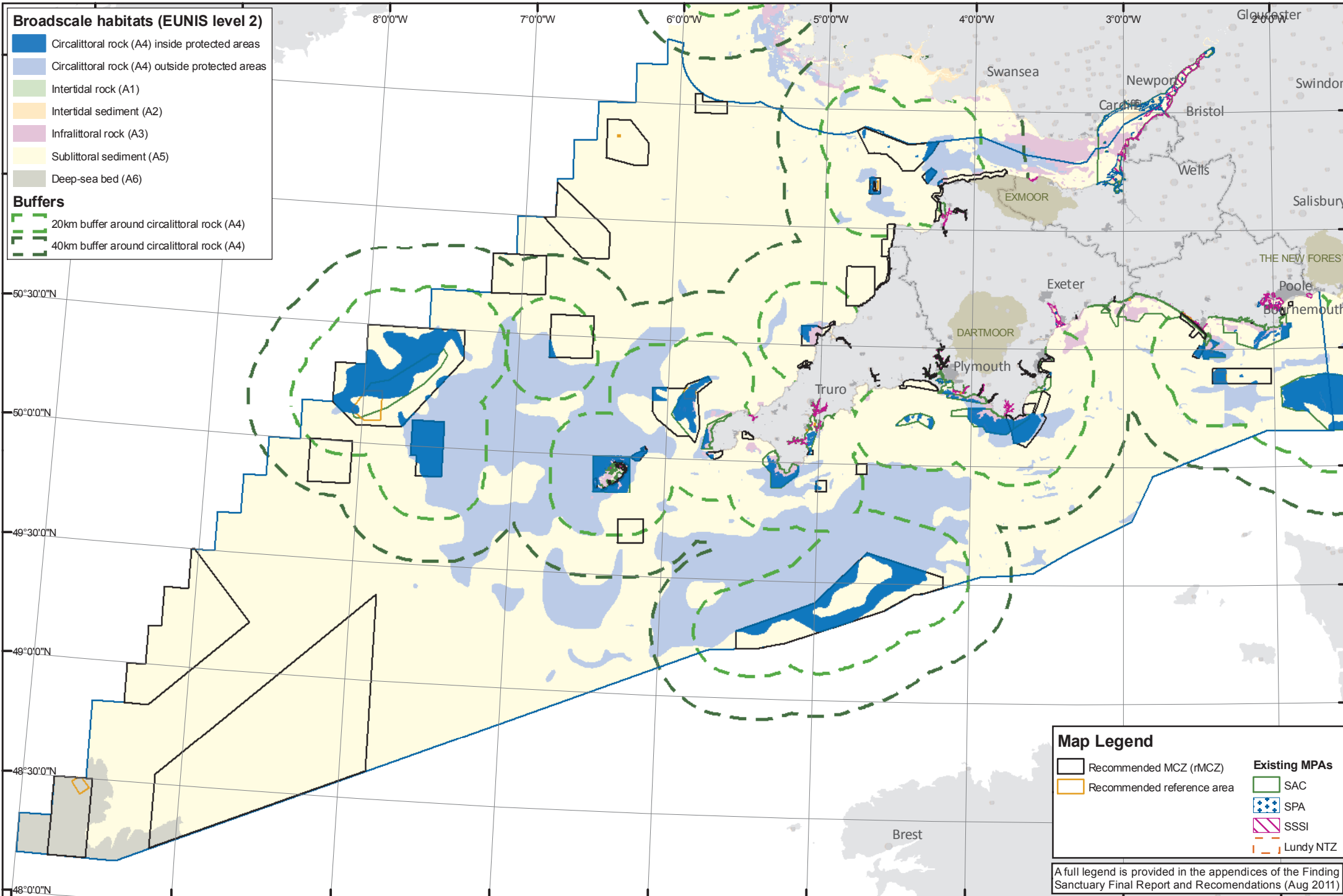
In order to provide a visual representation of how the network is performing against the ENG connectivity criteria, we have presented a series of five maps (FR_004 to FR_008) showing 20km and 40km buffers (representing 40km and 80km connectivity) around each of the EUNIS level 2 habitats found within the rMCZs and existing marine protected areas. We have not included a connectivity buffer map for the EUNIS level 2 habitat 'Deep sea', as this habitat is only found beyond the shelf break, and the entire patch that occurs within our region would fall within the 40km buffer.

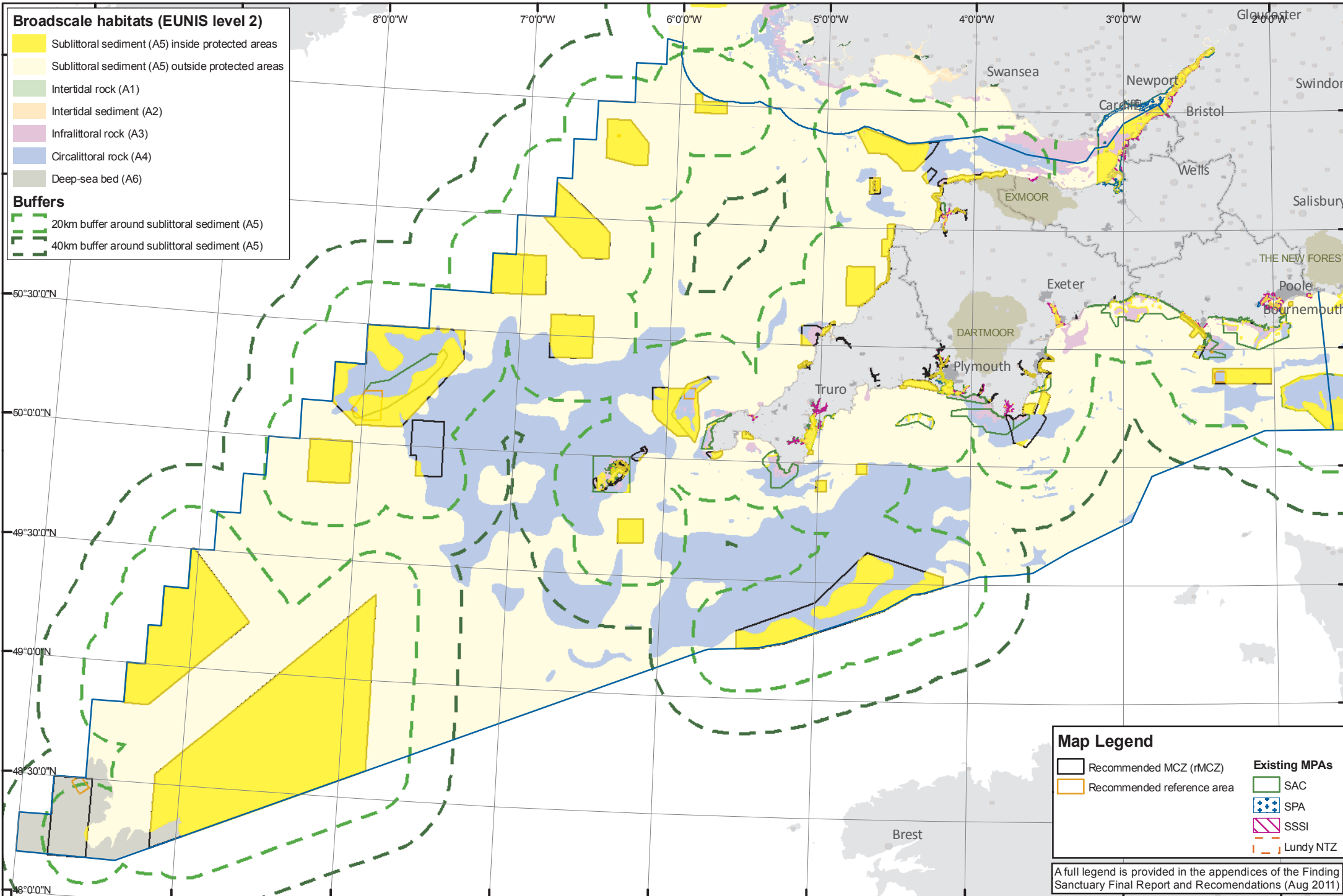
FR_004 and FR_005 represent the EUNIS level 2 habitats intertidal rock (shown in green) and intertidal sediment (shown in orange). Where these habitats exist in an MCZ or existing MPA they are highlighted in a brighter version of that habitats colour. At this scale it is difficult to see these coastal habitats, so we have enlarged them slightly to aid visibility (this hasn't affected the calculation of the buffers). The habitats highlighted in FR_006, FR_007 and FR_008 are easier to see and have not been enlarged to the same degree.











Areas of additional ecological importance

The third progress report indicated some of the difficulties in applying the ENG guidelines for areas of additional importance. Nevertheless, many of the sites within the network configuration occur in these areas.

The network includes 10 rMCZs with estuaries: The Axe, Otter, Dart, Devon Avon, Erme, Tamar Estuary sites, Upper Fowey and Pont Pill, Newquay and the Gannel, the Camel, and the Taw Torridge Estuary. Estuaries are of additional ecological importance because of their high levels of productivity and ecological function as spawning and nursery areas. The set included in the network represents a range of sizes and types of estuary (including rias and bar-built estuaries).

In the offshore, the network includes several sites that intersect areas of higher than average observed bird densities, frontal activity (indicative of high pelagic productivity), and topographic interest features : the Celtic Deep, East of Celtic Deep, Western Channel, Greater Haig Fras and Canyons rMCZs are of note. Further inshore, the South of Falmouth and South-East of Falmouth rMCZs coincide with an area of higher than average pelagic productivity.

Many of the rMCZs, especially in the inshore, also coincide with areas of higher than average benthic biodiversity, both compared against a national and a regional average.

A biophysical interactive PDF is provided alongside this report which allows visual assessment of the overlaps between the sites in the current network and areas of high benthic biodiversity, high pelagic interest and seasonal thermal fronts.

II.2.9 Recommended reference areas summary

The ENG stipulates that each listed broad-scale habitat and FOCI needs to be represented within a reference area, with additional guidelines describing minimum reference area or feature patch sizes:

- Broad-scale habitats need to be represented in reference areas with a minimum dimension of 5km, although the patch of habitat can be smaller. The Working Group considered it unrealistic to have reference areas of this dimension close to the shoreline and since the publication of the ENG, both the SAP and SNCBs have advised that intertidal broad-scale habitats can be represented in smaller reference areas. This has resulted in a preference for finding larger recommended reference areas away from the coastline to represent subtidal broad-scale habitats, and smaller areas nearer the coast to represent FOCI.
- FOCI each have their own minimum viable size guidelines - a minimum patch size of each feature needs to be represented in a reference area (refer to tables 7 and 8 in the ENG).

Because most of our FOCI data consists of point samples, we do not know what patch sizes are present where. In order to do our best to develop reference areas that meet the viability criterion for FOCI, we have instead ensured that (as far as possible) the size of the reference area is big enough to contain the minimum patch size for a feature.

The conservation objectives for all ENG features within the boundaries of a recommended reference area are, by default, 'recover to reference condition'. Within reference areas, management of human activities will apply within the whole site, not to individual features (see the [draft reference](#)

[area guidance document](#)¹⁸). All ENG features present in a site should be included on the conservation objectives list, even if the minimum size guidelines are not met for all of them. As an example, most of the small inshore recommended reference areas contain subtidal broad-scale habitats. These will have conservation objectives, though if they are smaller than the 5km size guideline they won't contribute to the ENG replication target. Table II.2.6c shows the viable ENG-listed seafloor features contained within each of the recommended reference areas.

Table II.2.9a shows that our current set of reference areas represent 9 subtidal broad-scale habitats, 8 intertidal broad-scale habitats, 9 FOCI habitats and 10 FOCI species. If the ENG were followed to the letter, only the first column would count towards these figures. However, given the acknowledgement that the 5km guideline for intertidal broad-scale habitats is unrealistic, the 8 intertidal broad-scale habitats in the second column are also counted. Tables II.2.9a to II.2.9d contain more detailed descriptions on a feature-by-feature basis.

The only three subtidal broad-scale habitats not represented in the current set of recommended reference areas are low energy infralittoral and circalittoral rock (both of which have a very limited distribution), and subtidal macrophyte-dominated sediment (which we can assume is adequately represented at the FOCI level, by having represented seagrass beds and maërl beds). The only two intertidal broad-scale habitats not represented are intertidal sand and muddy sand, and intertidal biogenic reefs (table II.2.9b). The latter can be assumed to be represented through intertidal *Sabellaria alveolata* reefs in the Lyme Bay recommended reference area.

Of the FOCI habitats present in the study region, 9 are represented in the set of recommended reference areas, whilst 5 are not represented (table II.2.9c). There are no records of the remaining 6 habitats in the Finding Sanctuary area.

Of the 29 FOCI species on the ENG list, 10 are represented in the set of recommended reference areas (table II.2.9d). An additional three (the red seaweeds *Grateloupia montagnei* and *Cruoria cruoriaeformis*, and Couch's goby *Gobius couchi*) are present in the Fal recommended reference area, which is slightly smaller than the minimum size requirement of 1km. Enlarging this site westwards would probably not provide more habitat suitable for these species (maërl and seagrass beds), as the depth increases to the west. The lagoon sea slug *Tenellia adspersa* has been recorded in The Fleet recommended reference area, but as the site only covers part of the lagoon, it has not been counted.

Conservation objectives for the features listed in reference areas are found in tables II.2.6a to II.2.6c. Only one of the mobile FOCI, European eel (*Anguilla anguilla*) is found within recommended reference areas - there are replicates in the Fal rRA and the Erme rRA.

¹⁸ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

Table II.2.9a. Replication of subtidal broad-scale habitats within the current set of recommended reference areas. Red text highlights targets that have not been met.

Habitat	Minimum viable patch size	Replicates in recommended RAs
High energy infralittoral rock	5 km	1
Moderate energy infralittoral rock	5 km	1
Low energy infralittoral rock	5 km	
High energy circalittoral rock	5 km	2
Moderate energy circalittoral rock	5 km	3
Low energy circalittoral rock	5 km	
Subtidal coarse sediment	5 km	2
Subtidal sand	5 km	1
Subtidal mud	5 km	1
Subtidal mixed sediments	5 km	2
Subtidal macrophyte-dominated sediment	5 km	
Deep-sea bed	5 km	1

Table II.2.9b. Replication of intertidal broad-scale habitats within the current set of recommended reference areas. Red text highlights targets that have not been met.

Habitat	Minimum viable patch size ¹	Replicates in recommended RAs
High energy intertidal rock	5 km	1
Moderate energy intertidal rock	5 km	1
Low energy intertidal rock	5 km	1
Intertidal coarse sediments	5 km	4
Intertidal sand and muddy sand	5 km	
Intertidal mud	5 km	2
Intertidal mixed sediments	5 km	1
Coastal saltmarshes and saline reedbeds	5 km	2
Intertidal sediments dominated by aquatic angiosperms	5 km	1
Intertidal biogenic reefs ²	5 km	

¹ Intertidal broad-scale habitats present in sites that are smaller than the minimum have been counted as represented – see main text for explanation.

² Intertidal biogenic reefs can be assumed to be represented through intertidal *Sabellaria alveolata* reefs in the Lyme Bay recommended reference area.

Table II.2.9c. Replication of FOCI habitats within the current set of recommended reference areas.
Red text highlights targets that have not been met.

Habitat	Minimum viable patch size	Replicates in recommended RAs
Blue Mussel beds	0.5 km	1
Cold-water coral reefs	Whole feature	1
Coral gardens ¹	None given	
Deep-sea sponge aggregations ¹	5 km	
Estuarine rocky habitats	0.5 km	
File shell beds ¹	0.5	
Fragile sponge & anthozoan communities on subtidal rocky habitats	0.5 km	1 ²
Intertidal underboulder communities	0.5 km	
Littoral chalk communities ¹	1 km	
Maërl Beds	0.5 km	1
Modiolus modiolus beds ¹	0.5 km	
Mud Habitats in Deep Water	1 km	1
Sea-pen and burrowing megafauna communities	1 km	
Ostrea edulis beds ¹	0.5 km	
Peat and clay exposures	0.5 km	
Sabellaria alveolata reefs	0.5 km	1
Sabellaria spinulosa reefs	0.5 km	
Seagrass Beds	0.5 km	1
Sheltered muddy gravels	0.5 km	1
Subtidal chalk	0.5 km	1

¹ There are no records for this habitat in the Finding Sanctuary area, so this feature has been greyed out.

² The replicate for this feature is from records prior to 1980.

Table II.2.9d. Replication of FOCI species within the current set of recommended reference areas. Red text highlights targets that have not been met.

Species	Common name	Min. patch size	Replicates
<i>Alkmaria romijni</i>	Tentacled lagoon-worm	0.5	
<i>Amphianthus dohrnii</i>	Sea-fan Anemone	0.5	1
<i>Arctica islandica</i>	Ocean quahog	0.5	
<i>Armandia cirrhosa</i>	Lagoon Sandworm	Whole feature	
<i>Atrina pectinata</i>	Fan Mussel	0.5	
<i>Caecum armoricum</i>	Defolin's lagoon snail	1	
<i>Cruoria cruoriaeformis</i> ¹	Burgundy maërl paint weed	1	
<i>Eunicella verrucosa</i>	Pink Sea-fan	5	1
<i>Gammarus insensibilis</i>	Lagoon sand shrimp	0.5	
<i>Gitanopsis bispinosa</i>	Amphipod shrimp	1	
<i>Gobius cobitis</i>	Giant Goby	1	
<i>Gobius couchi</i> ²	Couch's goby	1	
<i>Grateloupia montagnei</i> ³	Grateloup's little-lobed weed	1	
<i>Halicystus auricula</i>	Stalked jellyfish	0.5	1
<i>Hippocampus guttulatus</i>	Long snouted seahorse	0.5	
<i>Hippocampus hippocampus</i>	Short snouted seahorse	0.5	
<i>Leptopsammia pruvoti</i>	Sunset Cup Coral	0.5	1
<i>Lithothamnion corallioides</i>	Coral Maërl	0.5	1
<i>Lucernariopsis campanulata</i>	Stalked jellyfish	1	
<i>Lucernariopsis cruxmelitensis</i>	Stalked jellyfish	1	
<i>Nematostella vectensis</i>	Starlet sea anemone	0.5	
<i>Ostrea edulis</i>	Native Oyster	0.5	1
<i>Padina pavonica</i>	Peacock's tail	0.5	1
<i>Palinurus elephas</i> ⁴	Spiny Lobster	5	1
<i>Paludinella littorina</i>	Sea snail	1	
<i>Phymatolithon calcareum</i>	Common Maërl	0.5	2
<i>Pollicipes pollicipes</i>	Gooseneck Barnacle	0.5	
<i>Tenellia adspersa</i> ⁵	Lagoon sea slug	Whole feature	1
<i>Victorella pavida</i> ⁶	Trembling sea mat	Whole feature	1

^{1,2,3} Species is present within the Fal recommended reference area, which has a minimum dimension of 0.71km, slightly less than the required 1km.

⁴ This is counted as represented within Cape Bank recommended reference area. Although our spatial data does not show this species within the site, Natural England have recently recorded it (Natural England, 2010).

⁵ This feature is represented in the Fleet Lagoon, only part of which is covered by a reference area.

⁶ *Victorella pavida* is only found within Swanpool Lagoon in Falmouth. This may not be considered an area within the project boundary, as it lies above the OS Boundary Line mean high water line.

II.3 Site reports for recommended MCZs

II.3.1 The Canyons rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
48.3333	-9.6799	48° 20' 0"N	9° 40' 47" W

Site surface area: 660.58 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: On the boundary between Western Channel and Celtic Sea, and Atlantic South West Approaches

OSPAR region: Region III: Celtic Waters

Site boundary: The shape of the site is a simple rectangle, in line with ENG guidelines. The northern, north-western and southern boundary sections align with the UK Continental Shelf Limit. The western and eastern boundary sections were drawn as straight N-S lines. The site was placed on the top edge of the shelf break, and it includes small slivers of continental shelf broad-scale habitats along the eastern boundary, in addition to the deep sea broad-scale habitat beyond the shelf break. This positioning was deliberate, in order to capture as much of the depth range along the steep shelf slopes as possible, thereby maximising the biodiversity within the site.

Sites to which the site is related: The Canyons rMCZ contains a recommended reference area called 'The Canyons'. The shortest distances to its two nearest neighbouring rMCZs are approximately 30km to South-West Deeps (East), and around 40km to South-West Deeps (West), respectively.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM29N).

Features proposed for designation within The Canyons rMCZ

Table II.3.1.a Draft conservation objectives for the Canyons rMCZ. 'Maintain' = maintain in favourable condition, 'recover' = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Feature	Conservation Objective
Deep-sea bed	recover
Subtidal coarse sediment ¹	recover
Subtidal sand ¹	recover
Cold-water coral reefs	recover

¹During the vulnerability assessment discussions, it was highlighted that setting conservation objectives for these two features may not be achievable as they only cover very small slivers of the seafloor within the site boundaries (see site map series, and table II.3.1b). The primary feature to be protected within the site is the deep-sea bed beyond the shelf break. However, a decision was ultimately taken to include them, meaning that the entire seafloor area within the site would be protected.

The inclusion of conservation objectives for seabirds and common dolphins on the conservation objective feature list for this site was discussed at length at the Joint Working Group meeting in May 2011, in the full understanding of SAP feedback following progress report 3, and the JNCC's position that they would not support conservation objectives for mobile species in offshore rMCZs. The JWG could not reach a conclusion on the matter.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.1b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal coarse sediment	0.12	<0.1%	1, 2
Subtidal sand	3.95	<0.1%	1
Deep-sea bed	655.54	41.1%	1, 2

Table II.3.1c Habitats mapped by JNCC from seafloor survey data (Davies et al. 2008), represented within this rMCZ.

Subtidal broad-scale habitats (EUNIS level 3)		
Habitat	Area covered within rMCZ (km ²)	% of total in study area
Communities of Deep-Sea Corals	0.17	100
Deep Circalittoral Coarse Sediment	5.22	7.4
Deep-Sea Bedrock	27.93	65.6
Deep-Sea Biogenic Gravel	57.08	92.3
Deep-Sea Mixed Substrata	160.37	54.8
Deep-Sea Mud	114.46	81.9
Deep-Sea Sand	15.24	61.3

Table II.3.1d FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Cold-water coral reefs		1		2
Subtidal sands and gravels ¹	12.24			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

This site is located in the far south-west corner of our study region and of the UK's continental shelf area. It is more than 330 km from Land's End. The area is unique within the context of England's extensive, but largely shallow shelf seas. It is located on the continental shelf break, which drops steeply from the continental shelf to the oceanic abyss. The depth within the site ranges from 200m at the eastern edge of the site, to 2000m in the west. Within the site, there are two large canyons that indent the shelf break, further adding to the topographic complexity of the seafloor.

The site boundaries were drawn for the site to be located on the steep part of the shelf break, to cover areas of diverse seafloor habitat within the 'deep sea' broad-scale habitat, including canyons and deep sea corals, mapped from survey data supplied by the JNCC (collected during the research cruise described in Davies *et al.*, 2008). This is high-quality seafloor habitat data, which has been used in addition to our EUNIS level 3 habitat data (described in appendix 8), and it is shown on one of the maps at the end of this site report (map FR_009c). It shows a range of seafloor habitats present, including bedrock and a range of sediments varying from mud to coarse sediments.

There is a small patch of live deep-water coral reef (*Lophelia pertusa* reef), located on the northern flank of the northernmost canyon in the site. This is the only living deep-water coral reef recorded within England's seas (other deep-water coral reefs occur along the continental shelf break off Scotland and Ireland). There are more extensive patches of biogenic rubble present in the site, on the shallower spurs separating the deep canyons. This is an indication that the coral reef habitat may have been much more extensive in the past.

The site also covers an area of additional ecological importance in terms of its pelagic environment. There is upwelling of deep, nutrient-rich waters along the shelf break, as is indicated by persistent sea surface temperature fronts located along the sea surface above the shelf break (see the biophysical interactive PDF presented along with this report). The area attracts higher than average numbers of seabirds and cetaceans.

Detailed site description

Detailed multibeam and backscatter survey work was carried out in the area of the south-west Canyons in 2007, which focused on the canyons flanks, or interflaves, was undertaken, along with a boomer and sparker survey by Davies *et al.* (2008). Ground-truthing was undertaken using a drop frame equipped with high resolution digital stills and video. EUNIS habitats were classified from video analysis of the Canyons, including communities of deep-sea corals, i.e. patches of cold water coral (Davies *et al.* 2008). Habitats Directive Annex 1 bedrock reef and biogenic reef were all observed within the area of the study. Cold water coral (*Lophelia pertusa*) reef was observed at the seaward entrance to, and within Explorer Canyon between 743-925m (Davies *et al.* 2008).

Howell (2010a) collected biological data from the South West Canyons (SWC) over a thirteen day period in June 2007 on the RV 'Celtic Explorer'. Forty-five video transects were undertaken in total. Transects were selected to cover a range of substrates, depths and geomorphological features using existing multibeam bathymetry and backscatter data. Howell *et al.* (2010b) undertook an extensive review of the benthic faunal studies from the region.

During the period 2000–2006, Ellis *et al.* (2007a) carried out approximately 150 tows with 2m-beam trawl during groundfish surveys of the South West offshore area. Catches along the edge of the continental shelf (130–350 m deep) were characterised by large numbers of the anemone *Actinauge richardi*, with the hermit crab *Pagurus prideaux* dominating on coarse grounds in shallower waters.

The study described the spatial distribution of the epibenthic fauna. Wilson *et al.* 2001 analysed the benthic biodiversity of the Southern Irish Sea which may have included part of the Canyons. Duineveld *et al.* (2001) compared the sediment and its community on the Celtic continental slope (Goban Spur) with those in a branch of the nearby Whittard Canyon in search for evidence of canyon mediated transport of (labile) organic matter. They studied the megabenthos and macrobenthos biomass and taxonomic composition. Macro-infauna were collected with a 50 cm diameter box-corer. Megafauna were collected using an Agassiz trawl with an opening of 1 m height and 3.5 m width and a net with a mesh size of 1 cm. Three stations were sampled during July 1996.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved. This assumption applies to all activities.** Table II.3.1e shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.1f shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.1e Specific assumptions and implications relating to The Canyons rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Bottom-towed fishing gear will not be allowed.</p> <p>This activity was discussed during the VA meetings, and it was determined that the activity would be prohibited in the whole site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK (For this specific rMCZ, the implications for the non-UK fleet will be the most significant. This is relevant to longliners more than bottom-towed gear fishermen). o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots & static gear & cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Anchoring of large vessels will not be allowed (except in emergencies).</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation.
<p>Aggregate extraction will not be allowed.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.

	<p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste from processing vessels and munitions.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site	
Assumptions	Implications
<p>Static fishing gear (except netting and longlining) will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>This activity was discussed during the VA and it was determined that demersal static fishing gear (which impacts the seafloor, e.g. potting, set netting, set lines) should not be allowed where the most sensitive feature occurs: cold water coral reef (possibly to include biogenic rubble areas).</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots & static gear & cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be necessary o There would be costs if monitoring is needed (e.g. the introduction of static gear controls would require monitoring)
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with

	<p>cable repair activity restrictions</p> <ul style="list-style-type: none"> o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Excellent wind and wave resource area but unlikely to be developed in short or medium term due to distance from shore.
<p>Anchoring of small vessels will be permitted.</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>In this site, anchoring would not be permitted where the sensitive habitat (coral reefs, biogenic rubble?) occurs, as the impact would theoretically not be compatible with the conservation objectives - but this activity is unlikely to happen in reality.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel . 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted.</p> <p>In this site, anchoring would not be permitted where the sensitive habitat (coral reefs, biogenic rubble?) occurs, as the impact would theoretically not be compatible with the conservation objectives - but this activity is unlikely to happen in reality</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be necessary o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o
<p>Pelagic trawls will be permitted</p> <p>Mobile species (seabirds and cetaceans) not considered as features needing protection when the vulnerability assessment was carried out with JNCC specialists.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>In this site, any new cables would have to be routed around the most sensitive canyon seafloor habitat, (areas of live deep-sea coral and biogenic rubble, where coral may recover).</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational).</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Two inactive telecoms cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Passage of ships will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Acoustic survey work (geological surveys) will not be allowed.</p> <p>Military Sonar will not be allowed.</p> <p>This activity was discussed during the VA and it is likely that no added restrictions on acoustic work or military sonar would result from an MCZ designation in this site. (Cetaceans were not considered as a feature for protection in this site when the vulnerability assessment was carried out with JNCC experts.)</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.1f VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	Management: - Prohibition of fishing in the rMCZ Measure: - Common Fisheries Policy
Commercial Fishing – all mobile and static bottom gears	Management: - Prohibition of fishing over specific BSH/FOCI. These are: cold-water coral reefs (possibly including biogenic rubble). Measure: - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty has been highlighted for this site:

- There have been conflicting statements as to whether or not the UN Convention on the Law of the Seas (UNCLOS) allows the permanent right to lay cables in the offshore outside of 12 nautical miles or whether this activity can be managed following MCZ designation.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Fishing*
 - This site is important to almost twenty fishing vessels from South Normandy.
 - Seasonal closures of bottom-towed mobile gear are an inappropriate measure for benthic conservation.

- *Pelagic gear*
 - As this site had previously been considered to provide protection for pelagic and mobile species, assumptions had been made that netting and longlining would not be permitted, and pelagic trawls would be permitted, but with mitigation against bycatch for seabirds.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'
- *Vulnerability assessment*
 - Steering Group representatives voiced general concern over the process and outcome of the vulnerability assessments. This was mainly in relation to inshore sites, however, please refer to the Steering Group statement in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

This area was one of the earliest that was drawn by stakeholder representatives as an area to include in the network (see first progress report), and there is a general recognition from a wide range of stakeholder representatives that the shelf break and coral reef habitat are unique ecological areas. Furthermore, the site is located a long way offshore, so the diversity of interests that might generate conflicts over the site designation is much more limited than closer to shore. Therefore, the site has relatively wide support.

The fishing sector have questioned the rationale for the selection of such a large proportion of the deep sea habitat feature within the region as a rMCZ, when the ENG does not set any quantitative guidelines, and some concern has been raised over possible impacts on non-UK fishermen (including Spanish longliners) who use the area of the shelf break. NCS comments from non-UK fishermen reflect these concerns.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MESH, MB102, and JNCC/MESH Canyons survey data (Davies *et al.* 2008). Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Stewart & Davies (2007).

Site map series

On the following pages there are three maps of this site.

- The first map (FR_009a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM29N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_009b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI.
- The third map (FR_009c) shows the detailed seabed habitat data from the JNCC/MESH survey referred to above (Davies *et al.* 2008). The data shown on maps FR_009b and FR_009c corresponds with the information in tables II.3.1b to II.3.1d, data sources are indicated in the tables.
- Most site reports include a map showing socio-economic information, but this one does not, because there is not a lot of spatial data indicating activities occurring this far offshore (except for fisheries data, which is included in interactive PDF maps provided along with this report – see appendix 14). One of the maps included in the South-west Deep (East) rMCZ

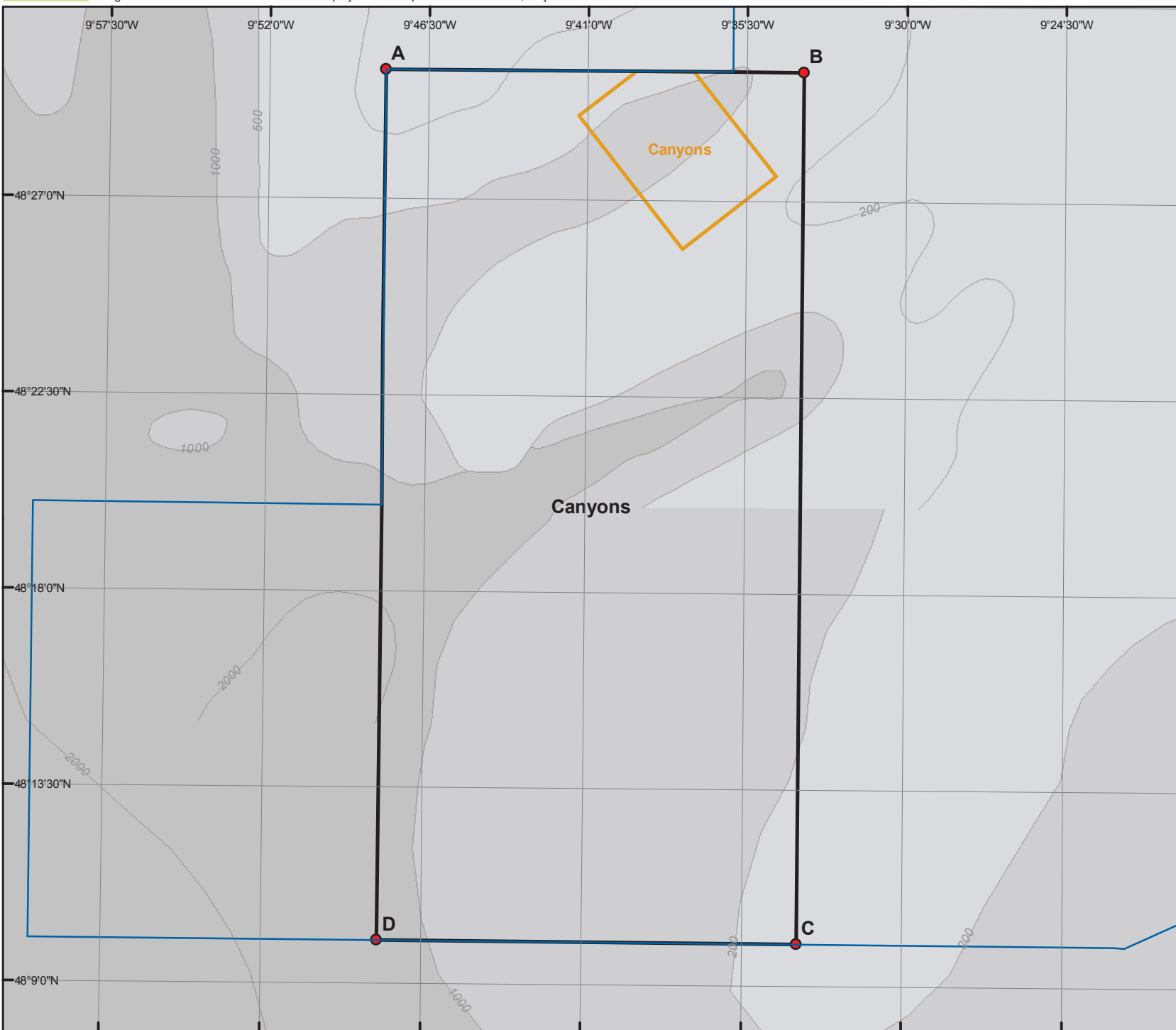
site report (map FR_011c) shows a cable that clips the south-eastern corner of The Canyons rMCZ.

- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84; Projection: UTM29N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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0 5 10 km



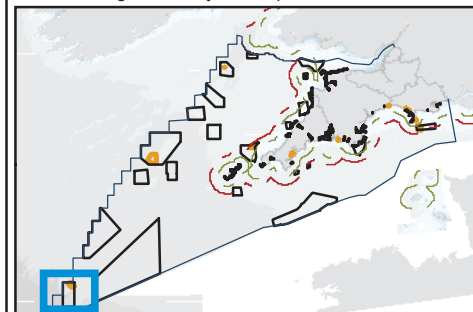
Lat/Long Co-ordinates (WGS84)

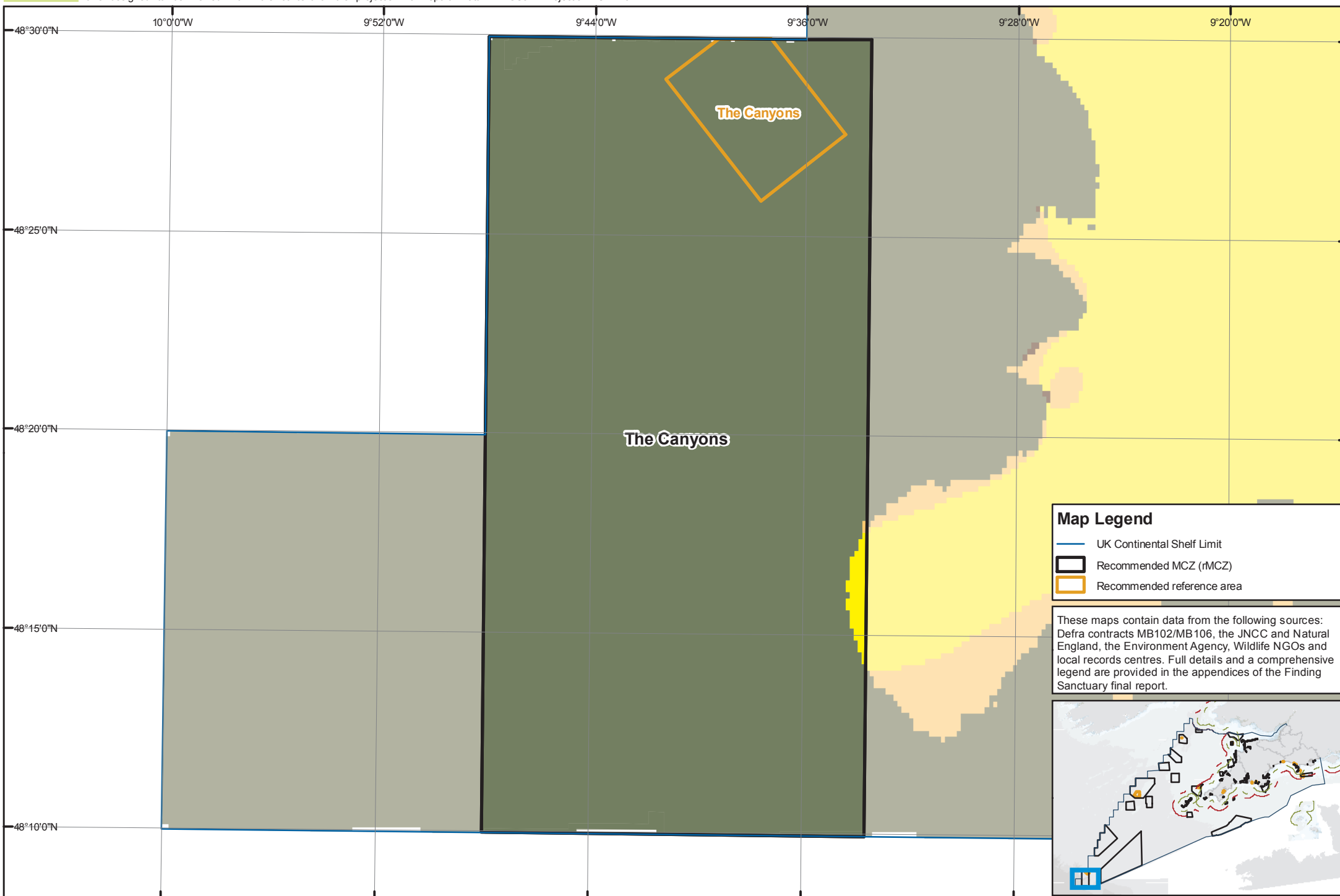
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	48.5000	-9.8000	48° 29' 59" N	9° 47' 59" W
B	48.5000	-9.5593	48° 29' 59" N	9° 33' 33" W
C	48.1663	-9.5603	48° 9' 58" N	9° 33' 37" W
D	48.1667	-9.8001	48° 10' 0" N	9° 48' 0" W

Map Legend

- UK Continental Shelf Limit
- Recommended MCZ (rMCZ)
- Recommended reference area

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

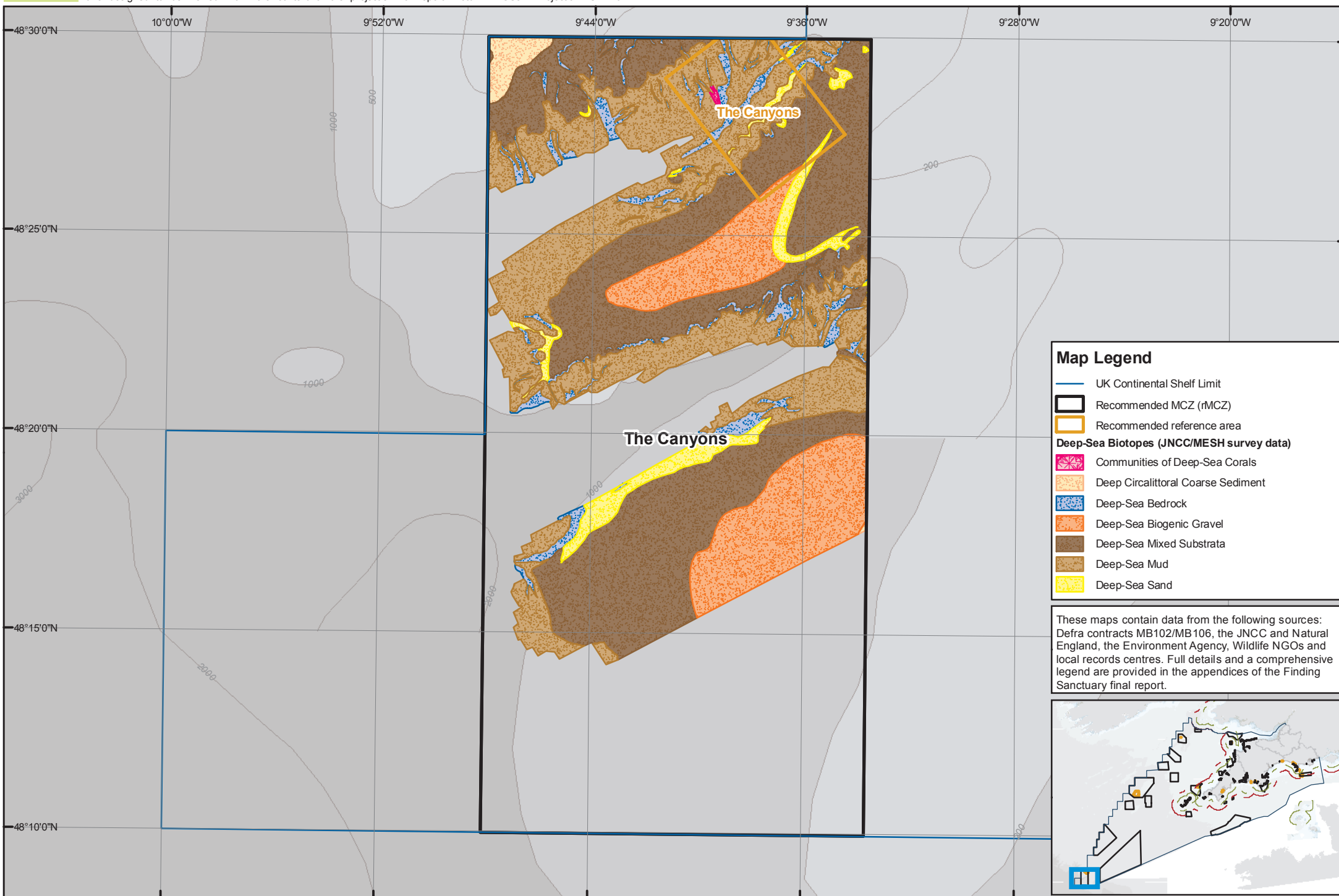




This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with deep-sea biotope information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM29N.

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0 5 10 km



II.3.2 South-West Deeps (West) rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
49.1437	-9.0502	49° 8' 37" N	9° 3' 0" W

Site surface area: 1824.3 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The western boundary of this site follows the UK Continental Shelf Limit. The NE / SW orientation of the longest boundary section is in parallel with the main boundary section of the South-West Deeps (East) site, in order to allow mobile gear fishermen to continue using the 'corridor' in between the sites (fishing representatives have stated that mobile gear fishermen using this area predominantly tow their gear in along tracks that follow a NE/SW orientation). The remaining site boundaries were drawn using simple lines and minimum nodes, in line with ENG guidelines.

Sites to which the site is related: The South-west Deeps (West) rMCZ neighbours the South-west Deeps (East) rMCZ, The Canyons rMCZ and The Canyons recommended reference area.

The nearest neighbouring rMCZ is South-West Deeps (East), separated by a corridor approximately 27km in width. The Canyons rMCZ (and recommended reference area within it) is approximately 40km to the south-west of the southernmost boundary.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM29N).

Features proposed for designation within South-west Deeps (West) rMCZ

Table II.3.2a Draft conservation objectives for the South-west Deeps (west) rMCZ. 'Maintain' = maintain in favourable condition, 'recover' = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Feature	Conservation Objective
Subtidal coarse sediment	recover
Subtidal sand	recover
Subtidal mixed sediments	recover
Celtic sea relict sandbanks	maintain

The inclusion of conservation objectives for seabirds on the conservation objective feature list for a zone within this site was discussed at length at the Joint Working Group meeting in May 2011, in the full understanding of SAP feedback following progress report 3, and the JNCC's position that they

would not support conservation objectives for mobile species in offshore rMCZs. The JWG could not reach a conclusion on the matter.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.2b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal coarse sediment	239.40	0.8%	1
Subtidal sand	1574.27	4.7%	1
Subtidal mixed sediments	6.99	0.2%	1

Table II.3.2c FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	1583.90			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

This rMCZ intersects with the geological/ geomorphological feature of importance, Celtic Sea relict sandbanks. The rMCZ boundary contains 10.2% (132.90 km²) of the feature, as mapped in MB102 data layers.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The site comprises an area of continental shelf sea where the seafloor habitat is dominated by subtidal mixed sediment and subtidal sand. The eastern site boundary is approximately 230km SW of Land's End. The area is included in the network in order to meet ENG broad-scale habitat targets. The depth of the site is between 100 and 200m. The site is crossed by Celtic Sea Relict Sandbanks in a NE-SW direction (these sandbanks are listed as a geological/ geomorphological interest feature in the ENG). The area has also been highlighted by conservation representatives on the JWG as a foraging ground for seabirds during the summer.

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

Wilson *et al.* (2001) sampled benthic biodiversity in the area but, but no exact location was specified. During the period 2000–2006, Ellis *et al.* (2007a) carried out approximately 150 tows with a 2m-beam trawl during groundfish surveys of the South West offshore area. Catches along the edge of the continental shelf (130–350 m deep) were characterised by large numbers of the anemone *Actinauge richardi*, with the hermit crab *Pagurus prideaux* dominating on coarse grounds in shallower waters. The study described the spatial distribution of the epibenthic fauna.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved. This assumption applies to all activities.** Table II.3.2d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.2e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.2d Specific assumptions and implications relating to South-West Deeps (West). Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Anchoring of large vessels will not be allowed (except in emergencies)	Direct implications: o
Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Given this assumption, there are still the following concerns: o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation.
Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging)	Direct implications: o Loss of ground for bottom-towed gear fishermen, both UK and non-UK (but loss further offshore would be less bad than loss of grounds inshore) o Loss of earnings for south-west / Newlyn beamers o Displacement of bottom-towed gear
This activity was discussed during the VA meetings, and it was determined	

<p>that the activity would be prohibited in the whole site.</p>	<ul style="list-style-type: none"> o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Aggregate extraction will not be allowed.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste from processing vessels and munitions.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs if mitigation measures are needed o There would be costs if monitoring is needed.
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users.

	o Excellent wind and wave resource area but unlikely to be developed in short or medium term due to distance from shore. Aviation Danger Area likely to exclude wind development.
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Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs if mitigation measures are needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o
<p>Pelagic longlining, pelagic netting and pelagic trawls will be allowed to continue (for static gear, see previous).</p> <p>Mobile species (seabirds and cetaceans) not considered as features needing protection when the vulnerability assessment was carried out with JNCC specialists.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring

	<p>requirements.</p> <ul style="list-style-type: none"> o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o One active and two inactive cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

Table II.3.2e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	Management: - Prohibition of fishing in the rMCZ Measure: - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty has been highlighted for this site:

- There have been conflicting statements as to whether or not the UN Convention on the Law of the Seas (UNCLOS) allows the permanent right to lay cables in the offshore outside of 12 nautical miles or whether this activity can be managed following MCZ designation.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Fishing*
 - By meeting targets further offshore, the number of sites needed closer inshore is reduced, sites closer to shore will be of higher value to the fishing industry.
 - The area has been highlighted through a Marxan analysis as an area of lower than average fishing utility.
 - A Steering Group member commented that pelagic fishing is present in the area, it was not clear whether this comment referred to netting, longlining or pelagic trawls or whether it refers to other types of pelagic fishing activity.
 - This site is important to almost twenty fishing vessels from South Normandy.

- *Pelagic gear*
 - As this site had previously been considered to provide protection for pelagic and mobile species, assumptions had been made that netting and longlining would not be permitted, and pelagic trawls would be permitted, but with mitigation against bycatch for seabirds.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'
- *Vulnerability Assessment*
 - Steering Group representatives voiced general concern over the process and outcome of the vulnerability assessments. This was mainly in relation to inshore sites, however, please refer to the Steering Group statement made in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

There is some concern from offshore fishing interests (beamers in particular) about this site, and that includes non-UK fishermen, as reflected in NCS comments. However, the stakeholder group went to a great degree of effort to accommodate the concerns of fishing representatives, e.g. by changing the site boundary to allow a NE-SW oriented corridor in between this site and the South-West Deeps (East) rMCZ, which is oriented in the same direction as fishing tows tend to be in this region.

Given the distance from shore, the site is relatively uncontroversial with other sectors.

Supporting documentation

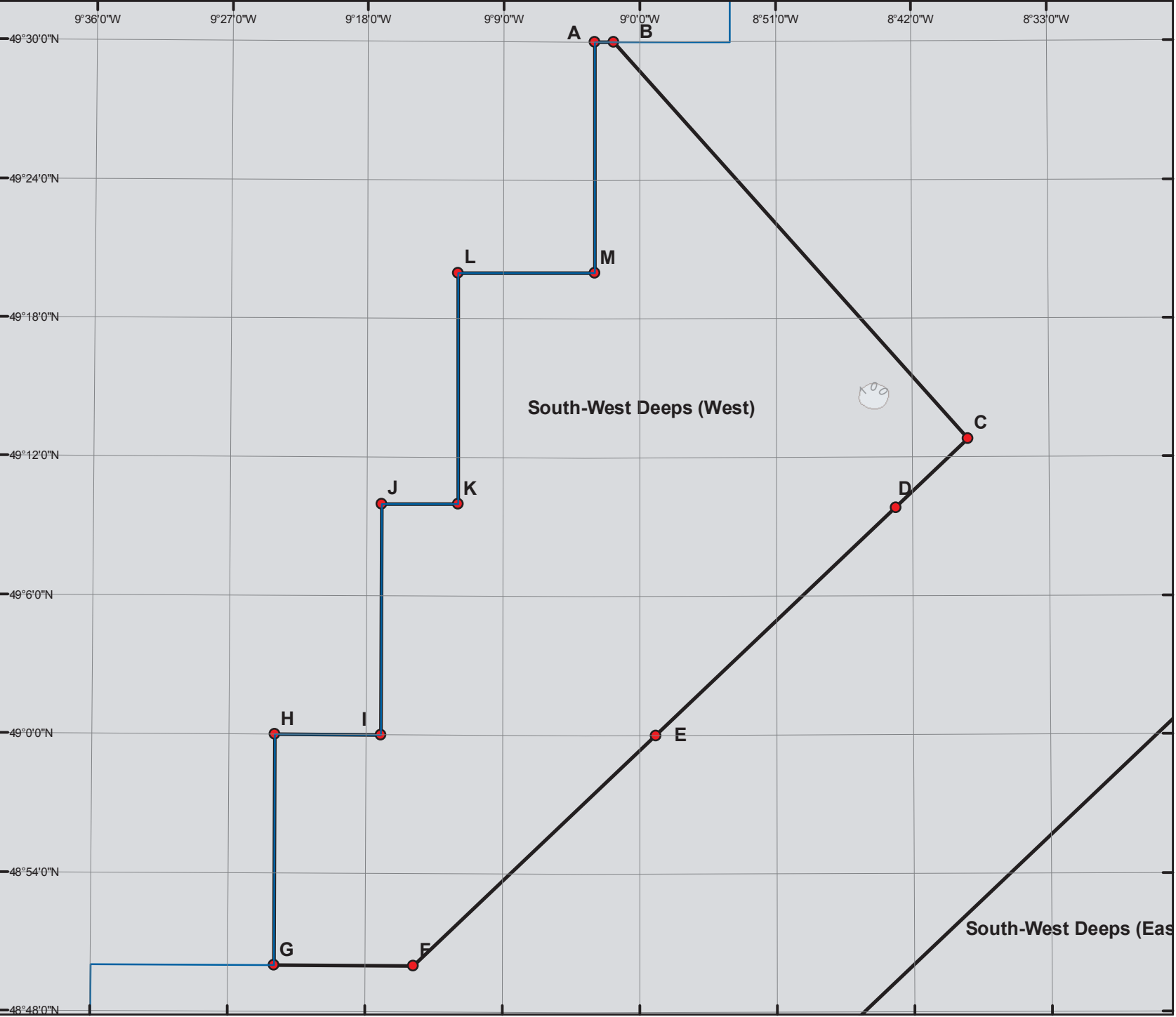
GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Ellis *et al.*, (2000b).

Site map series

On the following pages there are two maps of this site.

- The first map (FR_010a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM29N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_010b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.2b, data sources are indicated in the table.
- Most site reports include a map showing socio-economic information, but this one does not, because there is not a lot of spatial data indicating activities occurring this far offshore (except for fisheries data, which is included in interactive PDF maps provided along with this report – see appendix 14). One of the maps included in the South-west Deeps (East) rMCZ site report (map FR_011c) shows a cable that clips the northern tip of the South-West Deeps (West) rMCZ.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



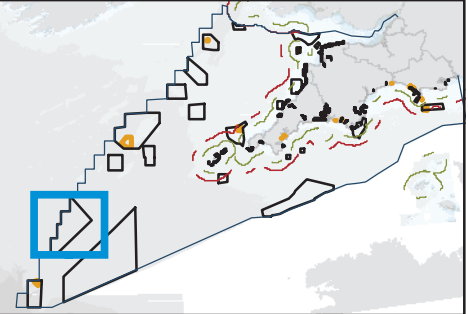
Lat/Long Co-ordinates (WGS84)

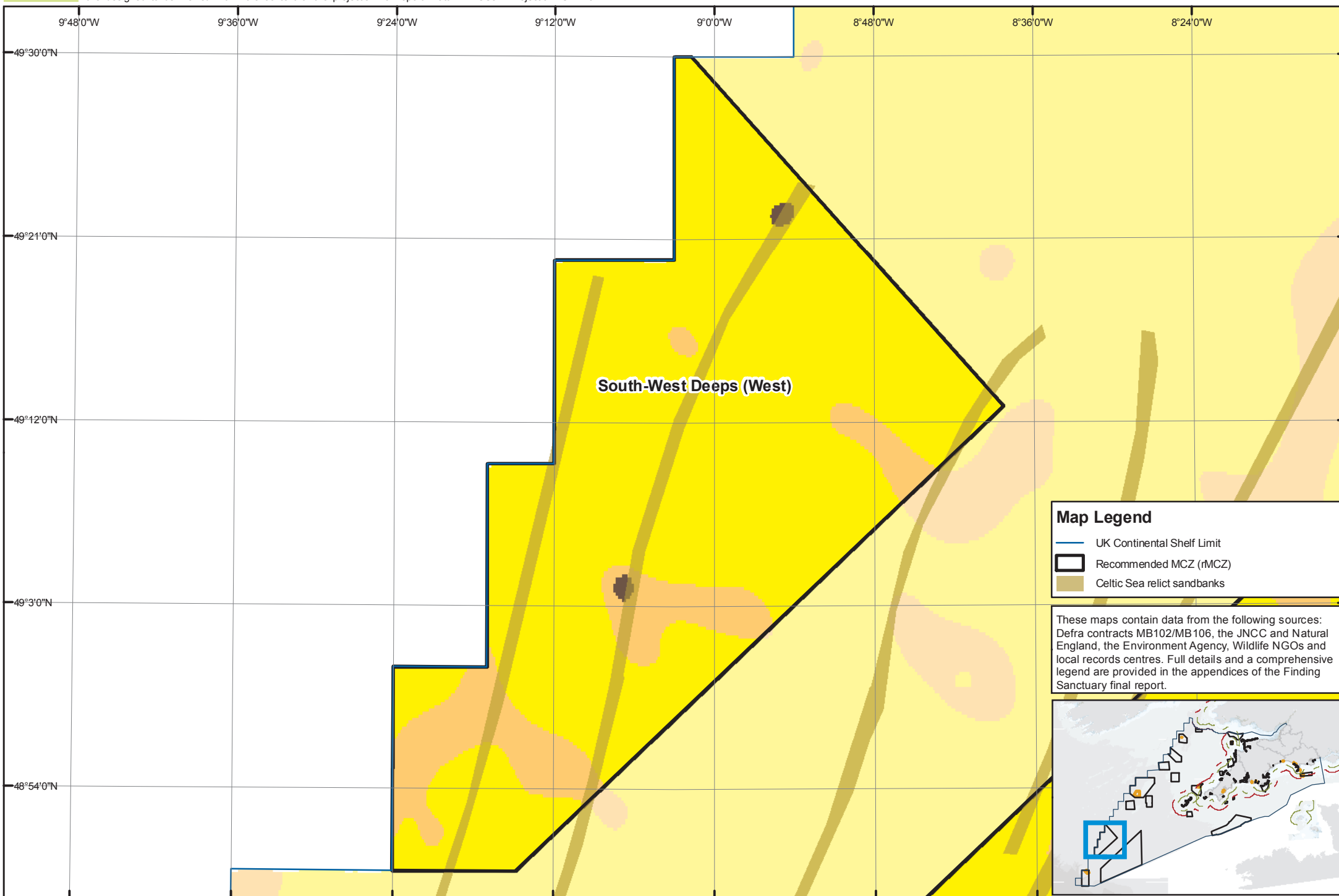
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	49.5000	-9.0500	49° 29' 59" N	9° 3' 0" W
B	49.5000	-9.0284	49° 30' 0" N	9° 1' 42" W
C	49.2135	-8.6386	49° 12' 48" N	8° 38' 18" W
D	48.8331	-9.2470	48° 49' 59" N	9° 14' 49" W
E	48.8333	-9.4000	48° 49' 59" N	9° 24' 0" W
F	49.0000	-9.4000	48° 59' 59" N	9° 24' 0" W
G	49.0000	-9.2833	48° 59' 59" N	9° 17' 0" W
H	49.1667	-9.2833	49° 10' 0" N	9° 17' 0" W
I	49.1667	-9.2000	49° 10' 0" N	9° 11' 59" W
J	49.3333	-9.2000	49° 19' 59" N	9° 11' 59" W
K	49.3333	-9.0500	49° 19' 59" N	9° 3' 0" W
L	49.1641	-8.7184	49° 9' 50" N	8° 43' 6" W
M	48.9995	-8.9826	48° 59' 58" N	8° 58' 57" W

Map Legend

- UK Continental Shelf Limit
- Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





II.3.3 South-West Deep (East) rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
48.7304	-8.4090	48° 43' 49" N	8° 24' 32" W

Site surface area: 5808.61 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The southern boundary of this site aligns with the UK Continental Shelf Limit. The NE / SW orientation of the longest boundary section is in parallel with the main boundary section of the South-West Deep (West) site, in order to allow mobile gear fishermen to continue using the 'corridor' in between the sites (fishing representatives have stated that mobile gear fishermen using this area predominantly tow their gear in along tracks that follow a NE/SW orientation). The remaining site boundaries were drawn using simple N-S lines and minimum nodes, in line with ENG guidelines.

Sites to which the site is related: The South-West Deep (East) rMCZ neighbours the South-West Deep (West) rMCZ, The Canyons rMCZ and The Canyons recommended reference area. The nearest neighbouring rMCZ is South-West Deep (West), separated by a corridor approximately 27km in width. The Canyons rMCZ (and recommended reference area within it) is approximately 30km to the south-west of the southernmost boundary.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM29N).

Features proposed for designation within South-west Deep (East) rMCZ

Table II.3.3a Draft conservation objectives for the South-west Deep (East) rMCZ. 'Maintain' = maintain in favourable condition, 'recover' = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Feature	Conservation Objective
Subtidal coarse sediment	recover
Subtidal sand	maintain
Deep-sea bed	recover
Celtic sea relict sandbanks	maintain

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.3b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal coarse sediment	1747.24	6.1%	1
Subtidal sand	3934.32	11.7%	1
Deep-sea bed	126.73	7.9%	1

Table II.3.3c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	3979.80			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

This rMCZ intersects with the geological / geomorphological feature of importance, Celtic Sea relict sandbanks. The rMCZ boundary contains 31.9% (417.63 km²) of the feature, as mapped in MB102 data layers.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The site comprises an area of continental shelf sea where the seafloor habitat is dominated by subtidal mixed sediment and subtidal sand, and a section of the continental shelf break in the far south west corner. The eastern site boundary is approximately 170km SW of Land's End. The area is included in the network in order to meet ENG broad-scale habitat targets. The depth of the site is between 100 and 200m on the shelf, and between 200m and 1000m in the far south west corner (on the shelf break). The site is crossed by Celtic Sea Relict Sandbanks in a NE-SW direction (these sandbanks are listed as a geological / geomorphological interest feature in the ENG).

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

Wilson *et al.* (2001) sampled benthic biodiversity in the area, but no exact location is specified. During the period 2000–2006, Ellis *et al.* (2007) carried out approximately 150 tows with 2m-beam trawl during groundfish surveys of the South West offshore area. Catches along the edge of the continental shelf (130–350 m deep) were characterised by large numbers of the anemone *Actinauge richardi*, with the hermit crab *Pagurus prideaux* dominating on coarse grounds in shallower waters. The study described the spatial distribution of the epibenthic fauna.

A station within South-West Deeps (East) was sampled for benthic infauna by Rees *et al.* (1999) in December 1992. The architecture of a tidal sand bank within South-West Deeps (East) in the south-eastern Celtic Sea was examined by Reynaud *et al.* (1999) using very high-resolution seismic surveys.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved. This assumption applies to all activities. Table II.3.3d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.3.e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.3d Specific assumptions and implications relating to South-West Deeps (East) rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation.
<p>Aggregate extraction will not be allowed.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. o If aggregate operations (subject to appropriate

	<p>monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste from processing vessels and munitions.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging).</p> <p>This activity was discussed during the VA and it was determined that bottom-towed fishing gear will not be allowed in the far west of the site (where the deep sea bed is present), and over subtidal coarse sediment. If zoning is not feasible, then the assumption is that bottom-towed gear types would not be allowed anywhere in the site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK (For this specific rMCZ, the implications for the non-UK fleet will be the most significant. This is relevant to longliners more than bottom-towed gear fishermen). o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots & static gear & cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.

<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs if mitigation measures are needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Excellent wind and wave resource area but unlikely to be developed in short or medium term due to distance from shore. Aviation Danger Area likely to exclude wind development.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs if mitigation measures are needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o
<p>Pelagic trawls will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o One proposed power cable.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational).</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Four active and seven inactive telecoms cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

Table II.3.3e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	<ul style="list-style-type: none"> - Prohibition of fishing over specific BSH/FOCI: These are: Deep-sea bed, subtidal coarse sediment Measure: - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty has been highlighted for this site:

- There have been conflicting statements as to whether or not the UN Convention on the Law of the Seas (UNCLOS) allows the permanent right to lay cables in the offshore outside of 12 nautical miles or whether this activity can be managed following MCZ designation.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Fishing*
 - By meeting targets far offshore, the number of sites needed closer inshore is reduced, sites closer to shore will be of higher value to the fishing industry.
 - The area has been highlighted through a Marxan analysis as an area of lower than average fishing utility.
 - This site is important to almost twenty fishing vessels from South Normandy.
- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.

- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'
- *Vulnerability Assessment*
 - Steering Group representatives voiced general concern over the process and outcome of the vulnerability assessments. This was mainly in relation to inshore sites, however, please refer to the Steering Group statement made in section II.2.1.
 - The outcome of the Vulnerability Assessment originally set the Conservation Objective for subtidal coarse sediment at this site as 'maintain' and likely management proposed suggested mobile gear could continue to be used in this site at current levels. Concerns were raised that there was no logic in having this area as an MCZ if there were to be no restrictions on damaging activities. A subsequent national sense check of the Vulnerability Assessment outcomes by JNCC lead to the Conservation Objective for subtidal coarse sediment being changed to 'recover' (this advice was provided during the final Joint Working Group meeting in June 2011).

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

There is some beam and otter trawl activity within the site, but this area is less contentious to the UK fishing sector than other areas considered. The main concern is from beam trawlers, and efforts were made to draw the site boundary in such a way as to minimise potential negative impacts, e.g. by keeping a NE-SW oriented corridor in between this site and the South-West Deep (West) rMCZ, to allow tows to continue within the corridors (fishing tows in this area tend to be oriented in this direction). Non-UK fishermen have raised concern over this area, as it is used by almost twenty fishing vessels from South Normandy (NCS comments).

Given the distance from shore, the site is relatively uncontroversial with other sectors.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Evans & Hughes (1984), and Scourse *et al.* (2009).

Site map series

On the following pages there are three maps of this site.

- The first (map FR_011a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM29N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_011b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.3b, data sources are indicated in the table.
- The third map (FR_011c) shows KISCA cable routes and some additional socio-economic information, zoomed out to show The Canyons rMCZ and South-West Deep (West) rMCZ. Please refer to the interactive PDF maps for fisheries data, provided with the additional materials listed in appendix 14.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

South-West Deeps (East) rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM29N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
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0 10 20 30 km



South-West Deeps (West)

South-West Deeps (East)

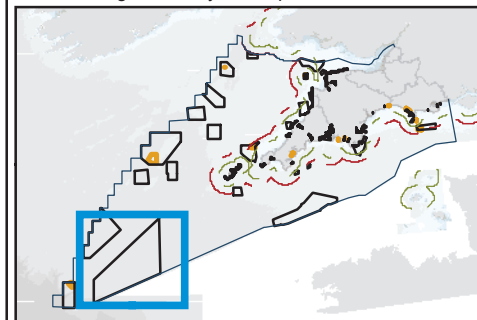
Lat/Long Co-ordinates (WGS84)

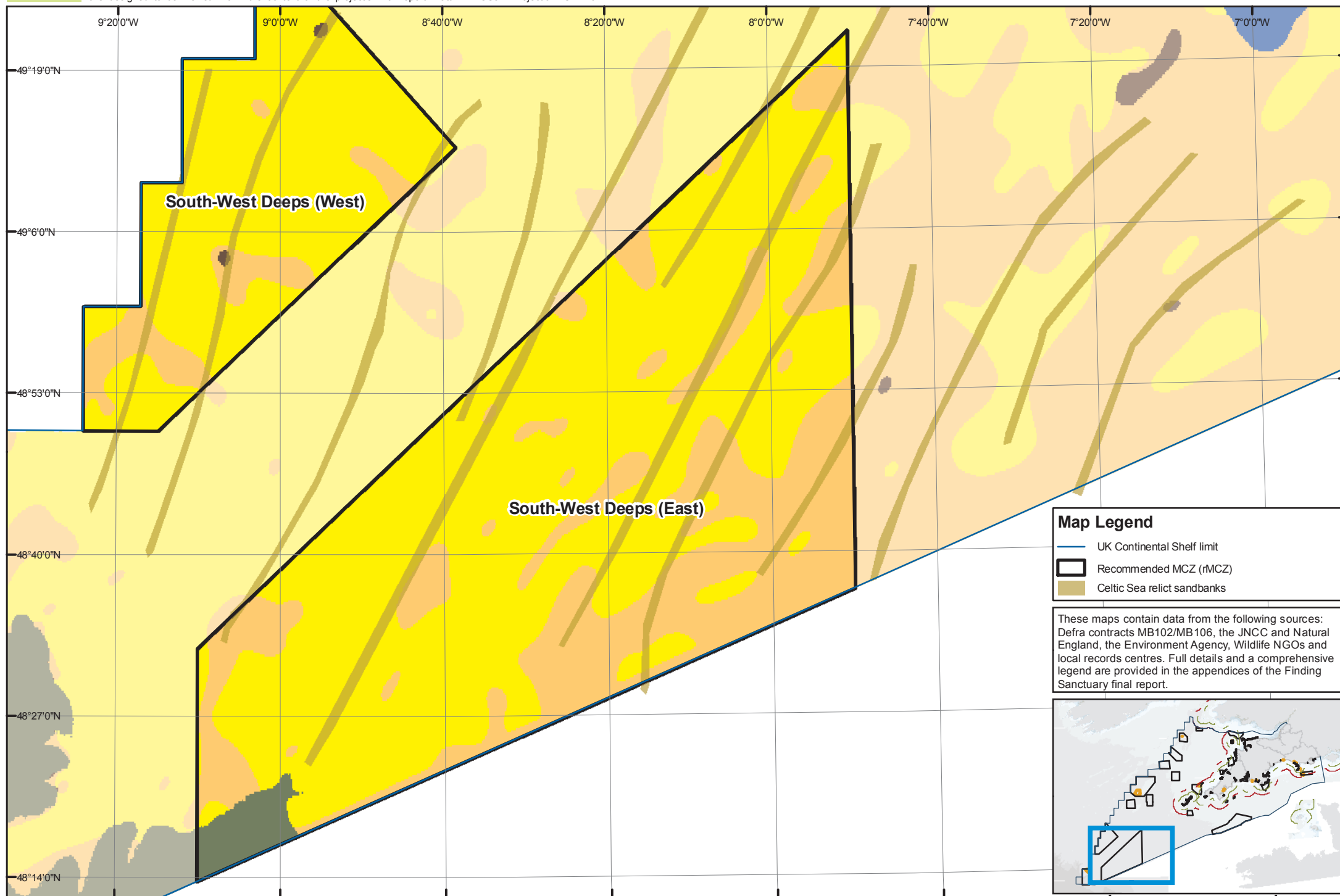
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	48.5408	-9.1667	48° 32' 26" N	9° 9' 59" W
B	49.3657	-7.8333	49° 21' 56" N	7° 49' 59" W
C	48.6171	-7.8336	48° 37' 1" N	7° 50' 0" W
D	48.2276	-9.1667	48° 13' 39" N	9° 10' 0" W

Map Legend

- UK Continental Shelf Limit
- Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



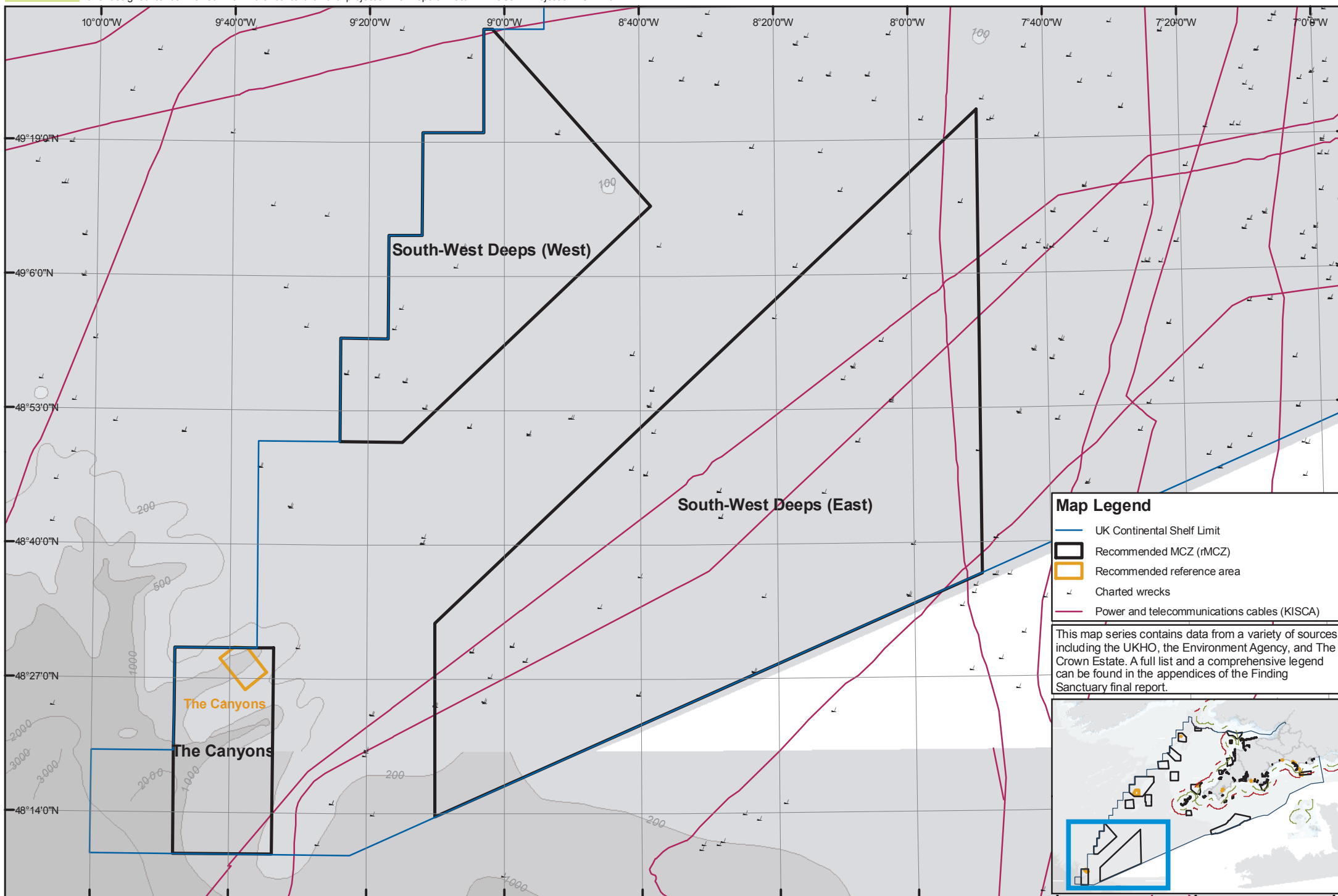


South-West Deep (East and West) and The Canyons rMCZs

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM29N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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0 10 20 40 km



II.3.4 North-West of Jones Bank rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
49.9151	-8.1936	49° 54' 54" N	8° 11' 36" W

Site surface area: 398.09 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: This site is a simple rectangle following N-S and E-W lines, in line with ENG guidelines.

Sites to which the site is related: The North-west of Jones Bank rMCZ neighbours Greater Haig Fras rMCZ and Greater Haig Fras recommended reference area which are to the north-east and East of Jones Bank rMCZ which is to the east.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM29N).

Features proposed for designation within North-west of Jones Bank rMCZ

Table II.3.4a Draft conservation objectives for the North-west of Jones Bank rMCZ. 'Maintain' = maintain in favourable condition, 'recover' = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Feature	Conservation Objective
Subtidal sand	recover
Subtidal mud	recover
Subtidal coarse sediment	recover

The inclusion of conservation objectives for seabirds on the conservation objective feature list for a zone covering the western half of this site was discussed at length at the Joint Working Group meeting in May 2011, in the full understanding of SAP feedback following progress report 3, and the JNCC's position that they would not support conservation objectives for mobile species in offshore rMCZs. The JWG could not reach a conclusion on the matter.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.4b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal coarse sediment	3.75	<0.1%	1
Subtidal sand	5.90	<0.1%	1
Subtidal mud	388.45	6.2%	1

Table II.3.4c FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	328.44			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The site comprises an area of continental shelf sea where the seafloor habitat dominated by subtidal mud. The eastern site boundary is approximately 165km west of Land's End. The area is included in the network in order to meet ENG broad-scale habitat targets. The depth of the site is between 100 and 200m. The area has been highlighted by conservation representatives on the JWG as a foraging ground for seabirds during the winter.

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

Wilson *et al.* (2001) sampled benthic biodiversity in the area, but no exact location was given. Hamilton *et al.* (1980) describe the shelf sediments of South West Britain including Jones Bank and surrounds. Scourse *et al.* (2009) generated peak bed stress data of the Celtic Sand Ridges.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation

objectives from being achieved. This assumption applies to all activities. Table II.3.4d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.4e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.4d Specific assumptions and implications relating to North west of Jones Bank rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Bottom-towed fishing gear will not be allowed.</p> <p>This activity was discussed during the VA meetings, and it was determined that the activity would be prohibited in the whole site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation.
<p>Aggregate extraction will not be allowed.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and

Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	<p>discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence.</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste from processing vessels and munitions.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
The installation, operation and maintenance of renewable energy devices will be permitted	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following</p>

Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.

Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings

concerns:

- o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in:
 - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring
 - delays to renewables development
 - delays, lost revenue and additional costs associated with cable repair activity restrictions
- o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets.
- o Enforced co-location with MCZs would dramatically restrict deployment.

If the assumption turns out to be wrong:

- o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities.
- o Increased competition for sea space with other sea users.
- o Excellent wind and wave resource area but unlikely to be developed in short or medium term due to distance from shore. Aviation Danger Area likely to exclude wind development.

Activities assumed to be allowed to continue / occur within the site

Assumptions	Implications
Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs if mitigation measures are needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o
Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	

<p>Pelagic longlining, pelagic netting and pelagic trawls will be allowed to continue (for static gear, see previous).</p> <p>Mobile species (seabirds and cetaceans) not considered as features needing protection when the vulnerability assessment was carried out with JNCC specialists.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what ‘prohibitively expensive’ means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Proposed power cable 1.5 km east of this rMCZ
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Two active and four inactive telecoms cables.

<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

Table II.3.4e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	<p>Management:</p> <ul style="list-style-type: none"> - Prohibition of fishing in the rMCZ <p>Measure:</p> <ul style="list-style-type: none"> - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty has been highlighted for this site:

- There have been conflicting statements as to whether or not the UN Convention on the Law of the Seas (UNCLOS) allows the permanent right to lay cables in the offshore outside of 12 nautical miles or whether this activity can be managed following MCZ designation.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site; others were more generic comments which the project team consider to be relevant to this site.

- *Fishing*
 - The area has been highlighted through a Marxan analysis as an area of lower than average fishing utility.
- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *Pelagic gear*
 - As this site had previously been considered to provide protection for pelagic and mobile species, assumptions had been made that netting and longlining would not be permitted, and pelagic trawls would be permitted, but with mitigation against bycatch for seabirds.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.

- **Monitoring**
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- **Management measures**
 - For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'
- **Vulnerability Assessment**
 - Steering Group representatives voiced general concern over the process and outcome of the vulnerability assessments. This was mainly in relation to inshore sites, however, please refer to the Steering Group statement made in section II.2.1.
 - The outcome of the Vulnerability Assessment originally set the Conservation Objective for subtidal coarse sediment at this site as 'maintain' and likely management proposed suggested mobile gear could continue to be used in this site at current levels. A subsequent national sense check of the Vulnerability Assessment outcomes by JNCC lead to the Conservation Objective for subtidal coarse sediment being changed to 'recover' (this advice was provided during the final Joint Working Group meeting in June 2011).

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

There is significant fishing activity from non-UK vessels within this area, especially French and Belgian fleet. Commercial fishing representatives from South Normandy do not support this building block at this stage because the area is important to almost twenty fishing vessels from South Normandy (NCS comments).

The area is less intensively used by UK fishermen, and given the distance from shore, the rMCZ is less controversial with other sectors, compared to areas closer to shore.

Supporting documentation

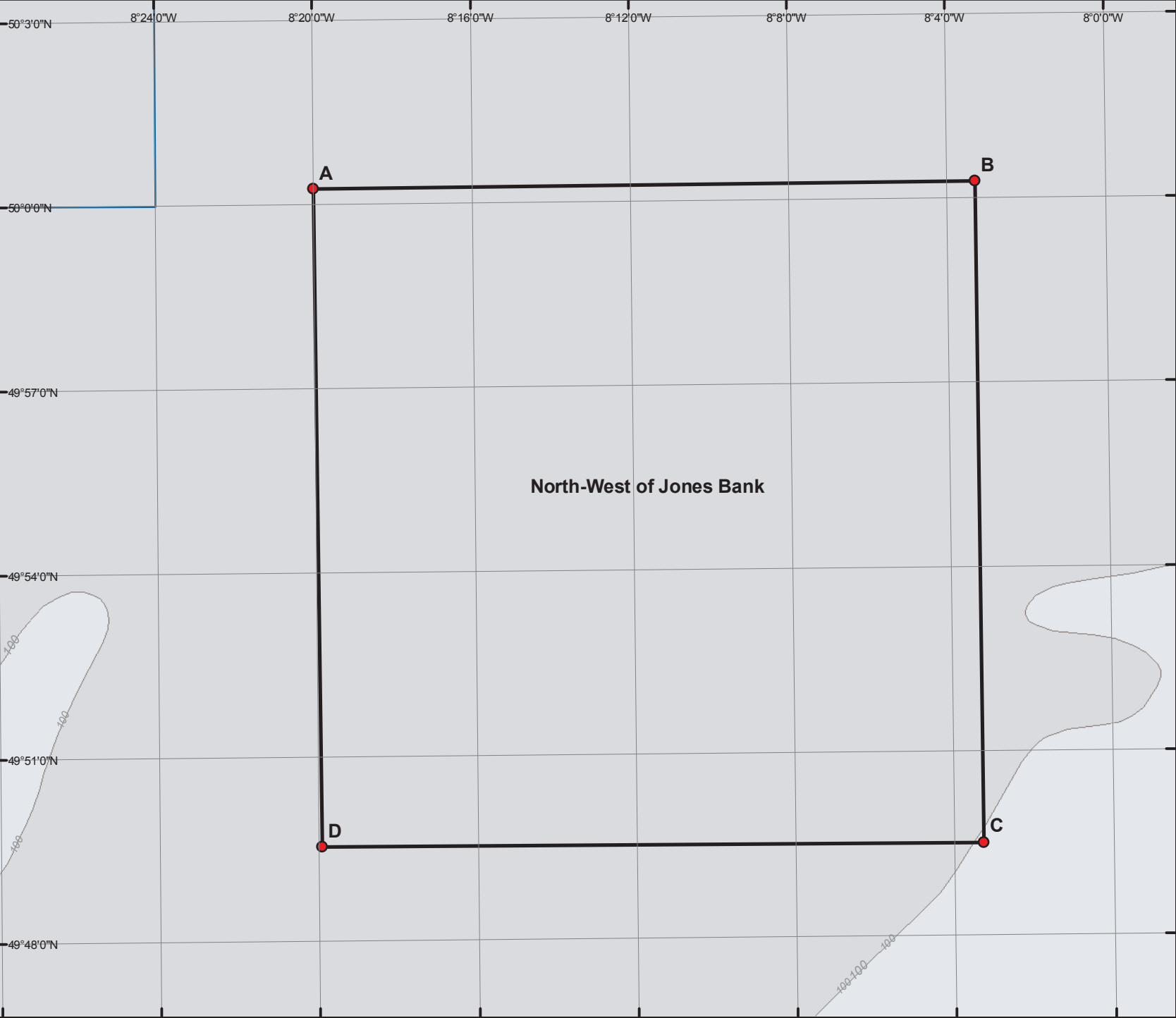
GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

Site map series

On the following pages there are two maps of this site.

- The first map (FR_012a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM29N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_012b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.4b, data sources are indicated in the table.
- Most rMCZ site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site (except for fisheries information, which is included in the interactive PDF maps supplied with the additional materials listed in appendix 14). A cable running through this site is shown on map FR_013c, in the Greater Haig Fras rMCZ site report.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



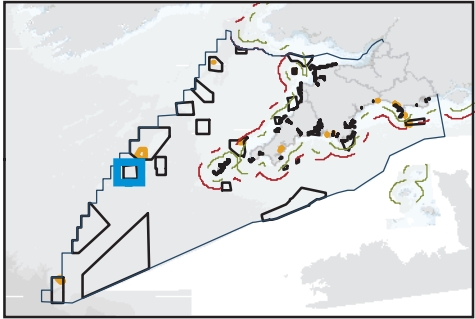
Lat/Long Co-ordinates (WGS84)

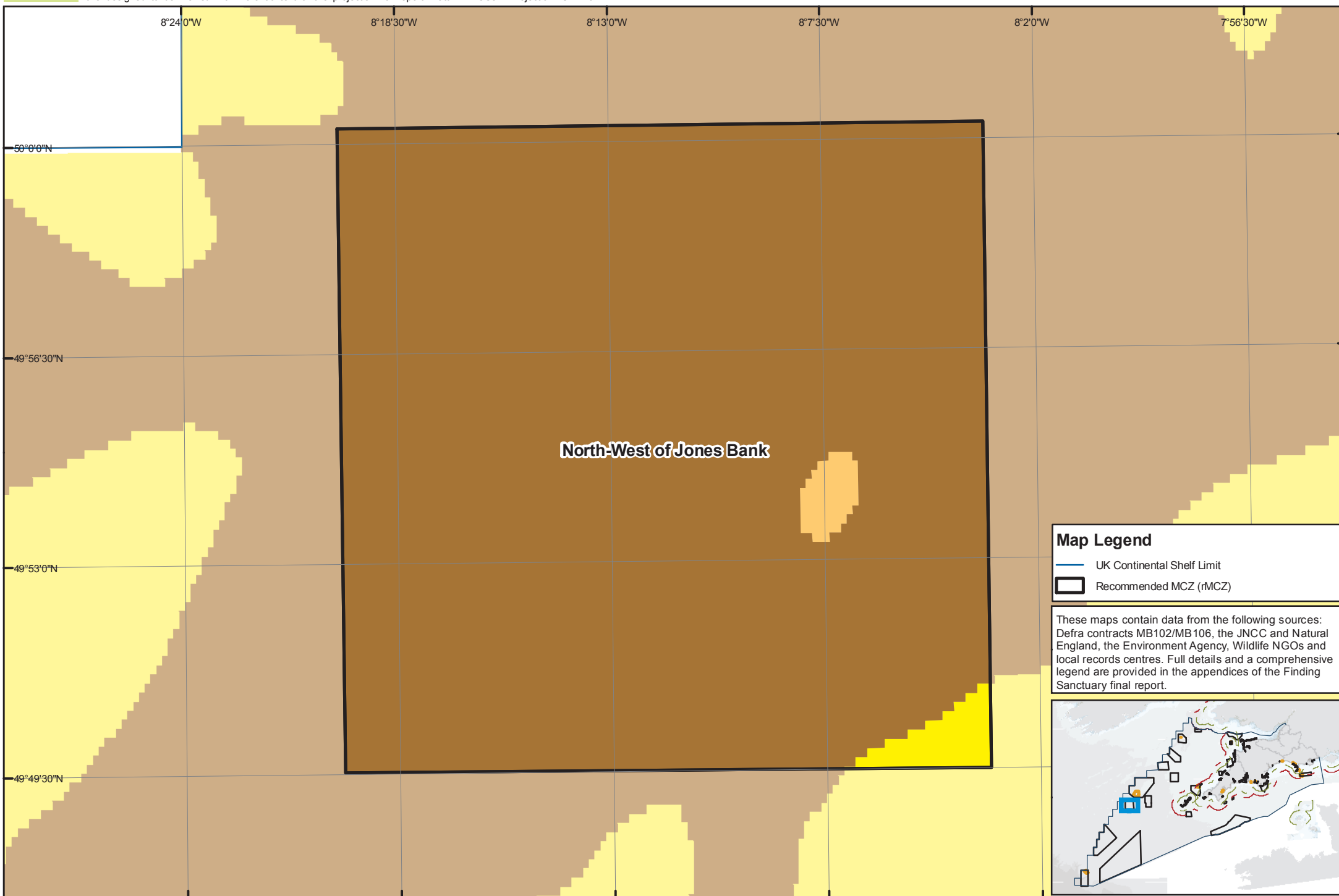
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.0045	-8.3333	50° 0' 16" N	8° 19' 59" W
B	49.8252	-8.0545	49° 49' 30" N	8° 3' 16" W
C	50.0047	-8.1940	50° 0' 16" N	8° 11' 38" W
D	49.8257	-8.3321	49° 49' 32" N	8° 19' 55" W

Map Legend

- UK Continental Shelf Limit
- Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





II.3.5 Greater Haig Fras rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.3014	-7.7940	50° 18' 4" N	7° 47' 38" W

Site surface area: 2,040.95 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The western boundary of this site is aligned with the UK Continental Shelf Limit. The remainder of the site has been drawn to encompass the entirety of the geomorphological feature Haig Fras and Haig Fras cSAC, with surrounding areas of sediment. The boundary has been made simple, in line with ENG guidelines.

Sites to which the site is related: The Greater Haig Fras rMCZ contains the Greater Haig Fras recommended reference area. The Haig Fras cSAC is wholly within the Greater Haig Fras rMCZ. The site neighbours the North-west of Jones Bank rMCZ (approximately 9km south of the southern site boundary), East of Jones Bank rMCZ (immediately to the south-east, with the smallest gap being less than 2km), North-east of Haig Fras rMCZ (approximately 22km to the north-east of the northern boundary), and East of Haig Fras rMCZ (approximately 40km to the east).

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM29N).

Features proposed for designation within Greater Haig Fras rMCZ

Table II.3.5a Draft conservation objectives for the Greater Haig Fras rMCZ. 'Maintain' = maintain in favourable condition, 'recover' = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Feature	Conservation Objective
Moderate energy circalittoral rock	recover
Subtidal coarse sediment	recover
Subtidal mixed sediments	recover
Subtidal mud	recover
Subtidal sand	recover
<i>Fragile sponge & anthozoan communities on subtidal rocky habitats</i>	<i>To be confirmed¹</i>
Haig Fras rock complex	maintain

¹The presence of this feature outside the SAC boundaries is to be confirmed. No records exist in our GIS data layers, so the feature is not listed on the tables below.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.5b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy circalittoral rock	688.98	3.7%	1
Subtidal coarse sediment	413.46	1.4%	1
Subtidal sand	316.79	0.9%	1
Subtidal mud	236.39	3.8%	1
Subtidal mixed sediments	115.79	3.2%	1
Moderate energy circalittoral rock ¹	263.82	1.4%	1

¹ Features / areas already protected within an overlapping MPA. Refer to the gap table (appendix 11) for details.

Table II.3.5c FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	1371.79			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

A recent (Jan / Feb 2011) offshore survey conducted by the JNCC found Fragile sponge & anthozoan communities on subtidal rocky habitat present within the area of the cSAC boundary, though we do not have the number or location of the records mapped. Any of this FOCI present within the current cSAC boundary would already be protected, so would not be added to the Conservation Objectives for the rMCZ.

This rMCZ intersects with the geological / geomorphological feature of importance, Haig Fras rock complex. The rMCZ boundary contains 100% (74.73 km²) of the feature, as mapped in MB102 data layers.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The easternmost boundary of this rMCZ is approximately 120km west of Land's End. The site includes Haig Fras rock complex, an ENG-listed geomorphological feature consisting of a rocky outcrop from the surrounding sediment-dominated shelf seabed. The outcrop rises to a depth of less

than 50m. The surrounding seabed is at a depth of between 100 and 200m, and it is covered in a diversity of sediment types, ranging from mud to coarse and mixed sediments.

Within the boundary of the cSAC, the rock is already protected, so only the sediment broad-scale habitats present are to be protected by the rMCZ. The figures in the table below do not include the rock that is already protected within the cSAC boundary.

Detailed site description

Greater Haig Fras is an isolated, fully submarine bedrock outcrop located in the Celtic Sea, 95 km north-west of the Isles of Scilly. It is the only substantial area of rocky reef in the Celtic Sea beyond the coastal margin. It supports a variety of fauna ranging from jewel anemones and Devonshire cup coral near the peak of the outcrop to encrusting sponges, crinoids and rosette coral towards the base of the rock (where boulders surround its edge). The rock is granite, mostly smooth with occasional fissures. The rocky outcrop protrudes from an area of surrounding sediment and is approximately 45 km long, 15km wide, and in one area rises to a peak 1km wide, which lies just 38 m beneath the sea surface. Around the base of the shoal, boulders and cobbles partially embedded in sediment provide a complex habitat. Distinct biotopes are associated with both the rock habitat and the sediment 'pockets' which occur on the platform area (Rees, 2000; JNCC, 2008).

On the uppermost parts of the Haig Fras shoal, the exposed bedrock is dominated by the jewel anemone *Corynactis viridis*. This region also supports encrusting sponges and bryozoans, as well as mobile fauna such as the sea urchin *Echinus esculentus* and gastropod mollusc *Calliostoma* spp. At the shallowest depth surveyed (c. 52 m), small patches of encrusting pink coralline algae were observed, indicating that the peak of the shoal protrudes into the photic zone (Rees, 2000). At depths of between 60 m and 70 m, the shoal bedrock is slightly covered in silt and is not widely colonised except by cup corals *Caryophyllia smithii* (which are abundant) and a few mobile species such as the urchin *Echinus esculentus*, *Calliostoma* spp. and crinoids (*Antedon* spp.). High numbers of cup corals were also seen on parts of the rock platform away from the shoal (Rees, 2000). At the base of the shoal, the rock was covered with a thin layer of fine calcareous sand and mud and supported cup sponges, erect branching sponges, *Caryophyllia smithii* (although in lower numbers than shallower parts of the shoal) and crinoids (Rees, 2000). The boulders and cobbles around the base of the shoal supported encrusting sponge, *Caryophyllia smithii* and crinoids in low numbers; brittlestars, squat lobster (*Munida* spp.) and the rosette coral *Pentapora foliacea* (now *Pentapora fascialis*) were also present (Rees, 2000).

A detailed survey of Haig Fras has been being undertaken by McBreen *et al.* (2011) which is detailed on p.83 of The Temperate Reefs Symposium. During the period 2000–2006, Ellis *et al.* (2007a) carried out approximately 150 tows with 2m-beam trawl have been undertaken during groundfish surveys of the South West offshore area. Catches along the edge of the continental shelf (130–350 m deep) were characterised by large numbers of the anemone *Actinauge richardi*, with the hermit crab *Pagurus prideaux* dominating on coarse grounds in shallower waters. The study described the spatial distribution of the epibenthic fauna Ellis *et al.* (2007a).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.5d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.5e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.5d Specific assumptions and implications relating to Greater Haig Fras rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Bottom-towed fishing gear will not be allowed. <i>This activity was discussed during the VA meetings, and it was determined that the activity would be prohibited in the whole site.</i>	Direct implications: <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
Anchoring of large vessels will not be allowed (except in emergencies) <i>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</i>	Direct implications: <ul style="list-style-type: none"> o Given this assumption, there are still the following concerns: <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation.
Aggregate extraction will not be allowed.	Direct implications: <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and

<p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence.</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste from processing vessels and munitions.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Excellent wind and wave resource area but unlikely to be developed in short or medium term due to distance from shore. Aviation Danger Area likely to exclude wind development.
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Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs if mitigation measures are needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o

<p>Pelagic trawls will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what ‘prohibitively expensive’ means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o One proposed power cable.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Three active and five inactive telecoms cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

Table II.3.5e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	<p>Management:</p> <ul style="list-style-type: none"> - Prohibition of fishing in the rMCZ <p>Measure:</p> <ul style="list-style-type: none"> - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty has been highlighted for this site:

- There have been conflicting statements as to whether or not the UN Convention on the Law of the Seas (UNCLOS) allows the permanent right to lay cables in the offshore outside of 12 nautical miles or whether this activity can be managed following MCZ designation.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site; others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is

the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'

- *Existing MPAs*
 - The Haig Fras SAC falls within this rMCZ. The SAC does not protect all seafloor habitats that fall within it. The rMCZ would protect features within the current SAC boundaries which are not protected by the SAC designation, including subtidal mixed sediments, coarse sediment and sand.
- *Vulnerability Assessment*
 - Steering Group representatives voiced general concern over the process and outcome of the vulnerability assessments. This was mainly in relation to inshore sites, however, please refer to the Steering Group statement made in section II.2.1.
 - The outcome of the Vulnerability Assessment originally set the Conservation Objective for subtidal coarse sediment at this site as 'maintain' and likely management proposed suggested mobile gear could continue to be used in this site at current levels. A subsequent national sense check of the Vulnerability Assessment outcomes by JNCC lead to the Conservation Objective for subtidal coarse sediment being changed to 'recover' (this advice was provided during the final Joint Working Group meeting in June 2011).

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

There is significant fishing activity from non-UK vessels within this area, especially French and Belgian fleet. Commercial fishing representatives from South Normandy do not support this building block at this stage because the area is important to almost twenty fishing vessels from South Normandy (NCS comments).

The area is less intensively used by UK fishermen, and given the distance from shore, the rMCZ is less controversial with other sectors, compared to areas closer to shore.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Garrard

(1977), Jones *et al.* (1988), Smith *et al.* (1965), and Wilson *et al.* (2001). Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](http://jncc.defra.gov.uk/page-4)¹⁹.

Site map series

On the following pages there are three maps of this site.

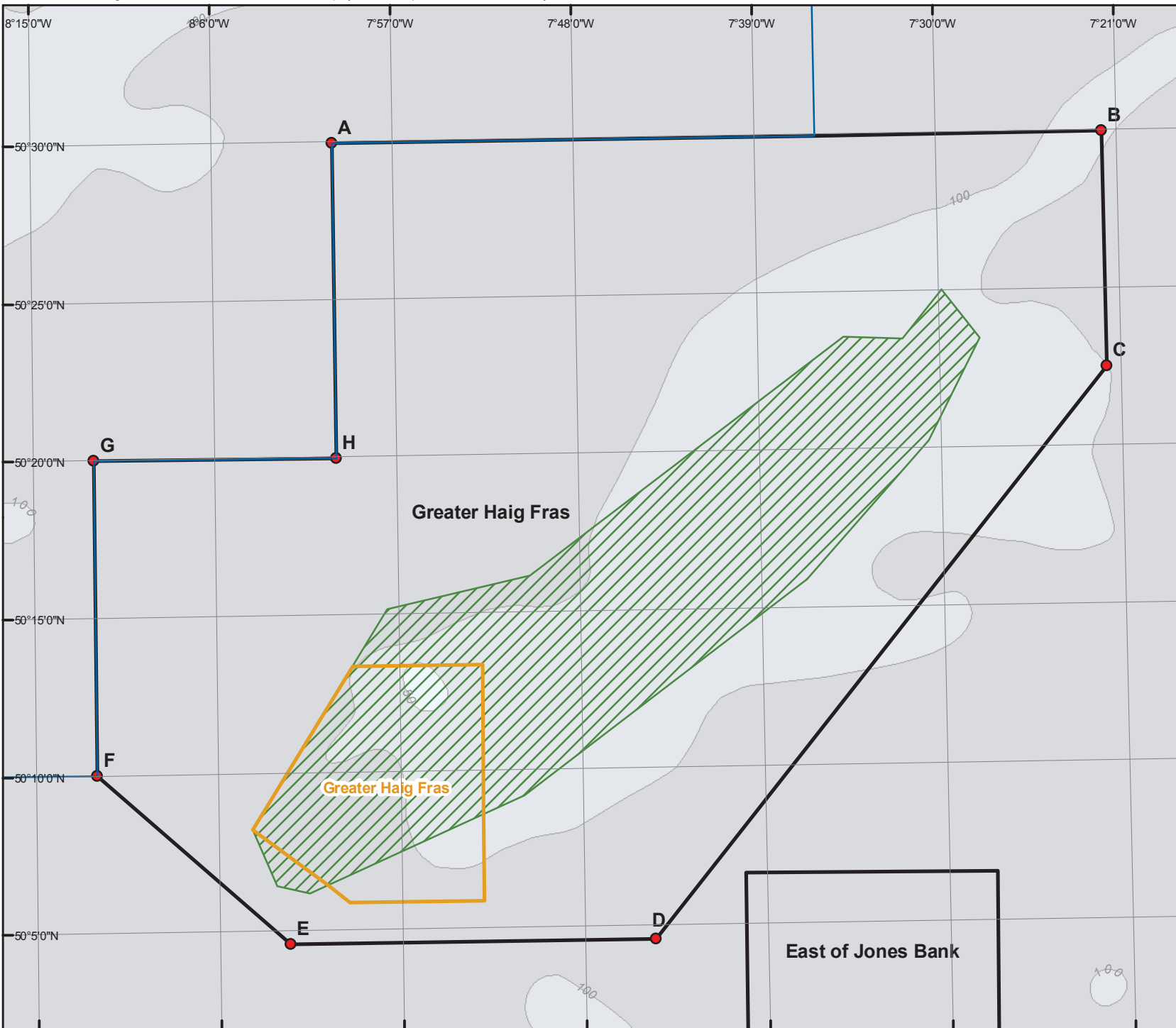
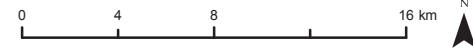
- The first map (FR_013a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM29N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_013b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.5b, data sources are indicated in the table.
- The third map (FR_013c) shows KISCA cable routes and some other human activity information. It is zoomed out to include North-West of Jones Bank rMCZ and East of Jones Bank rMCZ. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

¹⁹ <http://jncc.defra.gov.uk/page-4>

Greater Haig Fras rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM29N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062008.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.



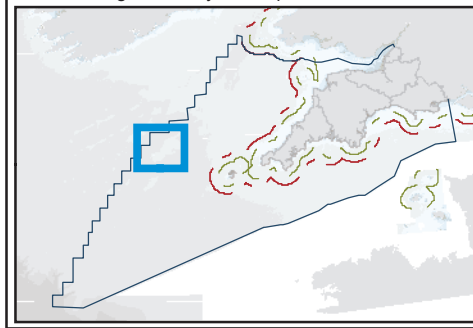
Lat/Long Co-ordinates (WGS84)

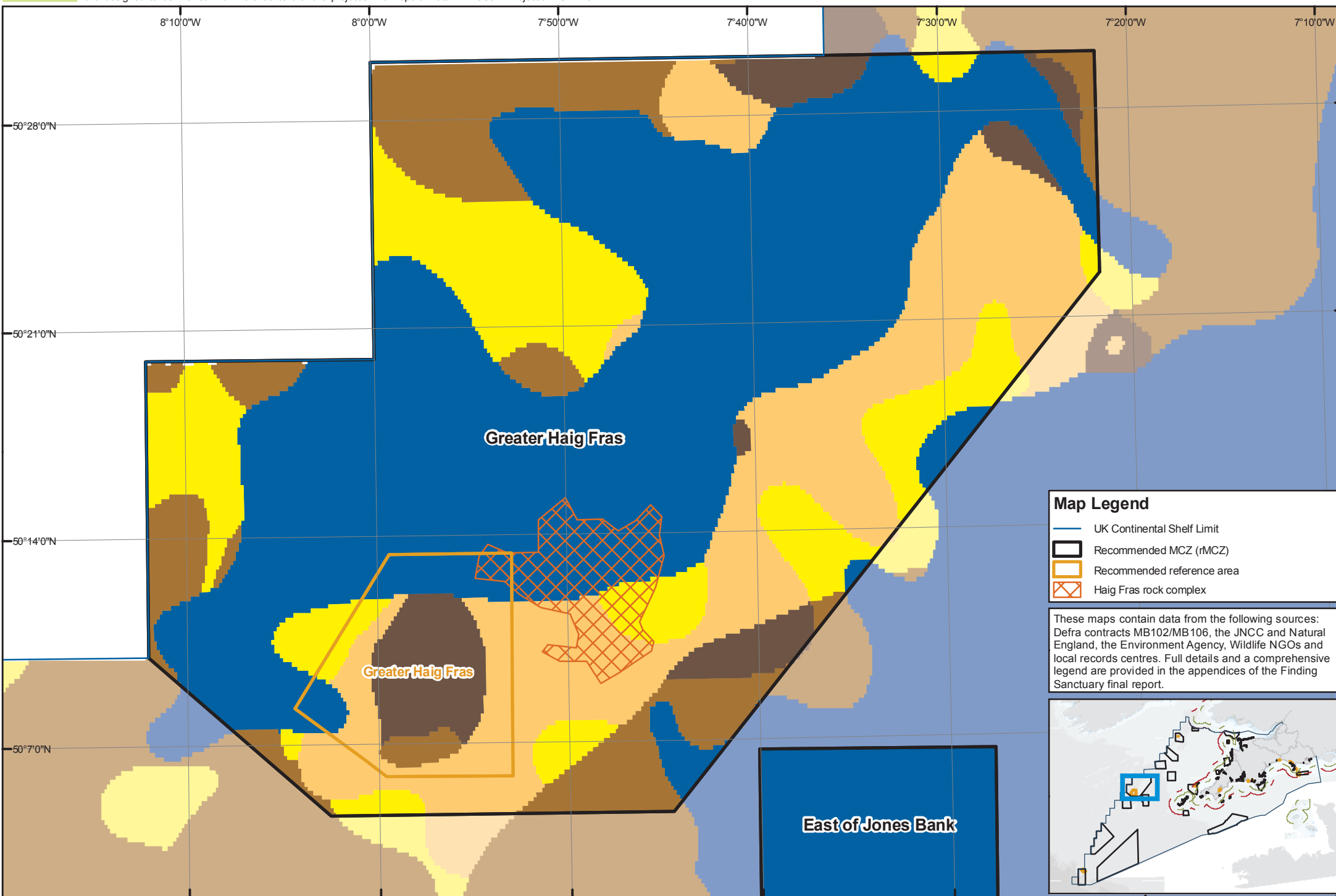
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.5000	-8.0000	50° 29' 59" N	7° 59' 59" W
B	50.4994	-7.3617	50° 29' 58" N	7° 21' 41" W
C	50.3752	-7.3616	50° 22' 30" N	7° 21' 41" W
D	50.0765	-7.7426	50° 4' 35" N	7° 44' 33" W
E	50.0766	-8.0426	50° 4' 35" N	8° 2' 33" W
F	50.1667	-8.2000	50° 9' 59" N	8° 12' 0" W
G	50.3333	-8.2000	50° 19' 59" N	8° 12' 0" W
H	50.3333	-8.0000	50° 19' 59" N	7° 59' 59" W

Map Legend

- UK Continental Shelf Limit
- Recommended MCZ (rMCZ)
- Recommended reference area
- Existing MPAs**
- SAC

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



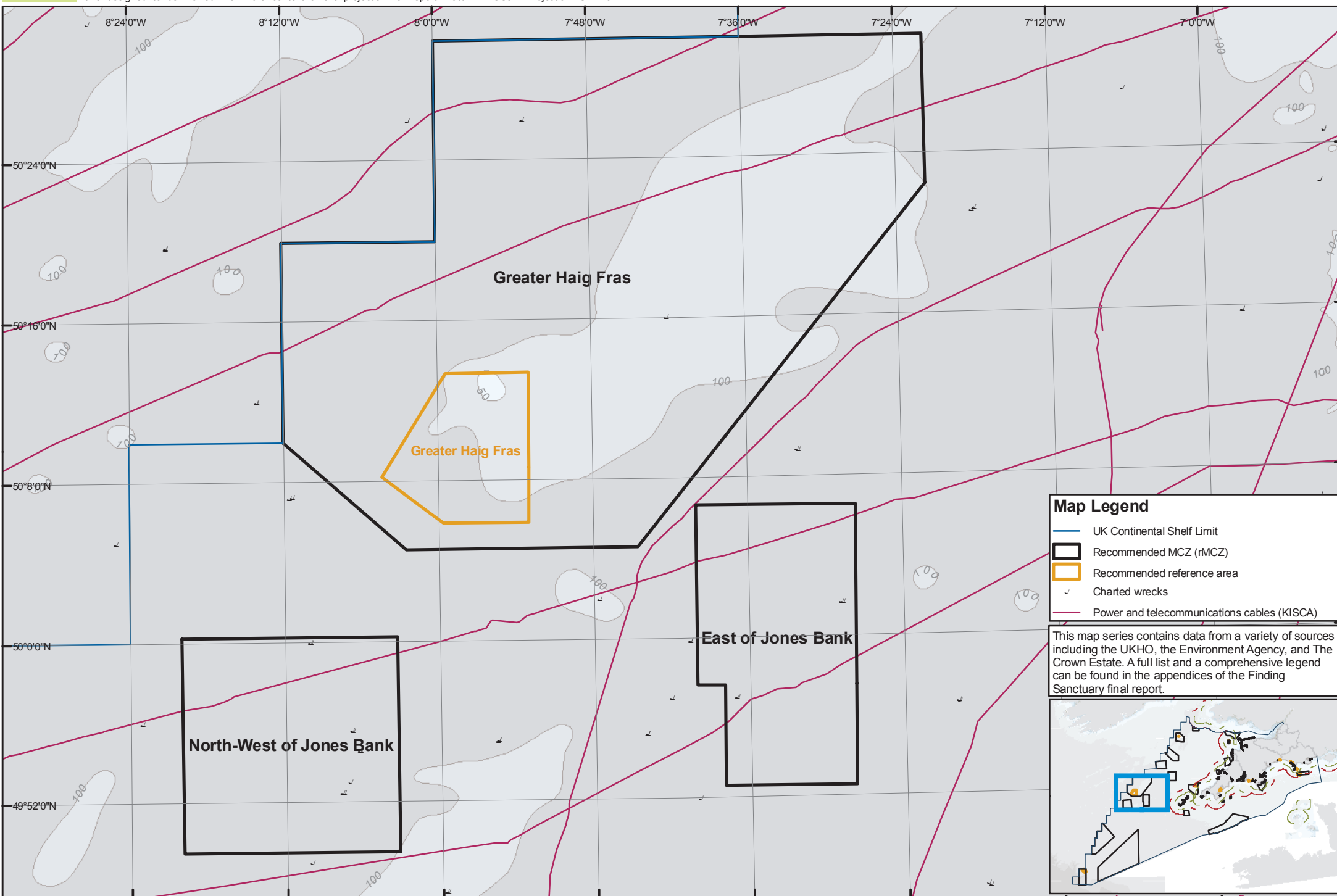


Greater Haig Fras, North-West of Jones Bank and East of Jones Bank rMCZs

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM29N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062006.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 5 10 20 km



II.3.6 East of Jones Bank rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
49.9984	-7.5597	49° 59' 54" N	7° 33' 35" W

Site surface area: 359.38 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The boundary of this site is a simple shape consisting of N-S and E-W lines, in line with the ENG.

Sites to which the site is related: The East of Jones Bank rMCZ neighbours North-west of Jones Bank rMCZ (approximately 27km is to the west), and Greater Haig Fras rMCZ (immediately to the north-west). The Haig Fras SAC is nearby East of Jones Bank rMCZ.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM29N).

Features proposed for designation within East of Jones Bank rMCZ

Table II.3.6a Draft conservation objectives for the East of Jones Bank rMCZ. 'Maintain' = maintain in favourable condition, 'recover' = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Feature	Conservation Objective
Moderate energy circalittoral rock	recover
Subtidal mud	recover
Subtidal sand	recover

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.6b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy circalittoral rock	342.75	1.8%	1
Subtidal sand	2.19	<0.1%	1
Subtidal mud	14.44	0.2%	1

Table II.3.6c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	354.10			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The eastern site boundary is approximately 126km to the west of Land's End. The site is at a depth of between 100 and 200m, and is largely characterised by moderate energy circalittoral rock. There is anecdotal evidence from fishing representatives on the stakeholder group that this area is characterised not by solid bedrock, but loose cobbles (which in the modelled EUNIS L3 data would be classified as 'rock'). The site is included to meet ENG targets for broad-scale habitats.

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

Wilson *et al.* (2001) sampled benthic biodiversity in the area, but no exact location was given. Hamilton *et al.* (1980) describe the shelf sediments of South West Britain including Jones Bank and surrounds.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation**

objectives from being achieved. This assumption applies to all activities. Table II.3.6d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.6e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.6d Specific assumptions and implications relating to East of Jones Bank. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Bottom-towed fishing gear will not be allowed.</p> <p>This activity was discussed during the VA meetings, and it was determined that the activity would be prohibited in the whole site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation.
<p>Aggregate extraction will not be allowed.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource,

	<p>then this will have significant impact on national construction aggregate supply and coast defence.</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste from processing vessels and munitions.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p>Based on SAP feedback the assumption cannot apply to all sites</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional

in the network, although it can apply to any given site on its own.

Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings

management requirements are defined for renewable energy developments. This could result in:

- additional costs to the renewables industry, e.g. for licensing mitigation and monitoring
- delays to renewables development
- delays, lost revenue and additional costs associated with cable repair activity restrictions

o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets.

o Enforced co-location with MCZs would dramatically restrict deployment.

If the assumption turns out to be wrong:

o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities.

o Increased competition for sea space with other sea users.

o Excellent wind and wave resource area but unlikely to be developed in short or medium term due to distance from shore. Aviation Danger Area likely to exclude wind development.

Activities assumed to be allowed to continue / occur within the site

Assumptions

Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.

Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings

Implications

Direct implications:

o

Given this assumption, there are still the following concerns:

o Handliners might face possible additional costs if mitigation measures are needed

o There would be costs if monitoring is needed

Benefits:

o

<p>Pelagic trawls will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what ‘prohibitively expensive’ means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Two active and three inactive telecoms cables.

<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

Table II.3.6e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	<p>Management:</p> <ul style="list-style-type: none"> - Prohibition of fishing in the rMCZ <p>Measure:</p> <ul style="list-style-type: none"> - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty has been highlighted for this site:

- There have been conflicting statements as to whether or not the UN Convention on the Law of the Seas (UNCLOS) allows the permanent right to lay cables in the offshore outside of 12 nautical miles or whether this activity can be managed following MCZ designation.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site; others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is

the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'

- **Vulnerability Assessment**
 - Steering Group representatives voiced general concern over the process and outcome of the vulnerability assessments. This was mainly in relation to inshore sites, however, please refer to the Steering Group statement made in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The area is used by UK fishermen (some trawling), and by non-UK vessels, especially French and Belgian. Other sectors have voiced relatively little concern about this site.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Garrard (1977).

Site map series

On the following pages there are two maps of this site.

- The first map (FR_014a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM29N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_014b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.6b, data sources are indicated in the table.
- Most rMCZ site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site (except for fisheries information, which is included in the interactive PDF maps supplied with the additional materials listed in

appendix 14). Cables running through this site are shown on map FR_013c, in the Greater Haig Fras rMCZ site report.

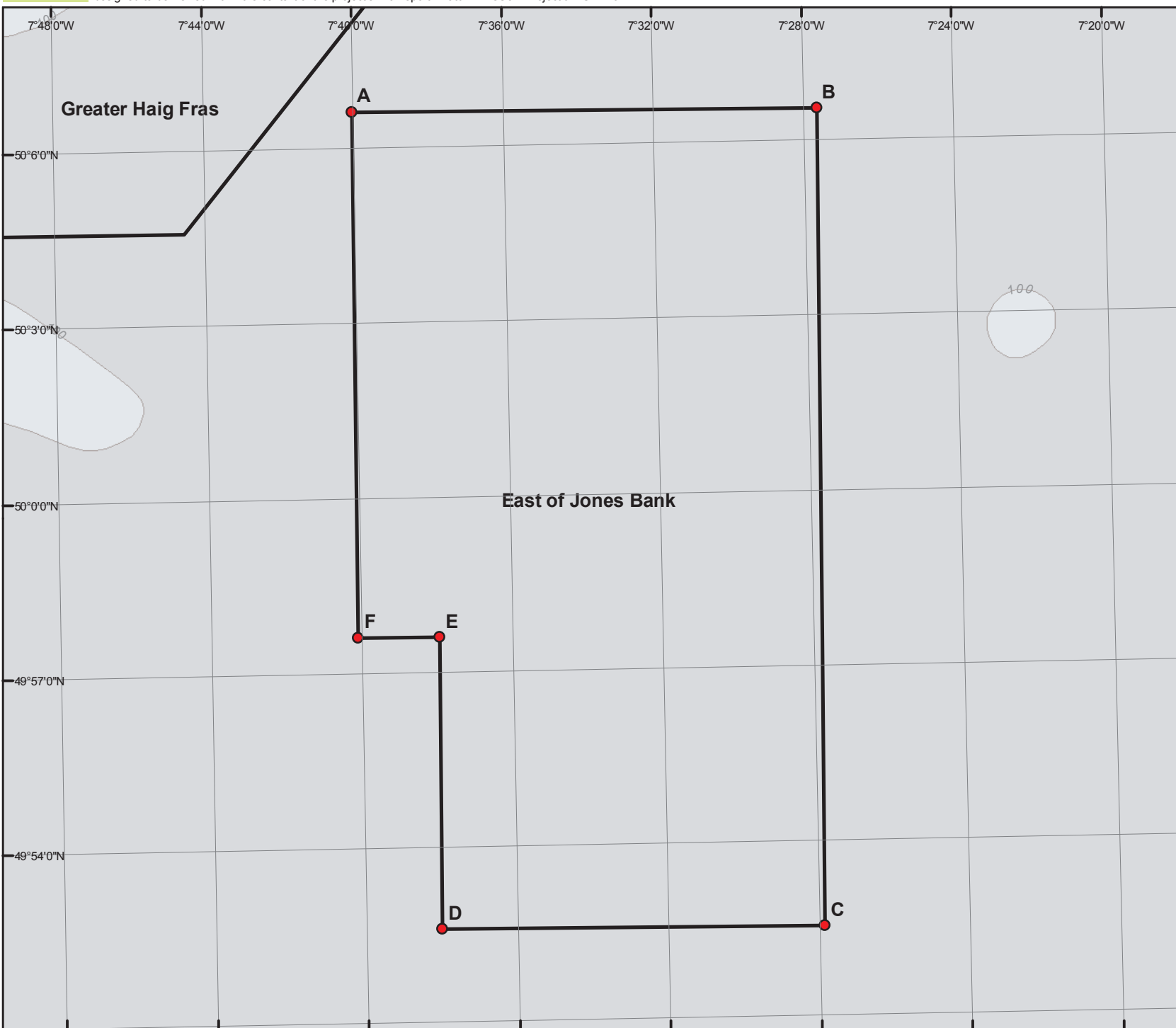
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM29N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062008.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 2 4 8 km

N



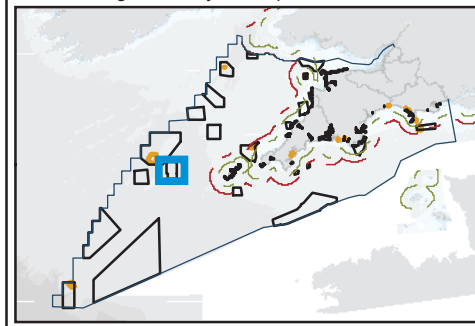
Lat/Long Co-ordinates (WGS84)

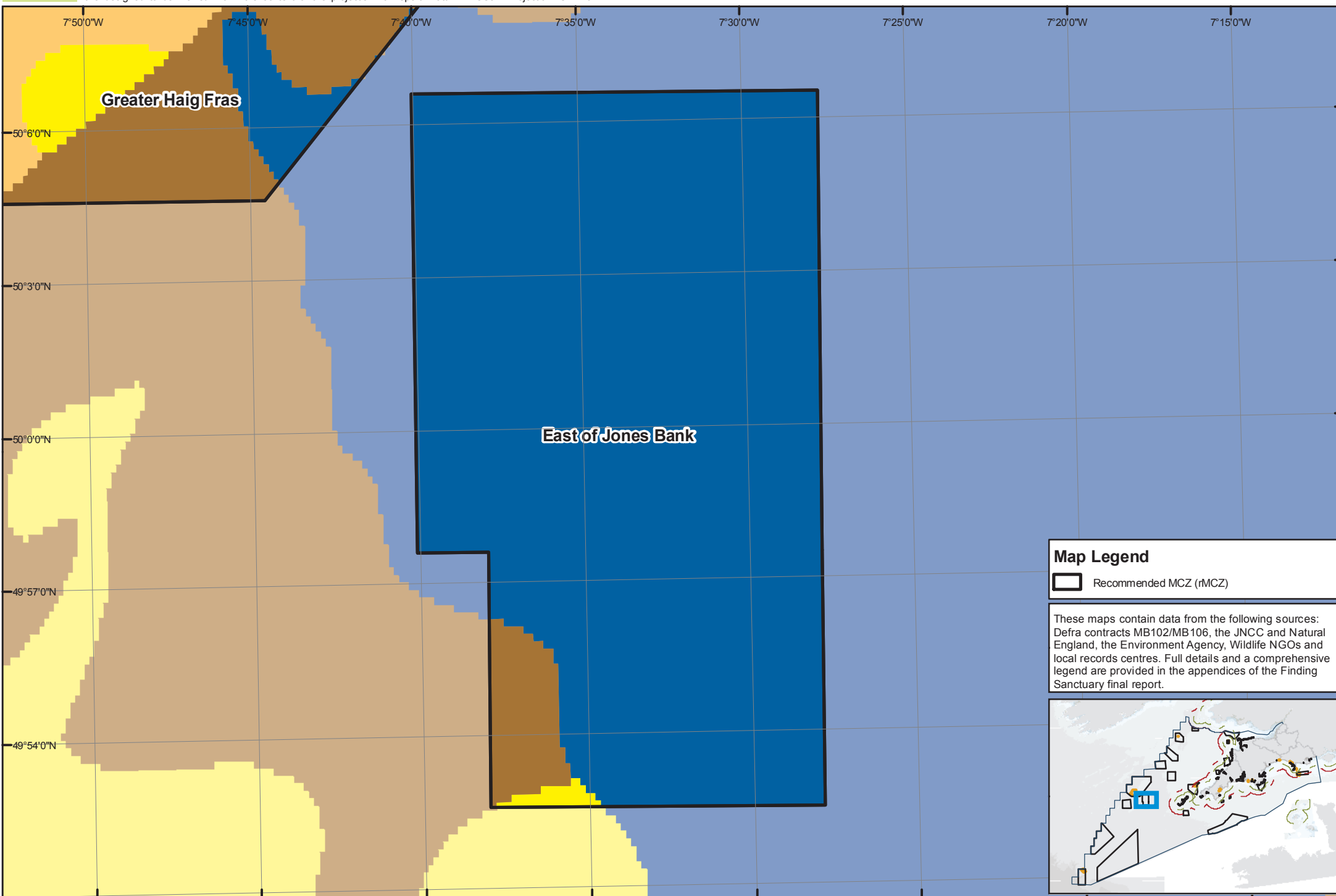
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.1108	-7.6674	50° 6' 38" N	7° 40' 2" W
B	50.1094	-7.4607	50° 6' 33" N	7° 27' 38" W
C	49.8757	-7.4644	49° 52' 32" N	7° 27' 51" W
D	49.8768	-7.6334	49° 52' 36" N	7° 38' 0" W
E	49.9603	-7.6324	49° 57' 36" N	7° 37' 56" W
F	49.9605	-7.6685	49° 57' 37" N	7° 40' 6" W

Map Legend

- UK Continental Shelf Limit
- ▭ Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





II.3.7 East of Haig Fras rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.4988	-6.6538	50° 29' 55" N	6° 39' 13" W

Site surface area: 399.38 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The site is a simple rectangle with boundaries aligned N-S and E-W, in line with ENG guidelines. The northern part of the site overlaps with the Trevoze Box.

Sites to which the site is related: The East of Haig Fras rMCZ neighbours Greater Haig Fras rMCZ which is approx. 40km to the west, North-east of Haig Fras rMCZ which is approximately 9km to the north-west and South of Celtic Deep rMCZ which is approximately 27km to the north.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within East of Haig Fras rMCZ

Table II.3.7a Draft conservation objectives for the East of Haig Fras rMCZ. 'Maintain' = maintain in favourable condition, 'recover' = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Feature	Conservation Objective
Moderate energy circalittoral rock	recover
Subtidal coarse sediment	recover
Subtidal sand	recover

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.7b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy circalittoral rock	9.79	<0.1%	1
Subtidal coarse sediment	235.53	0.8%	1
Subtidal sand	154.65	0.5%	1

Table II.3.7c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	264.78			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The south-eastern corner of the site is approximately 67km from the Land's End peninsula. The site is an area of continental shelf, most of which is between 50m and 100m in depth. Small areas in the western end of the site dip below the 100m depth contour. The seabed is characterised by coarse sediment and sand. The site has been included in the network to meet ENG criteria on broad-scale habitats.

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

Wilson *et al.* (2001) sampled benthic biodiversity in the area, but no exact location was indicated. During the period 2000–2006, Ellis *et al.* (2007a) carried out approximately 150 tows with a 2m-beam trawl during groundfish surveys of the South West offshore area. Catches along the edge of the continental shelf (130–350 m deep) were characterised by large numbers of the anemone *Actinauge richardi*, with the hermit crab *Pagurus prideaux* dominating on coarse grounds in shallower waters. The study described the spatial distribution of the epibenthic fauna.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.7d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.7e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.7d Specific assumptions and implications relating to East of Haig Fras rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Bottom-towed fishing gear will not be allowed. <i>This activity was discussed during the VA meetings, and it was determined that the activity would be prohibited in the whole site.</i>	Direct implications: <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
Anchoring of large vessels will not be allowed (except in emergencies)	Direct implications: <ul style="list-style-type: none"> o

Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	<p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation.
<p>Aggregate extraction will not be allowed.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste from processing vessels and munitions.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed

<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Excellent wind and wave resource area but unlikely to be developed in short or medium term due to distance from shore. Aviation Danger Area likely to exclude wind development.
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Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs if mitigation measures are needed o There would be costs if monitoring is needed <p>Benefits:</p>

	o
<p>Pelagic trawls will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p> <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o One proposed power cable.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p> <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Four active and three inactive telecoms cables.

<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

Table II.3.7e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	<p>Management:</p> <ul style="list-style-type: none"> - Prohibition of fishing in over specific BSH/FOCI. These are: subtidal coarse sediment, subtidal sand (muddy parts) <p>Measure:</p> <ul style="list-style-type: none"> - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty has been highlighted for this site:

- There have been conflicting statements as to whether or not the UN Convention on the Law of the Seas (UNCLOS) allows the permanent right to lay cables in the offshore outside of 12 nautical miles or whether this activity can be managed following MCZ designation.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site; others were more generic comments which the project team consider to be relevant to this site.

- *Fishing*
 - The area has been highlighted through a Marxan analysis as an area of lower than average fishing utility.
 - This area would impact on the fishing industry. However, the area included in the developing network configuration has less of an impact than the other building blocks that were previously drawn in the surrounding area.
 - This site is important to almost twenty fishing vessels from South Normandy.
- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.

- **Monitoring**
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- **Management measures**
 - For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: ‘When considering the impacts of fishing restrictions on non UK vessels, it is the Government’s intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.’
- **Vulnerability Assessment**
 - Steering Group representatives voiced general concern over the process and outcome of the vulnerability assessments. This was mainly in relation to inshore sites, however, please refer to the Steering Group statement made in section II.2.1.
 - Moderate energy circalittoral rock was originally given a Conservation Objective set to ‘maintain’ but this was amended to ‘recover’ because VMS data shows demersal fishing gear over the feature. It has been recognised that (i) VMS data are coarse and demersal trawls could be avoiding this feature and (ii) the habitat data is modelled and the presence of demersal trawls suggests this could be sediment rather than rocky habitat.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The area is used by non-UK fishermen, especially French and Belgian. Commercial fishing representatives from South Normandy do not support this site (NCS comments). Other sectors have voiced relatively little concern about this site.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Garrard (1977), and Larssonneur *et al.* (1982).

Site map series

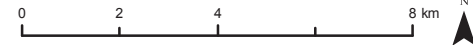
On the following pages there are three maps of this site.

- The first map (FR_015a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_015b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.7b, data sources are indicated in the table.
- The third map (FR_015c) shows KISCA cable routes and some other human activity information. It is zoomed out to include South of Celtic Deep rMCZ and North-East of Haig Fras rMCZ. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

East of Haig Fras rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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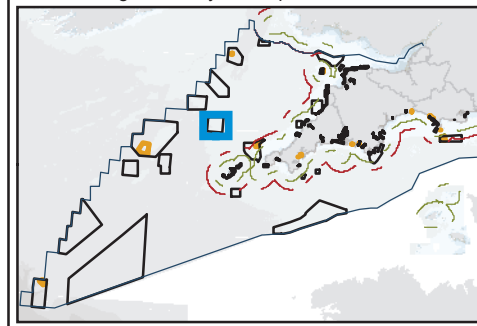
Lat/Long Co-ordinates (WGS84)

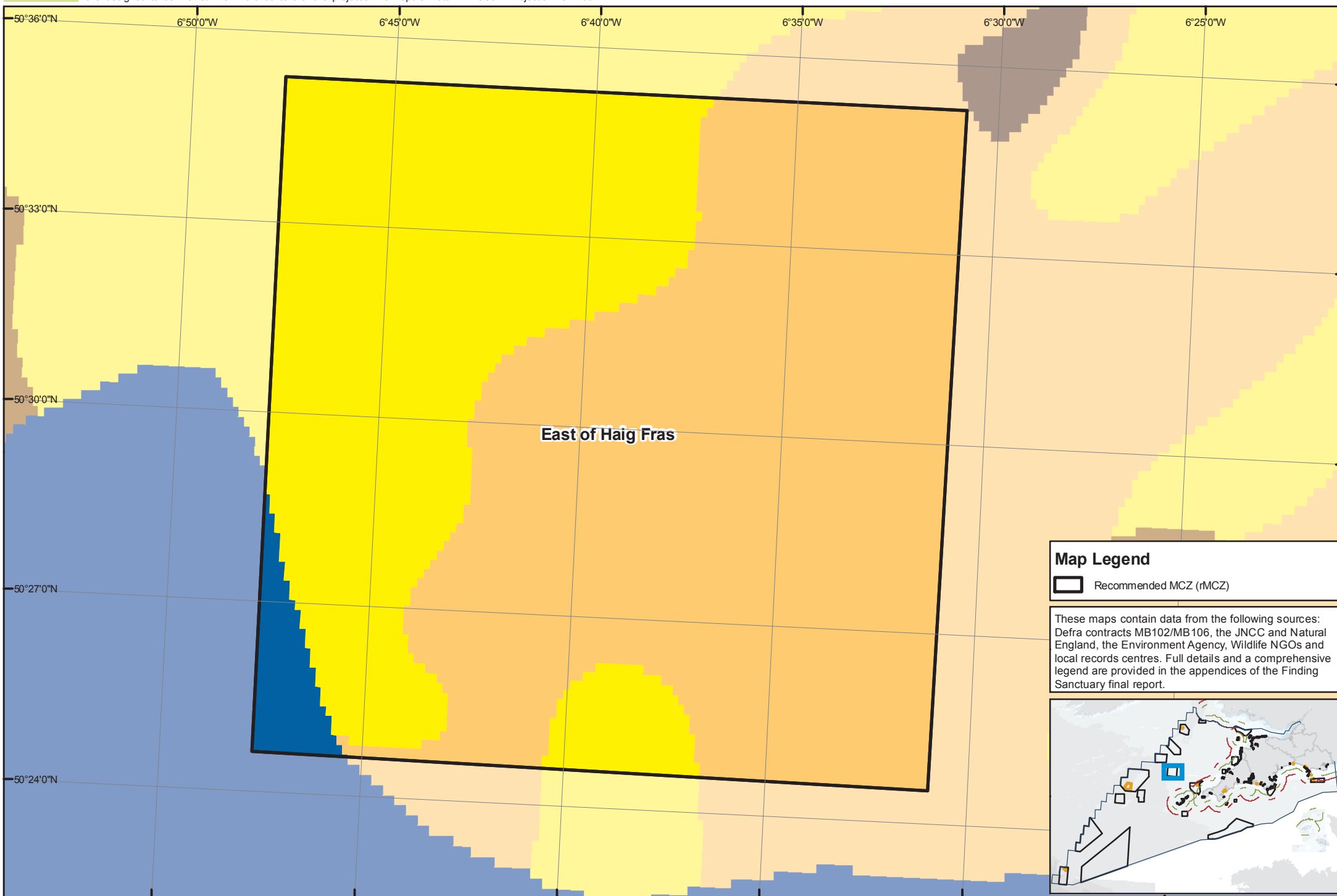
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	Lat	Long	Lat	Long
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B	50.5886	-6.5130	50° 35' 19" N	6° 30' 46" W
C	50.4089	-6.5161	50° 24' 32" N	6° 30' 58" W
D	50.4106	-6.7949	50° 24' 38" N	6° 47' 41" W

Map Legend

 Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



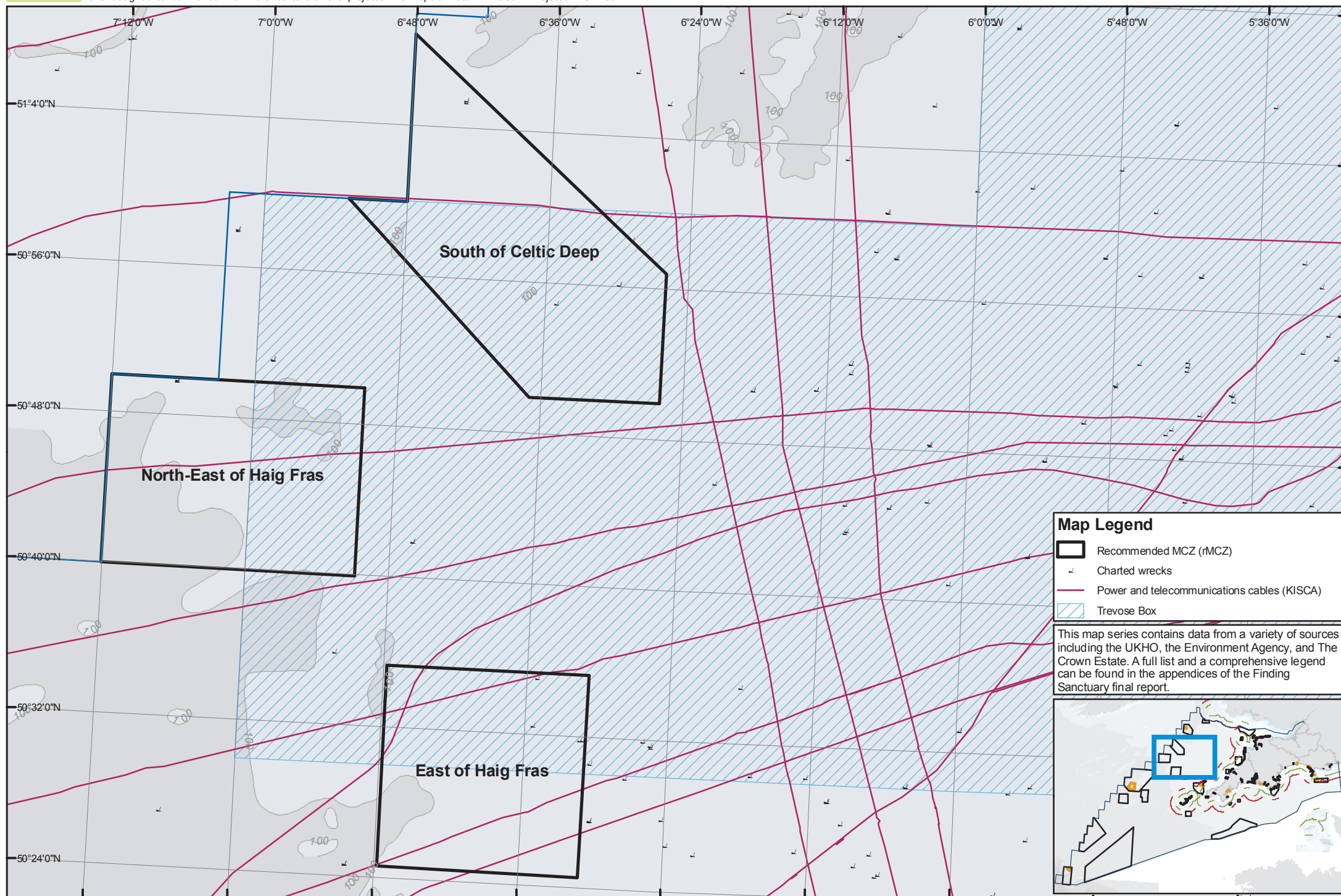


South of Celtic Deep, North-East and East of Haig Fras rMCZs

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 5 10 20 km



II.3.8 North-East of Haig Fras rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.7498	-7.0229	50° 44' 59" N	7° 1' 22" W

Site surface area: 463.72 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The western and northern boundaries of this site align with the UK Continental Shelf Limit. The site is a rectangle consisting of simple N-S and E-W lines, in line with the ENG. The eastern part of the site overlaps with the Trevoze Box.

Sites to which the site is related: The North-East of Haig Fras rMCZ neighbours Greater Haig Fras rMCZ (approx. 22km to the south-west), East of Haig Fras rMCZ which is approx 9km to the south-east and South of Celtic Deep rMCZ which is approx 12km to the north-east.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within North-east of Haig Fras rMCZ

Table II.3.8a Draft conservation objectives for North-East of Haig Fras rMCZ. 'Maintain' = maintain in favourable condition, 'recover' = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Feature	Conservation Objective
Subtidal coarse sediment	maintain
Subtidal mixed sediments	recover
Subtidal mud	recover
Subtidal sand	maintain

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.8b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal coarse sediment	56.34	0.2%	1
Subtidal sand	190.83	0.6%	1
Subtidal mud	192.33	3.1%	1
Subtidal mixed sediments	24.01	0.7%	1

Table II.3.8c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	381.87			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

This site is located on a section of continental shelf. The depth is between 50 and 100m, with some sections dipping below the 100m depth contour. The seabed is characterised by a range of sediments including subtidal sand, subtidal coarse sediment, subtidal mixed sediment and subtidal mud. The site has been included in the network in order to meet ENG criteria for broad-scale habitats. The south-eastern corner of the site is approximately 100km to the north-west of the Land's End peninsula.

Detailed site description

Wilson *et al.* (2001) sampled benthic biodiversity in the area but no exact location was given. During the period 2000–2006, Ellis *et al.* (2007a) carried out approximately 150 tows with a 2m-beam trawl during groundfish surveys of the South West offshore area. Catches along the edge of the continental shelf (130–350 m deep) were characterised by large numbers of the anemone *Actinauge richardi*, with the hermit crab *Pagurus prideaux* dominating on coarse grounds in shallower waters. The study described the spatial distribution of the epibenthic fauna in the area around North-East of Haig Fras.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.8d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.8e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.8d Specific assumptions and implications relating to North-East of Haig Fras rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Bottom-towed fishing gear will not be allowed. This activity was discussed during the VA meetings, and it was determined that the activity would be prohibited in the whole site.	Direct implications: <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.

<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation.
<p>Aggregate extraction will not be allowed.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste from processing vessels and munitions.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.)

<p>place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Excellent wind and wave resource area but unlikely to be developed in short or medium term due to distance from shore. Aviation Danger Area likely to exclude wind development.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs if mitigation measures are needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o
<p>Pelagic trawls will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Potential cable route for marine renewables to access resource.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o One active telecoms cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

Table II.3.8e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	<p>Management:</p> <ul style="list-style-type: none"> - Prohibition of fishing in over specific BSH/FOCI. These are: subtidal coarse sediment, subtidal mud, subtidal mixed sediment. <p>Measure:</p> <ul style="list-style-type: none"> - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty has been highlighted for this site:

- There have been conflicting statements as to whether or not the UN Convention on the Law of the Seas (UNCLOS) allows the permanent right to lay cables in the offshore outside of 12 nautical miles or whether this activity can be managed following MCZ designation.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Fishing*
 - The area has been highlighted through a Marxan analysis as an area of lower than average fishing utility.
 - This area would impact on the fishing industry. However, the area included in the developing network configuration has less of an impact than the other building blocks that were previously drawn in the surrounding area.
 - This site is important to almost twenty fishing vessels from South Normandy.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'
- *Vulnerability Assessment*
 - Steering Group representatives voiced general concern over the process and outcome of the vulnerability assessments. This was mainly in relation to inshore sites, however, please refer to the Steering Group statement made in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The area is used by non-UK fishermen, especially French and Belgian. Commercial fishing representatives from South Normandy do not support this site (NCS comments). Other sectors have voiced relatively little concern about this site.

Supporting documentation

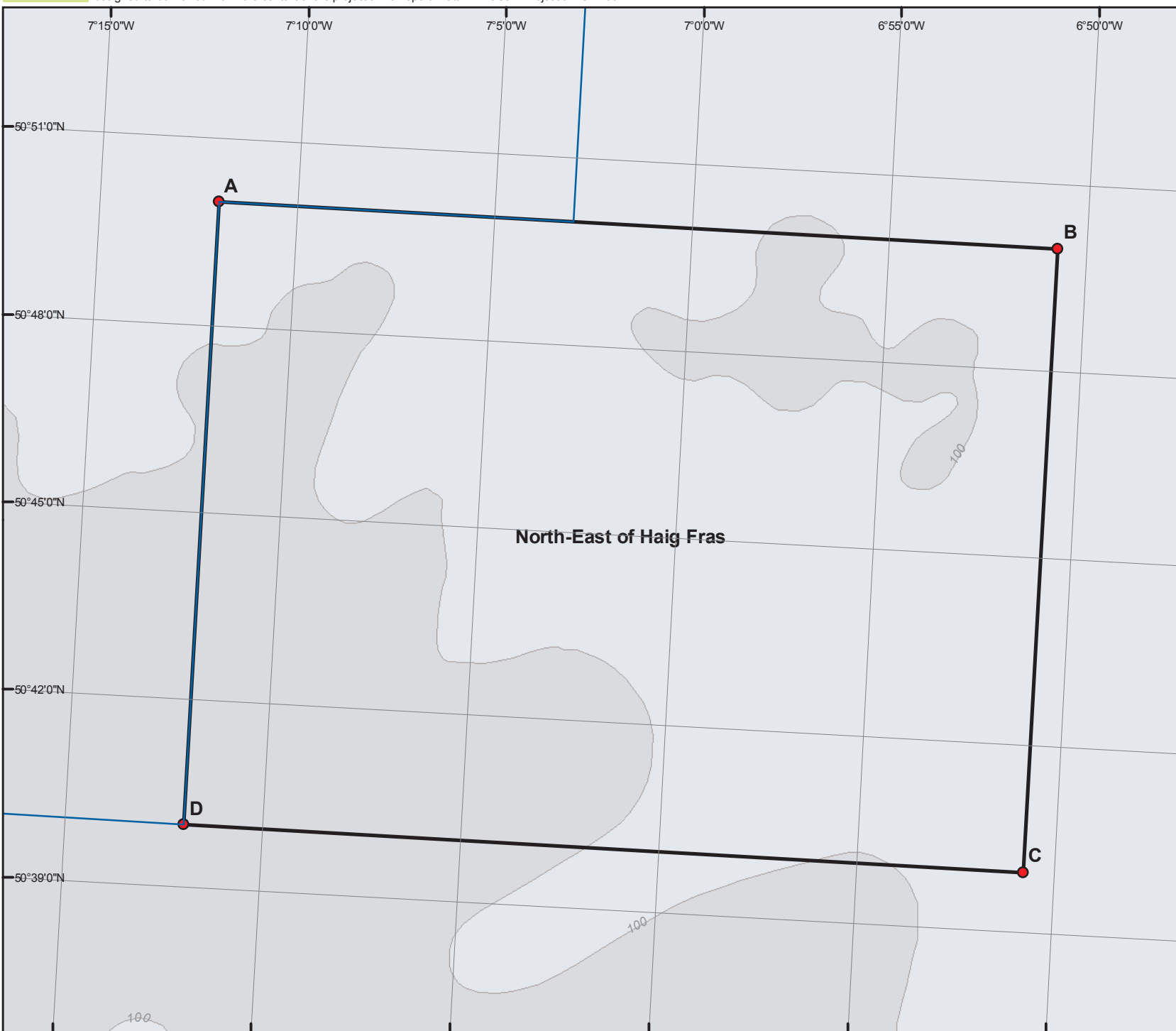
GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Garrard (1977).

Site map series

On the following pages there are two maps of this site.

- The first map (FR_016a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_016b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.8b, data sources are indicated in the table.
- Most rMCZ site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site (except for fisheries information, which is included in the interactive PDF maps supplied with the additional materials listed in appendix 14). Cables running through this site, and the Trevoise Box, are shown on map FR_015c in the East of Haig Fras rMCZ site report.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



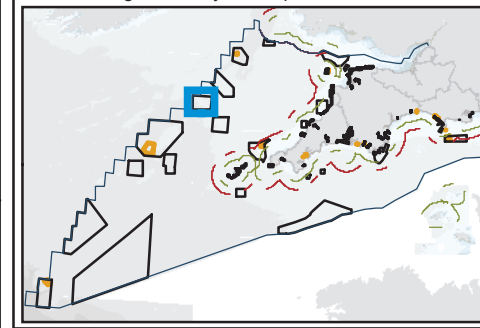
Lat/Long Co-ordinates (WGS84)

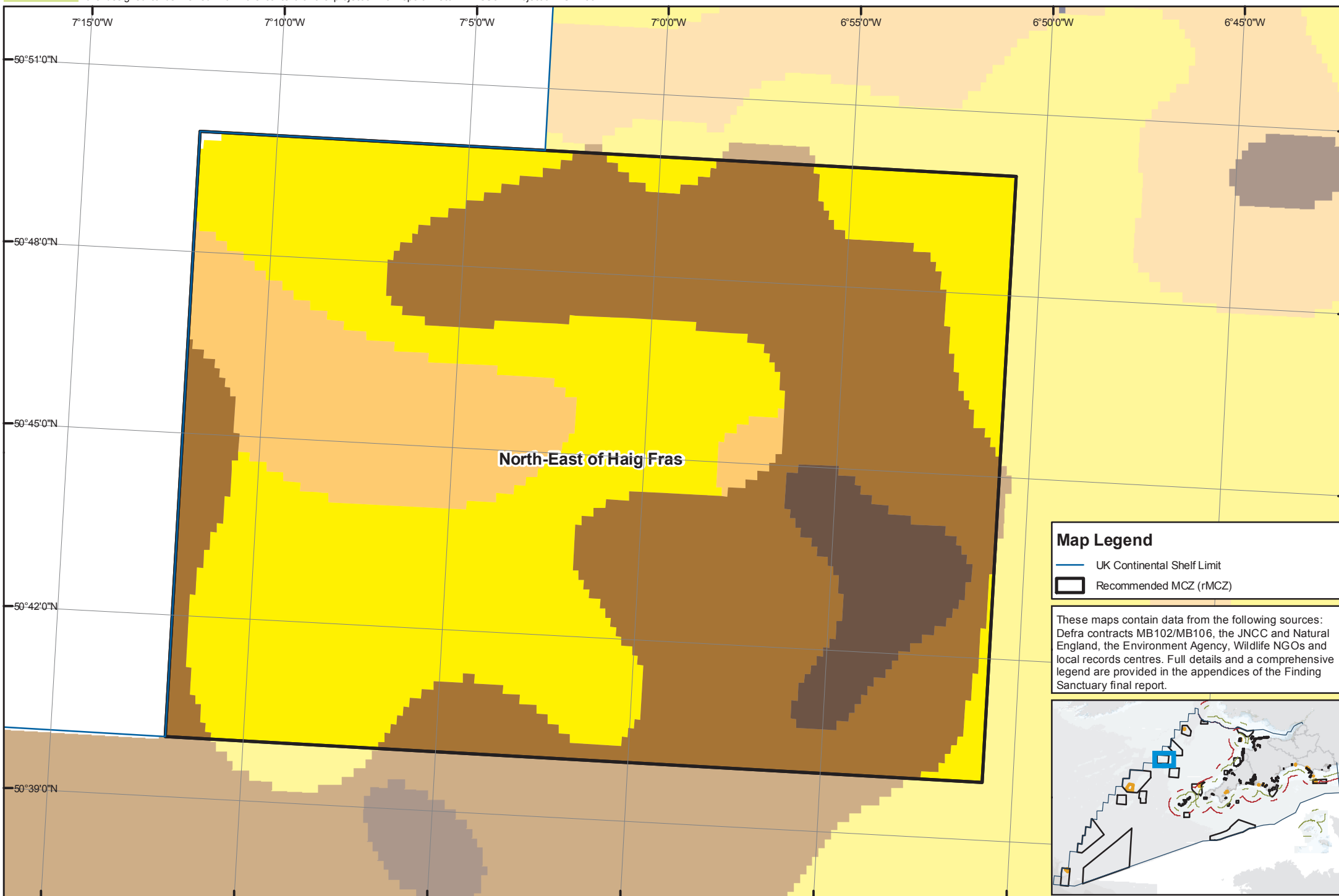
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	Lat	Long	Lat	Long
A	50.8333	-7.2000	50° 49' 59" N	7° 11' 59" W
B	50.8330	-6.8453	50° 49' 58" N	6° 50' 43" W
C	50.6661	-6.8463	50° 39' 58" N	6° 50' 46" W
D	50.6667	-7.2000	50° 40' 0" N	7° 11' 59" W

Map Legend

- UK Continental Shelf Limit
- Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





II.3.9 South of Celtic Deep rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.9608	-6.6359	50° 57' 38" N	6° 38' 9" W

Site surface area: 552.4 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The western boundary of this rMCZ aligns with the UK Continental Shelf Limit. The site has an arrow shape pointing south-east, with straight N-S and E-W lines making up the tip. This is a simplification of a previous complex outline, in line with ENG guidelines. The southern part of the site overlaps with the Trevoise Box.

Sites to which the site is related: The South of Celtic Deep rMCZ neighbours North-east of Haig Fras rMCZ which is approx. 12km to the south-west, East of Haig Fras rMCZ which is approx 27km to the south and Celtic Deep rMCZ (with the Celtic Deep recommended reference area) approx 25km to the north-east.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within South of Celtic Deep rMCZ

Table II.3.9a Draft conservation objectives for the South of Celtic Deep rMCZ. 'Maintain' = maintain in favourable condition, 'recover' = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Feature	Conservation Objective
Subtidal coarse sediment	recover
Subtidal mixed sediments	recover
Subtidal sand	recover

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.9b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal coarse sediment	308.06	1.1%	1
Subtidal sand	193.47	0.6%	1
Subtidal mud	4.21	<0.1%	1
Subtidal mixed sediments	46.67	1.3%	1

Table II.3.9c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	249.03			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The south-eastern tip of the site is approximately 90km to the north-west of the Land's End peninsula. The site is within the 50-100m depth range, with two small areas dipping beneath the 100m contour. The seafloor is characterised by coarse sediment and sand, with some mixed sediment present. The site has been included in the network in order to meet ENG criteria on broad-scale habitat.

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

During April and May 1993, and in February and May 1994, Rees *et al.* (1999) collected samples of the benthic macrofauna from MAFF research vessels. At each location, five sediment samples for macrofauna analysis were collected using a 0.1 m² day grab from the central point of a 500 m grid of 9 stations, the latter being sampled for contaminant analyses only. Wilson *et al.* (2001) sampled benthic biodiversity in the area, but no specific location was given.

During the period 2000–2006, Ellis *et al.* (2007a) carried out approximately 150 tows with a 2m-beam trawl during groundfish surveys of the South West offshore area. Catches along the edge of the continental shelf (130–350 m deep) were characterised by large numbers of the anemone *Actinauge richardi*, with the hermit crab *Pagurus prideaux* dominating on coarse grounds in shallower waters. The study described the spatial distribution of the epibenthic fauna.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.9d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.9e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.9d Specific assumptions and implications relating to South of Celtic Deep rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Bottom-towed fishing gear will not be allowed.</p> <p>This activity was discussed during the VA meetings, and it was determined that the activity would be prohibited in the whole site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.

<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation.
<p>Aggregate extraction will not be allowed.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste from processing vessels and munitions.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.)

<p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Excellent wind and wave resource area but unlikely to be developed in short or medium term due to distance from shore. Aviation Danger Area likely to exclude wind development.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs if mitigation measures are needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o
<p>Pelagic trawls will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o One active and two inactive telecoms cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

Table II.3.9e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	<p>Management:</p> <ul style="list-style-type: none"> - Prohibition of fishing in the rMCZ <p>Measure:</p> <ul style="list-style-type: none"> - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty has been highlighted for this site:

- There have been conflicting statements as to whether or not the UN Convention on the Law of the Seas (UNCLOS) allows the permanent right to lay cables in the offshore outside of 12 nautical miles or whether this activity can be managed following MCZ designation.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Fishing*
 - The area has been highlighted through a Marxan analysis as an area of lower than average fishing utility.
 - This site provides essential fishing grounds or economic viability to fishing vessels from Brittany (pelagic and bottom trawlers, netters and potters) and would have massive economic impacts on the Belgian fishing fleet.
- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.

- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'
- *Vulnerability Assessment*
 - Steering Group representatives voiced general concern over the process and outcome of the vulnerability assessments. This was mainly in relation to inshore sites, however, please refer to the Steering Group statement made in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The area is used by non-UK fishermen, especially French and Belgian. Commercial fishing representatives from Brittany and Belgium do not support this site (NCS comments). The southern part of this rMCZ is less contentious than other sites of similar broad-scale habitat. Other sectors have voiced relatively little concern about this site.

Supporting documentation

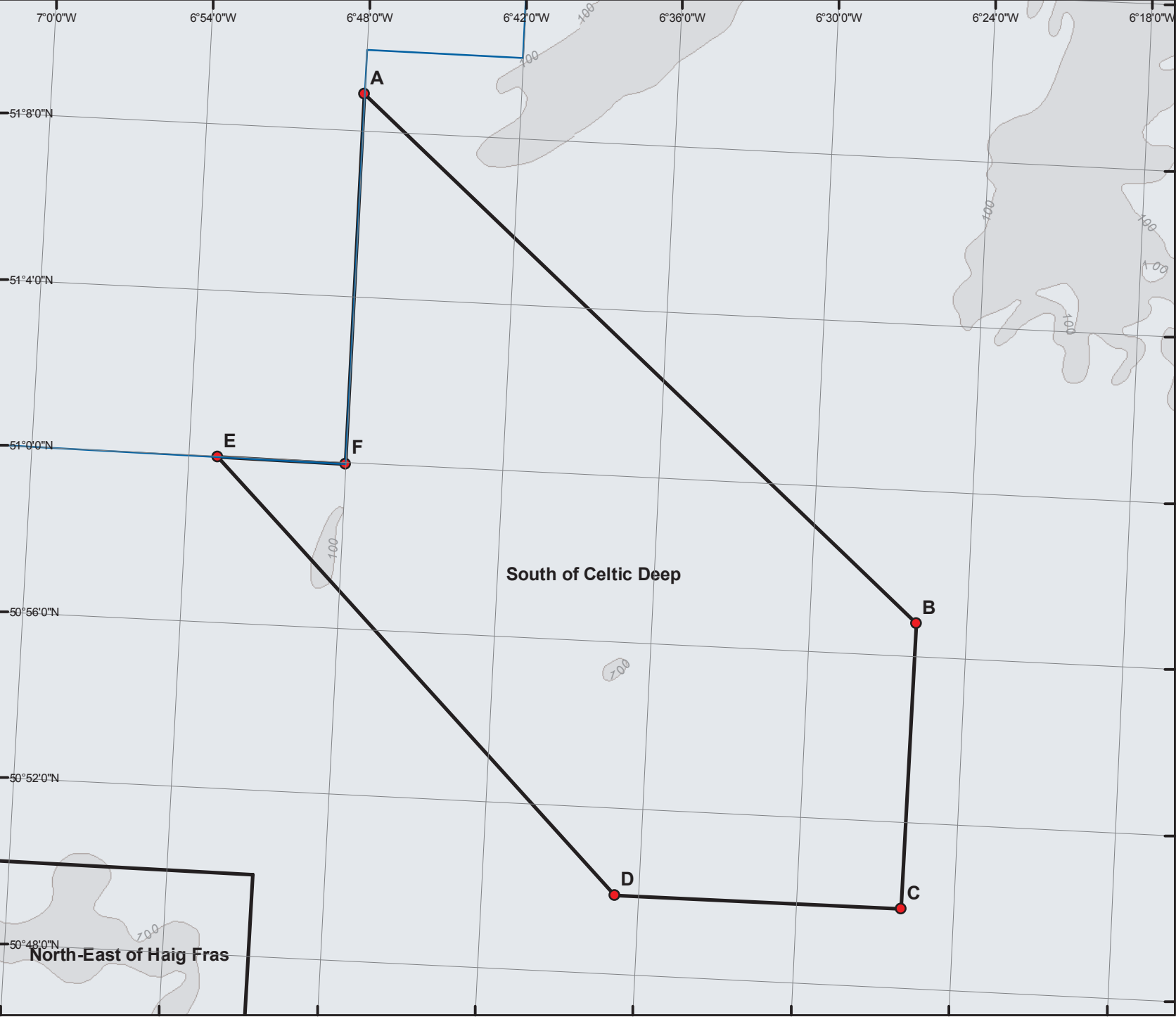
GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Garrard (1977), and Robinson *et al.* (2009).

Site map series

On the following pages there are two maps of this site.

- The first map (FR_017a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_017b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.9b, data sources are indicated in the table.
- Most rMCZ site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site (except for fisheries information, which is included in the interactive PDF maps supplied with the additional materials listed in appendix 14). Cables running through this site, and the Trevoise Box, are shown on map FR_015c, in the East of Haig Fras rMCZ site report.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



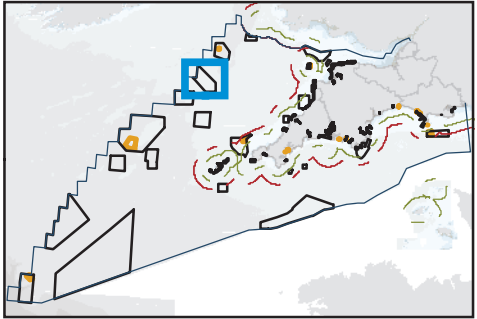
Lat/Long Co-ordinates (WGS84)

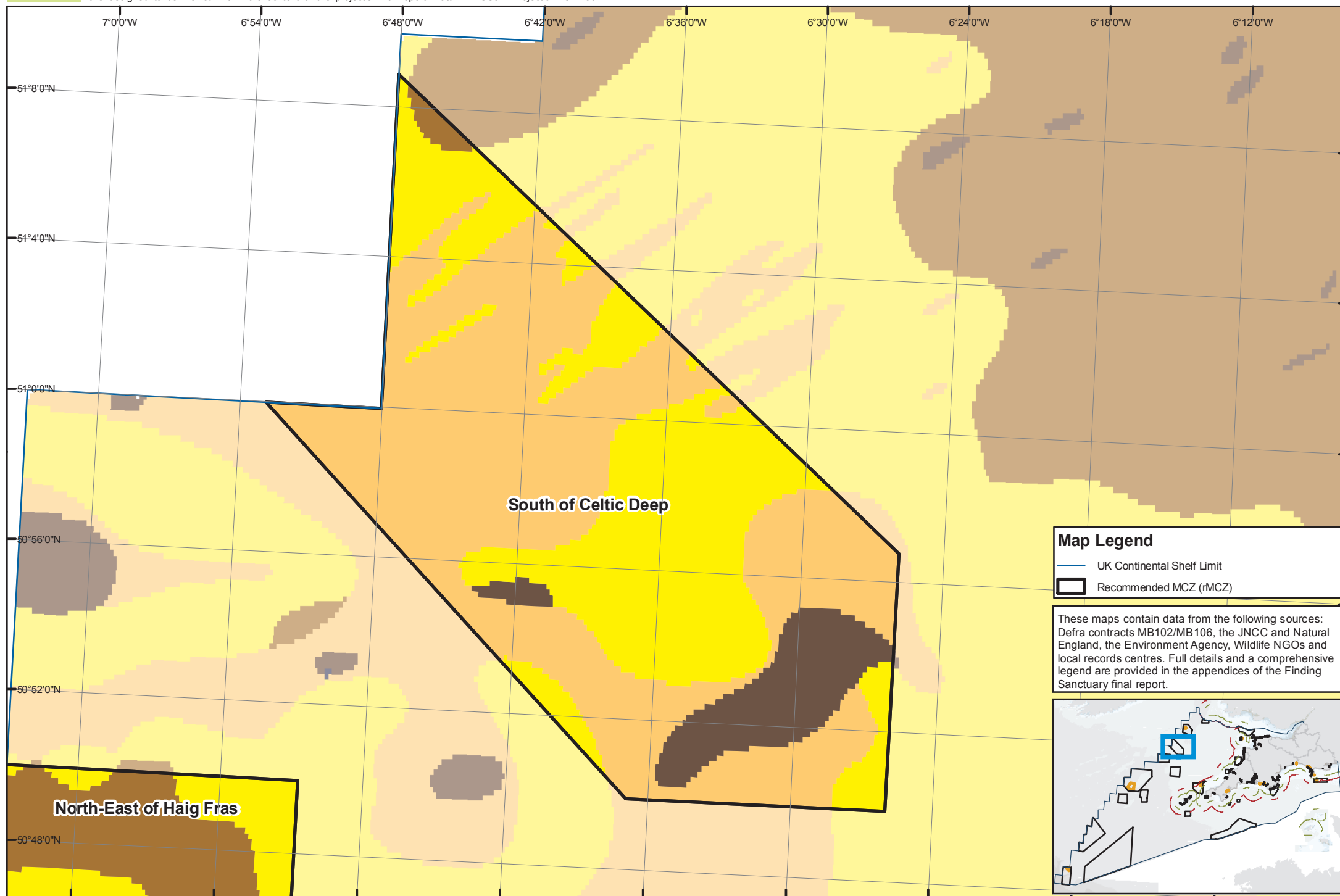
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	51.1487	-6.8000	51° 8' 55" N	6° 47' 59" W
B	50.9470	-6.4317	50° 56' 49" N	6° 25' 54" W
C	50.8323	-6.4332	50° 49' 56" N	6° 25' 59" W
D	50.8323	-6.6151	50° 49' 56" N	6° 36' 54" W
E	51.0001	-6.8815	51° 0' 0" N	6° 52' 53" W
F	51.0000	-6.8000	50° 59' 59" N	6° 47' 59" W

Map Legend

- UK Continental Shelf Limit
- Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





II.3.10 Celtic Deep rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
51.3265	-6.3507	51° 19' 35" N	6° 21' 2" W

Site surface area: 347.79 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The boundary of the Celtic Deep rMCZ has been drawn using simple, straight lines, around a portion of the Celtic Deep area containing subtidal mud and mud habitat in deep water FOCI records.

Sites to which the site is related: The Celtic Deep rMCZ contains the Celtic Deep recommended reference area. The site neighbours the South of Celtic Deep rMCZ, which lies approximately 25km to the south-west, and East of Celtic Deep rMCZ, which lies approximately 28km to the north-east.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Celtic Deep rMCZ

Table II.3.10a Draft conservation objectives for the Celtic Deep rMCZ. 'Maintain' = maintain in favourable condition, 'recover' = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Feature	Conservation Objective
Subtidal mud	Recover
Mud habitats in deep water	Recover

The inclusion of conservation objectives for seabirds and common dolphins on the conservation objective feature list for this site was discussed at length at the Joint Working Group meeting in May 2011, in the full understanding of SAP feedback following progress report 3, and the JNCC's position that they would not support conservation objectives for mobile species in offshore rMCZs. The JWG could not reach a conclusion on the matter.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.10b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal mud	347.79	5.5%	1

Table II.3.10c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Mud habitats in deep water	127.25	13		1
Subtidal sands and gravels ¹	92.66			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The southern tip of the site is approximately 112 km to the north-west of Trevoze Head, and the northern tip is approximately 84km from the Pembrokeshire coast in Wales. The depth is largely between 100m and 200m, constituting a depression on the seafloor which in the surrounding area is shallower than 100m. The seafloor is characterised by subtidal mud habitat, and the Celtic Deep rMCZ is the only offshore area within our study region where the 'mud habitats in deep water' FOCI has been recorded. In addition, this area is an area where frontal systems occur during the summer months, indicating high productivity. Offshore bird observation data indicates this as an important aggregation area for a number of seabird species year-round. The area is of importance for common dolphins.

Detailed site description

The most extensive published survey of the benthic fauna of the Celtic sea is that undertaken in 1974 and 1975 by the Field Studies Council Oil Pollution Research Unit (Hartley & Dicks 1977; Hartley 1979). The fauna at most sites was typical of a 'deep *Venus* community' as described by Mackie (1990). At the edge of the Celtic Deep, the communities were typical of a 'boreal deep mud association' and included the brittlestars *Amphiura chiajei* and *Amphiura filiformis*, the bivalves *Nucula sulcata*, *Nucula tenuis*, *Thyasira flexuosa* and *Abra nitida*, and polychaetes *Myriochele heeri*, *Lagis* (now *Pectinaria*) *koreni* and *Amphicteis gunneri* (Hiscock, 1998).

During April and May 1993, and in February and May 1994, Rees *et al.* (1999) took samples of the benthic macrofauna from the Celtic Deep. At each location, five sediment samples for macrofauna analysis were collected using a 0.1 m² day grab from the central point of a 500 m grid of 9 stations, the latter being sampled for contaminant analyses only.

Marret & Scourse (2003) took surface sediments from seven stations located in the seasonally stratified, frontal and mixed water regions in the Celtic and Irish seas. They analysed them for their dinoflagellate cyst assemblages and dinosterol content. Sediment samples were collected at six stations in the Celtic Deep and one station in Tremadog Bay (muddy hollow) during nine cruises onboard the RV Prince Madog during 1999 and 2000.

Wilson *et al.* (2001) sampled benthic biodiversity in the area, but the exact location was not specified.

Schratzberger *et al.* (2004) studied the diversity and structure of meiobenthic nematodes and macrobenthic infauna from the subtidal Celtic Deep in relation to a number of measured environmental variables. Schratzberger *et al.* (2008) surveyed four stations at the Celtic deep for nematode and polychaete assemblages in muddy sediment. Robinson *et al.* (2011) predicted the distribution of biotopes in the Irish Sea which covered the area of the Celtic Deep and East of Celtic Deep. The abundance of harpacticoid copepods was significantly lower in the Celtic Deep than off the Tyne, off the Humber and in Dundrum Bay. Diversity of harpacticoid copepod assemblages was higher in the Celtic Deep compared with most other stations (Schratzberger *et al.* 2000).

Rogers *et al.* (2008) investigated two sample sites on offshore mud sediments in the Celtic Deep and North-western Irish Sea, and two sites on sand sediments in the Bristol Channel and Outer Carmarthen Bay during July 2004 and 2005.

During the period 2000 to 2006, Ellis *et al.* (2007a) carried out approximately 150 tows with a 2m-beam trawl during groundfish surveys of the South West offshore area. Catches along the edge of the continental shelf (130–350 m deep) were characterised by large numbers of the anemone *Actinauge richardi*, with the hermit crab *Pagurus prideaux* dominating on coarse grounds in shallower waters. The study described the spatial distribution of the epibenthic fauna.

In July 2004 and 2005 respectively Rogers *et al.* (2008) took sediment samples (sand habitats), benthic fauna and demersal fish in the Celtic Deep. The deep water (78–110 m) sediments of mud habitat sites in the Celtic Deep were thought to be influenced by the relatively low levels of tidal stress.

Field sampling was undertaken during four cruises from 2004–2007 by Ellis *et al.* (2007b) with each cruise targeting specific habitat types. Sampling included the mud habitat of the Celtic Deep and the shell-gravel habitat of the western English Channel.

Between June and November 2004–2006, line-transect surveys were conducted by Sea Watch Foundation over the Celtic Deep between SE Ireland and west Wales, in order to generate absolute abundance estimates for common dolphin (Evans *et al.* 2007). From a total of 2900km of line transect effort; there were 222 encounters of common dolphins (Evans *et al.* 2007). One of the largest ever known gatherings of Fin Whales in British waters was recently observed in the Celtic Deep during a seabird and cetacean research cruise by the Research Vessel *Cefas Endeavour* in May 2011 (see weblinks [here](http://www.marine-life.org.uk/fin-whale-discovery-in-celtic-sea-%28020611%29)²⁰ and [here](http://wildlifeneews.co.uk/2011/21-giant-fin-whales-spotted-off-coast-of-britain/)²¹).

²⁰ <http://www.marine-life.org.uk/fin-whale-discovery-in-celtic-sea-%28020611%29>

²¹ <http://wildlifeneews.co.uk/2011/21-giant-fin-whales-spotted-off-coast-of-britain/>

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.10d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.10e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.10d Specific assumptions and implications relating to Celtic Deep rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Bottom-towed fishing gear will not be allowed. This activity was discussed during the VA meetings, and it was determined that the activity would be prohibited in the whole site.	Direct implications: <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Northern Irish prawn vessels and numerous European activities occur in this site. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.

<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation.
<p>Aggregate extraction will not be allowed.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste from processing vessels and munitions.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that

<p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>the comment is unrealistic.)</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Excellent wind and wave resource area but unlikely to be developed in short or medium term due to distance from shore. Aviation Danger Area likely to exclude wind development.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs if mitigation measures are needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o
<p>Pelagic longlining, pelagic netting and pelagic trawls will be allowed to continue (for static gear, see previous).</p> <p>Mobile species (seabirds and cetaceans) not considered as features needing protection when the vulnerability assessment was carried out with JNCC specialists.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o One proposed power cable.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Four active and three inactive telecoms cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

Table II.3.10e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	Management: - Prohibition of fishing in the rMCZ Measure: - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty has been highlighted for this site:

- There have been conflicting statements as to whether or not the UN Convention on the Law of the Seas (UNCLOS) allows the permanent right to lay cables in the offshore outside of 12 nautical miles or whether this activity can be managed following MCZ designation.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site; others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *Pelagic gear*
 - As this site had previously been considered to provide protection for pelagic and mobile species, assumptions had been made that netting and longlining would not be permitted, and pelagic trawls would be permitted, but with mitigation against bycatch for seabirds.

- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'
- *Vulnerability Assessment*
 - Steering Group representatives voiced general concern over the process and outcome of the vulnerability assessments. This was mainly in relation to inshore sites, however, please refer to the Steering Group statement made in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

This rMCZ is located in a productive fishing area which is used by UK and non-UK vessels. The area supports a fishery for *Nephrops norvegicus*. As a result, this site is controversial with offshore fishing representatives. The reason for its inclusion in the network is the fact that it is the only location where reliable records of the FOCI habitat 'mud habitats in deep water' are located, and the area

was therefore recognised as unique and important for meeting the ENG. Conservation representatives have highlighted the additional ecological importance of the area, because of its high productivity and pelagic interest (there was discussion about adding draft conservation objectives for non-ENG listed mobile species). There is therefore good support for this site from conservationists. Because of the distance from shore, other sectors have voiced relatively few immediate concerns over the site, compared to other sites in the network.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Brown *et al.* (2003), Farrow and Fyfe (1988), Garrard (1977), Mackie *et al.* (1997), Pollock *et al.* (1997), and Scott *et al.* (2003).

Site map series

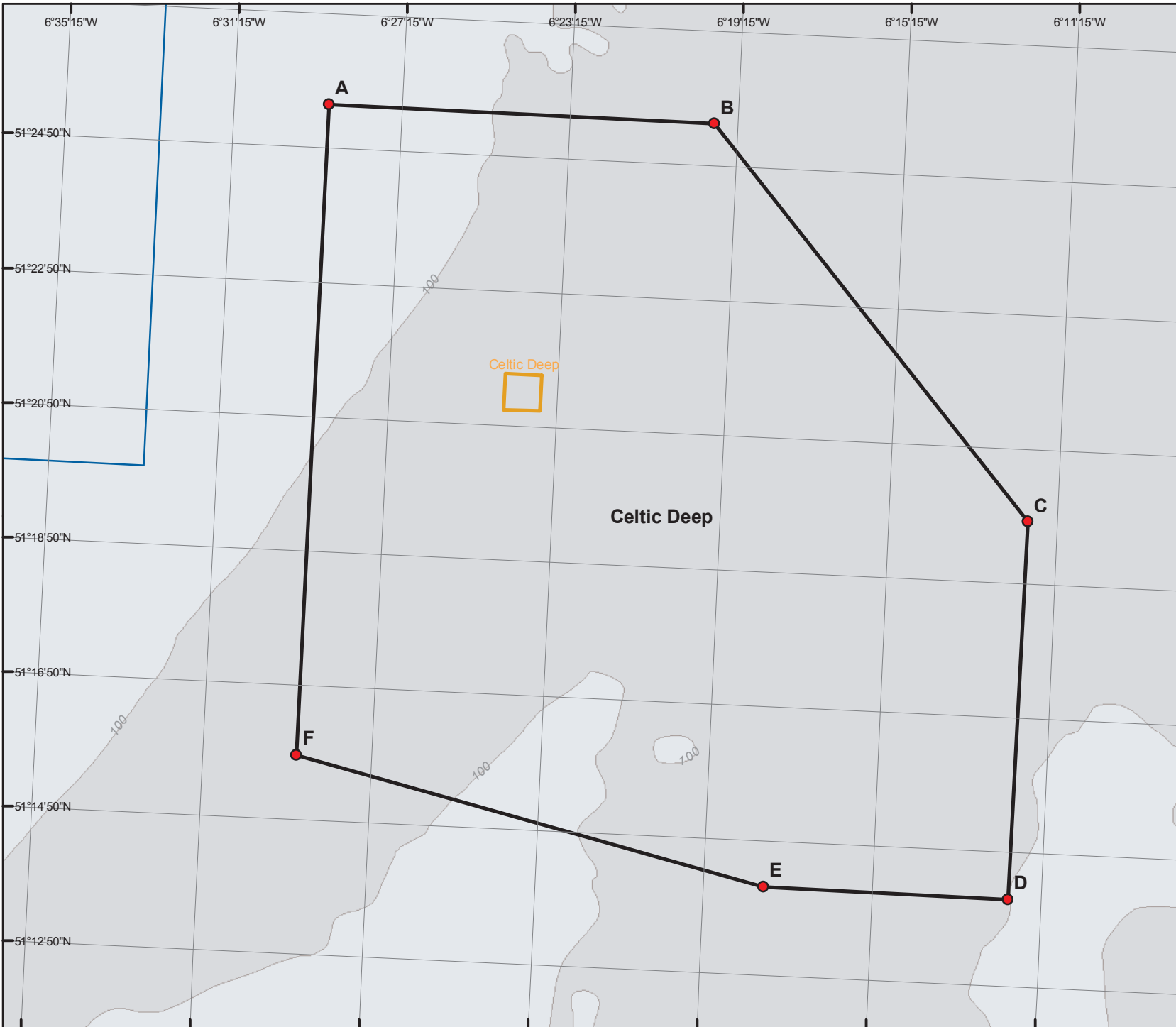
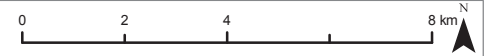
On the following pages there are three maps of this site.

- The first map (FR_018a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_018b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.10b and II.3.10c, data sources are indicated in the tables.
- The third map (FR_018c) shows KISCA cable routes and some other human activity information. It is zoomed out to include East of Celtic Deep rMCZ. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

Celtic Deep rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data License No. 002005.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.



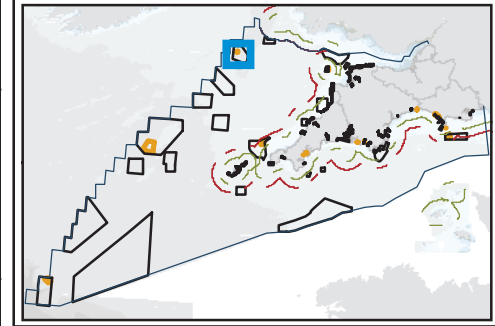
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	51.4250	-6.4831	51° 25' 30" N	6° 28' 59" W
B	51.4246	-6.3301	51° 25' 28" N	6° 19' 48" W
C	51.3294	-6.1991	51° 19' 45" N	6° 11' 56" W
D	51.2356	-6.2004	51° 14' 8" N	6° 12' 1" W
E	51.2361	-6.2971	51° 14' 9" N	6° 17' 49" W
F	51.2634	-6.4840	51° 15' 48" N	6° 29' 2" W

Map Legend

- UK Continental Shelf Limit
- Recommended MCZ (rMCZ)
- Recommended reference area

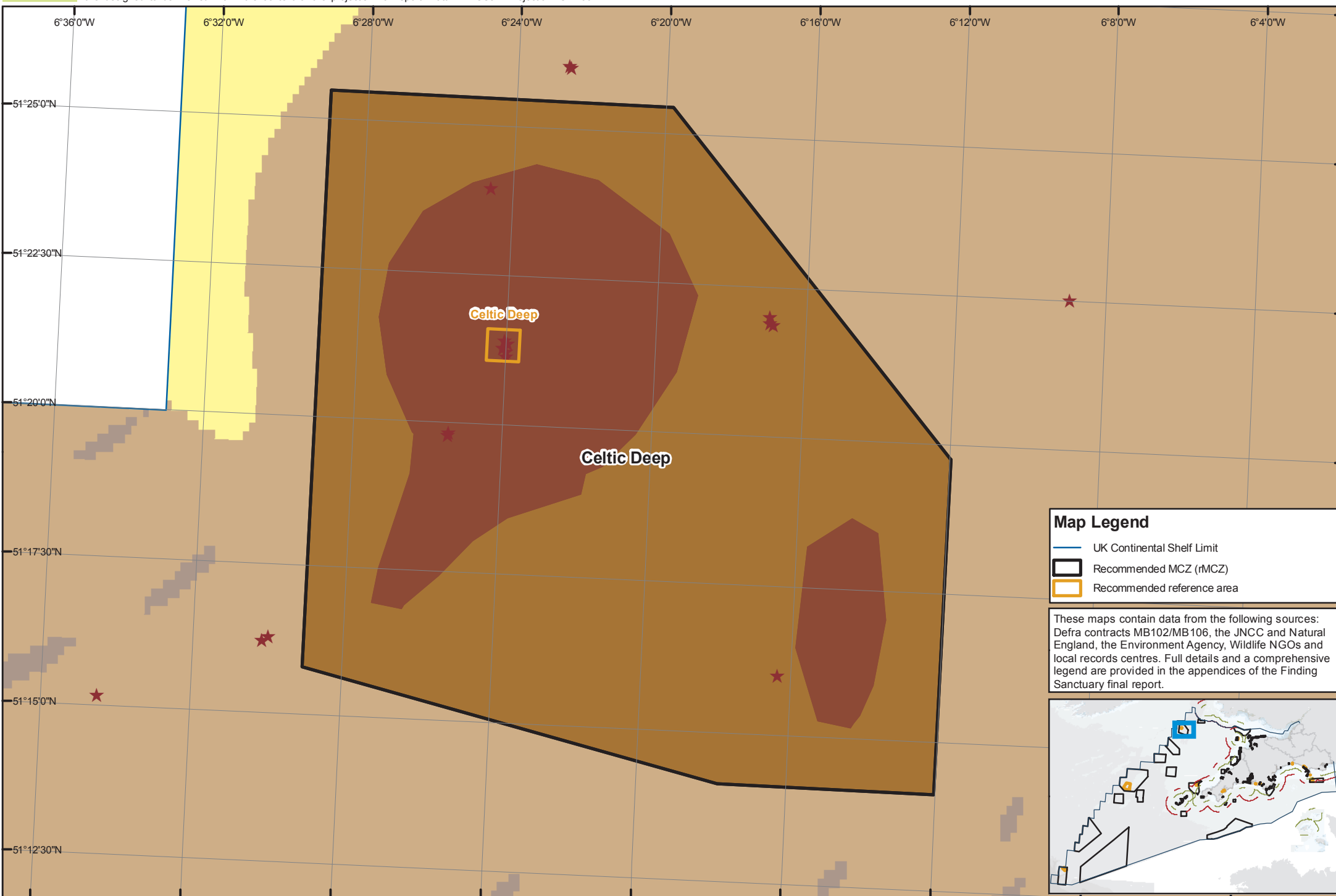
A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

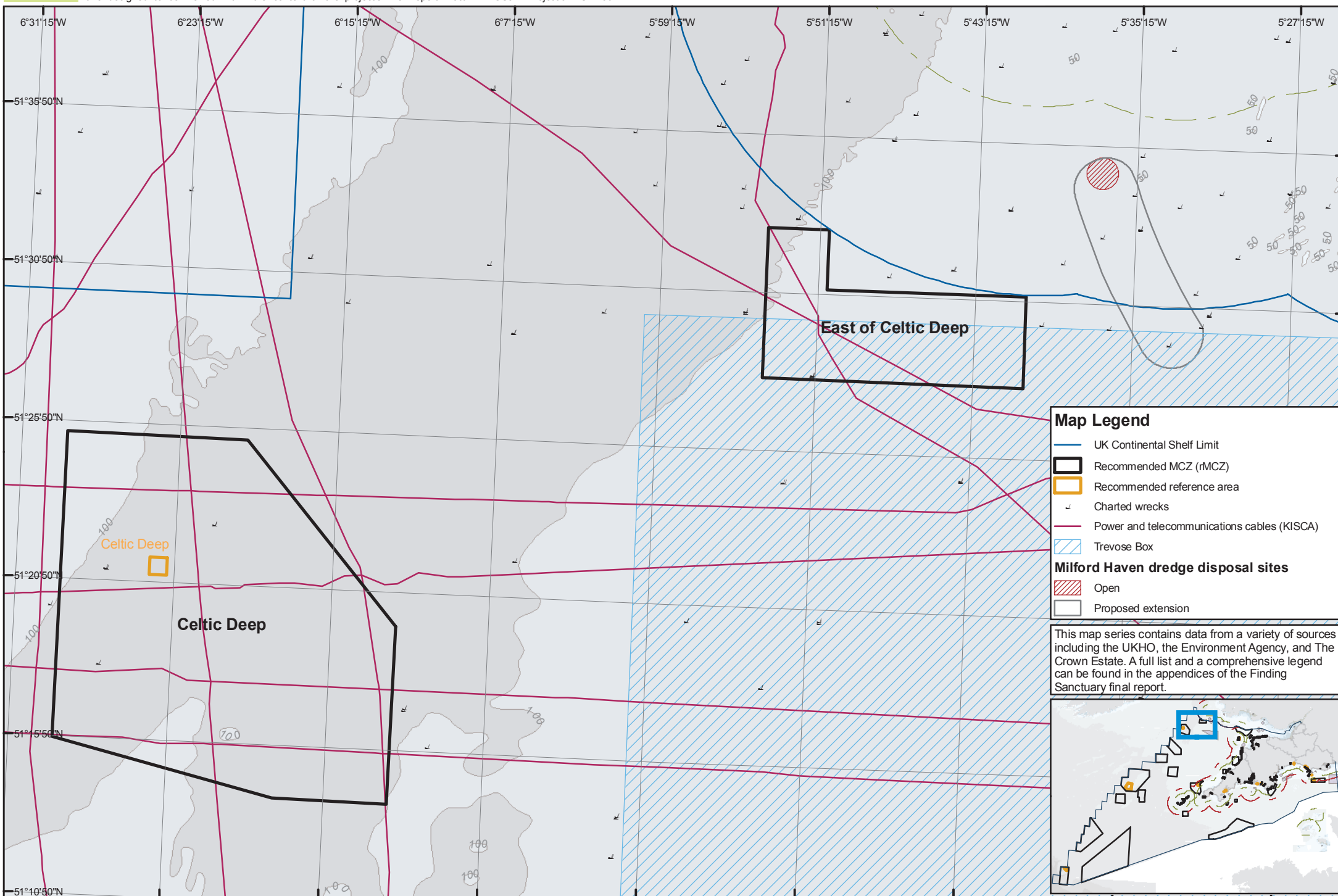
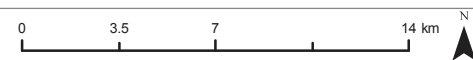
Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062006.004. Land basemap part
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0 3.5 7 km



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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II.3.11 East of Celtic Deep rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
51.4980	-5.7990	51° 29' 52" N	5° 47' 56" W

Site surface area: 94.9 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The northern boundary of this site abuts the 12nm limit off south Wales. Rather than tracing the curved boundary of the 12nm limit, the site has been squared off with straight north-south and east-west boundary sections.

Sites to which the site is related: The East of Celtic Deep rMCZ is approx 28km to the north-east of the Celtic Deep rMCZ. The Pembrokeshire marine SAC is approx. 14km to the north.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within East of Celtic Deep rMCZ

Table II.3.11a Draft conservation objectives for the East of Celtic Deep rMCZ. 'Maintain' = maintain in favourable condition, 'recover' = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Feature	Conservation Objective
Subtidal sand	recover
Subtidal mud	recover
Subtidal coarse sediment	recover

The inclusion of conservation objectives for seabirds and cetaceans on the conservation objective feature list for this site was discussed at length at the Joint Working Group meeting in May 2011, in the full understanding of SAP feedback following progress report 3, and the JNCC's position that they would not support conservation objectives for mobile species in offshore rMCZs. The JWG could not reach a conclusion on the matter.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.11b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal coarse sediment	0.71	<0.1%	1
Subtidal sand	84.01	0.3%	1
Subtidal mud	10.18	0.2%	1

Table II.3.11c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	94.90			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The site is approximately 40km south of the Pembrokeshire coast in Wales. The depth is within the 50m to 100m range, with the western edge dipping below the 100m depth contour. The seabed is characterised by subtidal sand, with a patch of mud. The site was included in the network because of its contribution to ENG criteria to broad-scale habitat targets, and its added ecological importance. It is in an area where frontal systems occur during the summer months, indicating high productivity. Offshore bird observation data indicates this as an important aggregation area for a number of seabird species year-round; and is of particular importance for wintering birds.

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

Wilson *et al.* (2001) sampled benthic biodiversity in the area, but the exact location is not defined. Robinson *et al.* (2011) predicted the distribution of biotopes in the Irish Sea which covered the area of the Celtic Deep and East of Celtic Deep.

During the period 2000–2006, Ellis *et al.* (2007a) carried out approximately 150 tows with a 2m-beam trawl during groundfish surveys of the South West offshore area. Catches along the edge of the continental shelf (130–350 m deep) were characterised by large numbers of the anemone *Actinauge richardi*, with the hermit crab *Pagurus prideaux* dominating on coarse grounds in shallower waters. The study described the spatial distribution of the epibenthic fauna.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.11d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process. The assumptions recorded for this site changed significantly through the planning, as the pre-cursor to this site was discussed as a site where only seabirds would be protected, not the seafloor.

Following that, table II.3.11e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.11d Specific assumptions and implications relating to East of Celtic Deep rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Bottom-towed fishing gear will not be allowed. This activity was discussed during the VA meetings, and it was determined that the activity would be prohibited in the whole site.	Direct implications: <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Northern Irish prawn vessels and numerous european activities occur in this site. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.

	<p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o The westward shift of the site from its previous location has implicated higher levels of fishing activity.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation
<p>Aggregate extraction will not be allowed.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste from processing vessels and munitions.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Excellent wind energy resource but unlikely to be developed in short term. o Medium wave energy resource but unlikely to be developed in short term.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p> <p>Pelagic trawls will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs if mitigation measures are needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o <p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Two active telecoms cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

Table II.3.11e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	Management: - Prohibition of fishing in the rMCZ Measure: - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty has been highlighted for this site:

- There have been conflicting statements as to whether or not the UN Convention on the Law of the Seas (UNCLOS) allows the permanent right to lay cables in the offshore outside of 12 nautical miles or whether this activity can be managed following MCZ designation.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Fishing*
 - This site is located in an area of high fishing activity.
- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *Pelagic gear*
 - As this site had previously been considered to provide protection for pelagic and mobile species, assumptions had been made that netting and longlining would not

be permitted, and pelagic trawls would be permitted, but with mitigation against bycatch for seabirds.

- *Disposal*
 - This site originally intersected with an area adjacent to the Milford Haven disposal site which was likely to be impacted by deposition and so it was agreed to move the site west to avoid mud habitat and the Milford Haven disposal site.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'
- *Vulnerability Assessment*
 - Steering Group representatives voiced general concern over the process and outcome of the vulnerability assessments. This was mainly in relation to inshore sites, however, please refer to the Steering Group statement made in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The site is controversial with offshore fishing interests. It was moved east from the location of its pre-cursor site, in order to avoid impacts from or conflicts with a disposal site for dredged materials from Milford Haven. There are plans to expand the disposal site. The move meant the site had better support from a cross-section of stakeholders who were concerned about the disposal site, but it moved the site into an area that is fished more heavily.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MESH, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Garrard (1977).

Site map series

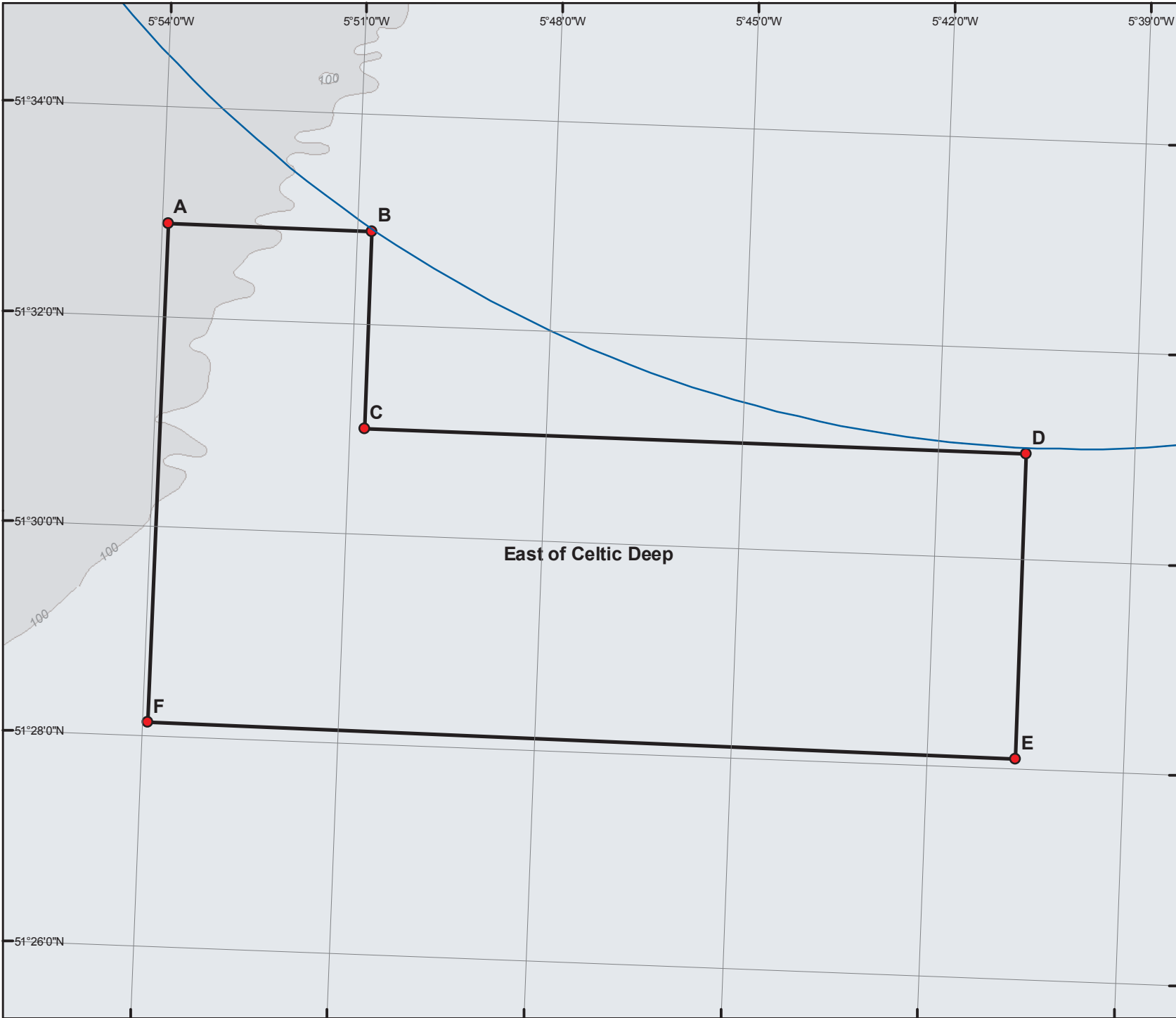
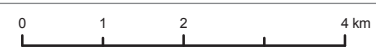
On the following pages there are two maps of this site.

- The first map (FR_019a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_019b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.11b, data sources are indicated in the table.
- Most rMCZ site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site (except for fisheries information, which is included in the interactive PDF maps supplied with the additional materials listed in appendix 14). Cables running through this site, and the current and planned Milford Haven dredge disposal site to the east of this rMCZ, are shown on map FR_018c, in the Celtic Deep rMCZ site report.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

East of Celtic Deep rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data License No. 062005.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.



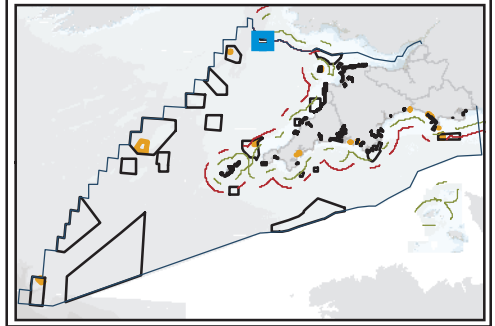
Lat/Long Co-ordinates (WGS84)

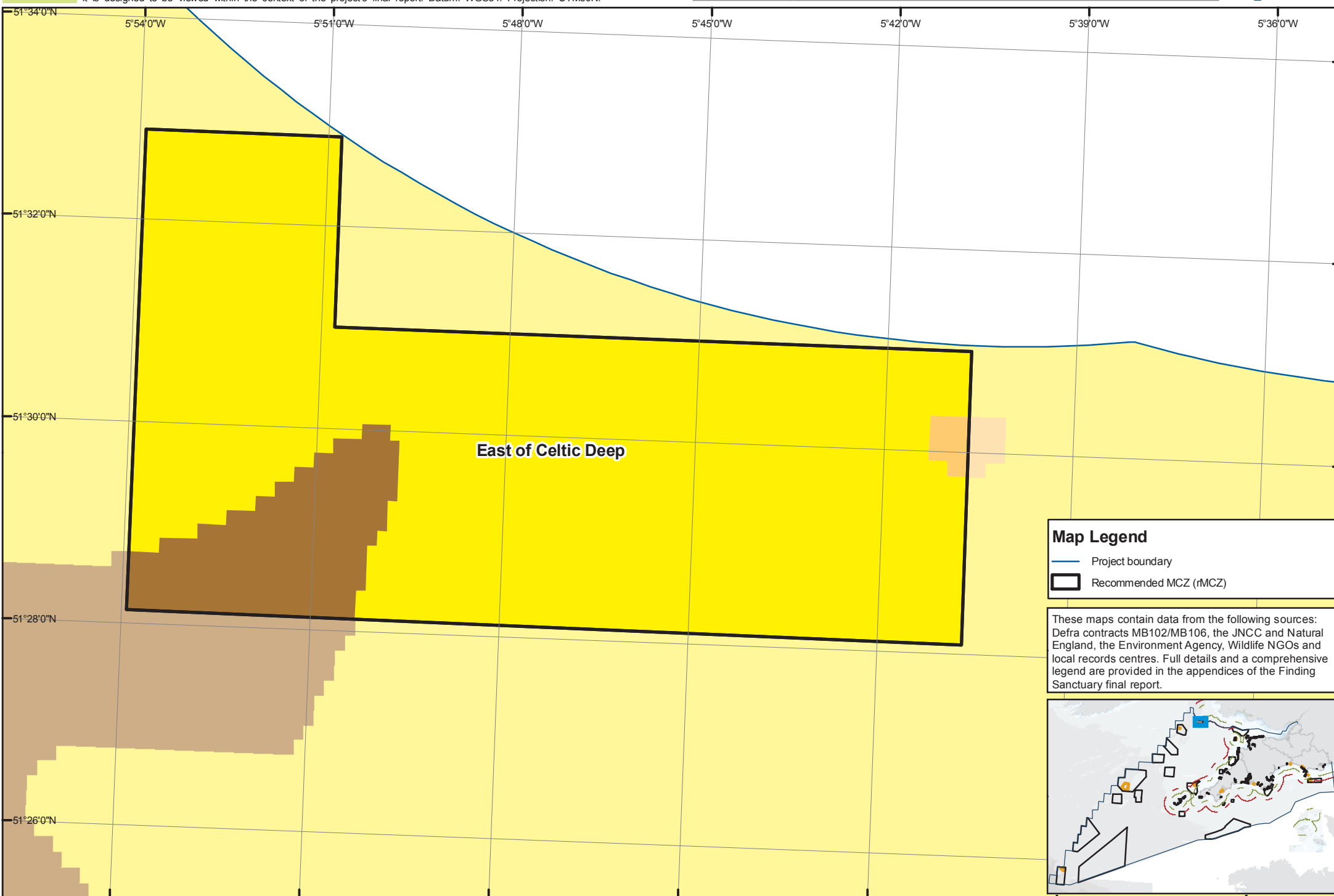
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	51.5483	-5.8983	51° 32' 53" N	5° 53' 53" W
B	51.5482	-5.8463	51° 32' 53" N	5° 50' 46" W
C	51.5168	-5.8463	51° 31' 0" N	5° 50' 46" W
D	51.5168	-5.6776	51° 31' 0" N	5° 40' 39" W
E	51.4683	-5.6775	51° 28' 5" N	5° 40' 39" W
F	51.4689	-5.8985	51° 28' 7" N	5° 53' 54" W

Map Legend

- Project boundary
- Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





II.3.12 Western Channel rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
49.4186	-4.8071	49° 25' 6" N	4° 48' 25" W

Site surface area: 1,613.5 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: On the boundary between Region III: Celtic Waters, and Region II: Greater North Sea

Site boundary: The southern boundary of the site follows the UK Continental Shelf Limit. The other boundaries have been drawn to include an area of higher than average benthic biodiversity, to avoid overlap with the Mid-Channel Potting Agreement area to the east, and to maximise overlap with busy shipping areas in the Channel.

Sites to which the site is related: The Western Channel rMCZ does not overlap with any existing protected areas. The nearest other rMCZ is the South of Falmouth rMCZ, approximately 36km to the north.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Western Channel rMCZ

Table II.3.12a Draft conservation objectives for the Western Channel rMCZ. 'Maintain' = maintain in favourable condition, 'recover' = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Feature	Conservation Objective
Subtidal coarse sediment	recover
Subtidal mixed sediments	recover
Moderate energy circalittoral rock	recover

The inclusion of conservation objectives for seabirds and common dolphins on the conservation objective feature list for this site was discussed at length at the Joint Working Group meeting in May 2011, in the full understanding of SAP feedback following progress report 3, and the JNCC's position that they would not support conservation objectives for mobile species in offshore rMCZs. The JWG could not reach a conclusion on the matter.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within

the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.12b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy circalittoral rock	676.23	3.6%	1
Subtidal coarse sediment	756.20	2.6%	1, 2
Subtidal mixed sediments	175.42	4.9%	1

Table II.3.12c FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	1038.75			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The northern tip of the Western Channel rMCZ is located approximately 54km to the south-east of the Lizard Peninsula. The site depth of the seabed is in the 50-100m range, with the western end of the site dipping below the 100m contour. The seabed habitat is characterised by coarse sediment, rock and mixed sediment. There is anecdotal evidence (supported by VMS data showing bottom-towed fishing gears being used) that the rock habitat here consists of cobbles, not bedrock. The area is of additional ecological importance, in that it is an area of productive frontal systems, of importance for seabirds and cetaceans (reflected in the data mapped on maps FR_081).

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

Wilson *et al.* (2001) sampled benthic biodiversity in the area, but the exact location is not defined. Field sampling was undertaken during four cruises from 2004–2007 by Ellis *et al.* (2007b) with each cruise targeting specific habitat types. Sampling examined included the mud habitat of the Celtic Deep and the shell-gravel habitat of the western English Channel.

During the period 2000–2006, Ellis *et al.* (2007a) carried out approximately 150 tows with a 2m-beam trawl during groundfish surveys of the South West offshore area. Catches along the edge of the continental shelf (130–350 m deep) were characterised by large numbers of the anemone *Actinauge richardi*, with the hermit crab *Pagurus prideaux* dominating on coarse grounds in shallower waters. The study described the spatial distribution of the epibenthic fauna.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.12d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.12e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.12d Specific assumptions and implications relating to Western Channel rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Bottom-towed fishing gear will not be allowed.</p> <p>This activity was discussed during the VA meetings, and it was determined that the activity would be prohibited in the whole site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Implications from loss of ground around previous 3 sites, which has increased impacts to fleet. o The South West Fishing Industry MCZ planning group has concerns that the new proposed Western Channel site has increased in area compared to the 3 previously proposed sites. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.

<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation.
<p>Aggregate extraction will not be allowed.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste from processing vessels and munitions.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area (in particular, static gear which impacts on the sea floor). Current levels are assumed to be ok.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There are important potting grounds in the Western Channel o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor

	<p>confidence in renewables activities.</p> <ul style="list-style-type: none"> o Increased competition for sea space with other sea users. o Good wind and wave resource area but unlikely to be developed in short or medium term.
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Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs if mitigation measures are needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o
<p>Pelagic trawls will be permitted.</p> <p>Mobile species (seabirds and cetaceans) not considered as features needing protection when the vulnerability assessment was carried out with JNCC specialists</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Three active and fifteen inactive telecoms cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

Table II.3.12d VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	Management: - Prohibition of fishing in the rMCZ Measure: - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty has been highlighted for this site:

- There have been conflicting statements as to whether or not the UN Convention on the Law of the Seas (UNCLOS) allows the permanent right to lay cables in the offshore outside of 12 nautical miles or whether this activity can be managed following MCZ designation.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Fishing*
 - This site is important to almost twenty fishing vessels from South Normandy and would have massive economic impacts on the Belgian fishing fleet.
 - This is an area of high fishing activity and after the original three sites were combined into one there are further implications in that there are no trawl corridors for boats to navigate through and so boats will have to lift their gear to pass through the site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
 - This site is used by vessels from Brixham, Plymouth, Newlyn for beam trawling and scallop dredging. It is also used by French trawlers and Belgian beam trawlers and is a commercially productive site.
- *Pelagic gear*
 - As this site had previously been considered to provide protection for pelagic and mobile species, assumptions had been made that netting and longlining would not be permitted, and pelagic trawls would be permitted, but with mitigation against bycatch for seabirds.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'

- **Vulnerability Assessment**
 - Steering Group representatives voiced general concern over the process and outcome of the vulnerability assessments. This was mainly in relation to inshore sites, however, please refer to the Steering Group statement made in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

This site is located in a productive fishing area, and an area of additional ecological importance (pelagic productivity, seasonal fronts). It is supported by conservationists, and forms an important contribution to the ENG in terms of connectivity and its additional ecological importance. The elongated shaping of the site was an attempt to align the site with shipping lanes in the Channel, in order to minimise impacts on fishermen. The boundary was also adjusted to avoid overlap with the Mid Channel Potting Agreement areas, following feedback from fishing representatives. Nevertheless, the site remains controversial with offshore fishing interests.

During earlier discussions in the planning process, there had been some provisional acceptance from offshore fishing representatives that a site would be needed in this area in order to meet the ENG. Three separate sites were drawn at the time, and there was a recognition from fishing representatives that efforts had been made by the group to shape and locate them to lessen negative impacts (see progress report 3).

In order to make the site boundaries manageable, the project team suggested amalgamating the three sites into a single site, with much simplified boundaries, presenting two alternative options for the Joint Working Group to discuss early in 2011. The group agreed and chose the current rMCZ, as it would be more enforceable, and make the site ecologically more viable (lower edge-to-area ratio). However, subsequently concerns about the amalgamation of the site were raised by the offshore fishing representative, who would have preferred the three separate sites, which would have had higher levels of support from fishing interests: After the original three sites were combined into one there are further implications in that there are no trawl corridors for boats to navigate through and so boats will have to lift their gear to pass through the site.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MESH, and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Dauvin *et al.* (1994), Garrard (1997), Holme (1966), Kaiser *et al.* (1998), Larssonner *et al.* (1982), Southward *et al.* (2005), Vallet & Dauvin (1998), and Zouhiri & Dauvin (1996).

Site map series

On the following pages there are three maps of this site.

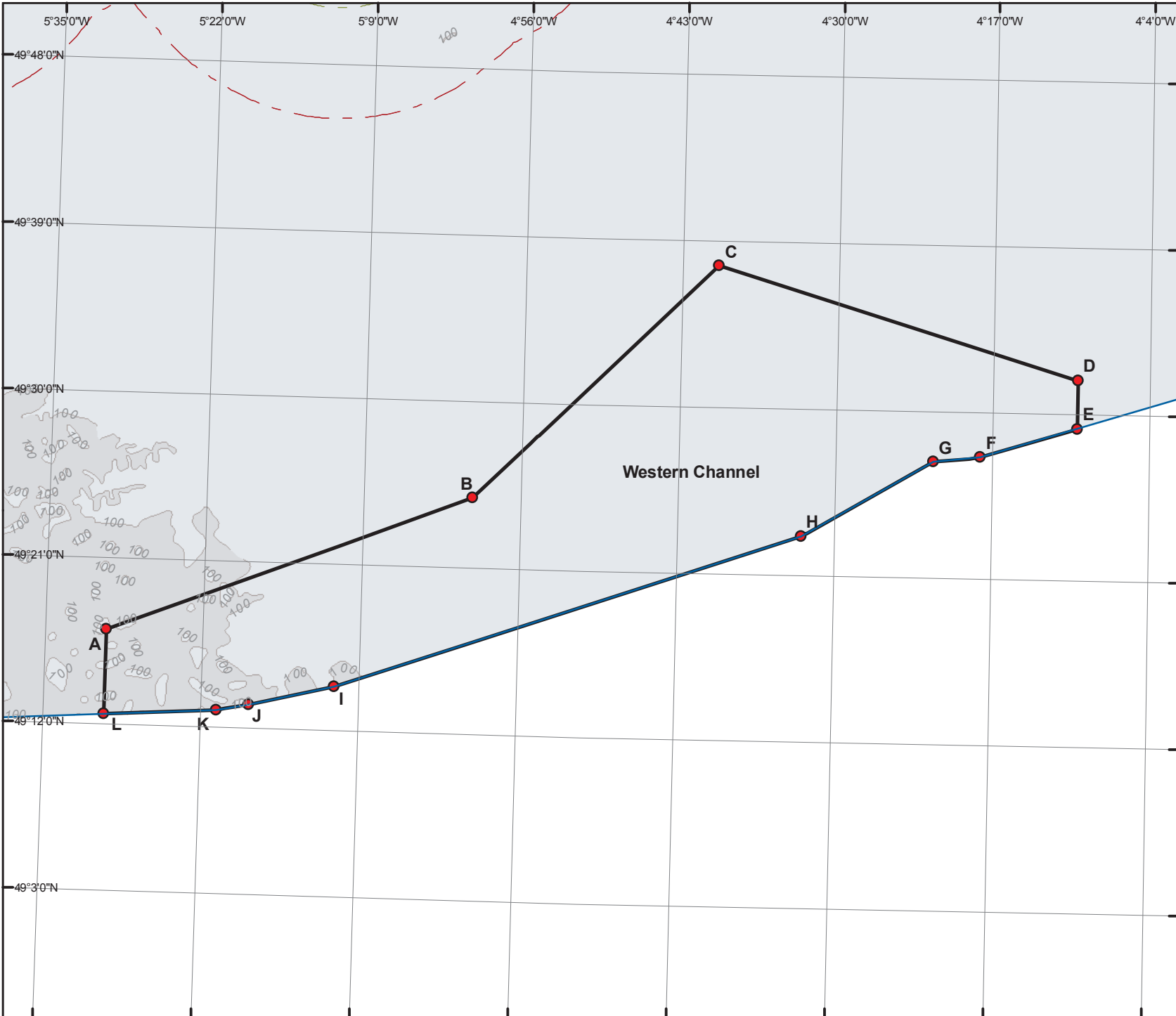
- The first map (FR_020a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_020b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.12b, data sources are indicated in the table.
- The third map (FR_020c) shows KISCA cable routes and some other human activity information, including areas of the Mid-Channel Potting Agreement to the east of this rMCZ. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

Western Channel rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062008.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 5 10 20 km



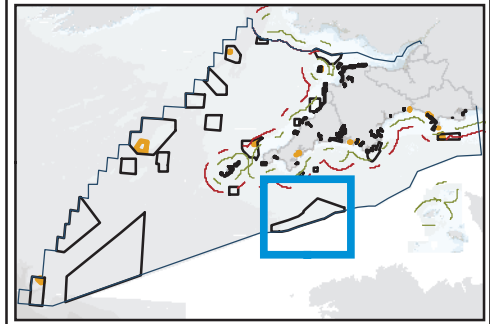
Lat/Long Co-ordinates (WGS84)

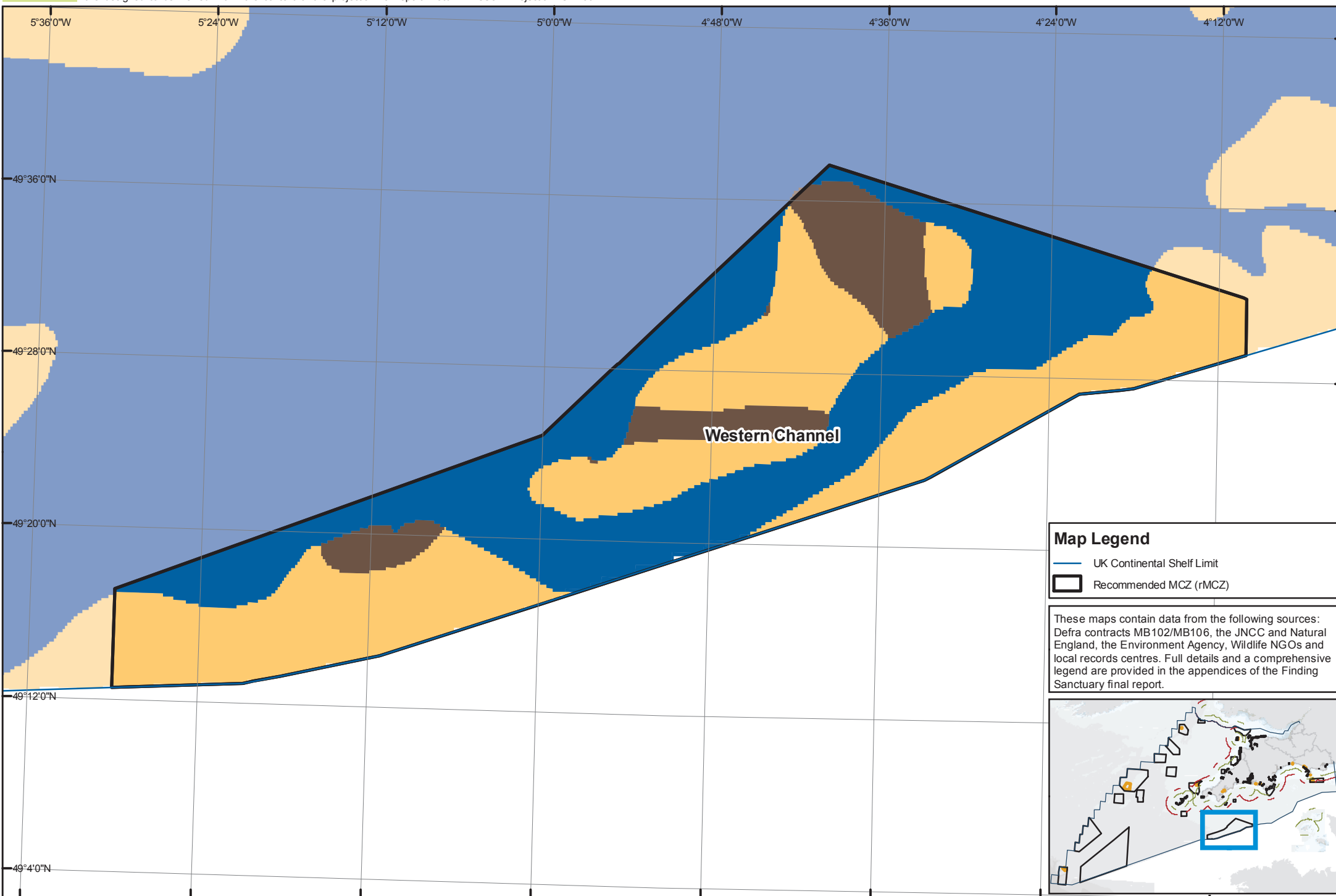
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	49.2855	-5.5000	49° 17' 7" N	5° 29' 59" W
B	49.4141	-5.0000	49° 24' 50" N	4° 59' 59" W
C	49.6284	-4.6667	49° 37' 42" N	4° 39' 59" W
D	49.5308	-4.1667	49° 31' 51" N	4° 9' 59" W
E	49.4872	-4.1667	49° 29' 13" N	4° 9' 59" W
F	49.4601	-4.2998	49° 27' 36" N	4° 17' 59" W
G	49.4554	-4.3642	49° 27' 19" N	4° 21' 51" W
H	49.3862	-4.5456	49° 23' 10" N	4° 32' 44" W
I	49.2401	-5.1848	49° 14' 24" N	5° 11' 5" W
J	49.2218	-5.3014	49° 13' 18" N	5° 18' 5" W
K	49.2157	-5.3459	49° 12' 56" N	5° 20' 45" W
L	49.2093	-5.5000	49° 12' 33" N	5° 29' 59" W

Map Legend

- UK Continental Shelf Limit
- 12 nautical mile limit
- Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

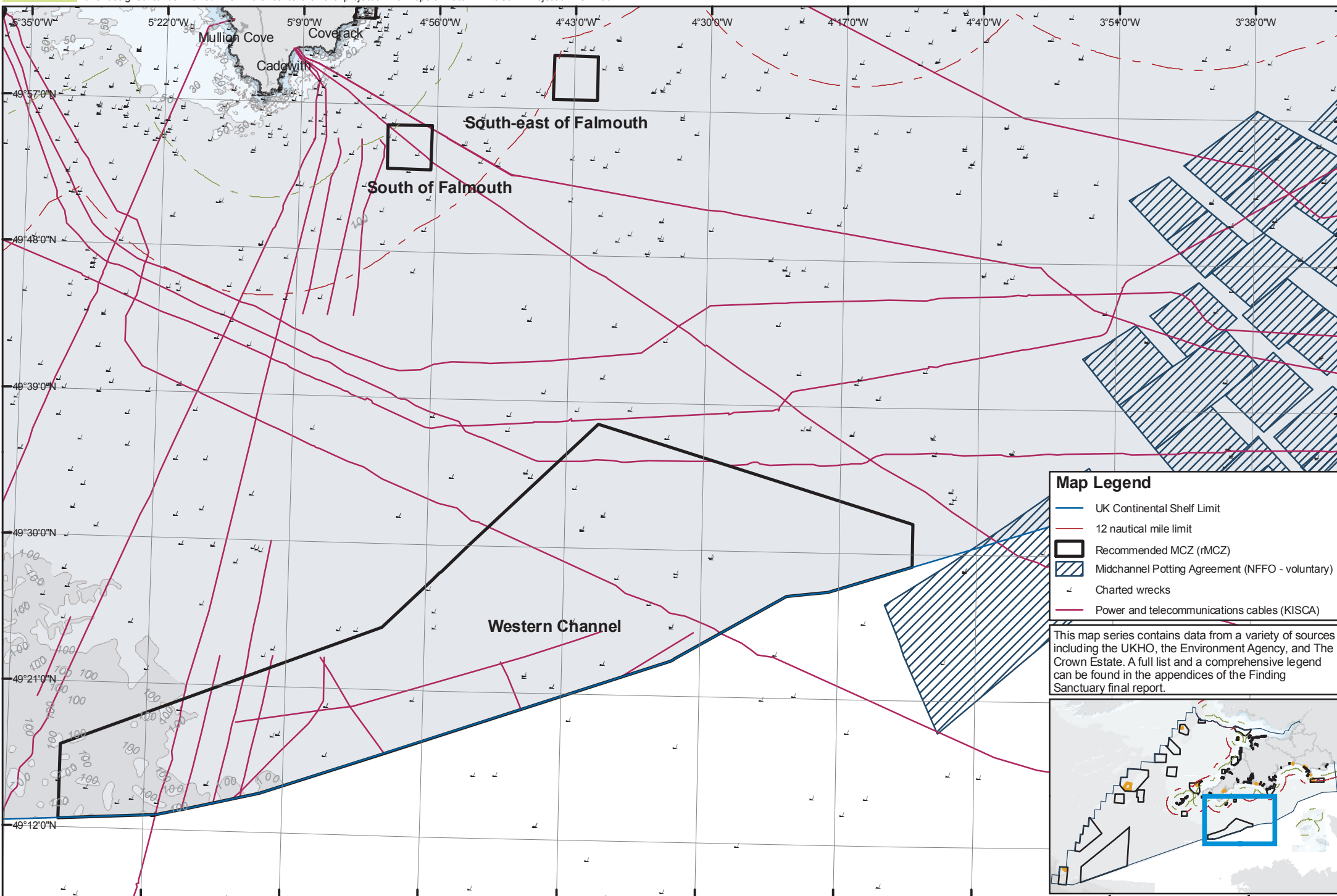




This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062008.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
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0 5 10 20 km



II.3.13 South of the Isles of Scilly rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
49.6902	-6.2122	49° 41' 24" N	6° 12' 43" W

Site surface area: 132.2 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The boundary of this site is a simple rectangle, in line with ENG guidelines. It is bisected by the 12nm limit.

Sites to which the site is related: The South of the Isles of Scilly rMCZ neighbours the Isles of Scilly Sites rMCZ (approx 15km to the north, inside the 6nm limit), and the Isles of Scilly Complex SAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within South of the Isles of Scilly rMCZ

Table II.3.13a Draft conservation objectives for the South of the Isles of Scilly rMCZ. 'Maintain' = maintain in favourable condition, 'recover' = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Feature	Conservation Objective
Subtidal sand	recover
Subtidal coarse sediment	recover

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.13b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal coarse sediment	115.21	0.4%	1
Subtidal sand	16.98	<0.1%	1

Table II.3.13c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	2.20			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

This site is located approximately 15km to the south of the Isles of Scilly. The depth is within the range of 50-100m, with the western tip dipping below the 100m contour. The site has been included in the network to meet ENG criteria for broad-scale habitats, and improve connectivity for sediment habitats. The seafloor is predominantly coarse sediment, with some patches of sand present.

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

A Fisheries Science Partnership survey of anglerfish (monkfish) was carried out in September and October 2007 off the SW coast of England, south and north of the Isles of Scilly. Beam trawlers *Billy Rowney* and *Twilight III* were chartered to repeat surveys carried out in 2003–2006.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved. This assumption applies to all activities.** Table II.3.13d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.13e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.13d Specific assumptions and implications relating to South of the Isles of Scilly rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot). Note that in PR3 this site was treated as an inshore site and had assumptions relating to activities such as bait digging, beach replenishment etc. These are not relevant and have been removed.

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Bottom-towed fishing gear will not be allowed.</p> <p>This activity was discussed during the VA meetings, and it was determined that the activity would be prohibited in the whole site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Well used by Newlyn beam trawlers and Plymouth scallopers as well vessels from other ports. It is used as a starting and finishing position for Newlyn based beam trawlers as well as scallop vessels. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity. <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o The SW Fishing Industry MCZ Planning Group has noted significant concerns over this site given the implied closure of a significant fishing ground.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation.
<p>Aggregate extraction will not be allowed.</p> <p>Activity not taking place / not taking</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in

place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	<p>MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence.</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste from processing vessels and munitions.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p>Based on SAP feedback the</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p>

<p><i>assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Excellent wind and wave energy resource area but unlikely to be developed as within the Traffic Separation Scheme.
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Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs if mitigation measures are needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o

<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what ‘prohibitively expensive’ means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o One active and four inactive telecoms cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

Table II.3.13e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	<p>Management:</p> <ul style="list-style-type: none"> - Prohibition of fishing in the rMCZ <p>Measure:</p> <ul style="list-style-type: none"> - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty has been highlighted for this site:

- There have been conflicting statements as to whether or not the UN Convention on the Law of the Seas (UNCLOS) allows the permanent right to lay cables in the offshore outside of 12 nautical miles or whether this activity can be managed following MCZ designation.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Fishing*
 - This site is important to almost twenty fishing vessels from South Normandy.
- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - This rMCZ straddles the 12 nautical mile limit. Part of this rMCZ is inshore (within territorial waters), but it lies beyond the 6 nautical mile limit, and partly outside the 12nm limit. There may be non-UK vessels with historical fishing rights in the area. For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are

applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'

- *Vulnerability Assessment*
 - Steering Group representatives voiced general concern over the process and outcome of the vulnerability assessments. This was mainly in relation to inshore sites, however, please refer to the Steering Group statement made in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The size of this site was halved from a previous suggestion, in order to accommodate fishing interests. The site remains controversial with UK and non-UK fishermen.

The Crown Estate highlighted that what were building blocks iL13 and iL20 are in an area with an active telecommunication cables interconnecting UK mainland overseas. Supportive with the assumption that MCZ designation would not restrict maintenance / repair of cables described.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site. Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](#)²².

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Garrard (1977), and Poulton *et al.* (2002).

Site map series

On the following pages there are three maps of this site.

- The first map (FR_021a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.

²² <http://jncc.defra.gov.uk/page-4>

- The second map (FR_021b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.13b, data sources are indicated in the table.
- The third map (FR_021c) shows cable routes and some other human activity information. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

South of the Isles of Scilly rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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0 2 4 km



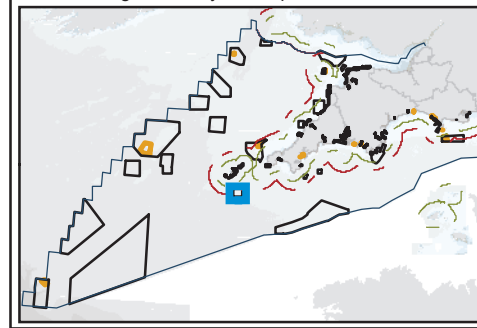
Lat/Long Co-ordinates (WGS84)

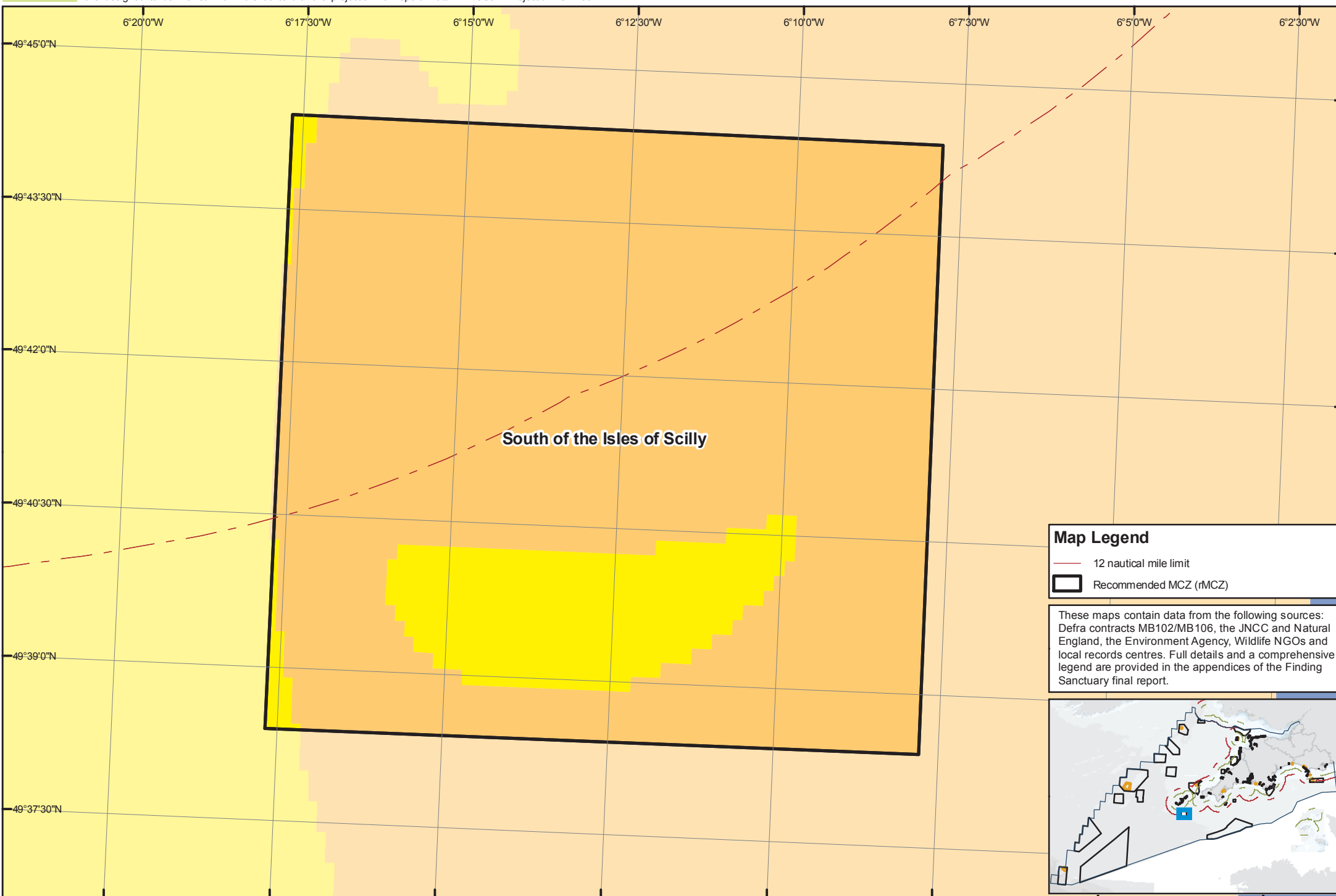
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	49.7405	-6.2943	49° 44' 25" N	6° 17' 39" W
B	49.7400	-6.1299	49° 44' 23" N	6° 7' 47" W
C	49.6403	-6.1297	49° 38' 25" N	6° 7' 46" W
D	49.6400	-6.2944	49° 38' 23" N	6° 17' 39" W

Map Legend

- 12 nautical mile limit
- Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

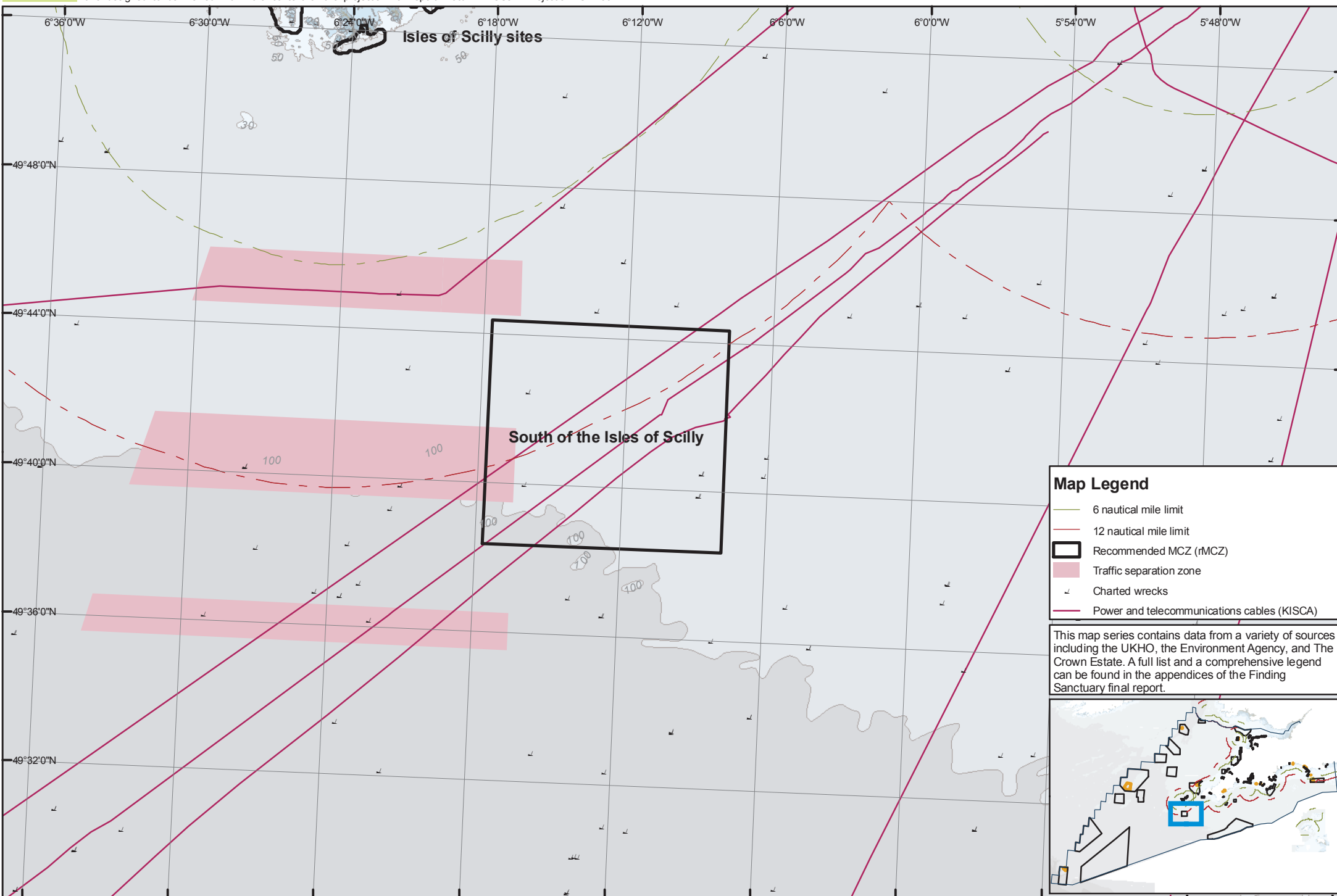
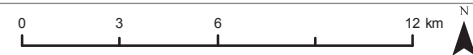




South of the Isles of Scilly rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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II.3.14 Poole Rocks rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.6865	-1.8860	50° 41' 11" N	1° 53' 9" W

Site surface area: 3.7 km² (calculated in ETRS89-LAEA)

Biogeographic region:

JNCC regional sea: Eastern Channel

OSPAR region: Region II: Greater North Sea

Site boundary: The shape of the site is a simple square. The site boundaries were drawn using N-S and E-W lines and a minimum number of nodes, in line with ENG guidelines. The site was situated on top of the Poole Rocks feature shown on Admiralty Charts.

Sites to which the site is related: Poole Rocks rMCZ does not directly overlap or adjoin any other existing protected area. It lies approximately 3km to the east of the Poole Harbour SPA, Poole Harbour SSSI, and Studland and Godlingston Heaths SSSI. It also lies approximately 4km north-east of the Studland to Portland draft SAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Poole Rocks rMCZ

Table II.3.14a Draft conservation objectives for Poole Rocks rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Broad-scale habitats	Subtidal mixed sediments		M
	Subtidal sand		M
	Moderate energy circalittoral rock ¹		M
Species FOCI	<i>Gobius couchi</i> ²	Couch's goby	M
	<i>Ostrea edulis</i>	Native oyster	M

¹ We have no data in our combined EUNIS level 3 GIS dataset for any rocky seafloor in this site, so there is no information about the spatial extent of this feature included in the quantitative tables below. However, the feature is included on the draft conservation objectives list on the basis of local knowledge that the rocky feature exists, including a statement from the IFCA who visited the site recently, dropped a camera, and found rocky habitat. The rock feature is also marked on nautical charts, and several references in the detailed site description refer to a rocky outcrop located within this site.

² There is only a single record of this species in our combined FOCI GIS dataset, and the species is difficult to identify. However, local knowledge indicates that the species is known to occur in Poole Bay, and that the habitat in this site is appropriate for it. Therefore, the single record is not regarded as spurious, and the species has been included on the draft conservation objective list.

There was a comment from Dorset Wildlife Trust which pointed out that there were several charted features on the site map which are shallower than 10m. Although this is a more turbid area than the rest of Dorset, the comment was that this shallow depth is still well within the depth range of infralittoral rock, so that it might be appropriate to add a conservation objective for infralittoral rock broad-scale habitat, in addition to the moderate energy circalittoral rock currently on the list.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.14b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal sand	2.73	<0.1%	1
Subtidal mixed sediments	1.01	<0.1%	1

Table II.3.14c FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	0.27			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.14d FOCI species recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Gobius couchi</i>	1		5
<i>Ostrea edulis</i>	6		1, 4, 5
<i>Lithothamnion corallioides</i> ¹	1		4

¹ There is a single record of this species of maërl present within the boundaries of this site. This was discussed during the vulnerability assessment, and given the wider environmental characteristics of the site, it was considered a likely erroneous record, or a small fragment of maërl washed in from elsewhere. The species was therefore not included on the list of draft conservation objectives for the site.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

Poole Rocks is an area of rocky outcrops within the sediment-dominated Poole Bay (Collins, 2005a, Royal Haskoning, 2008). The depth of the site is between 6 and 11 metres. The site is located approximately 2 – 2 ½ km to the east of the beachfront at Sandbanks. The site is included in the recommendations to contribute to the wider network design criteria outlined in the ENG, including the protection of the listed FOCI.

Detailed site description

Whilst being mainly sedimentary (silty sand and gravel), Poole Bay has a number of patch reefs supporting the local lobster fishery and sport angling (Collins, 2005a). Poole Rocks is mentioned as an area of hard seabed in Royal Haskoning (2008). Collins (2005a) describes Poole Rocks as clumps of fossilised trees, which are popular with divers and fishermen. Moderate energy circalittoral rock has been reported in the Poole Rocks area by Dorset Seasearch between 1995 and 2002. Sheltered muddy gravels have also been reported during 1995-2002 Dorset Seasearches and 2000 Seasearch Survey of Dorset (sourced from MB102).

Poole Rocks rMCZ is located within Poole Bay, an area within which several environmental studies have been carried out, looking at the seafloor habitats present, and assessing impacts of dredging in Poole Harbour. Some of this work is summarised in the following paragraphs. Whilst most of it relates to Poole Bay in general, rather than the specific location of the Poole Rocks rMCZ, it highlights relevant contextual information.

Poole Bay is within an area notified as a Sensitive Marine Area in recognition of its important subtidal habitats. Poole Bay and Swanage Bay consist of a gently sloping area of mixed sediment, with coarse shell gravel (*Crepidula fornicata* shells) occurring over large areas. There are also some areas of hard seabed, such as the Poole Rocks (Royal Haskoning, 2008).

Extensive dive surveys of Poole Bay have been carried out by Dr Ken Collins on behalf of Dorset Wildlife Trust, English Nature and others between 1999 and 2003. These surveys have mapped the distribution of key habitats within the Bay, including *Sabellaria spinulosa*, brittle star beds, maërl and seagrasses (Royal Haskoning, 2008).

Collins (2007; 2008) described the post-dredging studies undertaken in Poole Bay and Poole Harbour in 2006. Comparisons were made with previous, pre-dredging data: Sedimentation rate studies, *Eunicella verrucosa*, algal densities, and reef species. The author has undertaken numerous studies in Poole Bay over the past 2 decades. In 2005, to supplement this data, a number of pre-dredging studies (Collins, 2005b) were undertaken to provide a baseline for comparison post-dredging.

There have also been many studies on the artificial reef within Poole Bay that was constructed in 1989. Initial colonisation was rapid, with 80 species identified within two months (see Jensen *et al.* 1994). Mallinson *et al.* (1999) documented the colonisation of the Poole Bay artificial reef since its deployment in 1989, alongside the biota of natural patch reefs in Poole Bay. A study of 71 species found that they were still present on the Poole Bay artificial reef and natural reefs post-dredging of the Poole Harbour Approach Channel, indicating no detectable impact, including *Ostrea edulis*. *Ostrea edulis* has been recorded at Poole rocks by the Conchological society and Dorset Seasearches (1995-2002, 2008) (sourced from MB102). *Gobius couchii* was recorded from the Outer Poole patch in the 2009 Dorset Seasearch.

In 2004, two specimens of the pink seafan *Eunicella verrucosa* were discovered; one in central Poole Bay and a second on Southbourne Rough, both in the vicinity of previous finds of two more single robust specimens of the same species (Collins, 2005a, Wood, 2003).

Poole Harbour and Bay are considered by The Seahorse Trust to be very important areas for seahorses. There are four recent confirmed records of *Hippocampus hippocampus* (Garrick-Maidment, *pers. comm.*) from the Harbour and Bay, including one specimen washed ashore on Studland Bay (Royal Haskoning, 2008). Fishermen have reported catching seahorses within the South Deep of the Harbour and off Studland Bay (Royal Haskoning, 2008).

The distribution of sublittoral Mollusca in Poole Bay and off Purbeck was mapped following Conchological Society dredging trips in 1993 and 1994 (Light, 1994). Several other studies of benthos have been commissioned by British Petroleum and undertaken by Southampton University in Poole Harbour and Poole Bay (e.g. Jensen et al. 1990; Jensen et al. 1991).

A generic piece of feedback from members from the Dorset Local Group commented on the presence of maërl beds and *Sabellaria* within 3nm of the Dorset coastline, but neither the precise locations nor species (of *Sabellaria*) were cited (our GIS records indicate maërl beds and records of *Sabellaria spinulosa* in the area off Swanage, within the Studland to Portland draft SAC, but not within any rMCZ boundaries). Several local stakeholders also commented on the ecological importance of Poole Harbour (see Poole Bay site description in progress report 3). This was not added to the set of rMCZs, largely for socio-economic reasons.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities.

Table II.3.14e shows working assumptions and implications recorded for this site throughout the planning process. Poole Rocks rMCZ was a relatively late addition to the network. There was a larger site in previous versions of the developing network configuration, covering the whole of Poole Bay. Because of socio-economic concerns raised in feedback from the Local Group, the larger site was replaced with two smaller sites - Poole Rocks rMCZ and Studland Bay rMCZ (refer to the report from the 4th Joint Working Group meeting, and the Poole Bay site write up in the third progress report for more background). Most of the detailed work on recording assumptions and implications for the sites within the developing network configuration had already taken place before this site was added. Therefore, some of the content of table II.3.14e is based on what had previously been recorded for the precursor site (the one that covered the whole of Poole Bay). The working assumptions for the whole Poole Bay site included assumptions about shoreline activities; these have not been included here as Poole Rocks rMCZ is located away from the shoreline. Many of the assumptions and implications highlighted for this site are generic, and will apply to other rMCZs in the network as well.

Following that, table II.3.14f shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.14e Specific assumptions and implications relating to Poole Rocks rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Bottom towed fishing gear will not be allowed</p> <p>Activity deemed not to be taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen o Financial loss to beamers and trawlers o Displacement of bottom-towed gear o SWFPO and SWIFA members disadvantaged and displaced o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o Poole Bay is dredged for oyster seed, and there is a concern about loss of adult oysters to seed o Impacts on Poole Bay oyster aquaculture (currently harvested as licence condition) o Influx of predatory species (Brittlestars etc) o A concern was raised that no tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (this comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) It has also been countered by a fishing representative stating that the amount of static gear is in relation to fishing opportunities, quota etc and would not become excessive. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Some Local Group members are concerned about impacts on sand eel trawling and mussel spat collection, and would like these activities to continue to be permitted.

<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. o The Crown Estate and BMAPA provided feedback highlighting possible impacts on a nearby aggregate application area (Area 409). Potential for significant loss of capital asset equivalent to between £5.95M per km² of licence/option area restricted (resource valuation figures provided by The Crown Estate). Requirement for replacement resources elsewhere with significant development cost impacts and also potential production delays and operational costs if replacement is further from market. The Crown Estate suggested a buffer zone between the aggregate area and any rMCZ to avoid plume and smothering impacts (this is now effectively in place for this site, as the comment had been made based on a previous shape for a rMCZ covering the whole of Poole Bay, which was under discussion earlier in the process, but then got replaced by the much smaller Poole Rocks and Studland Bay rMCZs).
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem within the boundaries of this site, although the VA did discuss the disposal site near Swanage. The VA stated that it is expected that disposal of material at the site would be permitted with no additional mitigation likely to be required as a result of the rMCZ.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a closed disposal site in Poole Bay. This overlapped with the pre-cursor to this site, which was a large rMCZ covering the whole of Poole Bay, and which was subsequently replaced by the smaller Poole Rocks and Studland Bay rMCZs. When the larger site was under discussion, it was recorded that reopening of the Poole Bay disposal site would not be compatible with the assumptions as stated. o There is an open disposal site in Swanage Bay. This is over 5km from Poole Rocks rMCZ. When the larger rMCZ for the whole of Poole Bay was under discussion, concern

	<p>was voiced that if disposal operations are restricted in areas adjacent to an MCZ, then this will have significant impact on these activities.</p> <ul style="list-style-type: none"> o A conservation representative voiced concern over the possible impacts of plumes from disposal sites impacting on the site. o General comment from SNCBs: a set distance is likely to be required from the edge of MCZ area where this activity is likely to impact on the MCZ features. o Despite the statement coming out of the VA, there remains concern that, based on stakeholders' previous experiences, the licensing process will always require that the licensee will have to prove no significant adverse effect. This may well result in additional mitigation requirements. o If large quantities of material are placed on the Swanage disposal ground in a short period, there may be a temporary effect on the area of the Poole Rocks rMCZ. This is dealt with in the impact assessment that Poole Harbour Commissioners carried out prior to capital dredging in 2005/6 (Document supplied to FS). Therefore, depending on the detailed management measures required for this site, a constraint could be placed on certain aspects of PHC's statutory duties.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to the anchoring of large vessels). <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The location of this site is unlikely to cause problems to commercial vessels using Poole Harbour. Anchorage would not normally take place so far inshore. However the location could inhibit the operation of vessels engaged in routine beach nourishment on Poole and Bournemouth beach frontages. The boundaries may need to be reviewed to avoid unnecessary obstruction. o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings.

<p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Several stakeholder representatives have since stated that the comment is unrealistic.)</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o

a problem in this site, so this was not considered during the VA meetings	
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures and costs due to monitoring needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>This site is bisected by a possible cable route from the planned Eneco windfarm to the west of the Isle of Wight, the VA discussions considered this, no new management (beyond existing licensing) suggested, and the expectation was that the cable would be permitted.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o Round 3 Eneco Navitas possible cable route – a possible cable route from the Eneco Wind Park – runs through the middle of this rMCZ. It is expected that the cable would be permitted with no additional mitigation likely to be required as a result of the rMCZ. o There is no definition of what ‘prohibitively expensive’ means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at

	<p>a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology.</p> <ul style="list-style-type: none"> o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (currently, no heritage wrecks are present in the site)
<p>Anchoring of small vessels will be permitted.</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The area is used for recreational boating. There is concern around this activity being impacted. o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.14f VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to section II.2.1. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Tourism & Leisure	<p>Management:</p> <ul style="list-style-type: none"> - Best practice methods for anchoring recreational fishing boats should be promoted to recreational angling users of the rMCZ area via a Code of Conduct. <p>Measure:</p> <ul style="list-style-type: none"> - Voluntary Code of Conduct
Renewable Energy	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application to install a cable from the proposed Eneco wind park. It is expected that the cable would be permitted with no additional mitigation likely to be required as a result of the rMCZ. <p>Measure:</p> <ul style="list-style-type: none"> - Marine Licence
Disposal at Sea	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application for disposal of material at the Swanage Bay disposal site. It is expected that disposal of material at the site would be permitted with no additional mitigation likely to be required as a result of the rMCZ <p>Measure :</p> <ul style="list-style-type: none"> - Marine Licence

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty was recorded for this site:

- At the time the larger Poole Bay area was under discussion, uncertainties over the EUNIS Level 3 habitat data had been raised by local fishermen. The EUNIS level 3 broad-scale habitat maps underwent several significant updates off this area of Dorset, over the course of the project. Local stakeholders described the area as predominantly sediment, which tallies with the descriptions in the scientific literature (see detailed site description above). An intermediate version of the broad-scale habitat map (the December 2010 version of the JNCC's combined EUNIS level 3 habitat layer) had mapped much of the area as rock, which was down to a geological classification used by the Southern REC survey that considered areas to be 'rock' even when there was a layer of sediment on top of the rock. The final version of the map reclassified the areas where sediment 'veneers' are present, and the final map now shows most of the area as sediment - to the point that it has missed out genuine rocky outcrops such as the one in this rMCZ.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, and others were more generic comments which the project team consider to be relevant to this site. Progress report 3 lists a lot of stakeholder comments that related to the larger Poole Bay site that had previously been under discussion. Many of those comments encapsulate the reasons why the larger Poole Bay site got removed, to be replaced by Poole Rocks rMCZ and Studland Bay rMCZ. Some of these comments are included here, but most are no longer directly relevant to the final rMCZ, so they have not been repeated.

- *Beach replenishment*
 - Sediment plumes created by beach replenishment schemes need to be considered as a possible pressure upon the site. The Environment Agency previously highlighted concerns over the impacts of the larger Poole Bay site on beach replenishment schemes in the area, and they would still have concern if the current site impacted on those activities.
- *Mobile bottom-towed fishing gear*
 - Due to the crude resolution of fisheries activities mapping it is possible that the vulnerability of this site to bottom gears has been under estimated. This should be considered in the design of management measures for this site.
 - Seasonal closures are an inappropriate measure for benthic conservation.
 - There are ongoing conflicts between static gear and mobile gear fishermen in Dorset, with many static gear fishermen supportive of measures that exclude mobile gear vessels. Some fishermen would like to see mobile gears excluded entirely within 3nm. The larger Poole Bay site previously under discussion in this area had been particularly controversial, with strong opinions on both sides within the Local Group.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over
 - Improvements for the local economy
 - Education opportunities

- Benefits to science
 - Focus for voluntary groups
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc)
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Surf reef*
 - There is an artificial surf reef located to the east of Boscombe Pier (about 2.5 kilometres from Bournemouth Pier) and the submerged reef takes up approximately one hectare (the size of a football pitch) which is 225 metres from the shoreline. The reef mimics the effects of a natural reef and is built from large geo-textile bags pumped hard with sand.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.14.f (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context. For this specific rMCZ, levels of support are relatively high (meaning that stakeholder representatives either support it or can live with it), bearing in mind that the site is one of two small areas that replaced a much larger and much more contentious proposal for the whole of Poole Bay. The boundary alterations were carried out in response to feedback from the Local Group, in order to accommodate socio-economic concerns.

There had been a lot of conflict about the preceding site, mostly a reflection of conflicts between static and mobile fishing gear within Poole Bay. Broadly speaking, static gear representatives on the Local Group were in favour of the larger area, whereas mobile gear representatives were not. The Environment Agency and The Crown Estate had raised concerns over coastal activities in the larger area, including recreational activities, wastewater management, coastal defence and port activities,

and these are described in progress report 3. BMAPA had stated that they could live with the previous larger site, if the nearby aggregate extraction area was not affected.

The much smaller Poole Rocks rMCZ, put forward by the Local Group, has relatively less conflict. There are some possible remaining issues around whether or not recreational anglers will be allowed to anchor on the site or not (Poole Rocks is a popular angling spot). A potential cable corridor from the nearby planned Eneco wind park runs through the centre of the site, and any need to alter cable routes as a result of MCZ designation would be controversial with renewables developers – however, the latest feedback was that the cable route through this rMCZ was probably less likely to go forward than alternative cable routes in any case.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, SeaSearch 2009, and information provided by Dorset Environmental Records Centre. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Draft conservation objectives take local knowledge into consideration (as indicated in the table footnotes).

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional relevant information about Poole Bay (possibly including Poole Rocks) in Collins, 2004; Collins, 2005b; Collins, 2005c; Collins *et al.*, 2000; Holme, 1967; Jones & Pinn, 2006; Langston *et al.* 2003; and Marine Committee of the Dorset Trust for Nature Conservation, 1990. A full reference list is in appendix 9. Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](#)²³.

Site map series

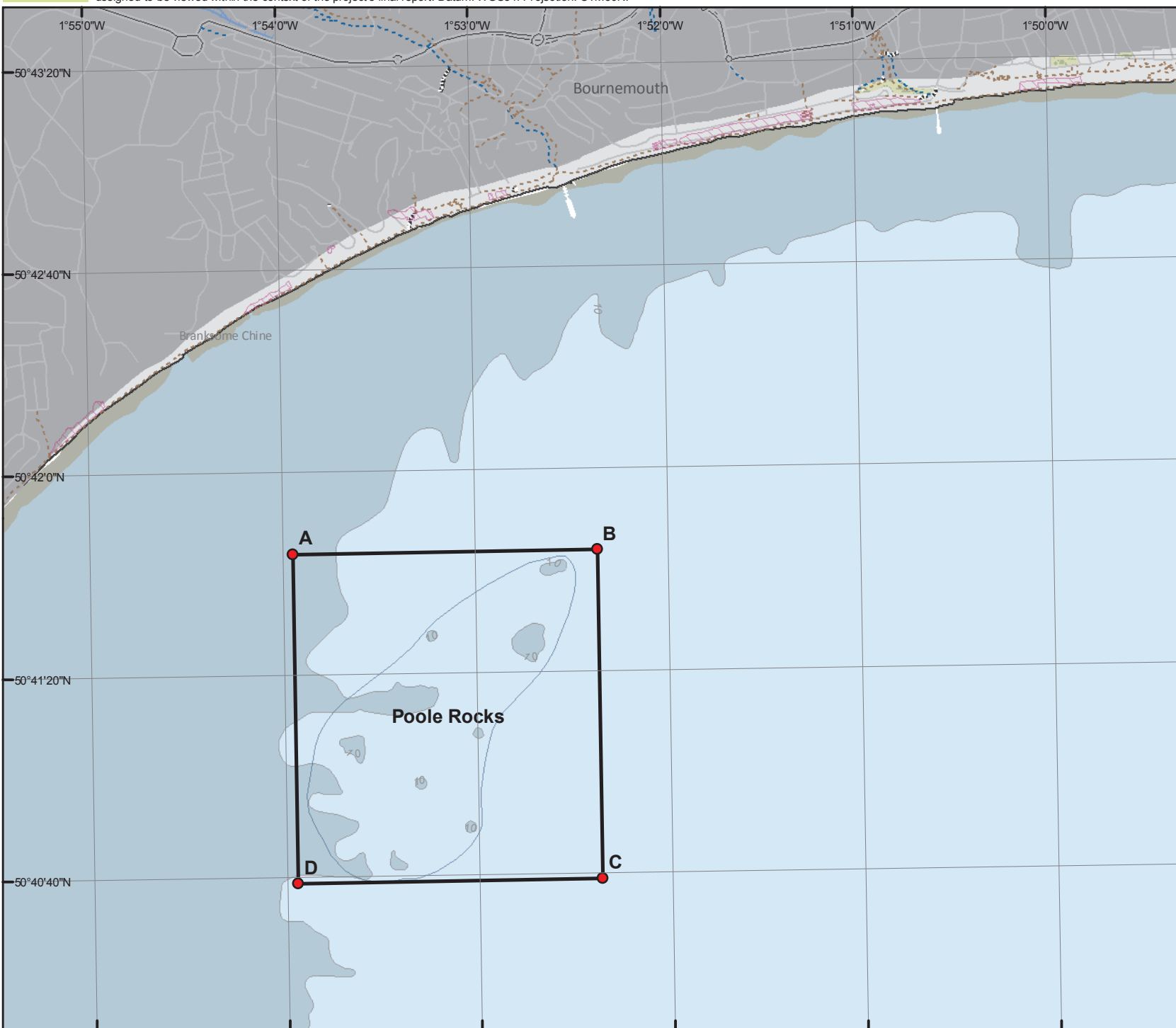
On the following pages there are three maps of this site.

- The first map (FR_022a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth (UKHO vector data), and existing MPAs (the sites listed in the gap analysis are all included). The charted Poole Rocks feature is also shown. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_022b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.14b and II.3.14d, data sources are indicated in the tables. As described above, the broad-scale habitats data on the map does not include any rocky seabed area within the site boundary, although there is evidence that rocky seabed is present.

²³ <http://jncc.defra.gov.uk/page-4>

- The third map (FR_022c) shows socio-economic datasets for this site and Studland Bay rMCZ. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

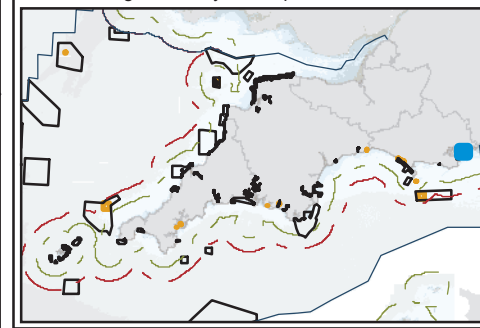
**Lat/Long Co-ordinates (WGS84)**

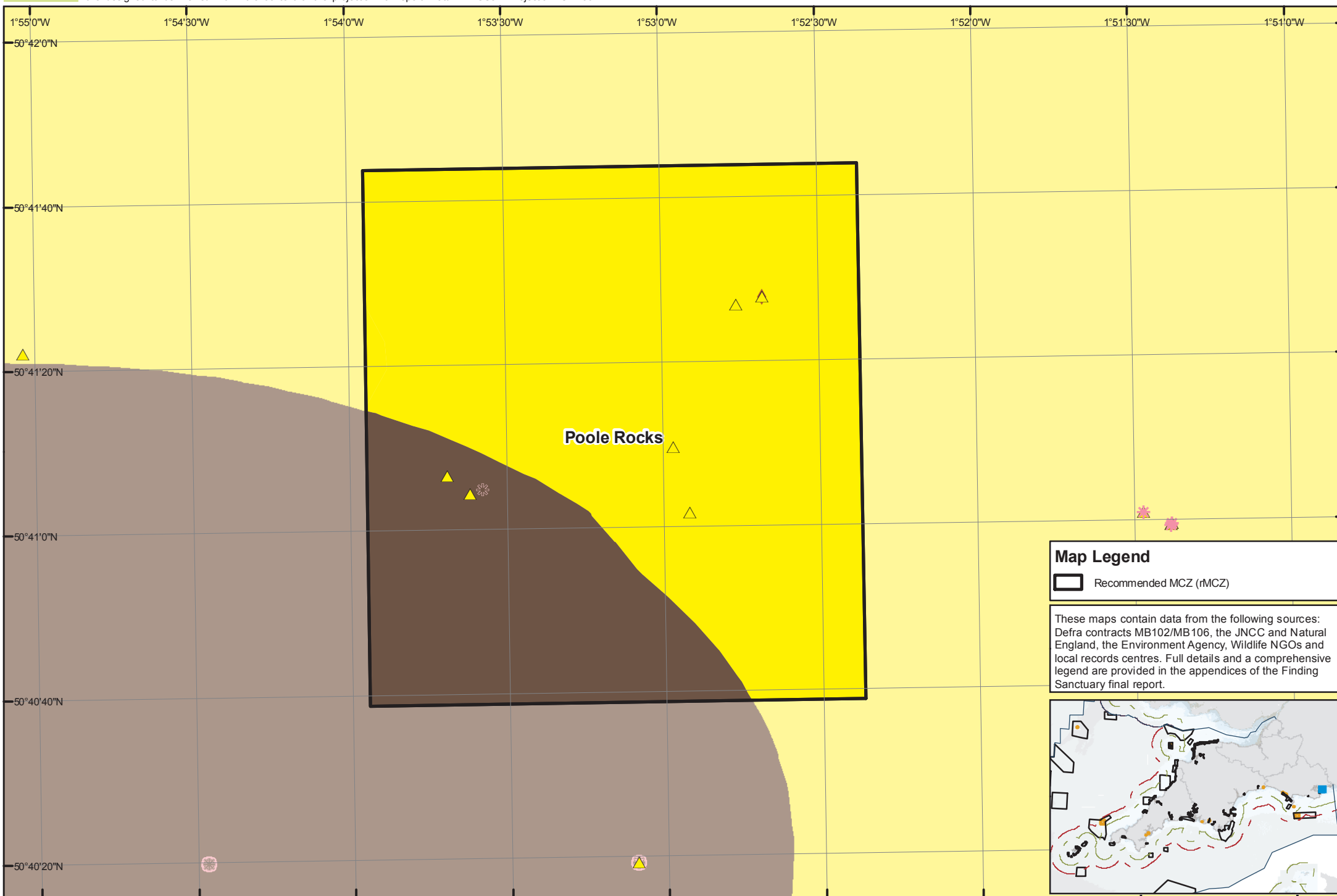
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.6955	-1.8992	50° 41' 43" N	1° 53' 56" W
B	50.6955	-1.8729	50° 41' 43" N	1° 52' 22" W
C	50.6774	-1.8728	50° 40' 38" N	1° 52' 22" W
D	50.6774	-1.8991	50° 40' 38" N	1° 53' 56" W

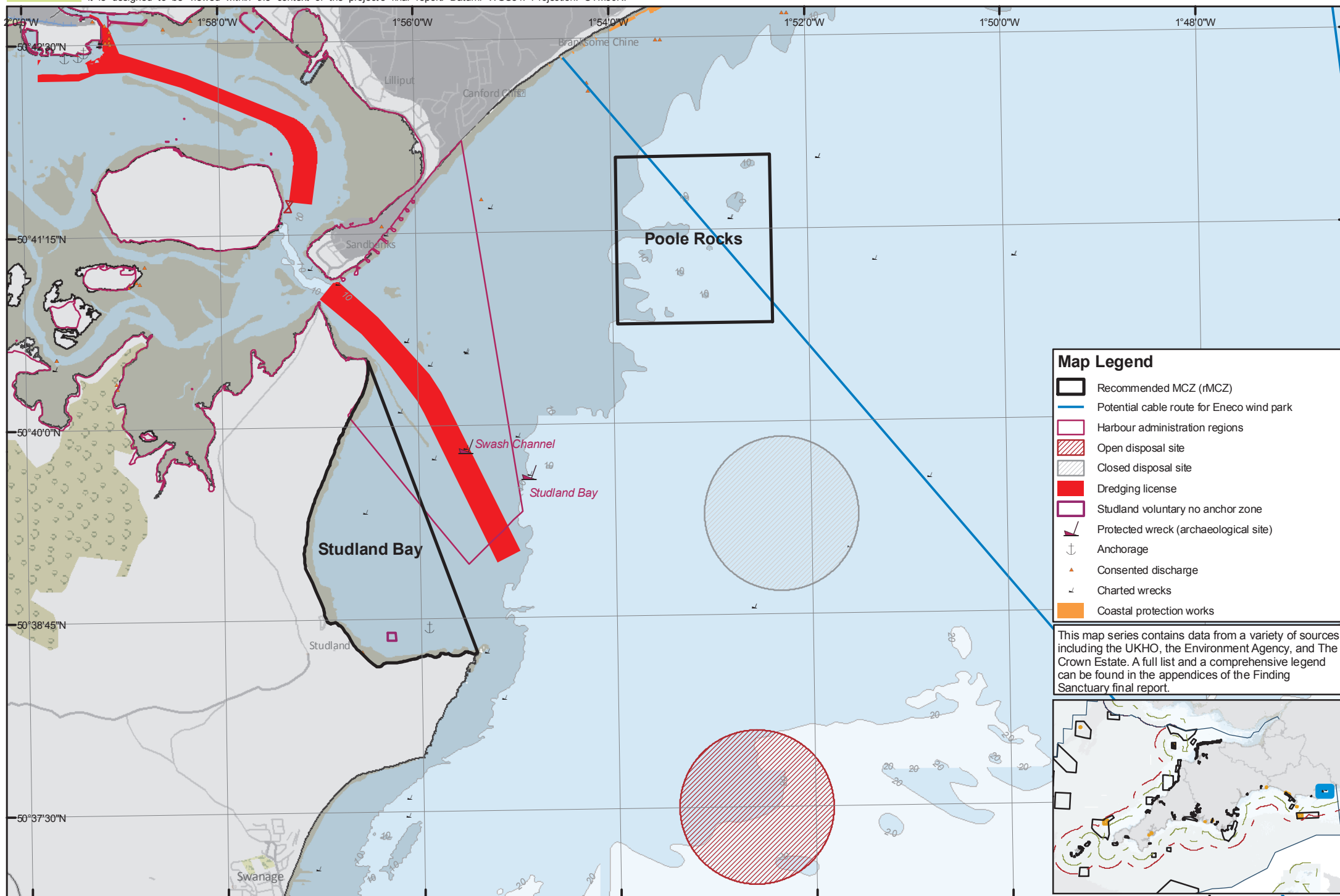
Map Legend

- Recommended MCZ (rMCZ)
- Named Sea Area (Poole Rocks)
- Existing MPAs**
- SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



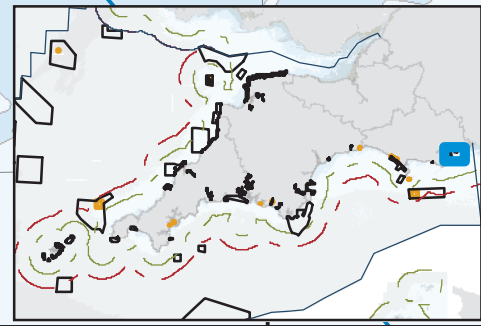




Map Legend

- Recommended MCZ (rMCZ)
- Potential cable route for Eneco wind park
- Harbour administration regions
- Open disposal site
- Closed disposal site
- Dredging license
- Studland voluntary no anchor zone
- Protected wreck (archaeological site)
- Anchorage
- Consented discharge
- Chartered wrecks
- Coastal protection works

This map series contains data from a variety of sources including the UKHO, the Environment Agency, and The Crown Estate. A full list and a comprehensive legend can be found in the appendices of the Finding Sanctuary final report.



II.3.15 Studland Bay rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.6535	-1.9401	50° 39' 12" N	1° 56' 24" W

Site surface area: 3.9 km² (calculated in ETRS89-LAEA)

Biogeographic region:

JNCC regional sea: Eastern Channel

OSPAR region: Region II: Greater North Sea

Site boundary: The site boundary follows the coastline up to the OS Boundary Line mean high water line, from Old Harry Rocks to the northern tip of Studland Bay (approximately 500m southeast of the ferry landing at South Haven Point). A straight line has been drawn between these two points to form the seaward boundary of the site.

Sites to which the site is related: Two SSSIs lie immediately landward of the site: Studland & Godlingston Heaths SSSI, and Studland Cliffs SSSI. The Isle of Portland to Studland Cliffs SAC lies landward of the site at the southern end of the bay, and the Studland to Portland draft marine SAC lies just to the south of the site. There is a voluntary no-anchor zone located at the southern end of the bay.

Maps of the site are included at the end of this site report. The main site map shows lat/long points along the site boundary, with coordinates (calculated in WGS84 UTM30N).

Features proposed for designation within Studland Bay rMCZ

Table II.3.15a Draft conservation objectives for Studland Bay rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Broad-scale habitats	Subtidal mixed sediments		M
	Subtidal sand		M
	Intertidal mud		M
	Intertidal sand and muddy sand		M
Habitat FOCI	Seagrass beds		R
Species FOCI	<i>Hippocampus hippocampus</i>	Short snouted seahorse	R
	<i>Ostrea edulis</i>	Native oyster	M
	<i>Raja undulata</i> ¹	Undulate ray	R

¹No quantitative information is included for this mobile FOCI species in the tables below, as the GIS data available was too coarse resolution to be meaningful (see appendix 8). However, the species has been included in the draft conservation objectives on the basis of local knowledge discussed during the working group meetings, confirmed by the Shark Trust survey referred to in the detailed site description below.

These draft conservation objectives were developed during the vulnerability assessment meetings (see part I). During those meetings, the data that was reviewed for the site (mainly GIS data from national contract MB102, see appendix 8) did not include any records for the long snouted seahorse *Hippocampus guttulatus*, and this is reflected in the tables below. Therefore, only one species of seahorse (*H. hippocampus*, the short snouted seahorse) was included on the draft conservation objective list. However, there are several published references stating that *H. guttulatus* is present in Studland Bay, and that the population present is an important breeding population (see detailed site description below).

Several conservation stakeholders have made strong statements to say that *H. guttulatus* should be added to the list of conservation objectives for the site. The addition of the second seahorse species would not go against the wider stakeholder discussions for Studland Bay, given that the protection of seagrass beds and associated fauna (especially seahorses) were the two main considerations that led the stakeholder group to include the site in the network, despite a history of local conflict over recreational boat anchoring and seagrass bed protection in the bay.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.15b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal sand	0.05	<0.1%	1
Subtidal mixed sediments	3.74	0.1%	1

Table II.3.15c Intertidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 - MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Intertidal sand and muddy sand	0.03	0.3%	4
Intertidal mud	0.11	<0.1%	3

Table II.3.15d FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Seagrass beds	0.91	6		1
Subtidal sands and gravels ¹	1.41			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.15e **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Hippocampus hippocampus</i>	1		1
<i>Ostrea edulis</i>	4		1, 4

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 3.69 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

Studland Bay is sandy, shallow (dropping to 5 m depth 2 km from the shore), and sheltered from the prevailing south-west winds, making it an ideal habitat for a dense seagrass bed of *Zostera marina*, which covers some 50ha as mapped by Collins *et al.* (2010). Finding Sanctuary's amalgamated GIS data indicates the seagrass beds to be even more extensive (91 ha – see table II.3.15d). The main reason for including this site in the network was to protect the seagrass bed FOCI, including the associated fauna (the site is recognised as important for seahorses), and its additional ecological importance as a juvenile habitat, including for the mobile FOCI species undulate ray (*Raja undulata*). Studland Bay is located off the southern edge of the Wytch Farm oil field, and drilling (by BP) takes place onshore.

Detailed site description

Roberts *et al.* (1986) describe Studland Bay as containing a bare sandy beach, thinning out for 50 metres, with soft muddy sand at the southern end of the bay. The underlying seabed is made of chalk, with a fairly settled sandy/muddy substrate where species such as the lugworm (*Arenicola marina*) and sand mason worm (*Lanice conchilega*) are abundant. An underwater survey of the Dorset marine coastline in 1977-1978 recognised three associations within Studland Bay: *Fucus serratus*-*Laminaria digitata*, *Pagurus berhardus*-*Nassarius reticulatus*, and loose lying algae (Dixon *et al.*, 1978). Collins (2003) further describe marine biodiversity habitats in Dorset based on surveys from 2001-2003. A detailed description of the geology of Studland Bay has been written by Ian West from the Geology Department at Southampton University, which is available [here](http://www.soton.ac.uk/~imw/Studland.htm)²⁴.

Studland Bay contains dense *Z. marina* seagrass beds, which have been mapped in detail by Dr Ken Collins (Southampton University). Detailed quantitative studies of the seagrass were undertaken by divers in Studland Bay, as well as adjacent to the Poole Harbour entrance Training Bank, and at one bed within Poole Harbour (Collins, 2007). A number of environmental surveys have been carried out in Studland Bay, many of them focussing on seagrass beds. Several studies of the benthos have been commissioned by British Petroleum and undertaken by Southampton University in Poole Harbour

²⁴ <http://www.soton.ac.uk/~imw/Studland.htm>

and Poole Bay, including diver surveys of the epifauna, and infaunal sampling in Studland Bay (e.g. Jensen *et al.*, 1990; Jensen *et al.*, 1991)). Additionally, Haskoning (2005) was commissioned to map *Zostera marina* in Studland and Poole Bays. Hughes *et al.* (1991) looked at hydroids on seagrass in Studland Bay. Seasearch (1995-2002, sourced from MB102) have also recorded seagrass and the Futurecoast project (2004, sourced from MB102) has records of sediment types.

Steve Trewhella provided the following description of Studland Bay, based on his personal knowledge: A fringe of shorter seagrass occurs all along the edge of Studland Bay, containing a mixture of seagrass and mobile algae (including *Ulva sp.* and various red algae). The seagrass beds occur up to a metre high when you swim out into the bay (very dense), containing lots of cryptic animals. Amongst the seagrass, there are abundant snakelocks anemones (*Anemonia viridis*) that live in the sunlit canopy growing on top of the eelgrass. Additionally all six species of British pipefish breed and live in Studland Bay. *Ostrea edulis* have been found on hard substrate (and within seagrass beds), on rocky areas and old moorings within Studland Bay. Steve Trewhella has photographic records from recent dives. Individuals have also been recorded during 1995-2002 Dorset Seasearches (Steve Trewhella, *pers. comm.*).

Local knowledge and several published papers indicate that the seagrass beds in Studland Bay are an important habitat for two species of seahorse, *Hippocampus hippocampus* and *Hippocampus guttulatus*. Feedback from Dorset Wildlife Trust highlighted that there have been numerous media reports on seahorses at Studland, including several broadcast examples of moving and still images of *H. guttulatus*. Garrick-Maidment *et al.* (2010) report some 40 seahorse sightings during searches in 2008, mainly *H. guttulatus* but also *H. hippocampus*, and describe the location as the only known breeding location for both indigenous seahorse species in the UK.

The site is considered to be of international importance for the long-snouted or spiny seahorse, *H. guttulatus*, with the largest breeding population of the species in the UK (Neil Garrick-Maidment of The Seahorse Trust, and Steve Trewhella, *pers. comm.*). There have been numerous sightings of this species in Studland Bay for several years (photographs, films, sightings), and ongoing surveys have recorded approximately 300 hours of dives with this species in Studland (Steve Trewhella, *pers. comm.*). Garrick-Maidment *et al.* (2010) describe the occurrence of *H. guttulatus* in Studland Bay, including five individuals that were tagged and all re-sighted several times within the seagrass bed. Home ranges of 30–400m² were found. The three tagged males were all observed to be pregnant throughout the summer months suggesting up to five broods per year. On one occasion the courtship display was recorded.

Four individuals of *Hippocampus hippocampus* have been observed by divers on site altogether in 2007/2008. One was pregnant; one very small juvenile; undoubtedly breeding, but more elusive. They have not been seen since (Steve Trewhella, *pers. comm.*).

In 2009 The Seahorse Trust devised a project to tag seahorses *in situ* to increase our understanding of individual seahorse behaviour, fidelity of breeding pairs, pregnancy, habitat and seasonal movements. A total of five *H. guttulatus* have been tagged and re-sighted a total of 29 times during a seven month period (Garrick-Maidment *et al.* 2010).

The Shark Trust produced a report on eggcase findings of undulate ray (*Raja undulata*), part of the findings of the Great Eggcase Hunt (GEH) Project (Richardson, 2011). To date, 953 Undulate Ray eggcases have been recorded as part of the GEH project. Two areas have provided most of these records: 44.6% of eggcases were reported from Shoreham Beach (West Sussex) and 20.2% from the Studland Bay/Swanage shorelines, indicating the importance of Studland Bay as a nursery area for

this mobile FOCI. The Shark Trust has also recorded juvenile *Raja undulata* from dive sightings. They received records from anglers and divers off Old Harry and Ballard (Richardson, 2011). In 2008, Steve Trehwella found two juvenile undulates in Studland Bay, and they have been seen regularly on dives (with photographic records and diver records available, Steve Trehwella, *pers. comm.*).

The shelter and proximity to the port of Poole make it a popular anchorage (Collins *et al.* 2010). The negative impact of anchors and moorings on the sediment cohesion and infauna within Studland Bay is discussed by Collins *et al.* (in press). Concerns arise from increasing use by boats in Studland Bay causing unsustainable damage to the seagrass, leading to its eventual decline. There is concern about decline of the seagrass habitat along with its associated species (Garrick-Maidment *et al.* 2010). Mac Craith (2006) provides more extensive analyses of these seagrass studies. Bare patches in the seagrass habitat associated with boat anchoring and mooring are described by Collins *et al.* (2010). Steve Trehwella reported that shear vane stress of the seabed was measured *in situ* by SCUBA divers. When comparing the undisturbed seagrass sediment with the bare, impacted areas, the latter sediments were found to be less cohesive, contain less organic material and have a lower silt fraction, lower infaunal organism number and taxa (Steve Trehwella, *pers. comm.*).

A generic piece of feedback from members from the Dorset Local Group commented on the presence of maërl beds and *Sabellaria* within 3nm of the Dorset coastline, but neither the precise locations nor species (of *Sabellaria*) were cited (our GIS records indicate maërl beds and records of *Sabellaria spinulosa* in the area off Swanage, within the Studland to Portland draft SAC, but not within any rMCZ boundaries).

Stakeholder narrative: Assumptions and Implications

As explained in section I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities.

Table II.3.15f shows working assumptions and implications recorded for this site throughout the planning process. Studland Bay rMCZ was a relatively late addition to the network. There was a larger site in previous versions of the developing network configuration, covering the whole of Poole Bay. Because of socio-economic concerns raised in feedback from the Local Group, the larger site was replaced with two smaller sites - Poole Rocks rMCZ and Studland Bay rMCZ (refer to the report from the 4th Joint Working Group meeting, and the Poole Bay site write up in the third progress report for more background). Most of the detailed work on recording assumptions and implications for the sites within the developing network configuration had already taken place before this site was added. Therefore, some of the content of table II.3.15f is based on what had previously been recorded for the precursor site (the one that covered the whole of Poole Bay). Many of the assumptions and implications highlighted for this site are generic, and will apply to other rMCZs in the network as well.

Following that, table II.3.15g shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table

reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.15f Specific assumptions and implications relating to Studland Bay rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site : None highlighted during VA meetings.	
Assumptions	Implications
<p>Bottom towed fishing gear will not be allowed</p> <p>Activity deemed not to be taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen o Financial loss to beamers and trawlers o Displacement of bottom-towed gear o SWFPO and SWIFA members disadvantaged and displaced o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o Poole Bay is dredged for oyster seed, and there is a concern about loss of adult oysters to seed (this probably does not apply to Studland Bay itself - see comment below) o Impacts on Poole Bay oyster aquaculture (currently harvested as licence condition) (this probably does not apply to Studland Bay itself - see comment below) o Influx of predatory species (Brittlestars etc) o A concern was raised that no tow zones will be inundated with pots and static gear and cause difficulties for sea angler. This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic. This has also been countered by a fishing representative stating that the amount of static gear is in relation to fishing opportunities, quota etc and would not become excessive. o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity. o Putting some of the above comments in perspective, several local stakeholders, including IFCA representatives, have stated that no mobile bottom gear is currently used in Studland Bay. <p>Given this assumption, there are still the following concerns:</p>

	<ul style="list-style-type: none"> o Some Local Group members were concerned about impacts on sand eel trawling and mussel spat collection, and would like these activities to continue to be permitted. However, this comment was recorded at the time when there was a single much larger area being discussed for the whole of Poole Bay, which has since been replaced with the much smaller sites in Studland Bay and Poole Rocks. Based on comments from the IFCA, there is no current bottom-towed gear activity at all in Studland Bay itself. o The seagrass beds are very sensitive to bottom towed gear; whilst this site has a low vulnerability to bottom towed gears, the seagrass beds are at a very high risk of damage from single incidents. This factor deserves further consideration when defining the management measures for this site. o Seasonal closures are an inappropriate measure for benthic conservation. o There are ongoing conflicts between static gear and mobile gear fishermen in Dorset, with many static gear fishermen supportive of measures that exclude mobile gear vessels. Some fishermen would like to see mobile gears excluded entirely within 3nm. The previous larger Poole Bay site was particularly controversial, with strong opinions on both sides within the Local Group.
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. o The Crown Estate and BMAPA provided feedback highlighting possible impacts on a nearby aggregate application area (Area 409). Potential for significant loss of capital asset equivalent to between £5.95M per km² of licence/option area restricted (resource valuation figures provided by The Crown Estate). Requirement for replacement resources elsewhere with significant development cost impacts and also potential production delays and operational costs if replacement is further from

	market. The Crown Estate suggested a buffer zone between the aggregate area and any rMCZ to avoid plume and smothering impacts (the comment about the buffer zone was prompted by the previous site under discussion, which covered all of Poole Bay).
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There are two disposal sites in Poole Bay which were within the larger site that had previously been under consideration for Poole Bay. Stakeholder representatives had previously expressed concern over impacts on these disposal sites. Based on feedback from the Local Group, the large Poole Bay site was replaced by two smaller sites, Poole Rocks and Studland Bay, neither of which overlap the disposal areas. o Studland Bay rMCZ is remote from the Swanage Bay disposal site. Studies carried out by Poole Harbour Commissioners (EA for dredging 2005/6) do not indicate adverse effect to the proposed MCZ area. o General comment from SNCBs: a set distance is likely to be required from edge of MCZ area where this activity is likely to impact on the MCZ features.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to the anchoring of large vessels). o Water too shallow for anchoring of commercial vessels. Therefore no effect on port commercial operations from this restriction. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.)

	<p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Possible effects on coastal protection works (this is a general concern, relating to all shoreline rMCZs). o The following comment was made relating to the precursor of this site, which covered the whole of Poole Bay: Extensive beach re-charge current and planned approx every 2 years. Involves pumping material ashore from vessels approx 200-300m offshore through pipes. See Shoreline Management Plan This activity needs to be permitted to continue. [This comment may not relate specifically to Studland Bay itself, but to the beaches on the other side of Poole Bay.]
<p>Anchoring of small vessels on sensitive seagrass beds will need to be managed in order to prevent damage to the habitat and the associated fauna.</p> <p>The VA discussion considered several options for reducing impacts of anchoring of recreational vessels on Studland Bay's seagrass beds (see right column)</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours o Conservation representatives have highlighted the impact due to anchoring in seagrass within Studland Bay, and consider that controls will be necessary to methods and numbers to protect habitat. This would result in a reduction in levels of anchoring plus movement of anchoring pressure to other sites. o Possible cost of anchoring/ moorings placement plus management. o Representatives of the recreation and boating sector have highlighted the importance of the Studland Bay area for boating, and that includes anchoring of vessels, including for safety reasons whilst waiting for suitable conditions to enter Poole Harbour. It has been pointed out that 6 – 12k vessels anchor during the season.

	<p>o Local Group sailing representatives have raised a concern about racing buoy markers and anchoring committee vessels.</p> <p>o Safety concerns have been raised if anchoring was not allowed in sheltered parts of the bay. In strong SW winds, there is no other safe anchorage nearby.</p> <p>Given this assumption, there are still the following concerns:</p> <p>o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.</p> <p>o There are several comments relating to anchoring and potential eco-moorings recorded in the additional comments section for this site.</p> <p>o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.</p>
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Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <p>o</p> <p>Given this assumption, there are still the following concerns:</p> <p>o Handliners might face possible additional costs for mitigation measures and costs due to monitoring needed</p> <p>Benefits:</p> <p>o Potential for increased and enhanced leisure and recreational activity</p>
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <p>o</p> <p>Given this assumption there are still the following concerns:</p> <p>o Cable installation cost increases and delay</p> <p>o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair.</p> <p>o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements).</p> <p>If the assumption turns out to be wrong:</p> <p>o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at</p>

	<p>a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology.</p> <ul style="list-style-type: none"> o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Possible cable route to renewables resources.
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p>This was discussed during the VA meetings, and the assumption was that the activity could continue (this refers to nearby activities rather than activities in the site itself)</p>	<p>Direct implications</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Poole Harbour Commissioners has concerns that MCZ status will affect its management of the harbour, including dredging the channel and future development in the area. The Working Group took this feedback into account in re-drawing the boundary to remove the harbour authority area. [This comment related to the previous site which covered the whole of Poole Bay] o Possible effects on ports and harbours o Concerns have been raised around impacts on access to Poole Harbour, which relies on the Swash Channel being regularly dredged. [This comment related to the previous site which covered the whole of Poole Bay] o Despite the statement coming out of the VA, there remains concern that, based on stakeholders' previous experiences, the licensing process will always require that the licensee will have to prove no significant adverse effect. This may well result in additional mitigation requirements.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site, although there are two – the Swash Channel and Studland Bay – approximately a kilometre to the east of the site boundary)
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<ul style="list-style-type: none"> o

Seaweed harvesting will be permitted	Direct implications: o
Activity not taking place / not taking place at high enough levels to cause a problem in this site.	

Table II.3.15g VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Tourism & Leisure	<p>Management (some or all of):</p> <ul style="list-style-type: none"> - Option 1: provision of eco-moorings by visiting yachts; - Option 2: prioritisation of seagrass and seahorse monitoring research programme; - Option 3: awareness raising of seagrass areas and potential impacts of anchoring <p>Measure:</p> <ul style="list-style-type: none"> - Option 1: Voluntary - Option 2: Legislative - to be determined
Navigational Dredging	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application or by the Harbour Authority. It is expected that maintenance dredging would be permitted with no additional mitigation likely to be required as a result of the rMCZ. <p>Measure:</p> <ul style="list-style-type: none"> - Marine Licence or Harbour Acts and Orders

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or

some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty was recorded for this site:

- There are uncertainties regarding eco moorings, which were suggested during the VA discussions as a way of reducing anchor damage on seagrass beds in this site: Who would foot the cost of installation, management and maintenance of eco-moorings? What would they cost to use? Is it possible to get insurance cover? What type of eco-moorings would be used, would they be safe? Safety trials are currently in place, future insurance cover might be possible but currently, this is an uncertainty.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, and others were more generic comments which the project team consider to be relevant to this site. Progress report 3 lists a lot of stakeholder comments that related to the larger Poole Bay site that had previously been under discussion. Many of those comments encapsulate the reasons why the larger Poole Bay site got removed, to be replaced by Poole Rocks rMCZ and Studland Bay rMCZ. Some of these comments are included here, but most are no longer directly relevant to the final rMCZ, so they have not been repeated.

- *Mobile FOCI*
 - Studland Bay is an undulate ray breeding area. There should be measures taken to ensure that anglers are aware both of the potential for catching undulate ray and of their legal responsibility to return these fish to the water. The following message was suggested: 'This area is an undulate ray breeding area. In line with national legislation please ensure that these fish are returned'.
- *Netting and longlining*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site. For sites that still have draft conservation objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact on nursery habitats or juvenile FOCI. This particular rMCZ was added to the network in the final planning stages, after the detailed work on developing assumptions had already happened, but given that the site has a draft conservation objective for *Raja undulata* (undulate Ray), the uncertainty around netting applies.

- *Further comments on the management of anchoring on seagrass beds*
 - It was agreed that anchoring is incompatible with seagrass habitats. There is ongoing controversy regarding the seagrass beds within this site and as such, this issue requires further consideration when defining the management measures for this site.
 - RYA feedback indicates that the management options recorded by the project economist (following the VA process) seem appropriate, and tie in with local stakeholder discussions.
 - Implications of eco-moorings: cost of use (to recreational boat users), where anchoring is currently free. There may be opposition given that this cost would be new.
 - The assumption was made by the RYA rep that none of the management options would mean a blanket ban on anchoring within the whole Bay, and that the detail will be worked out under the MMO process involving local stakeholders (the MMO have been carrying out work with local stakeholders in Studland Bay, to test a process for stakeholder involvement in management discussions for MCZs).
 - Safety can always be used as a reason for anchoring. In strong SW winds, the only safe and sheltered area along that stretch of coast is Studland Bay, where the seagrass beds are. If people were completely prevented from ever anchoring there, that may lead to safety concerns. Any zoning approach would need to take account of the safe shelter areas.
 - There are old anchor chains etc on the seabed, which MMO would like to clear up as a first step.
 - Seahorse Trust and Wildlife Trusts are working on improved maps of seagrass beds, Ken Collins at SOC has worked with the Local Group and may have additional data.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.15g (the VA process is described in part I). This generated concern within

the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.

- The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Studland Bay is an area where there has been a history of conflict between different stakeholders for some time. Local conservationists have strong concerns about the high levels of recreational boat use and anchoring on sensitive seagrass beds, and the impacts that this might have on the habitat and its associated species (including breeding populations of seahorses). Conversely, there is strong concern amongst recreational users, the local parish council and local business interests over any potential restrictions on anchoring within Studland Bay, not only because the area is popular with recreational boaters, but also because the Bay is a safe, sheltered anchorage during strong south-westerly winds. This conflict existed before Finding Sanctuary, and the fundamental nature of the conflict has not changed, although the context of the discussion has changed with the area becoming an rMCZ.

The contentious nature of the area and the concerns by recreational users are one of the reasons why there is no recommended reference area in Studland Bay – the possibility of recommending a reference area there was discussed at length. (Another reason was that the Fal recommended reference area covers seagrass beds and seahorses as well as maërl beds, and was therefore deemed a more efficient alternative location in terms of its contribution to the ENG.)

Nevertheless, there was a clear recognition of the ecological importance of Studland Bay, with its seagrass beds, seahorse populations and nursery area function for undulate ray, and it was this recognition amongst a broad range of stakeholders that led to the inclusion of Studland Bay as an rMCZ in the final recommendations, despite the existing conflicts.

Permanent eco-moorings have been suggested as a way of mitigating the impacts whilst allowing the area to be used by boats, but there are some practical difficulties associated with that solution (e.g. needing someone to take on the responsibility for the installation and maintenance of the moorings and associated costs, difficulties in getting insurance cover for eco-moorings, and the possibility of opposition amongst boaters if use of the moorings was made compulsory and boaters incurred charges when anchoring has always been free).

Note that the Marine Management Organisation have been working together with local stakeholders to try and find a workable solution to the conflict around anchoring in Studland Bay. They are actively exploring options with stakeholder groups, to prepare for possible future designation and management.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, Environment Agency intertidal habitat data, and information provided by Dorset Environmental Records Centre. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional relevant information about Studland Bay in Garrick-Maidment (1998), Garrick-Maidment (2007), and on [The Seahorse Trust website](#)²⁵. A full reference list is in appendix 9. Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](#)²⁶.

Further relevant survey information may be available from a survey carried out in 1994 by ERT Ltd. This was a marine environmental survey off the Dorset coastline as part of the Oil and Gas environmental survey. 77 seabed samples in 74 sites were collated which included Studland Bay. Data is held in excel spreadsheet that is held by the Dorset Environmental Records Centre.

Site map series

On the following pages there are three maps of this site.

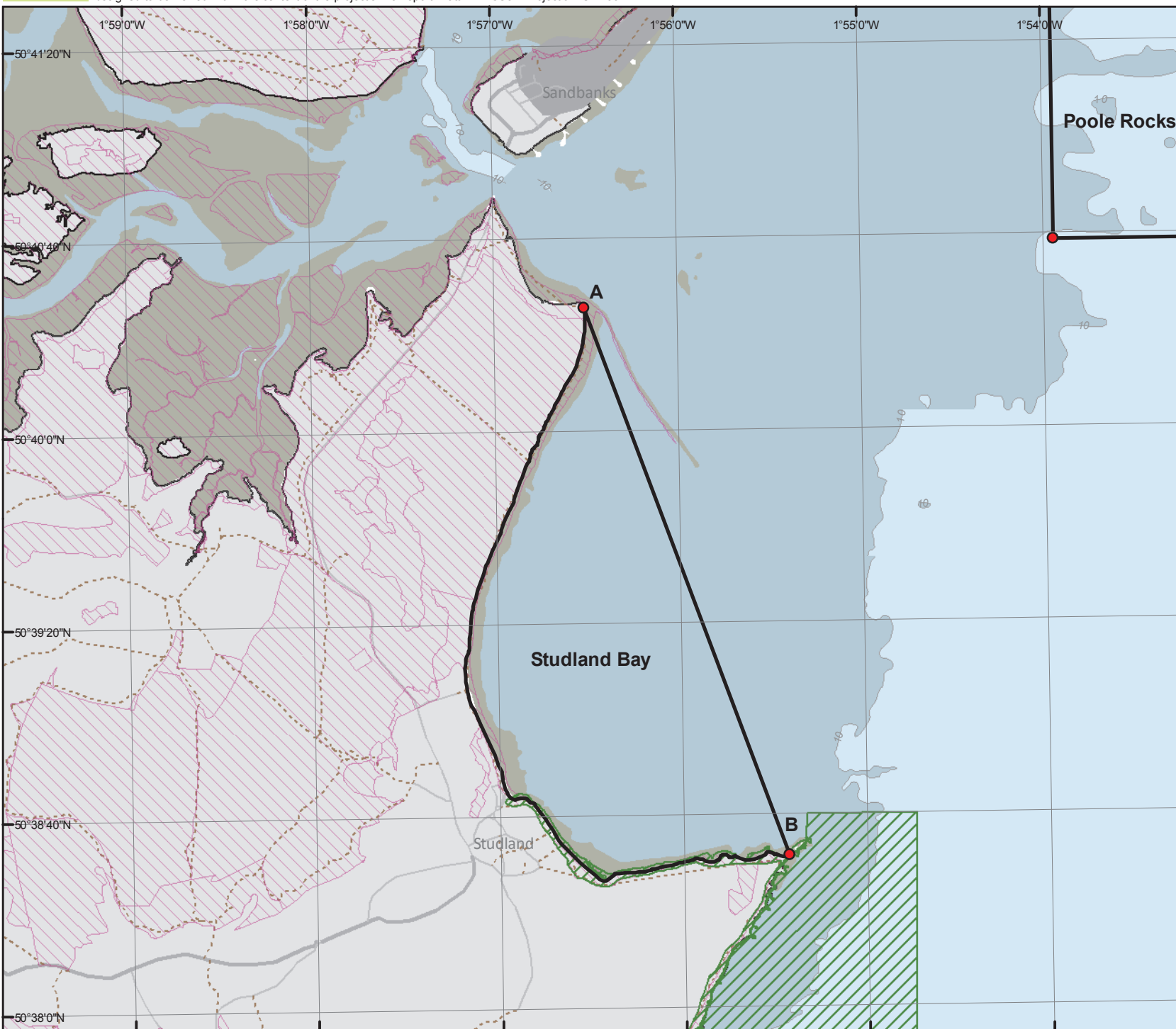
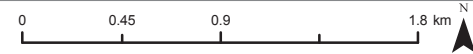
- The first map (FR_024a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_024b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.15b to II.3.15e, data sources are indicated in the tables.
- Most rMCZ site reports contain a map showing socio-economic datasets. This one does not, as human activity for this site has been mapped in the PooleRocks rMCZ socio-economic data map (FR_022c).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

²⁵ <http://www.theseahorsetrust.org/>

²⁶ <http://jncc.defra.gov.uk/page-4>

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data License No. 062006.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.



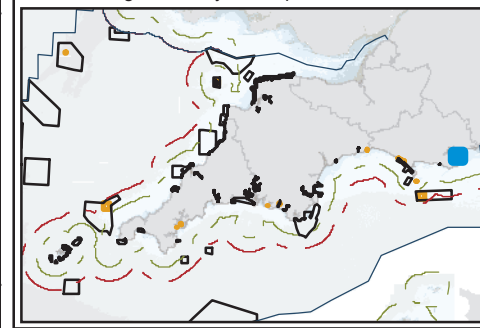
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.6738	-1.9418	50° 40' 25" N	1° 56' 30" W
B	50.6421	-1.9238	50° 38' 31" N	1° 55' 25" W

Map Legend

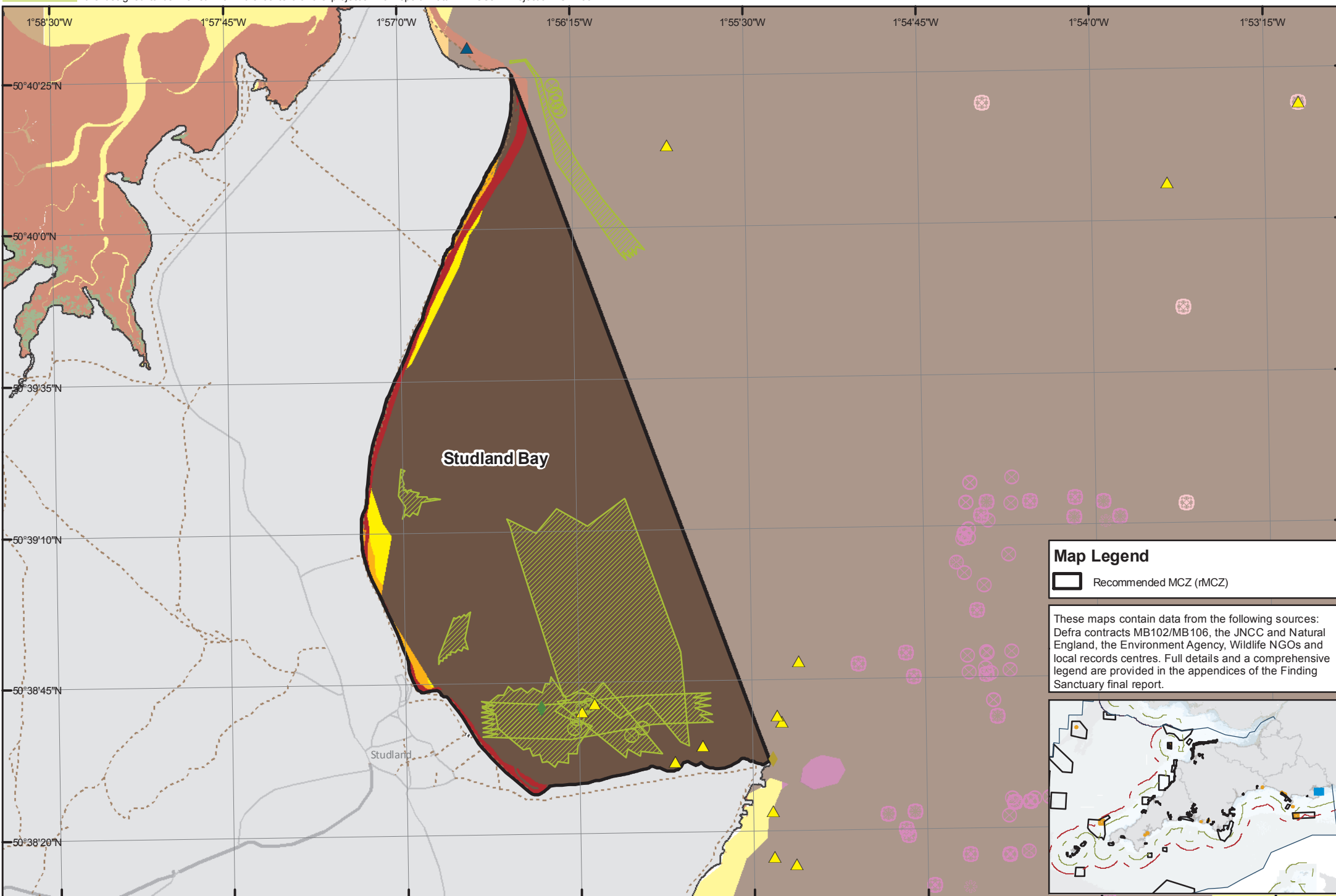
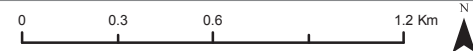
- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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II.3.16 South Dorset rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.3863	-2.2138	50° 23' 10" N	2° 12' 49" W

Site surface area: 192.7 km² (calculated in ETRS89-LAEA)

Biogeographic region:

JNCC regional sea: on the boundary between Eastern Channel, and Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The site is the shape of a simple rectangle, with boundary line running N-S and E-W in line with ENG guidelines. The eastern part of the site overlaps with a round 3 wind farm licence area, but it does not overlap with the area where the Eneco wind park is currently planned. The site intersects the 12nm limit.

Sites to which the site is related: The site does not overlap with any existing protected areas. It lies approximately 4km to the west of Wight-Barfleur draft SAC, and 5km south of Studland to Portland draft SAC. The South Dorset recommended reference area lies wholly within the western portion of this rMCZ.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within South Dorset rMCZ

Table II.3.16a Draft conservation objectives for South Dorset rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Broad-scale habitats	High energy circalittoral rock		R
	Moderate energy circalittoral rock		R
	Subtidal coarse sediment		M
	Subtidal mixed sediments		M
Habitat FOCI	Subtidal chalk		R

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.16b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy circalittoral rock	30.62	2.4%	1
Moderate energy circalittoral rock	7.43	<0.1%	1
Subtidal coarse sediment	27.67	<0.1%	1
Subtidal mixed sediments	127.06	3.6%	1

Table II.3.16c FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal chalk		4		1
Subtidal sands and gravels ¹	27.95			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

This rMCZ is located approximately 17.5km south of St Alban's (St Aldhelm's) Head, to the south-east of Swanage. It straddles the 12nm limit. The rMCZ's seafloor extends from 36 to 52 metres below chart datum. It covers an area of high energy rocky and mixed sediment seafloor habitat, and includes several records of the FOCI habitat subtidal chalk. The reason for including the site in the network, despite the interest of the renewables sector in this area, was because of its contribution of the high energy rock and chalk FOCI to the network, as well as the mixed sediment broad-scale habitat. The area intersects with an area of higher than average benthic habitat diversity (as mapped by national data layers contract MB102), and the area was highlighted as an area of high conservation utility within a Marxan analysis carried out for the Inshore Working Group in the summer of 2010 (please refer to the working group meeting reports for details).

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

The seabed in the region is characterised mainly by muddy, sandy gravel which may include bedrock reef (Poulton et al. 2002). Holme (1953, 1966) and Holme & Barrett (1977) surveyed the bottom fauna of the English Channel which would likely have included the area of the South Dorset site. Coggan & Diesing (2011) carried out a broad-scale mapping programme in the central Channel in order to provide information on the distribution, extent and character of potential Habitats Directive Annex I reef habitat to facilitate the selection of Special Areas of Conservation (SAC) in UK waters.

Benthic biodiversity and seabed sediments derived from cluster analysis of presence/absence data was carried out by Rees *et al.* (1999) in the general area around South Dorset rMCZ. It may be that this work overlapped the rMCZ, but further checks need to be made.

Although confirmed sightings have not been found in this area, there is anecdotal evidence to suggest this area is important as a wintering ground for seahorses (especially the Short Snouted Seahorse) which are known to go to great depths during the winter – The Sea Horse Trust have a record of 254 feet off Dartmouth, and it is not uncommon to find 60 to 70 feet records (Neil Garrick-Maidment, *pers. comm.*).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities.

Table II.3.16d shows working assumptions and implications recorded for this site throughout the planning process. South Dorset rMCZ was a relatively late addition to the network. It replaced several alternative site options that had previously been under discussion off south Dorset, within the context of two network variations based on assumptions of renewables ‘co-location’ and ‘no co-location’. The final site boundaries were drawn following feedback from the renewables sector (and, in particular, Eneco – the developers of the planned Eneco wind park to the west of the Isle of Wight), through the Joint Working Group representative for south west industry. The feedback stated a strong preference for the rMCZ to be located outside the area under immediate plans for development (the area of the Eneco wind park), but an acceptance of co-location with the portion of the round 3 wind farm licence area to the west (refer to the report from the fourth Joint Working Group meeting for more detail). The Joint Working Group tasked the project team with drawing a single, simple, rectangular shape that would encompass an area with chalk habitat records (previously in the developing network configuration as a site called ‘South of the Shambles’), and extend further east towards the round 3 licence area, capturing high energy rock and mixed sediment broad-scale habitats. This gave rise to the final site, replacing the previous complicated set of ‘co-location’ and ‘no co-location’ site options in the area (as included in progress report 3).

Because of the significant boundary alterations and site replacements in this area relatively late in the process, most of the detailed work on recording assumptions and implications for the sites within the developing network configuration had already taken place before this final version of the site was added. Therefore, some of the content of table II.3.16d is based on what had previously been recorded for the precursor sites, using the narrative within the ‘co-location’ variation of the network off South Dorset (see progress report 3).

Following that, table II.3.16e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group

meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.16d Specific assumptions and implications relating to South Dorset rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Bottom-towed fishing gear will not be allowed</p> <p>This activity was discussed during the VA, which highlighted the option of a partial closure of the western part of the site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity. o seabed habitats will remain unprotected if demersal towed gear allowed within MCZ - should be excluded (check conservation sector implication on towed gear added to all relevant sites at JWG 6)
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.

<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p>Specifically, co-location with the Eneco Wind Park windfarm development will be possible</p> <p>This was considered during the VA discussions, it was expected that the windfarm would be permitted with no additional mitigation likely to be required as a result of the MCZ.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Wind development potential on Eastern section of rMCZ (within zone 7). Eneco have agreed co-location in principle. Area outside Eneco preferred development area. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring. - Delays to renewables development. - Delays, lost revenue and additional costs associated with cable repair activity restriction. o Attracting the funding (for development) may be harder

	<p>in the first place as sites with MPA designations within them will be less attractive to potential investors.</p> <ul style="list-style-type: none"> o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Long term deep tidal stream potential.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to be allowed to continue / occur within the site

Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures and costs due to monitoring needed

<p>a problem in this site.</p>	<p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements) <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Possible cable route to renewables resources.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (there are no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.16e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	<p>Management:</p> <ul style="list-style-type: none"> - Prohibition of fishing over specific BSH/FOCIs in the rMCZ. These are: high energy circalittoral rock, moderate energy circalittoral rock, subtidal chalk <p>Measure:</p> <ul style="list-style-type: none"> - Option 1 – byelaw. - Option 2 – voluntary: this would be contingent on use of VMS by vessels.
Renewable Energy	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application for the Eneco wind park. It is expected that renewable energy installation & operation would be permitted with no additional mitigation likely to be required as a result of the rMCZ. <p>Measure:</p> <ul style="list-style-type: none"> - Marine Licence

Site narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
 - A Steering Group member provided feedback asking whether pelagic fishing targeting mackerel would be assumed permitted in this site; on the basis of the working assumptions above, it would.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - Part of this rMCZ is inshore (within territorial waters), but it lies beyond the 6 nautical mile limit, and partly outside the 12nm limit. There may be non-UK vessels with historical fishing rights in the area. For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.16e (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect

to those inshore rMCZs for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.

- The representative for regional development and economy stated that co-location with renewable development areas was agreed to in order to ease pressures elsewhere for the fishing industry and if the suggested management stays as it is (i.e. that fishing with mobile gears can continue in many of the rMCZs) then co-location may not have been agreed to by the wind farm developers.
- The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

There had been considerable concern around the pre-cursor sites to this rMCZ, because of the round 3 windfarm licence area and renewables interest. The final rMCZ has been situated so that it does not overlap with the area of the planned Eneco wind park, which means that the site is now less controversial with renewables interests than some of the pre-cursor sites had been. The site has been put forward based on an assumption of compatibility with renewables developments, and this is important because even though it does not overlap with the Eneco wind park area, it does still overlap with the round 3 licence area, and there is some tidal resource in the area which may be exploitable in future with developing technologies.

There has been some negative feedback about this site from non-UK fishing interests (reflected in NCS comments), as the area is used by French fishermen.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional relevant information about the site in Bastos *et al.* (2002, 2003), Donovan *et al.* (1961), Holme and Barrett (1977), Southward *et al.* (2004), and Spooner & Holme (1961). A full reference list is in appendix 9.

Site map series

On the following pages there are three maps of this site.

- The first map (FR_027a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of

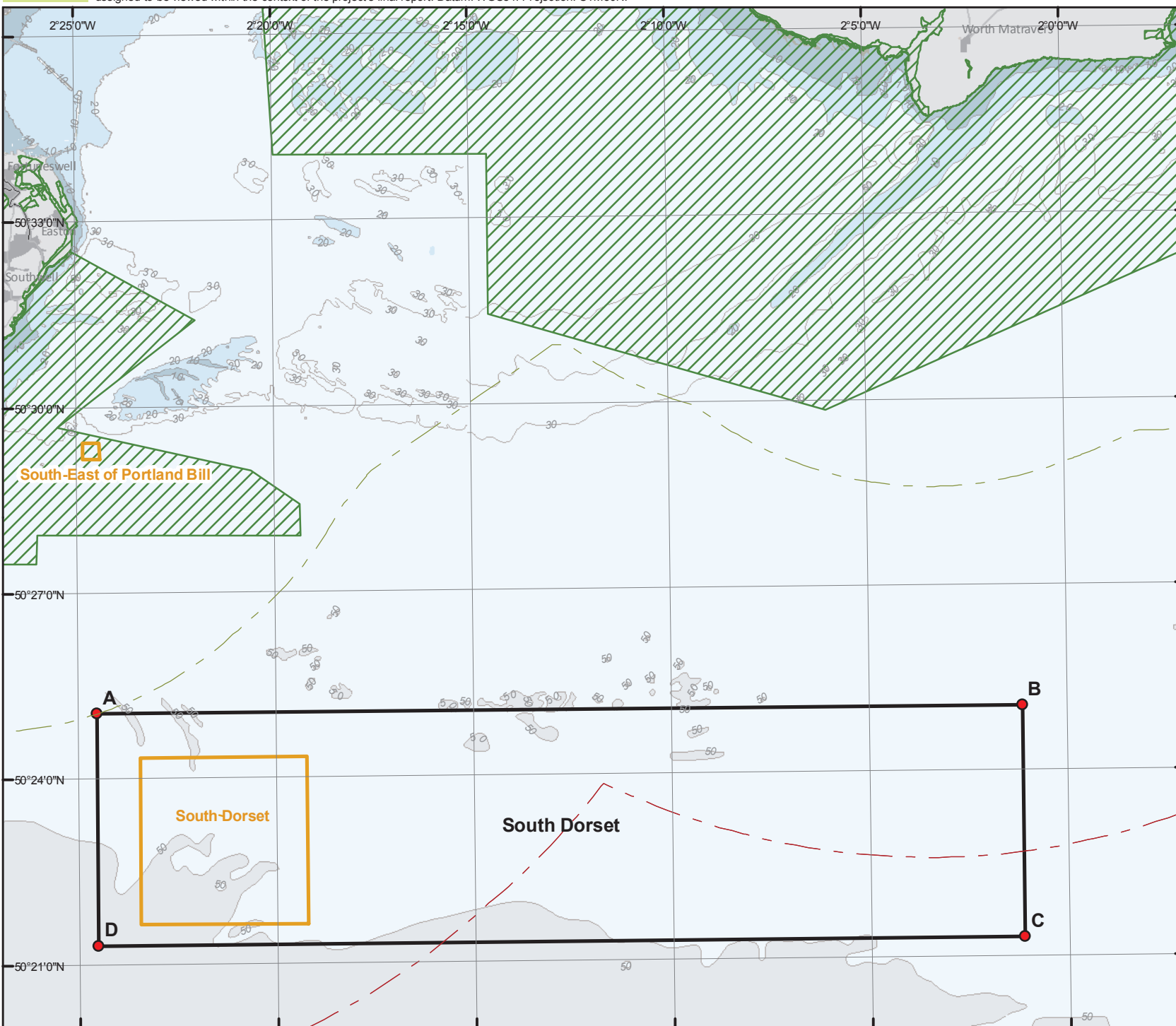
each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.

- The second map (FR_027b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.16b and II.3.16c, data sources are indicated in the tables.
- The third map (FR_027c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062008.004. Land basemap part
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0 1.5 3 6 km



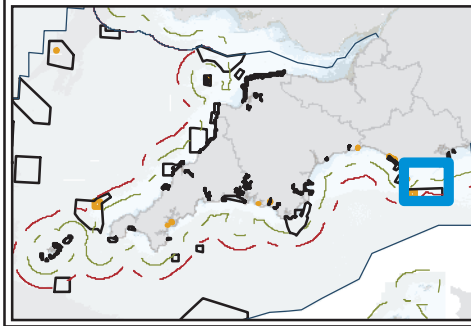
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.4176	-2.4088	50° 25' 3" N	2° 24' 31" W
B	50.4175	-2.0188	50° 25' 2" N	2° 1' 7" W
C	50.3550	-2.0188	50° 21' 17" N	2° 1' 7" W
D	50.3551	-2.4087	50° 21' 18" N	2° 24' 31" W

Map Legend

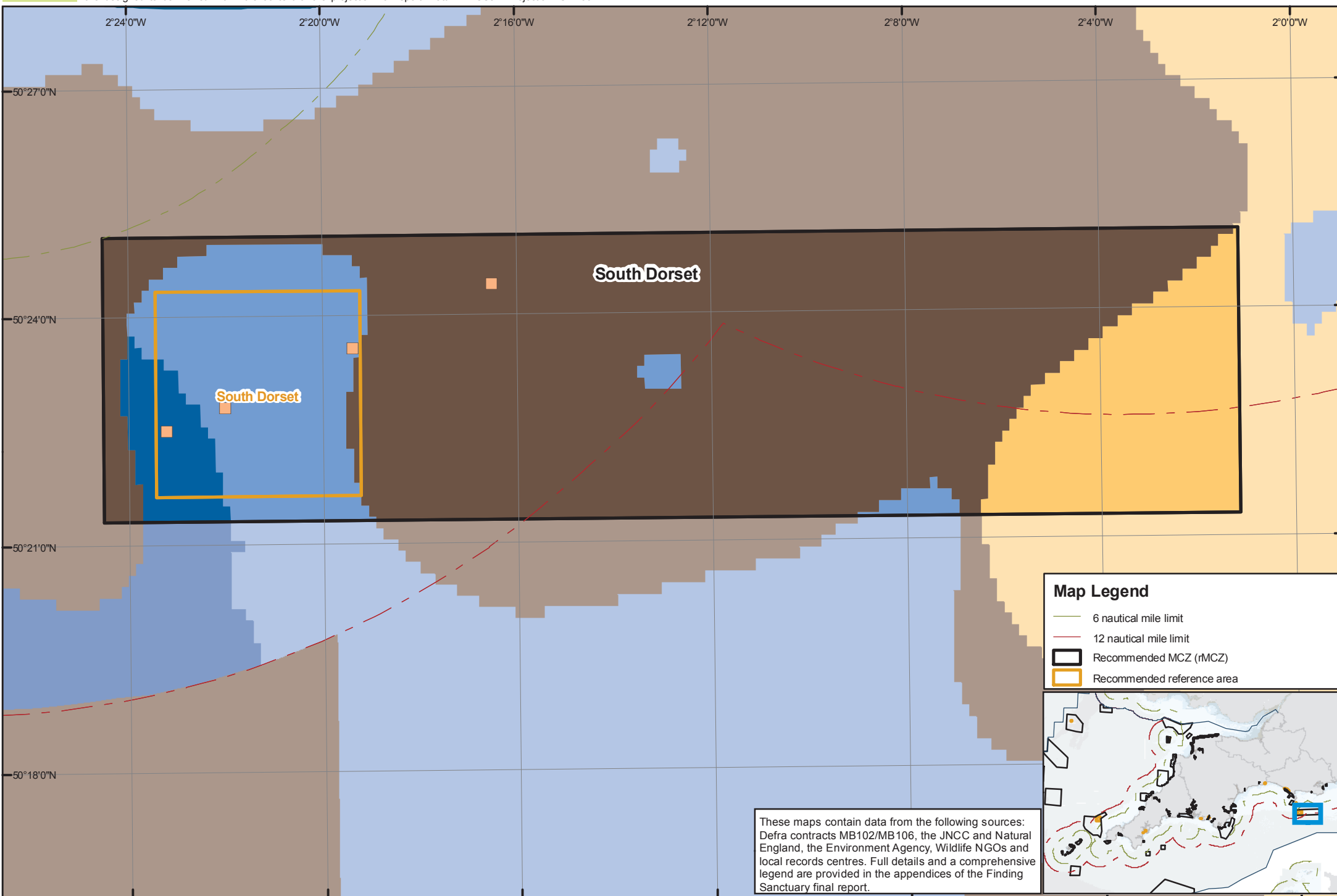
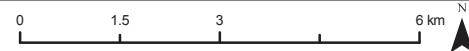
- 6 nautical mile limit
- 12 nautical mile limit
- Recommended MCZ (rMCZ)
- Recommended reference area
- Existing MPAs**
- SAC

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

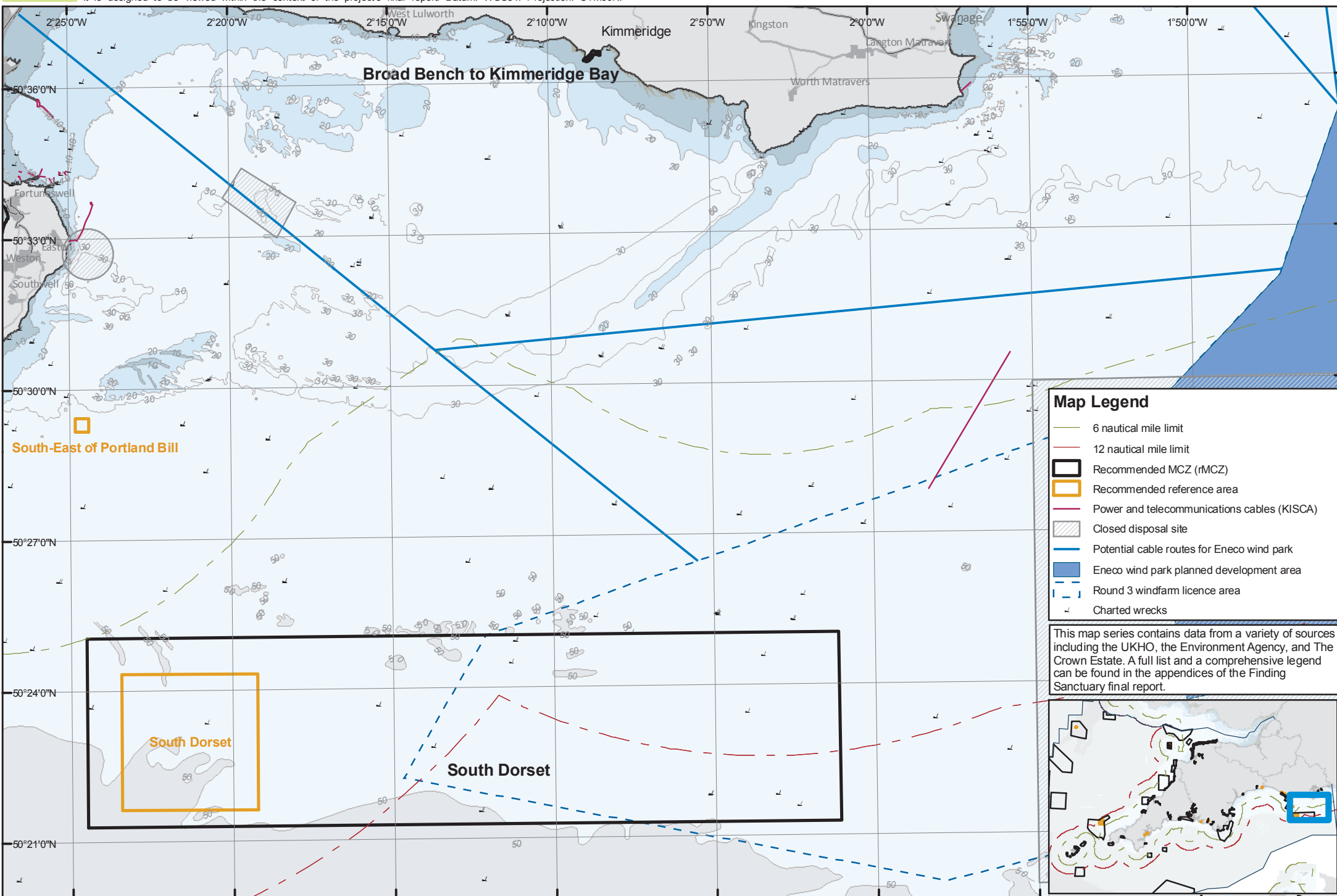
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This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 2 4 8 km



II.3.17 Broad Bench to Kimmeridge Bay rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.6093	-2.1435	50° 36' 33" N	2° 8' 36" W

Site surface area: 0.09 km² (calculated in ETRS89-LAEA)

Biogeographic region:

JNCC regional sea: Eastern Channel

OSPAR region: Region II: Greater North Sea

Site boundary: The site boundary follows the intertidal area from Broad Bench to the western end of Kimmeridge Bay. The upper limit is the high water mark (the line on our maps is Ordnance Survey Boundary Line mean high water). The lower limit is the low water mark. At the time the site polygon was drawn, we did not have a low water line within our base map datasets, so a buffer was drawn around the coastline on the maps that accompany this report. A low water line should be used in preference to mark the lower limit of the site.

Sites to which the site is related: The site lies adjacent to the Studland to Portland dSAC (above the high water mark). It also lies completely within the Purbeck Voluntary Marine Conservation Area. The site lies within the Portland to Studland Cliffs coastal SAC, and the South Dorset SSSI.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Broad Bench to Kimmeridge Bay rMCZ

Table II.3.17a Draft conservation objectives for Broad Bench to Kimmeridge rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Broad-scale habitats	Intertidal coarse sediment		M
	Moderate energy intertidal rock		M
Species FOCI	<i>Padina pavonica</i>	Peacock's tail seaweed	M
	<i>Paludinella littorina</i>	Sea snail	M

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes). The area mapped on the site maps for this rMCZ includes some subtidal areas, as we did not have a GIS low water line available at the time we mapped the site boundaries. However, in the figures presented in the tables below, we have only included intertidal habitats.

Table II.3.17b **Intertidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy intertidal rock	0.03	0.6%	4
Intertidal coarse sediments	<0.01	<0.1%	4, 3

Table II.3.17c **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Padina pavonica</i>	1	1	1
<i>Paludinella littorina</i>	1		6
<i>Phymatolithon calcareum</i> ¹	1	1	2

¹ There is a single record of this species of maërl present within the boundaries of this site. This was discussed during the vulnerability assessment, and given the wider environmental characteristics of the site, it was considered a likely erroneous record, or a small fragment of maërl washed in from elsewhere. The species was therefore not included on the list of draft conservation objectives for the site.

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.02 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The site is intertidal, characterised by rocky ledges. The strata are all sedimentary in origin. The geology of the coastline is probably its most outstanding feature and the underlying reason for the diversity of habitats and features which are found here. This area represents the eastern limit along the Channel of a number of species which have a south-western (Lusitanian) distribution (Copley, 1997). The site is entirely intertidal, and is located along the western side of Kimmeridge Bay. There is a small oil field at Kimmeridge, with small-scale drilling (carried out by BP) taking place above the shoreline of this rMCZ.

Detailed site description

Kimmeridge is already a Site of Special Scientific Importance (SSSI) and a part of the Dorset Heritage Coast and Purbeck Voluntary Marine Wildlife Reserve (Collins & Mallinson, 1989; 1990; Brachi *et al.*, 1978a). The reserve attracts many visitors and an underwater nature trail illustrates the main habitats and communities present (Collins & Mallinson 1989). Dorset County Council sponsored a study of the nearshore sublittoral communities of the Purbeck Coast from Studland Bay to Ringstead (Dixon *et al.* 1978a; Dixon *et al.* 1978b). The results of these surveys were summarised by Roberts *et*

al. (1986) who describe ten associations, their composition largely determined by substratum and depth below chart datum.

The tidal range is small with a maximum spring tide range of only 2m. On springs at Kimmeridge, a 3 hour stand at low water occurs at mid-day – exposing the shore to high desiccation and light levels and extreme temperatures. This encourages algal diversity and presence of species with a normally southern or even Mediterranean range. Key species include the Black-faced blenny (*Trypterygion atlanticus*), Cranch's spider crab (*Achaeus cranchi*), *Aeolidiella alderi*, *Phallusia mammilata* (in deeper water), and the unusual alga *Cystoseira tamariscifolia* (which is on the edge of its range at Kimmeridge). Much of the shallow sublittoral rock has a kelp fringe with associated red alga and invertebrates down to about 12m. Where bedrock is subject to scour, this is replaced by sea oak (podweed). Below these kelp zones, is a zone dominated by red algae down to approximately 20m. Beyond this the seabed is dominated by sponges, bryozoans such as ross coral (here at its eastern limit), horn wrack and hydroids. Associated with these major divisions are smaller-scale habitat variations which increase the diversity of the open coast areas. Vertical bedrock faces have a rich encrusting layer of animals such as colourful sponges, dead-man's fingers, cup corals and anemones. Wrasse and gobies abound and the tompot blenny. Much of the softer bedrock is bored by piddocks, leaving the characteristically riddled appearance. Shallow water kelp forests harbour a number of rare seaweeds such as the red seaweed *Gracilaria bursa-pastoris* and the brown seaweeds *Zanardinia prototypus* and *Padina pavonica*. Amongst the seaweeds, are anemones such as the trumpet anemone *Aiptasia mutabilis* and sea slugs such as *Trapania maculata* and *T. pallida*. Several unusual fish are found at Kimmeridge such as Montagu's blenny, the Connemara clingfish, the Cornish sucker and the rarely recorded black faced blenny occurring on rocky ledges (Copley, 1997). Local Group feedback mentions bream nests in the area.

Pinn & Rodgers (2005) compared sites in terms of accessibility by visitors to intertidal biodiversity on rocky ledges within Kimmeridge Bay (Washing Ledge and Yellow Ledge). Spot dives and drift dives were undertaken between Broad Bench and Kimmeridge Bay between 1976 and 1977 during the first Dorset Underwater Survey. Brachi *et al.* (1978a) reported sand overlying bedrock with a shallow *Halidrys siliquosa* association. Dense beds of brittlestars (*Ophiothrix fragilis*) were discovered in 1975 in water depths of 10-20m off Broad Bench, Kimmeridge, Dorset, within the Purbeck Marine Wildlife Reserve. Collins (2004) conducted surveys of brittlestars by tracking drift dives in 2001-2003. The author mapped extensive brittlestar (*Ophiothrix fragilis*) beds on the rock platforms forming the seaward extension of Broad Bench, off Kimmeridge. Further surveys were made in 2004 plus an extensive hydrographic survey of the brittlestar bed region (Collins, 2004). The brittlestars were found to be associated with the upper slopes of reef ridges but absent from the summit and troughs (Collins & Baldock, 2007).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities.

Table II.3.17d shows working assumptions and implications recorded for this site throughout the planning process. Broad Bench to Kimmeridge rMCZ was a relatively late addition to the network (it was put in place following feedback from Dorset Wildlife Trust, who suggested the intertidal area of much of Dorset's coastline for protection). Most of the detailed work on recording assumptions and implications for the sites within the developing network configuration had already taken place before this site was added. Therefore, some of the content of table II.3.17d is based on what had previously been recorded for other sites in the network. As almost all the other sites in the network cover subtidal areas, a lot of the generic statements relate to activities that do not take place in intertidal areas. These have largely not been included here, although some comments e.g. about renewables and cables have been left in - these activities could conceivably impact on intertidal areas. Some of the more generic implications are also based on what stakeholders previously highlighted for other sites.

Following that, table II.3.17e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.17d Specific assumptions and implications relating to Broad Bench to Kimmeridge Bay rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Wind resource potential but landscape buffer requirements making deployment less likely.

<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (not likely to be an issue in this site, as the intertidal area is rocky) o Possible impacts of casual collection of seafood. Will need to review management and implications if access to Lulworth Ranges becomes more open
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements)
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.17e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
n/a	n/a

Site narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Site boundary*
 - The JWG proposed the rMCZ would follow the boundary of the VMCA, as the VMCA contains the FOCI *Padina pavonica*, covers intertidal habitats and minimised socio-economic impacts. Subsequent feedback from recreational stakeholders reduced the size of the site, due to concerns over access for recreational activities such as windsurfing off Kimmeridge.
 - A representative of Dorset Wildlife Trust commented that there are some inconsistencies here as to just where the proposed site covers. It doesn't include Kimmeridge Bay, which the title implies. Broad Bench should be classed as high energy intertidal rock (not moderate energy). A recent dedicated search between Chapmans Pool and Brandy Bay found *Padina pavonica* at Chapmans Pool, Yellow Ledge, Washing Ledge and two pools on the eastern edge of Charnel. One of these pools is just inside the boundary as drawn (40m from the eastern boundary). The other pool is just outside. There were no other examples found inside the boundary.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over
 - Improvements for the local economy
 - Education opportunities
 - Benefits to science
 - Focus for voluntary groups
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc)
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.17e (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs for which no management of bottom-towed mobile fishing

gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.

- The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The rMCZ is very small in comparison to the original suggestion it derived from, which was a suggestion by Dorset Wildlife Trust (through the Local Group) to include the entire intertidal strip along the edge of the Studland to Portland draft SAC. This suggestion was based on the fact that the dSAC boundary does not include the intertidal area. There is support for the protection of the rMCZ from the conservation sector, and there is a VMCA present in Kimmeridge already. However, the support would be better if the site was larger, and some misgivings have been voiced over how small the site is. Some feedback from the Dorset Wildlife Trust has indicated that the best location for *Padina pavonica* lies to the west of the rMCZ boundary (although the GIS record we have for the species falls within the site).

Kimmeridge parish council wrote a letter of concern around the potential impacts of the site on coastal recreational and commercial activities – in part, this concern is likely to be a result of the uncertainties over management.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: MB102, Environment Agency intertidal habitat data, and information provided by Dorset Wildlife Trust (including Steve Trehwella dive log information from 2010). Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional relevant information about this site in Brachi *et al.* (1978b), Collins & Baldcock (2007), DERC (1997), Light & Killeen (1998, 2001), Sanderson (1996) and Southward *et al.* (1995).

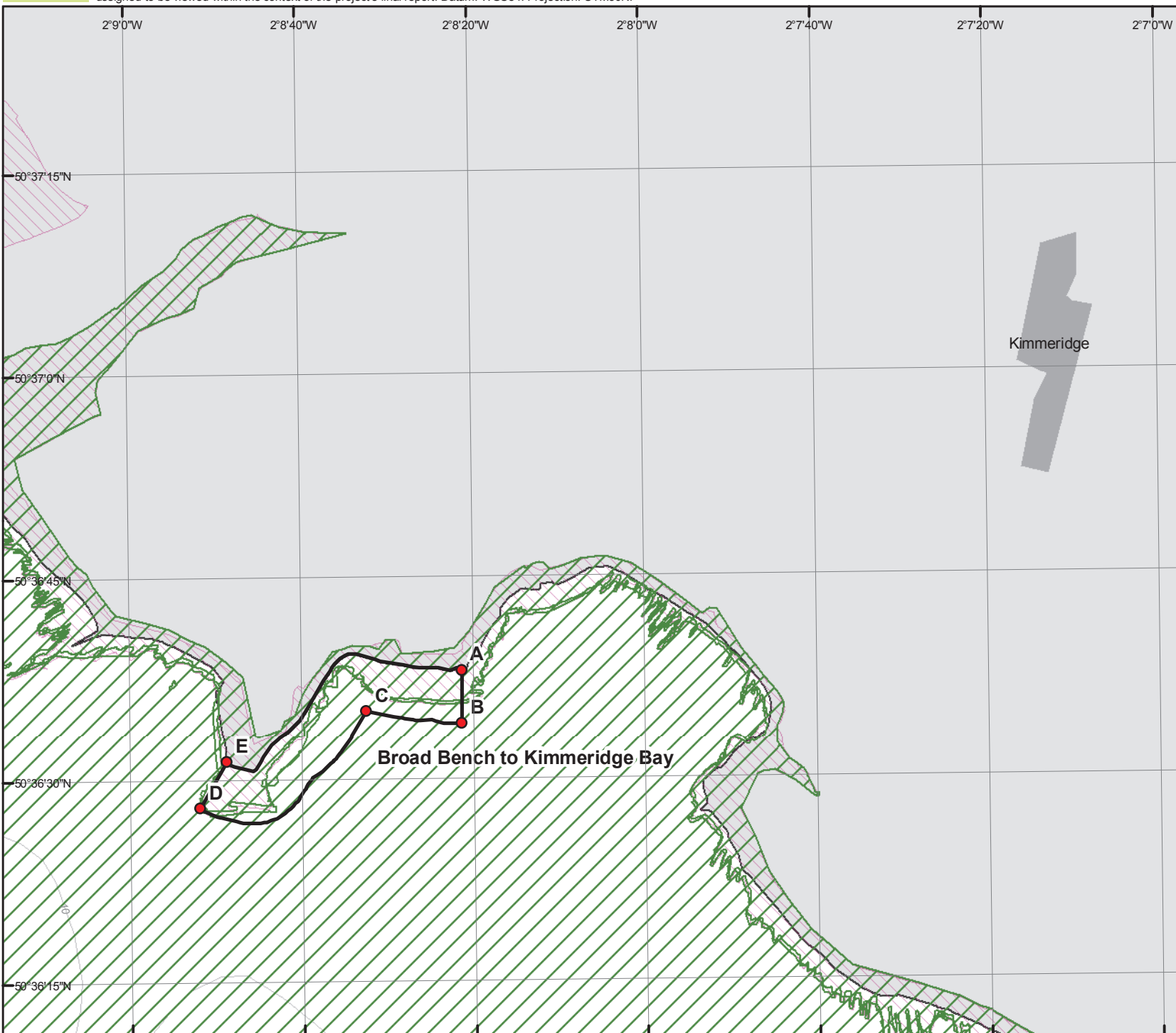
Dorset Wildlife Trust has a lot of local knowledge about the site, which lies within a voluntary marine conservation zone, including knowledge of some of the FOCI listed for the site (see comments above). Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](http://jncc.defra.gov.uk/page-4)²⁷.

²⁷ <http://jncc.defra.gov.uk/page-4>

Site map series

On the following pages there are two maps of this site.

- The first map (FR_025a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_025b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.17b and II.3.17c, data sources are indicated in the tables.
- Most rMCZ site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



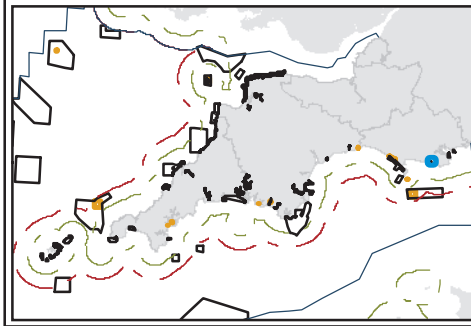
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.6105	-2.1393	50° 36' 37" N	2° 8' 21" W
B	50.6095	-2.1393	50° 36' 34" N	2° 8' 21" W
C	50.6097	-2.1424	50° 36' 35" N	2° 8' 32" W
D	50.6078	-2.1478	50° 36' 27" N	2° 8' 52" W
E	50.6087	-2.1469	50° 36' 31" N	2° 8' 48" W

Map Legend

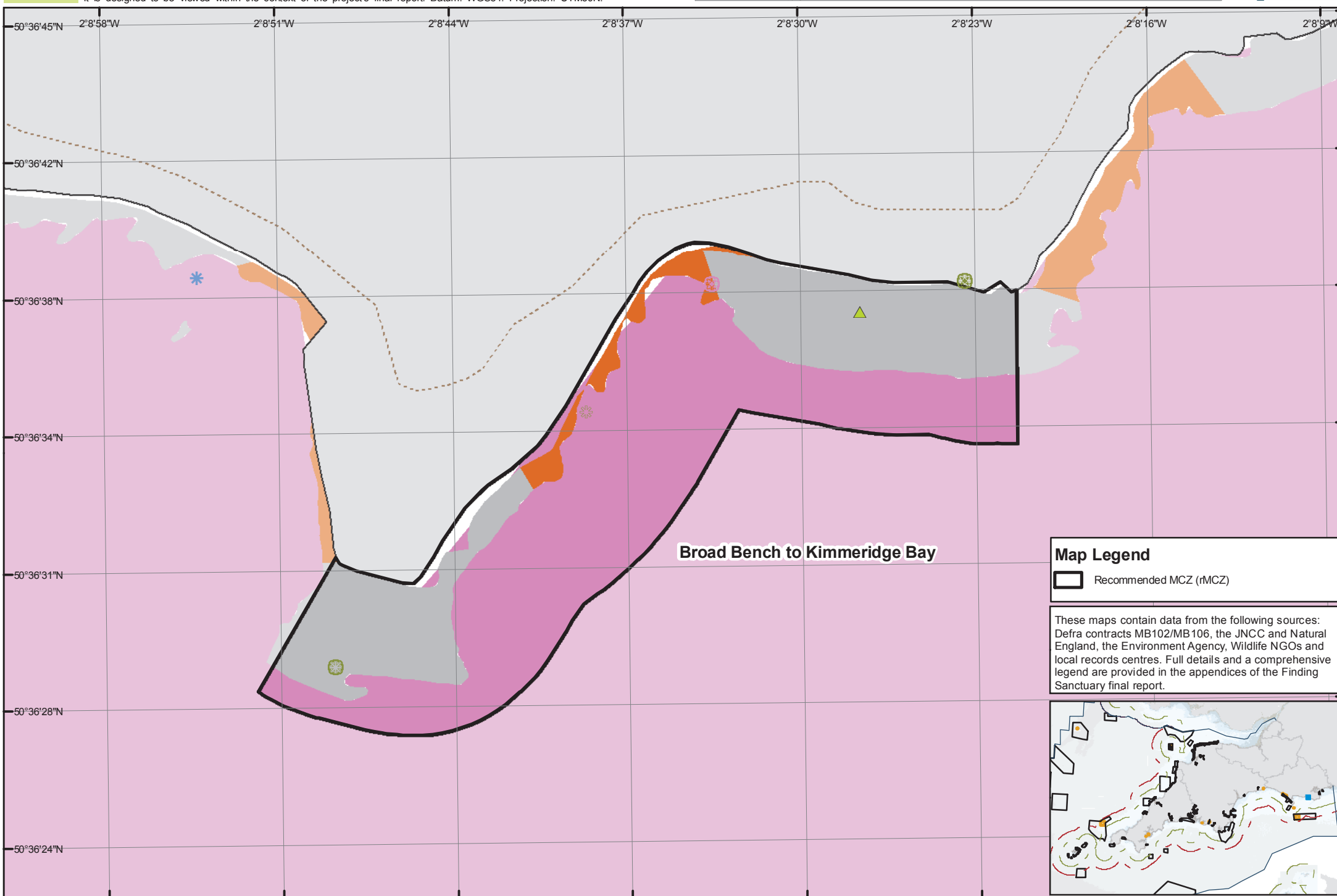
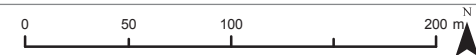
- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCG recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062006.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.



II.3.18 South of Portland rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.4896	-2.4989	50° 29' 22" N	2° 29' 55" W

Site surface area: 17.5 km² (calculated in ETRS89-LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The site is a simple parallelogram designed to capture broad scale habitats in the area of the Portland Deep.

Sites to which the site is related: The site partially overlaps with the Studland to Portland draft SAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within South of Portland rMCZ

Table II.3.18a Draft conservation objectives for South Dorset rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Broad-scale habitats	High energy circalittoral rock		M
	Moderate energy circalittoral rock		M
	Subtidal coarse sediment		M
	Subtidal mixed sediments		M
	Subtidal sand		M
Geological / geomorphological feature of importance	Portland Deep		M

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.18b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy circalittoral rock	1.54	0.1%	1
Moderate energy circalittoral rock	7.63	<0.1%	1
Subtidal coarse sediment	2.50	<0.1%	1
Subtidal sand	0.85	<0.1%	1
Subtidal mixed sediments	3.00	<0.1%	1
High energy infralittoral rock ¹	0.09	<0.1%	1
High energy circalittoral rock ¹	1.30	0.1%	1
Moderate energy circalittoral rock ¹	0.58	<0.1%	1

¹ Features/areas that are protected in the Studland to Portland draft SAC.

Table II.3.18c FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Blue Mussel beds ¹	0.67			4
Subtidal sands and gravels ²	0.83			1

¹ Features / areas that are protected in the Studland to Portland draft SAC.

² Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

This rMCZ intersects with an ENG-listed geological / geomorphological feature of importance, the Portland Deep. It covers 55% of the feature (8.72 km²), as mapped in the data layers from MB102.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

This rMCZ is located just less than half a kilometre to the south-west of Portland Bill, extending out for about 6km, with a width of approximately 3km. The rMCZ is in the 30 to 60 metre depth range. The site encompasses most of the ENG-listed geological / geomorphological feature of importance, the Portland Deep. This is a depression in the seabed off the south-west of Portland Bill, and the area is characterised by strong tidal streams (the Portland Race). The north-western corner of the site includes an area of coarse and sandy sediment ripples on the seabed. The southern and western side of Portland has been mapped as an area of higher than average benthic species diversity (within national data layers from contract MB102). The site is included in the recommendations in order to protect the unique area of seabed within the Portland Deep, as well as to contribute to the ENG targets for the network as a whole.

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

The morphology and internal structure of sand shoals and sandbanks around the coastal headland of Portland Bill are described on the basis of sidescan sonar and high-resolution seismic data sets by Bastos *et al.* (2003). Morphological and architectural evidence, combined with the spatial distribution and nature of the bedrock surface is described. Poulton *et al.* (2002, in Jones *et al.*, 2004) describe the seabed sediments south of Portland, however there is question over whether their surveys overlap with the site boundaries of this rMCZ. Coggan & Diesing (2011) carried out a broad-scale mapping programme in the central Channel in order to provide information on the distribution, extent and character of potential Habitats Directive Annex I reef habitat to facilitate the selection of Special Areas of Conservation (SAC) in UK waters. SEA 8 (2006) conducted a comprehensive acoustic and ecological survey of three sites in and around Portland. Data is held on CD-Rom and comprises an electronic report, survey photographs and GIS data files.

There have been several sightings of both the Spiny (*Hippocampus guttulatus*) and Short Snouted seahorses (*Hippocampus hippocampus*) in this region (including North Portland, Weymouth Bay and The Fleet). At one stage Weymouth Bay was fished for seahorse for the aquarium trade (Neil Garrick-Maidment of The Seahorse Trust, *pers. comm.*).

Local Group feedback indicates that this area is important for seabirds and cetaceans, but these are not currently part of the draft conservation objectives for this site. Local Group feedback also mentions bream nests in the area. A more generic piece of feedback from members from the Dorset Local Group commented on the presence of maërl beds and *Sabellaria* within 3nm of the Dorset coastline, but neither the precise locations nor species (of *Sabellaria*) were cited (our GIS records indicate maërl beds and records of *Sabellaria spinulosa* in the area off Swanage, within the Studland to Portland draft SAC, but not within any rMCZ boundaries).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.18d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.18e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.18d Specific assumptions and implications relating to South of Portland rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Bottom-towed fishing gear will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings. It is uncertain whether the activity would be allowed in the site in the future, depending on the intensity it could cause impacts on seafloor features that would prevent the achievement of conservation objectives.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that

<p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>the comment is unrealistic.)</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Whilst some Local group feedback states that the area is important for static gear fishermen, including potters and netters, other Local Group feedback indicates that the Portland Race (strong tidal race off Portland Bill) naturally restricts a lot of fishing activity that can take place in the area. o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. o This rMCZ site contains a very specific sea floor habitat not found elsewhere in the Finding Sanctuary Area, and the Crown Estate is concerned that an MCZ will deter tidal development. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Potential tidal resource off Portland Bill.

<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback indicates that this area is used by commercial rod and line bass fishermen, who use the area sustainably. o Local Group feedback indicates that the Portland Race

	<p>(strong tidal race off Portland Bill) naturally restricts a lot of fishing activity that can take place in the area.</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Possible cable route to renewables resources.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Seaweed harvesting will be permitted	Direct implications: o
Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	

Table II.3.18e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
n/a	n/a

Stakeholder narrative: Uncertainties and Additional comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *Generic implications for ports (applicable to all rMCZs where port jurisdictions and activities overlap with the site, or are adjacent to the site)*
 - Harbour Revision Orders, General Directions, Pilotage Directions etc.
 - Ports and harbours are limited to their jurisdiction.
 - Ability of port to comply with legal responsibilities e.g. Oil Spill Response Planning etc.

- Administration, resource on and off the water, legal and technical specialists requirements associated with additional management and legal responsibilities should co-location be pursued.
 - Additional time and cost triggered by all of the above both to the port.
 - Implications on other industries using the port or who wish to use the port in the future.
 - Existing management practices on and off water e.g. vessel and activity management, speed, timing restrictions etc.
 - Existing emergency response – weather, pollution, security.
 - Dredging to ensure maintenance of safe navigable depths.
 - Berthing, mooring & anchoring of small & large vessels.
 - Ship building, maintenance, refurbishment & repair.
 - Maintenance, refurbishment & repair of port and harbour infrastructure.
 - New port and harbour infrastructure.
 - Access & egress to and from harbour.
 - Recreational activities within harbour.
 - Ship access and egress to and from berths.
 - Significance of timescales, delays and cost to management practices.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.18e (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that

allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Compared to other sites, there is limited contentiousness around this rMCZ. This is largely due to the tidal races present in the site, which mean that activities there can be hazardous, so there is limited fishing and recreational activity there. The exception is the renewables sector, who have voiced some concern over the site being an rMCZ precisely because of the strong tidal streams present so close to the shoreline, which makes the area of high interest to potential future tidal energy exploitation. The site was included in the recommendations on the assumption that future renewable energy installations would be permitted within the site.

Natural England (on the Local Group) stated that they were supportive of this site. The Crown Estate provided feedback to state that they would be supportive of the site based on the assumption that coastal protection works and waste water outfalls would not be affected. The building block that this site derived from was the preferred option in the area by commercial fishing representatives. There was a recognition amongst a wide range of stakeholders that this site is unique, because of the geomorphological interest feature present (the Portland Deep), and because the strong tidal streams are likely to result in unique seabed biota.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, and data from the DORIS survey. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

The site overlaps with the area which was surveyed as part of the DORIS survey, a collaborative effort between Dorset Wildlife Trust, the Maritime and Coastguard Agency (MCA), the Channel Coastal Observatory (CCO) and the National Oceanographic Centre, Southampton (NOCS), funded by Viridor Credits ([here is a weblink to further information](#)²⁸). The DORIS project provided us with detailed bathymetry data, shown on one of the site maps at the end of this report, as well as with FOCI records (see appendix 8).

The site also overlaps with the revised boundary of the Studland to Portland draft SAC, and Natural England may have additional information of relevance to this site in the site selection assessment document for this draft SAC (the public consultation on this draft SAC was due to start around the time that this report was being finalised).

²⁸ <http://www.dorsetwildlifetrust.org.uk/page283.html>

Site map series

On the following pages there are four maps of this site.

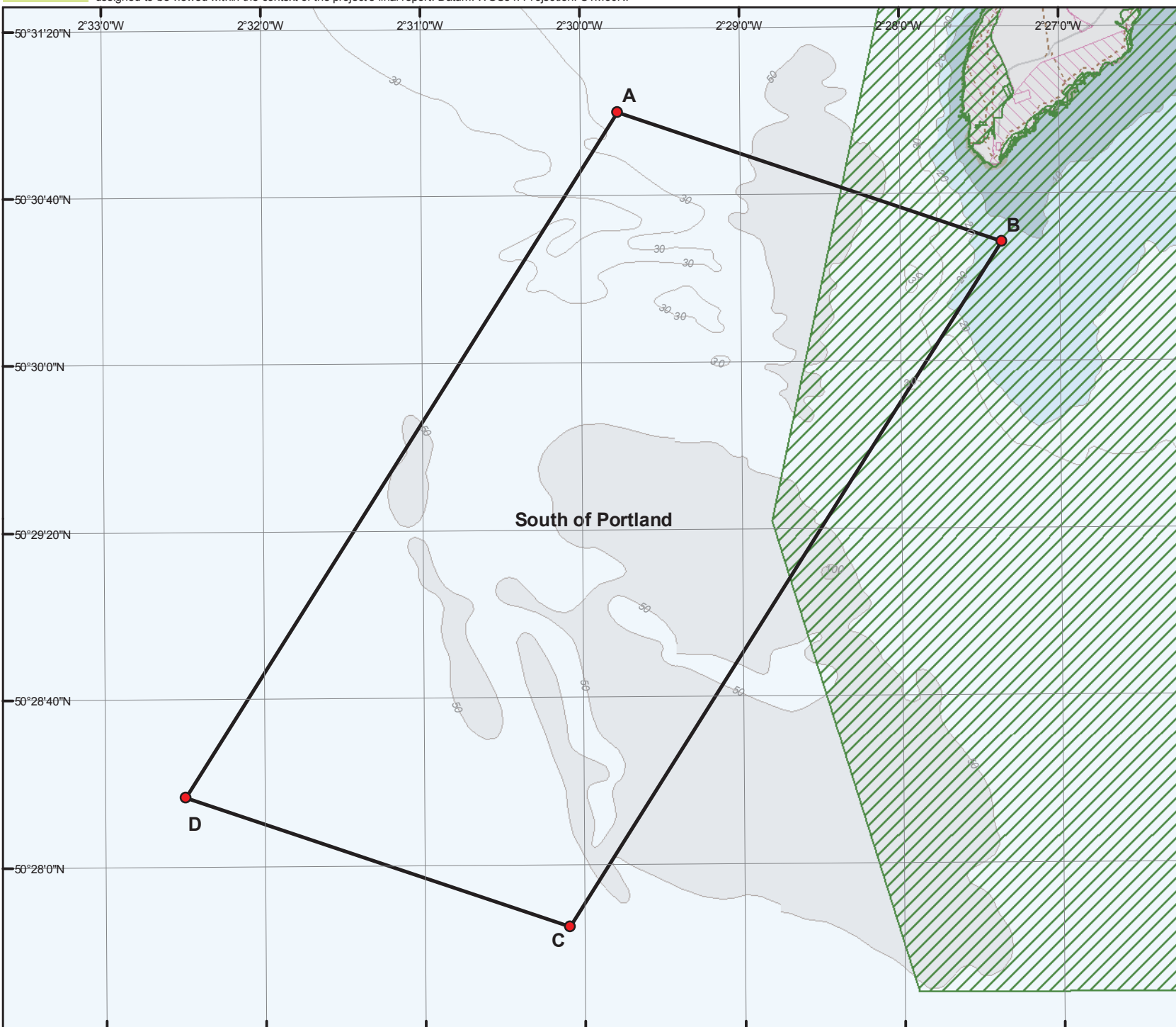
- The first map (FR_028a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_028b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.18b, data sources are indicated in the table.
- The third map (FR_028c) shows detailed bathymetry data from the DORIS survey.
- The fourth map (FR_028d) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

South of Portland rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
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0 0.5 1 2 km



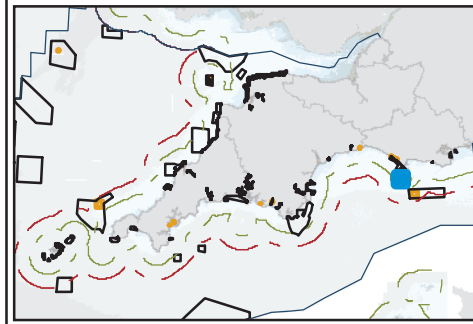
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.5167	-2.4961	50° 31' 0" N	2° 29' 46" W
B	50.5079	-2.4561	50° 30' 28" N	2° 27' 22" W
C	50.4625	-2.5016	50° 27' 44" N	2° 30' 5" W
D	50.4712	-2.5416	50° 28' 16" N	2° 32' 29" W

Map Legend

- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

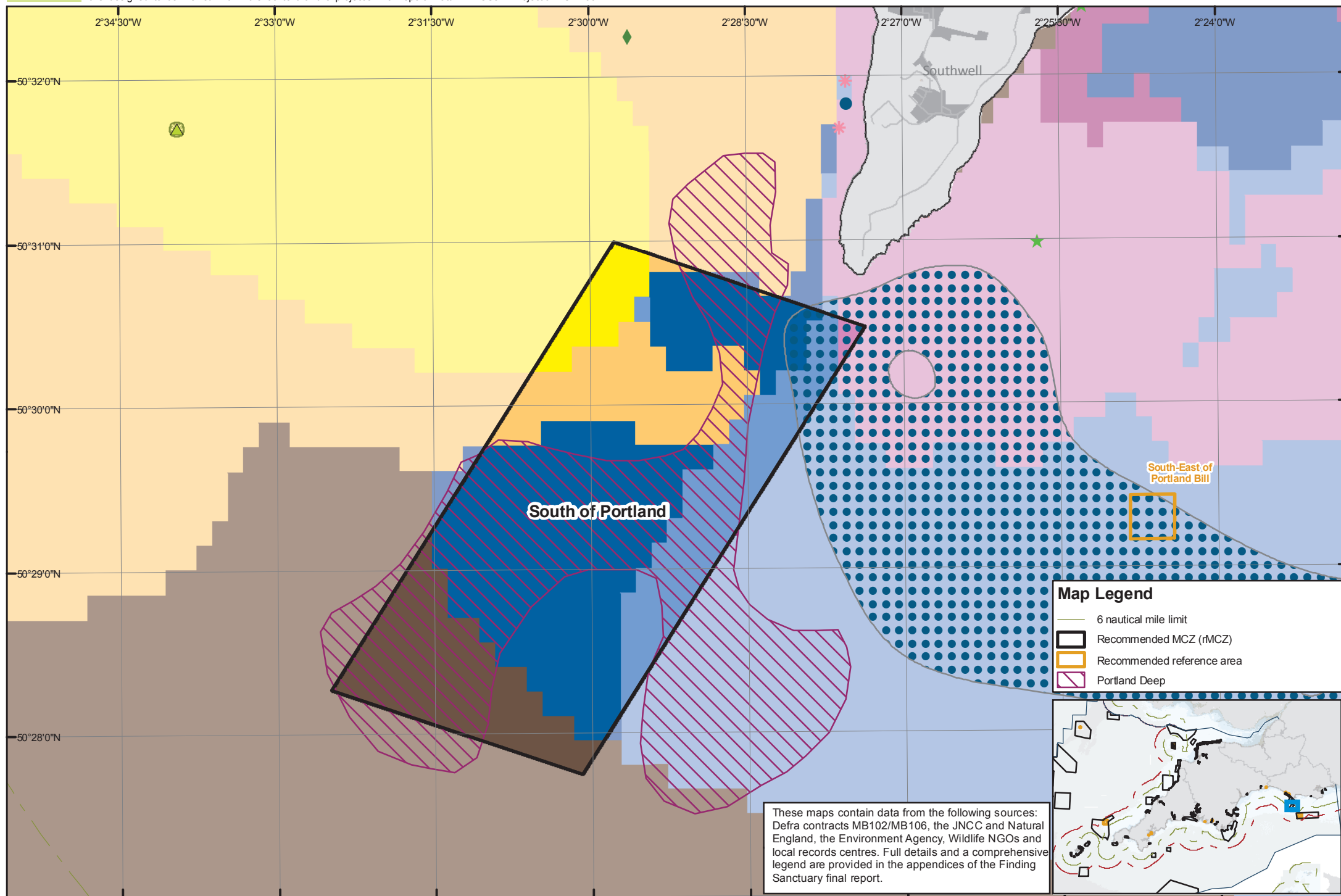


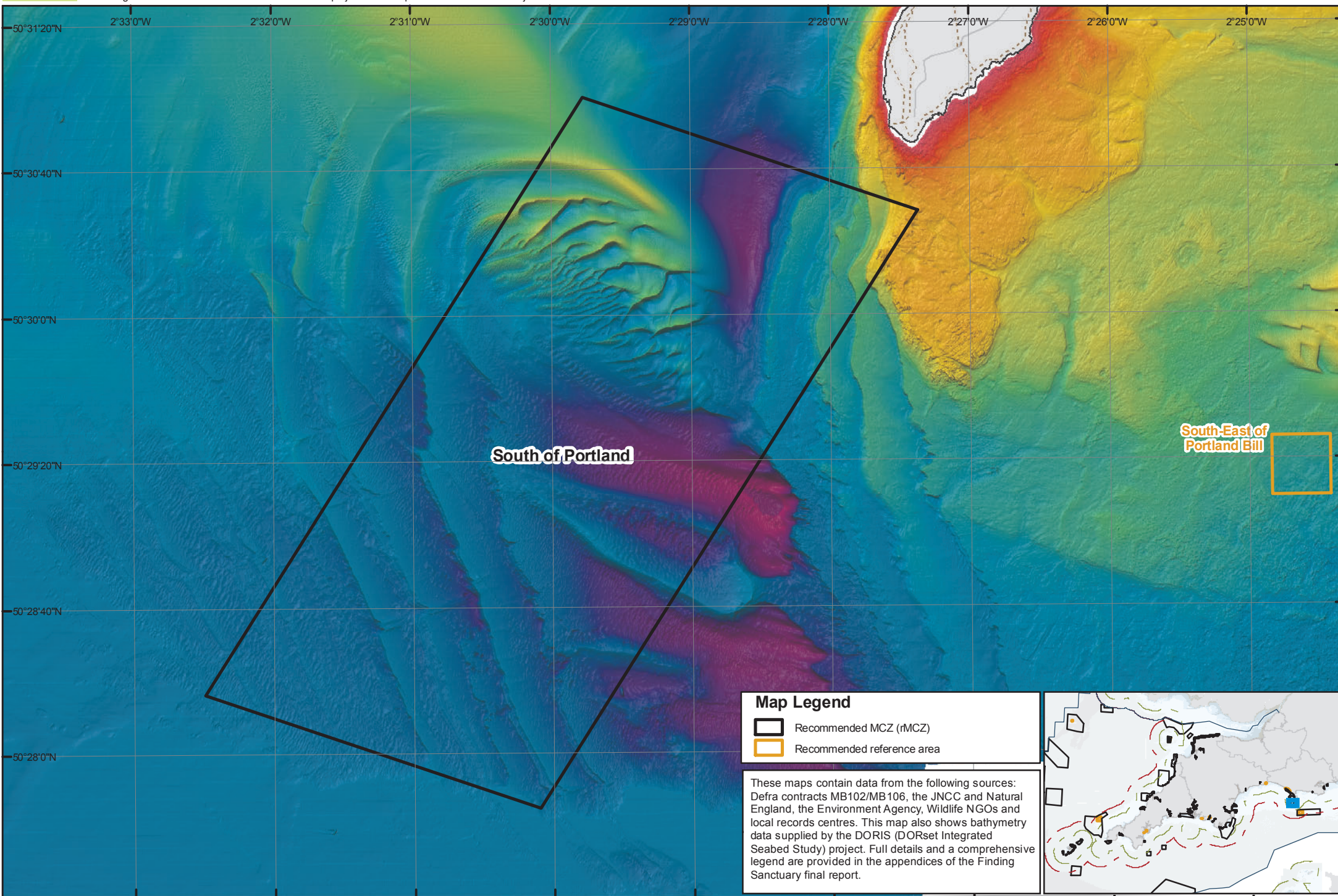
This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

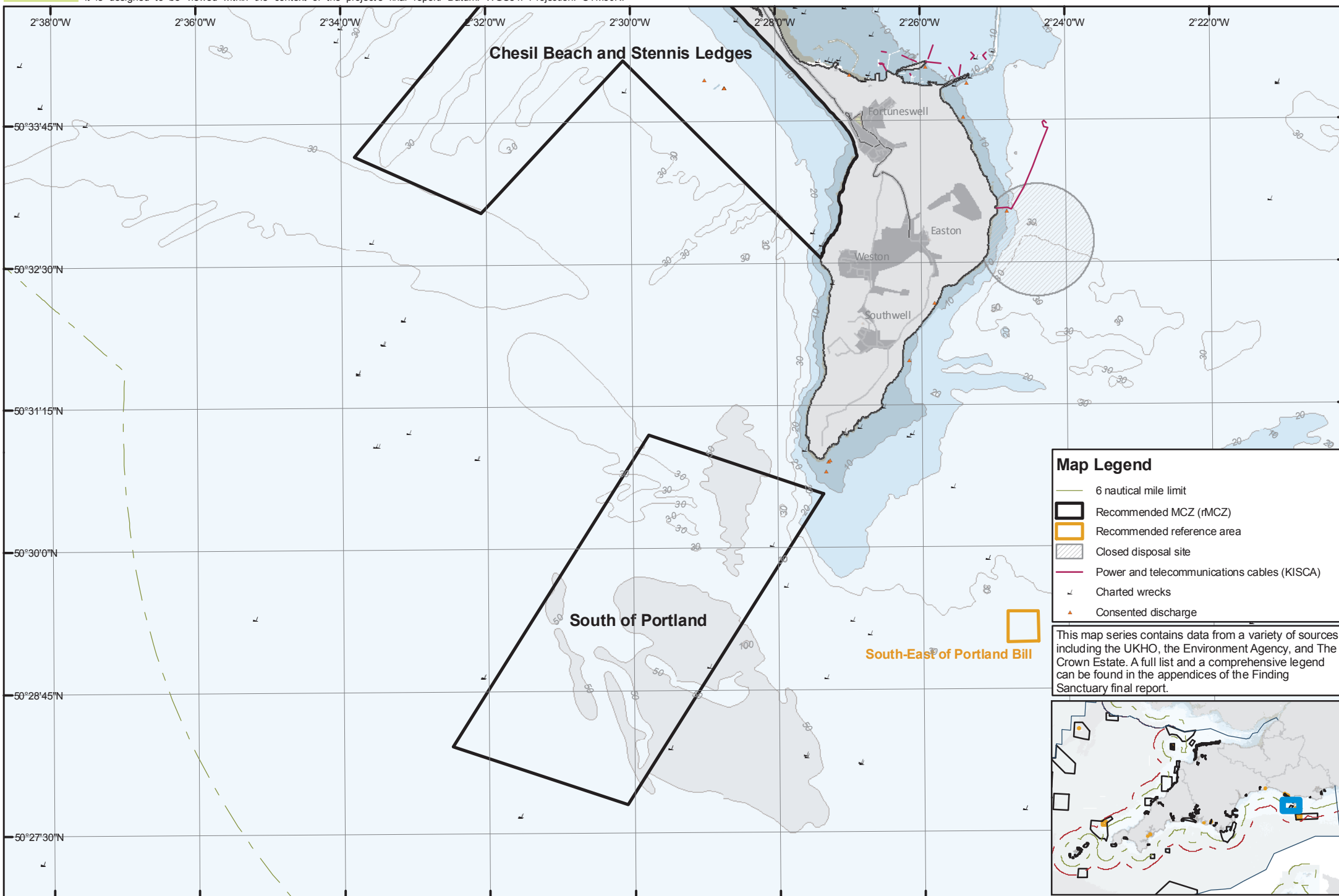
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0 0.5 1 2 km

N







II.3.19 Chesil Beach and Stennis Ledges rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.5919	-2.5316	50° 35' 31" N	2° 31' 53" W

Site surface area: 37.7 km² (calculated in ETRS89-LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The site boundary follows the coastline up to mean high water from Abbotsbury in the west, to Weston on Portland in the east. The western edge follows the boundary of the Lyme Bay and Torbay candidate SAC. The southern edge has been drawn NE-SW to the Stennis Ledges, where the boundary then changes to incorporate the Stennis Ledges in full. DORIS seabed data was used to help draw a boundary around the ledges. From there it follows NE-SW again to join the coastline at Weston.

Sites to which the site is related: The site shares a boundary with Lyme Bay and Torbay candidate SAC in the north. In the south, it partially overlaps with Studland to Portland draft SAC. The Isle of Portland to Studland Cliffs SAC and Isle of Portland SSSI lie on the Isle of Portland itself, adjacent to the site. The rMCZ lies alongside Chesil Beach and the Fleet Lagoon, which are already designated as a SSSI, SAC and SPA. Of these three designations, the SAC boundary extends the furthest east (off Chesil Beach), and it overlaps with the coastal strip of the rMCZ.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Chesil Beach and Stennis Ledges rMCZ

Table II.3.19a Draft conservation objectives for Chesil Beach and Stennis Ledges rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Broad-scale habitats	High energy infralittoral rock		R
	Subtidal coarse sediment		R
	Subtidal sand		R
	High energy intertidal rock		M
	Intertidal coarse sediment		M
Species FOCI	<i>Eunicella verrucosa</i>	Pink sea-fan	R
	<i>Ostrea edulis</i>	Native oyster	R

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.19b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	<0.01	<0.1%	1
Subtidal coarse sediment	26.15	<0.1%	1
Subtidal sand	4.27	<0.1%	1
High energy infralittoral rock ¹	0.09	<0.1%	1
Subtidal coarse sediment ¹	6.84	<0.1%	1

¹ Features / areas already protected within an overlapping MPA. See the gap table (appendix 11) for details.

Table II.3.19c Intertidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock	0.03	0.4%	4
Intertidal coarse sediments	<0.01	<0.1%	4, 3
High energy intertidal rock ¹	<0.01	<0.1%	4
Intertidal coarse sediments ¹	0.32	1.6%	3
Coastal saltmarshes and saline reedbeds ¹	<0.01	<0.1%	4

¹ Features / areas already protected within an overlapping MPA. See the gap table (appendix 11) for details.

Table II.3.19d FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	16.97			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.19e **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Eunicella verrucosa</i>	2		1, 5
<i>Ostrea edulis</i>	2		1, 2
<i>Caecum armoricum</i> ¹	1		1
<i>Gammarus insensibilis</i> ¹	3	2	1
<i>Nematostella vectensis</i> ¹	2		1
<i>Paludinella littorina</i> ¹	1	1	1
<i>Padina pavonica</i> ²	1	1	1

¹ Features / areas already protected within an overlapping MPA. See the gap table (appendix 11) for details.

² This is considered a record with erroneous information about its geographical location, as it is an old record (> 30 years), located about 1km off the shoreline, in an area where the habitat is unlikely to be suitable for the species. Following the vulnerability assessment discussions, the species was not included on the list of draft conservation objectives for the site.

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 1.48 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

This rMCZ runs along the length of Chesil Beach from the top of the Fleet lagoon at Abbotsbury to Portland in the south-east, extending from the high water mark out to about 1.8km, with an extension out to about 5km over the Stennis Ledges, an area of rocky ridges and rugose seabed. The deepest parts of the site are approximately 40m below sea level. The nearby southern and western side of Portland has been mapped as an area of higher than average benthic species diversity (from national data layers contract MB102). Local Group feedback indicated the possible geological interest of the site, with soft Lias reefs believed to be present.

Detailed site description

There is a lot of published information about Chesil Beach, which has been described as one of the most famous coastal landforms on the British coast (Bennett *et al.* 2009). The beach is a linear, pebble and cobble beach which links the Isle of Portland in the east to the mainland in the west and extends for over 18 km (May, 2003; Bennett *et al.*, 2009). The beach is separated from the mainland between Abbotsbury and Chesilton, a distance of 13 km, by a shallow tidal lagoon known as The Fleet. Along the length of the Fleet the beach is 150 to 200 m wide, but it narrows in the west to between 35 and 60 m close to Bridport, and in the east to between 40 and 54m close to Chesilton. The beach crest is intermittent at the western end, but becomes continuous from Abbotsbury with a maximum height of 7 m increasing to 14 m above sea level at Chesilton (May, 2003). Poulton *et al.* (2002) In Jones *et al.* (2004) describe the sediments along the coast in Lyme Bay.

The sediment along Chesil beach follows a grain size gradient, with fine gravel in the north-west (towards Bridport), and cobbles at the Portland end of the beach. There are marked variations in particle shape along the length of the beach and a variety of complex models have been proposed to explain the pattern of size and shape sorting with respect to cycling of material through the beach face under a range of different wave regimes (May, 2003). Scott *et al.* (2011) describe Chesil Beach as reflective and steeply sloping with inter-tidal slopes of 5° to 7°. Grain sizes range from medium sand to gravel (commonly 10–15% gravel content). Bennett *et al.* (2009) describe the internal structure of the beach revealed by GPR surveys. Carr & Seaward (1991) surveyed 11 sections across Chesil Bank to monitor the receding crestline (Davies, 1991).

The third Dorset Underwater Survey (Dixon *et al.*, 1979) recorded underwater areas between Portland Bill and Lyme Regis in August 1978. Thirty-five sublittoral and five littoral sites were surveyed during dives. Pebbles in littoral bedrock and boulders further south were recognised at Chesil Cove. Rocky outcrops and boulders separated by patches of sand mud and gravel were observed down to 14m. Extensive rock was observed to be 80-100% cover in the shallow water and 50% in deeper water. Associations found were *Laminaria hyperborea* on bedrock and boulders, *Pagurus bernhardus* – *Nassarius reticulatus* on sand and Hydrozoa – Ascidia – Porifera on all grades of rock debris (including Lithothamnion and *Ostrea edulis*). At the west end of Chesil beach, an inshore narrow zone of pebbles/shingle has been observed extending from the beach. Then a wider zone of pebbles/stones mixed with sand grading into a third zone of sand/mud. Associations found were *Pagurus bernhardus* – *Maja squinado* on pebbles on sand. The large boulders at Chesil cove have a low algal diversity but support a rich hydrozoa-ascidiacea-porifera community (Dixon *et al.*, 1979).

Eunicella verrucosa was been recorded during the 1994-95 DWT Exmouth to Chesil (Lyme Bay) survey. *Ostrea edulis* have been recorded in the Chesil Beach area during the 2007 and 2008 Seasearch Survey of Dorset.

Local Group feedback mentions bream nests in the area. Feedback from members from the Dorset Local Group also commented on the presence of maërl beds and *Sabellaria* within 3nm of the Dorset coastline, but neither the precise locations nor species (of *Sabellaria*) were cited (our GIS records indicate maërl beds and records of *Sabellaria spinulosa* in the area off Swanage, within the Studland to Portland draft SAC, but not within any rMCZ boundaries).

Dorset Wildlife Trust have stated that the FOCI habitat Fragile sponge and anthozoan communities should be listed as a feature of Stennis Ledges.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.19f shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.19g shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.19f Specific assumptions and implications relating to Chesil Beach and Stennis Ledges rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Bottom-towed fishing gear will not be allowed</p> <p>In view of discussions at the VA meeting, this assumption has changed to: Dredging and beam trawling will not be allowed in this rMCZ. An additional assumption is made that the existing seasonal closure will continue to apply to other mobile demersal gears, and will be extended to the whole site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen o Scallop dredge fishermen would no longer have access to this area. The site follows the boundary of an existing byelaw which restricts scalloping seasonally, so scallopers are already restricted to some degree within this area. o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Some Local Group members are concerned about impacts on sand eel trawling, and would like this activity to continue to be permitted. o There was concern that seasonal closures to bottom gears would be insufficient to protect Eunicella populations and that the continued presence of bottom gear would retard the recovery of this feature.

	<p>Benefits:</p> <ul style="list-style-type: none"> o Protection of attractive and interesting habitat may help survival of dive businesses from Weymouth and Portland o There may be peat deposits within MCZ which will also gain protection
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback indicates that the area is important for shipping as a refuge and anchorage in north easterly winds o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Some Local Group feedback indicated that there was a suggestion to restrict / exclude fixed netting for health and safety concerns, but the rationale is not clear. o Local Group feedback indicates that the area is important for static gear fishermen, including netters and potters. o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed

	<ul style="list-style-type: none"> o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Wind resource potential but landscape buffer requirements making deployment less likely.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Possible effects on waste water outfalls

<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Possible effects on coastal protection works. o A Steering Group member raised a concern about current beach management plans being impacted by an MCZ designation. The Beach management plan is important and exists for flood risk management / coastal erosion purposes. o Beach Management Plan for flood risk management/coastal erosion purposes not to be restricted (Environment Agency).

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback indicates that the area is important for anglers. o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity

<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements) <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Possible cable route to renewables resources.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Added comment from a Steering Group member: 'Sub aqua diving should continue, shottig wrecks should continue - anchoring is not often done by dive boats.'

<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local group feedback indicates that the area is important for shipping as a refuge and anchorage in north-easterly winds. o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning. o (please also refer to the comments regarding dive boat anchoring above)
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.19g VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – dredging & beam trawling	Management: <ul style="list-style-type: none"> - Dredging and beam trawling: prohibition of fishing within the rMCZ Measure: <ul style="list-style-type: none"> - Option 1: Byelaw - Option 2: Licence condition
Commercial fishing – all other mobile demersal gears	Management: <ul style="list-style-type: none"> - Other mobile demersal gears: seasonal closure of the rMCZ Measure: <ul style="list-style-type: none"> - Option 1: Byelaw - Option 2: Licence condition

Stakeholder narrative: Uncertainties and Additional comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
 - Commercial fishing still has a residual concern regarding the inclusion of the ledges.
- *Generic implications for ports (applicable to all rMCZs where port jurisdictions and activities overlap with the site, or are adjacent to the site)*
 - Harbour Revision Orders, General Directions, Pilotage Directions etc.
 - Ports and harbours are limited to their jurisdiction.

- Ability of port to comply with legal responsibilities e.g. Oil Spill Response Planning etc.
- Administration, resource on and off the water, legal and technical specialists requirements associated with additional management and legal responsibilities should co-location be pursued.
- Additional time and cost triggered by all of the above both to the port.
- Implications on other industries using the port or who wish to use the port in the future.
- Existing management practices on and off water e.g. vessel and activity management, speed, timing restrictions etc.
- Existing emergency response – weather, pollution, security.
- Dredging to ensure maintenance of safe navigable depths.
- Berthing, mooring & anchoring of small & large vessels.
- Ship building, maintenance, refurbishment & repair.
- Maintenance, refurbishment & repair of port and harbour infrastructure.
- New port and harbour infrastructure.
- Access & egress to and from harbour.
- Recreational activities within harbour.
- Ship access and egress to and from berths.
- Significance of timescales, delays and cost to management practices.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.19g (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.

- The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The size of this site was reduced from MCZ building blocks that previously were located there, which extended further out to sea. Bringing the boundary line closer in to the shoreline was a way of reducing impacts on mobile bottom-towed gear fishermen (scallopers), who had voiced opposition to the preceding building blocks on the grounds that there is already a large 'no-tow' area in Lyme Bay, and they felt that they were going to be squeezed by too many restricted areas.

Subsequently, the site was partially extended out again, to include the Stennis Ledges – this was done following a proposal by Dorset Wildlife Trust. There was an acceptance amongst a range of stakeholders that this area of rugose seabed is of conservation interest, and that because of the relatively soft rock, the seabed is at risk of damage from scallop dredges. On these grounds, the inclusion of the Stennis Ledges was agreed, although mobile gear fishermen have concerns about it. Conservation representatives and Natural England (on the Local Group) have stated support for this site.

There is an anchorage near the south-east corner of the rMCZ, which has raised some concerns given that this anchorage is sheltered from easterlies, so impacts on its usage may have safety implications. The Crown Estate provided feedback to state that they would be supportive of the site based on the assumption that coastal protection works and waste water outfalls would not be affected.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, SeaSearch 2009, Environment Agency intertidal habitat data, and information provided by Dorset Wildlife Trust. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional relevant information about the site may be found in Ladle (1981), and Cleator (1995). Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](#)²⁹.

The area was surveyed as part of the DORIS survey, a collaborative effort between Dorset Wildlife Trust, the Maritime and Coastguard Agency (MCA), the Channel Coastal Observatory (CCO) and the National Oceanographic Centre, Southampton (NOCS), funded by Viridor Credits ([here is a weblink to further information](#)³⁰). The DORIS project provided us with detailed bathymetry data, shown on one of the site maps at the end of this report, as well as with FOCI records (see appendix 8).

Site map series

On the following pages there are four maps of this site.

- The first map (FR_029a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_029b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.19b, II.3.19c and II.3.19e, data sources are indicated in the tables.
- The third map (FR_029c) shows detailed bathymetry data from the DORIS survey.
- The fourth map (FR_029d) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

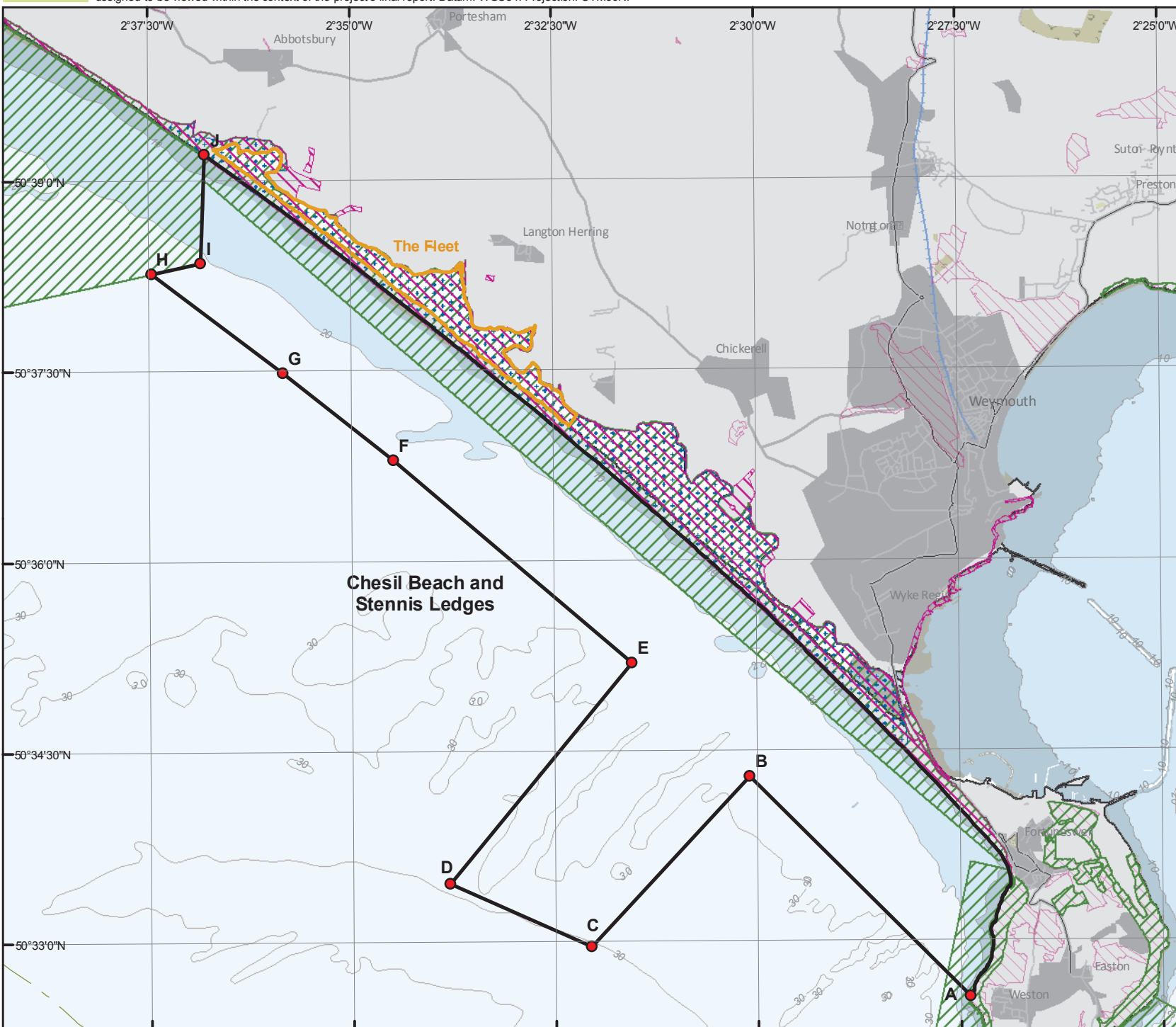
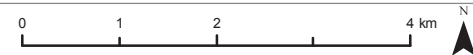
²⁹ <http://jncc.defra.gov.uk/page-4>

³⁰ <http://www.dorsetwildlifetrust.org.uk/page283.html>

Chesil Beach and Stennis Ledges rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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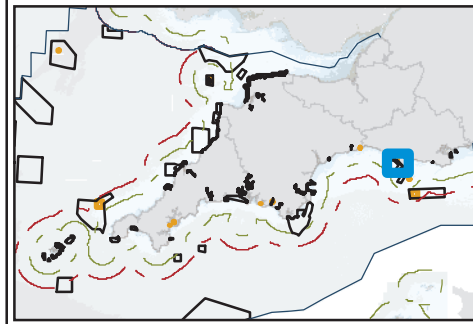
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.5426	-2.4564	50° 32' 33" N	2° 27' 22" W
B	50.5716	-2.5016	50° 34' 17" N	2° 30' 5" W
C	50.5493	-2.5344	50° 32' 57" N	2° 32' 4" W
D	50.5577	-2.5635	50° 33' 27" N	2° 33' 48" W
E	50.5866	-2.5258	50° 35' 11" N	2° 31' 32" W
F	50.6133	-2.5747	50° 36' 47" N	2° 34' 29" W
G	50.6248	-2.5974	50° 37' 29" N	2° 35' 50" W
H	50.6378	-2.6245	50° 38' 16" N	2° 37' 28" W
I	50.6392	-2.6142	50° 38' 20" N	2° 36' 51" W
J	50.6534	-2.6133	50° 39' 12" N	2° 36' 47" W

Map Legend

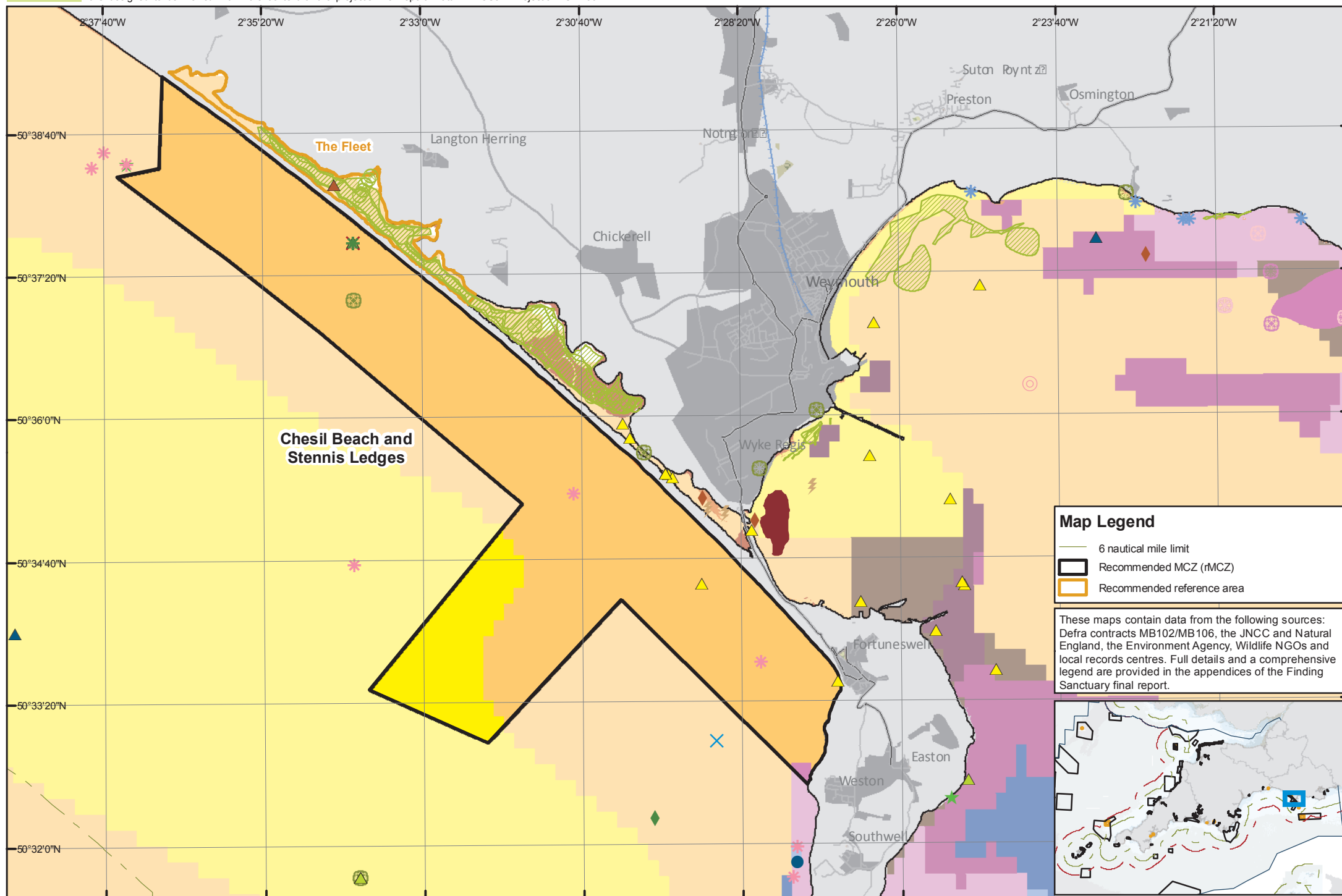
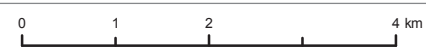
- 6 nautical mile limit
- Recommended MCZ (rMCZ)
- Recommended reference area
- Existing MPAs**
 - SAC
 - SPA
 - SSSI (part of MPA network)
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



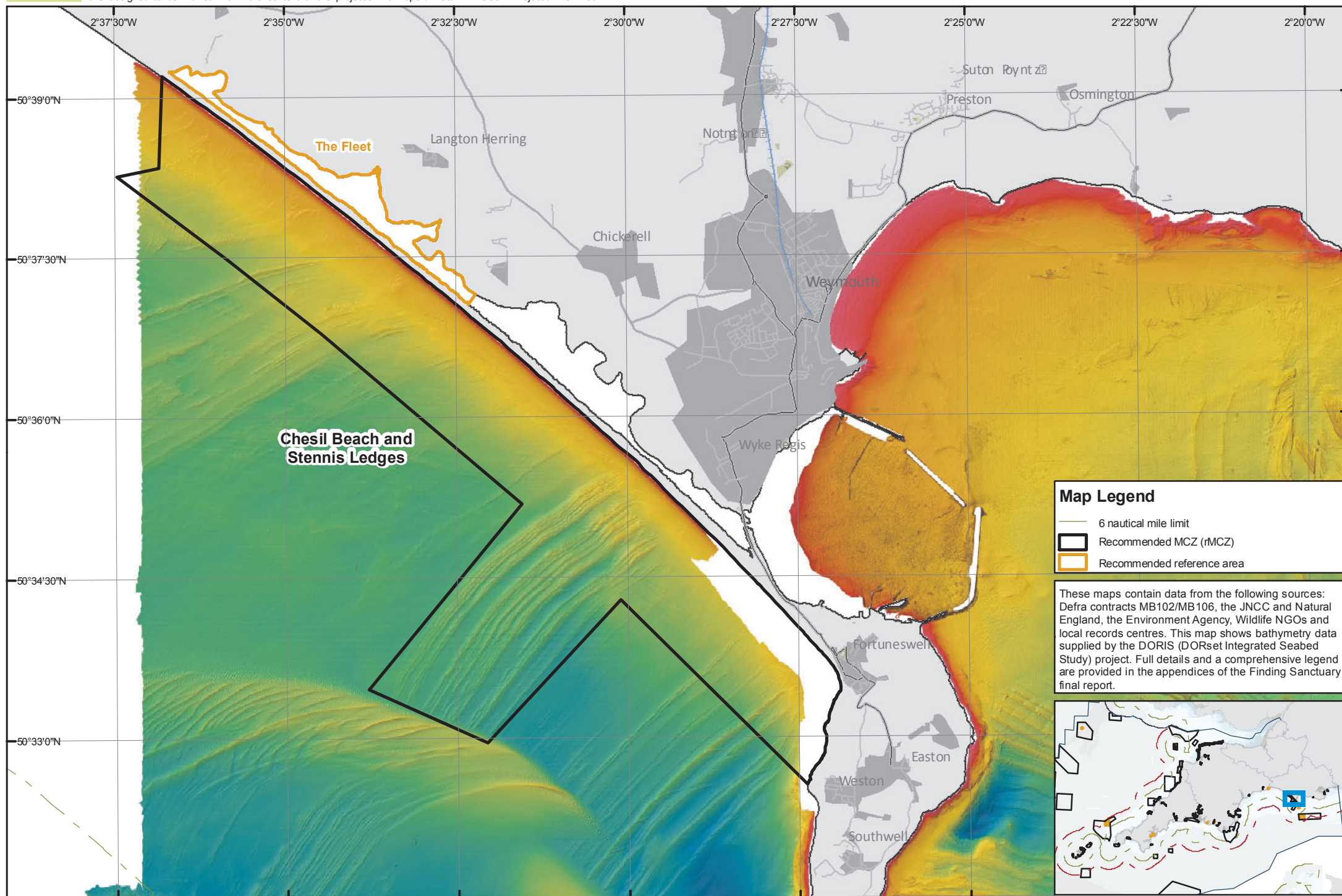
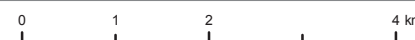
This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

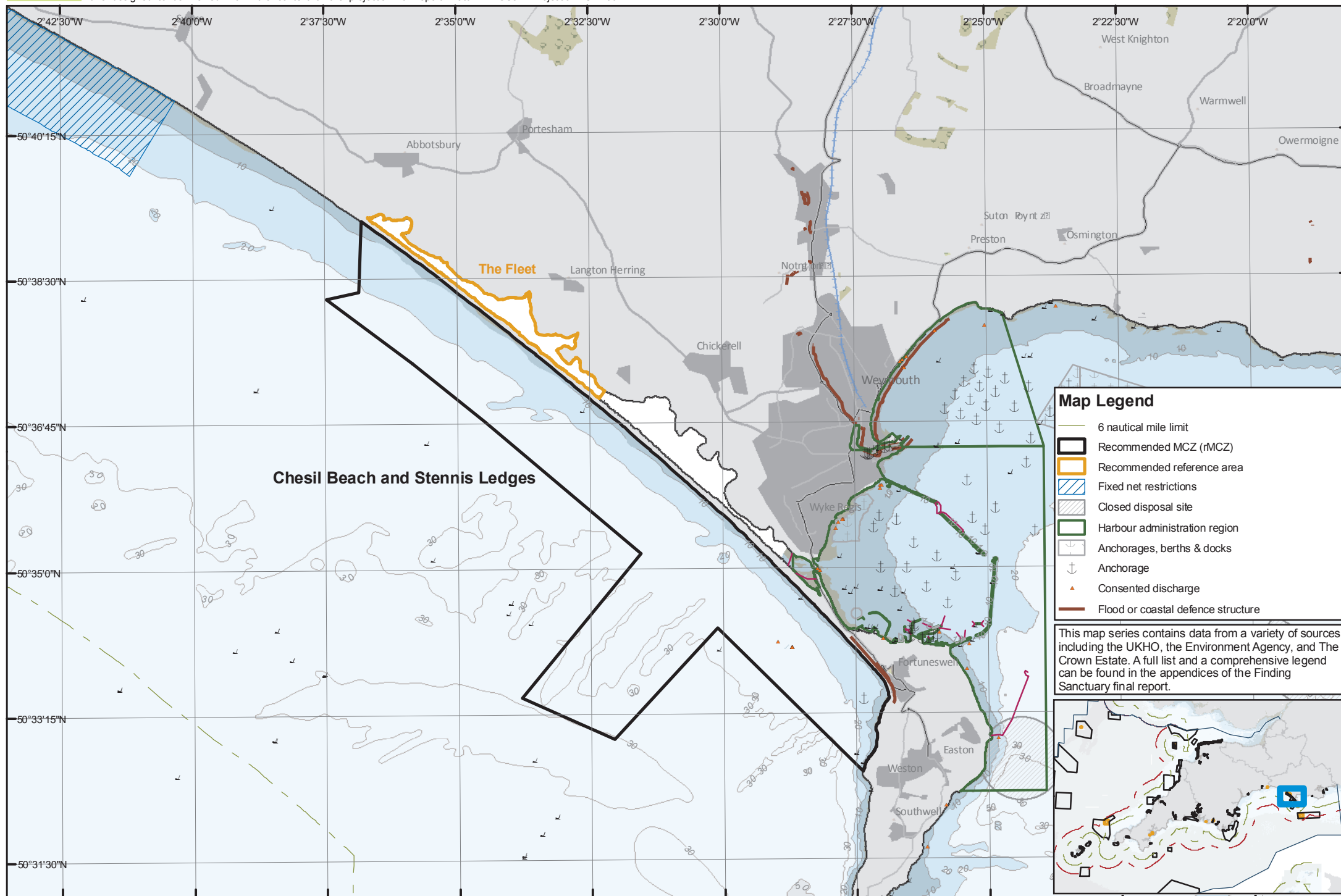
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This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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II.3.20 Axe Estuary rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.7133	-3.0575	50° 42' 48" N	3° 3' 27" W

Site surface area: 0.33 km² (calculated in ETRS89-LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The MCZ includes the Axe Estuary up to the OS Boundary Line mean high water mark, which extends as far as the mouth of the river Coly to the south east of Colyford. The seaward boundary of the site has been drawn across the estuary mouth, at the seaward edge of the shingle bar south of Axmouth and east of Seaton.

Sites to which the site is related: A small portion (tens of metres of width) of the site at the very mouth of the estuary overlaps with the Lyme Bay no-tow area. The Lyme Bay to Torbay candidate SAC lies just seaward of the site. The Axe River (inland) is designated as a SAC.

Features proposed for designation within Axe Estuary rMCZ

Table II.3.20a Draft conservation objectives for the Axe Estuary rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal mixed sediments		M
	Coastal saltmarshes and saline reedbeds		M
	Intertidal coarse sediment		M
	Intertidal mixed sediments		M
	Intertidal mud		M
Species FOCI	<i>Anguilla anguilla</i> ¹	European eel	? M / R (tbc) ¹

¹At the time of the vulnerability assessment meetings, no decision was taken whether the conservation objective for this feature should be 'maintain' or 'recover'. No quantitative information is included for this mobile FOCI species in the tables below, as the GIS data available was too coarse resolution to be meaningful. However, the species has been included in the draft conservation objectives on the basis of evidence provided to the project by the Environment Agency (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

The project team have advised that if dredging (for harbour access) continued within the site, the affected area of seafloor should not be counted towards ENG targets. However, there was no GIS polygon data available to map the area that might be affected by dredging, so the figures in these tables do not exclude any potentially dredged areas (the area affected is small - see additional comments).

Table II.3.20b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal mixed sediments	0.04	<0.1%	1

Table II.3.20c Intertidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Intertidal coarse sediments	<0.01	<0.1%	4, 3
Intertidal mud	0.21	0.1%	4, 3
Intertidal mixed sediments	<0.01	<0.1%	4
Coastal saltmarshes and saline reedbeds ¹	0.01	0.4%	3

¹ The area of coastal saltmarsh calculated in this GIS analysis is likely to be an underestimate of the saltmarsh area present along the estuary, as the rMCZ site boundary is at OS Boundary Line mean high water, and the habitat might extend above that.

This rMCZ intersects with the Axmouth to Lyme Regis Undercliffs Geological Conservation Review site (listed in the ENG).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The rMCZ stretches along approximately 2.5km of the Axe estuary, surrounded mainly by marshes and farmland. The small village of Axmouth lies on the eastern shore of the estuary, and the town of Seaton to the west on the seafront. There is a small harbour at the mouth of the Estuary, sheltered by a shingle bar across the estuary mouth. The estuary is a nursery area for fish (including bass), with the supporting benthic habitats. One of the reasons for the inclusion of this and other estuarine rMCZs in the network was in recognition of the added ecological importance of estuaries in terms of productivity, and their ecological function as nursery areas.

Detailed site description

The River Axe itself (inland of the rMCZ) is designated as a Special Area of Conservation (SAC), and there are several Sites of Special Scientific Interest (SSSI) on account of its importance as a river with distinctive communities of floating vegetation. Along the lower reaches of the river, the mixed

catchment geology of sandstones and limestones gives rise to calcareous waters where water crowfoot (*Ranunculus penicillatus* ssp. *Pseudofluitans*) dominates, giving way to *Ranunculus fluitans* further downstream. Short-leaved water-starwort *Callitriche truncata* is an unusual addition to the *Ranunculus* community and gives additional interest (JNCC, 2006).

The Axe estuary is of ecological importance as it contains mudflats and areas of salt marsh (Environment Agency, 2003; 2004; Burd, 1989). Luoma & Bryan (1978) conducted sediment and *Scrobicularia plana* measurements in the Axe Estuary in which the authors described the estuary as 'relatively pristine'. Concentrations of copper, zinc, cadmium, lead and nickel in *Nereis diversicolor* and sediments from the Axe Estuary, South Devon were monitored from 1980-1982 by Havard (1991).

Stakeholder narrative: Assumptions and implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.20d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.20e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.20d Specific assumptions and implications relating to Axe Estuary rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Aggregate extraction will not be allowed	Direct implications: <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence.
Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	
	Given this assumption, there are still the following

	<p>concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Bottom-towed fishing gear will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings. It is uncertain whether the activity would be allowed in the site in the future, depending on the intensity it could cause impacts on seafloor features that would prevent the achievement of conservation objectives.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Netting and longlining will not be allowed</p> <p><i>This assumption was recorded early on in the process, in order to protect nursery habitats and juveniles in all</i></p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for netters o Displacement of netters o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing

<p>sites with draft conservation objectives for mobile FOCI. Stakeholder feedback has indicated that the assumption about longlining is inappropriate, as the activity does not happen inshore. An uncertainty remains around netting, where the activity may have an impact on nursery habitat - this uncertainty was not resolved through the VA</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>o Cumulative impact on netters where protected areas are close together</p> <p>Given this assumption, there are still the following concerns:</p> <p>o SAFFA fixed net restrictions apply.</p> <p>o A stakeholder questioned why there was a recorded concern about netting, but not about potting.</p>
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Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.)</p> <p>Given this assumption, there are still the following concerns:</p> <p>o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed</p> <p>o There would be costs if monitoring is needed</p>
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p> <p>Given this assumption, there are still the following concerns:</p> <p>o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in:</p> <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions <p>o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications</p>

	<p>in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets.</p> <ul style="list-style-type: none"> o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Beach replenishment will be permitted with mitigation / management</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	<p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o A Steering Group member commented on the importance of taking into account shoreline management plan policies and planned activities.
Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>Pelagic trawls will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring

	<p>requirements.</p> <ul style="list-style-type: none"> o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Benefits:</p> <ul style="list-style-type: none"> o A Steering Group member queried whether part of the rationale of this site had been that an MCZ could contribute to the economic regeneration of Seaton by acting as a 'selling point' for the area.
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p>The VA meetings considered this activity for this site, and concluded that maintenance dredging would be permitted with no additional mitigation likely to be required as a result of the rMCZ.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Dredging is an important activity to keep access to the small port at Axmouth open (the entrance to the estuary silts up otherwise; material is dredged from the estuary entrance and deposited nearby).
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)

<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.20e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Navigational Dredging	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application or by the Harbour Authority. It is expected that maintenance dredging would be permitted with no additional mitigation likely to be required as a result of the rMCZ. <p>Measure:</p> <ul style="list-style-type: none"> - Marine Licence or Harbour Acts and Orders

Stakeholder narrative: Uncertainties and Additional comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Commercial fishing*
 - Commercial fishing raised concerns that estuaries are surplus to the requirement of the ENG.
- *Environment Agency*
 - Estuarine partnership management arrangements should be listed as management measures for the site
- *Netting and longlining*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site. For sites that still have draft conservation objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact on nursery habitats or juvenile FOCI. This particular rMCZ was added to the network in the final planning stages, after the detailed work on developing assumptions had already happened, but given that the site has a draft conservation objective for *Anguilla anguilla*, European eel, the uncertainty around netting applies.
- *Generic implications for ports (applicable to all rMCZs where port jurisdictions and activities overlap with the site, or are adjacent to the site)*
 - Harbour Revision Orders, General Directions, Pilotage Directions etc.
 - Ports and harbours are limited to their jurisdiction.

- Ability of port to comply with legal responsibilities e.g. Oil Spill Response Planning etc.
 - Administration, resource on and off the water, legal and technical specialists requirements associated with additional management and legal responsibilities should co-location be pursued.
 - Additional time and cost triggered by all of the above both to the port.
 - Implications on other industries using the port or who wish to use the port in the future.
 - Existing management practices on and off water e.g vessel and activity management, speed, timing restrictions etc.
 - Existing emergency response – weather, pollution, security.
 - Dredging to ensure maintenance of safe navigable depths.
 - Berthing, mooring & anchoring of small & large vessels.
 - Ship building, maintenance, refurbishment & repair.
 - Maintenance, refurbishment & repair of port and harbour infrastructure.
 - New port and harbour infrastructure.
 - Access & egress to and from harbour.
 - Recreational activities within harbour.
 - Ship access and egress to and from berths.
 - Significance of timescales, delays and cost to management practices.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.20e (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.

- The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The Axe estuary has low levels of human activity, which is why the estuary was one of the three that were included in the developing recommendations at a relatively early stage (see progress report 3). This makes the site less controversial than many others. The key concern that has been highlighted with respect to this rMCZ has been around the small-scale port activities at Axmouth. The shingle bar at the entrance to the estuary occasionally needs dredging to keep access to the port open, and there are moorings located near the estuary mouth which require maintenance.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site. Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](http://jncc.defra.gov.uk/page-4)³¹.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional relevant information about the Axe Estuary in Buck (1997); Environment Agency (1996; 1998a; b; 2001); Moore *et al.* (1999); and Parkinson (1985).

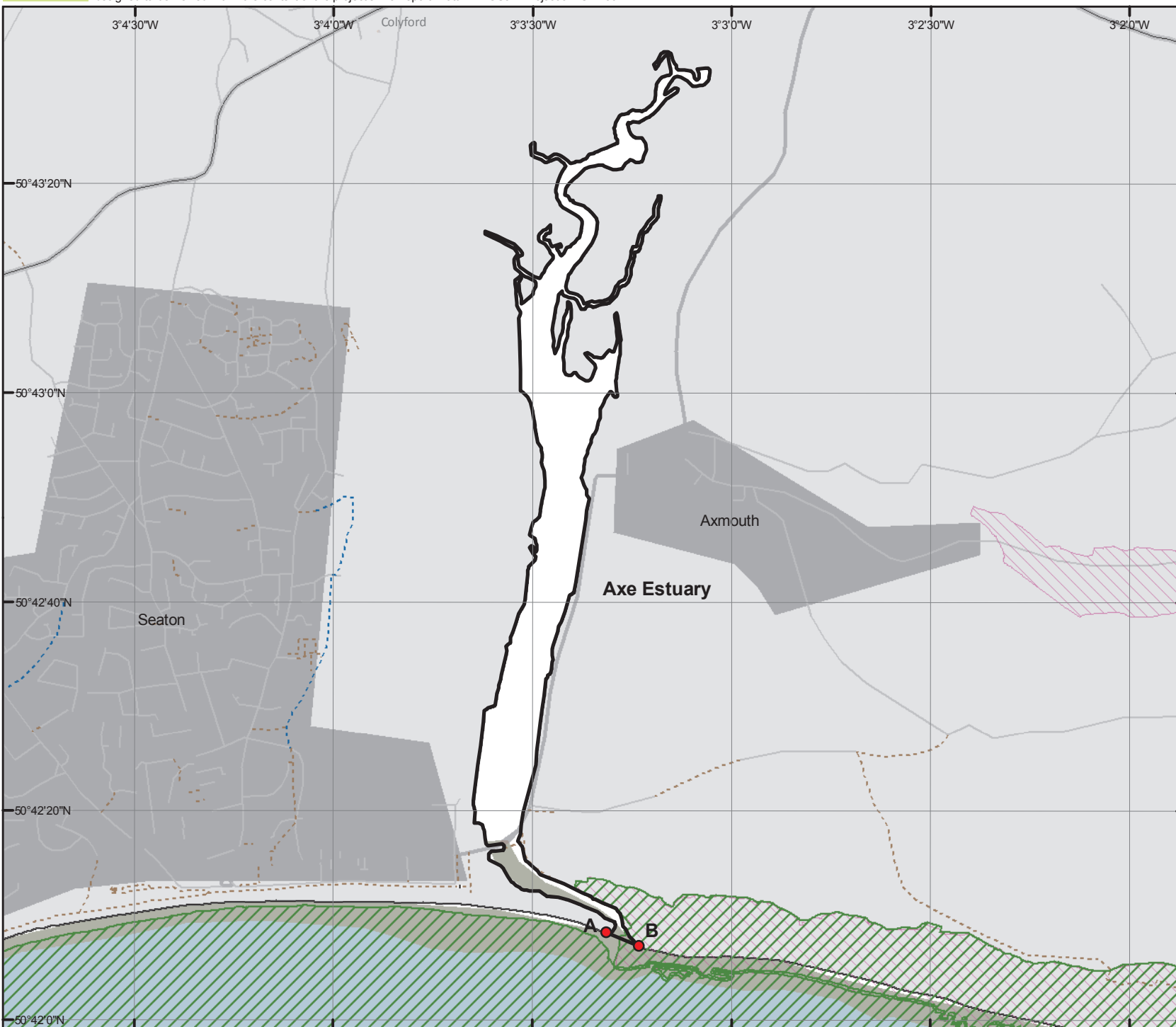
Site map series

On the following pages there are two maps of this site.

- The first map (FR_030a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_030b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.20b and II.3.20c, data sources are indicated in the tables.
- The third map (FR_030c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).

³¹ <http://jncc.defra.gov.uk/page-4>




- Most rMCZ site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



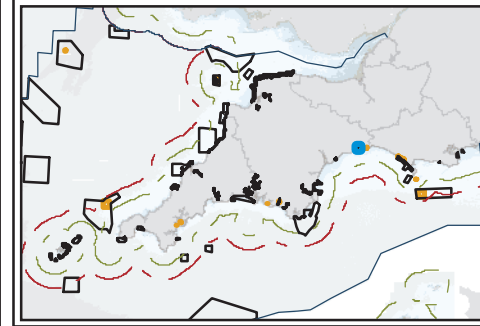
Lat/Long Co-ordinates (WGS84)

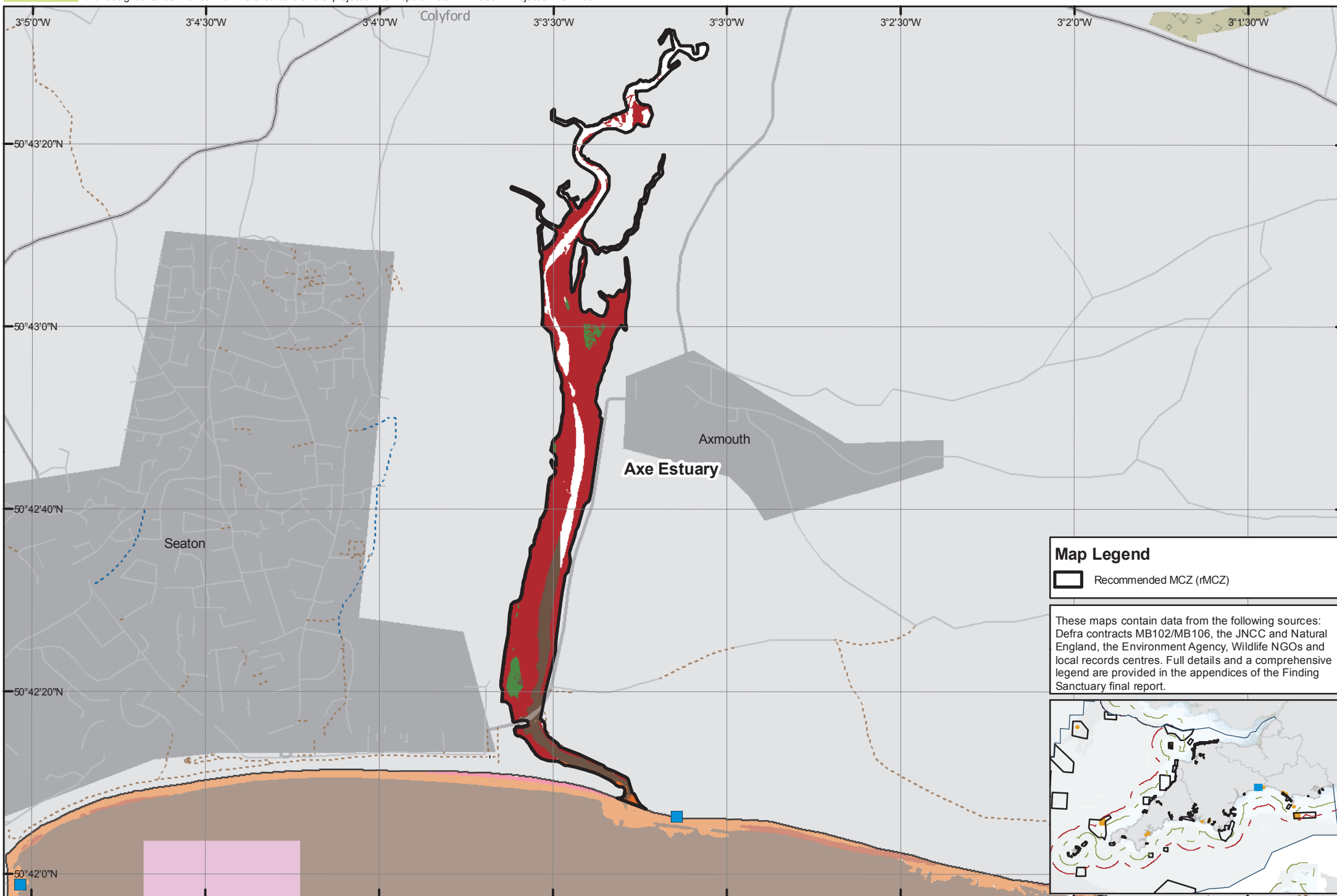
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.7023	-3.0552	50° 42' 8" N	3° 3' 18" W
B	50.7020	-3.0538	50° 42' 7" N	3° 3' 13" W

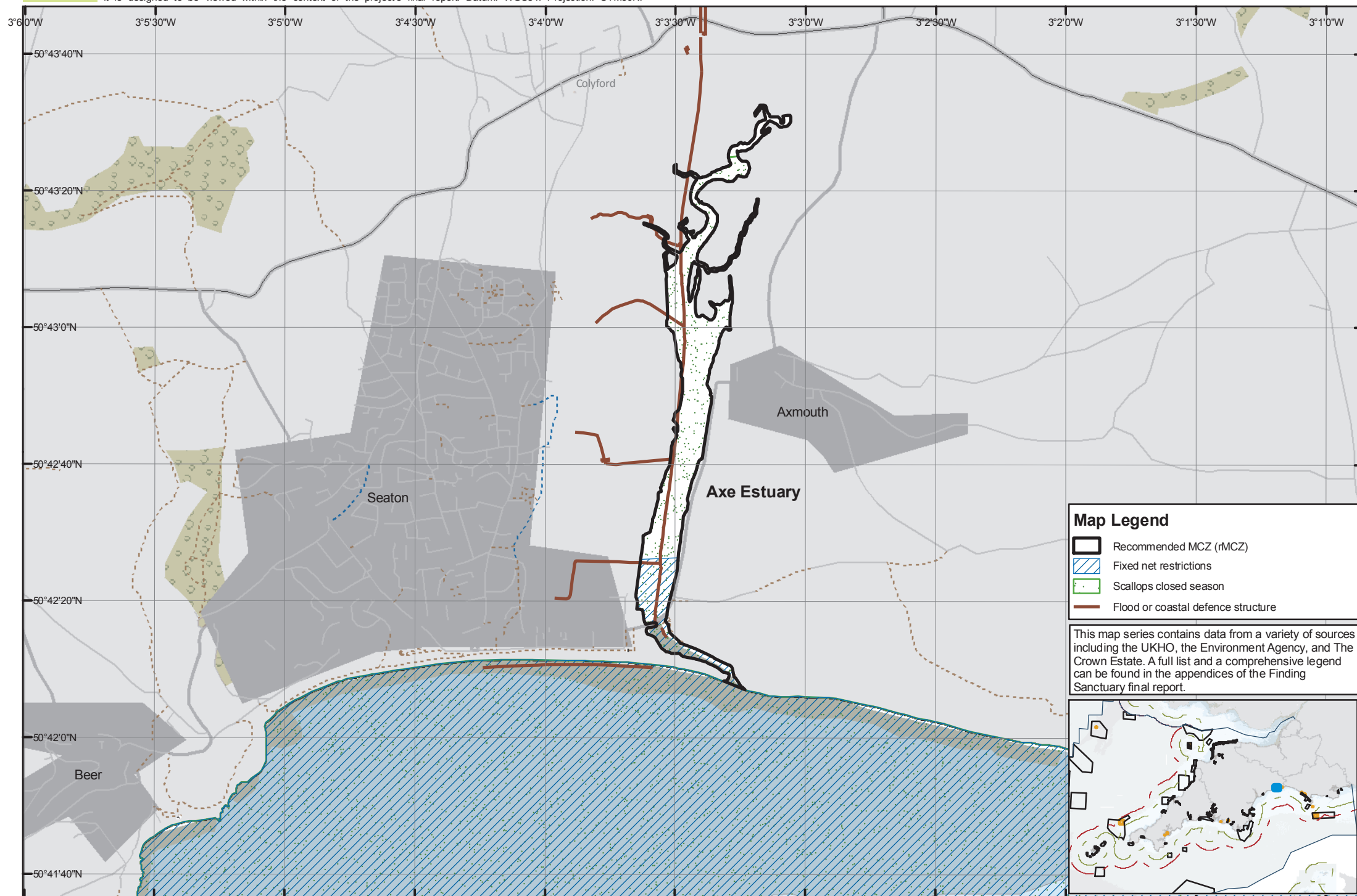
Map Legend

-  Recommended MCZ (rMCZ)
- Existing MPAs**
-  SAC
-  SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.







II.3.21 Otter Estuary rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.6345	-3.3088	50° 38' 4" N	3° 18' 31" W

Site surface area: 0.11 km² (calculated in ETRS89-LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The seaward site boundary has been drawn across the mouth of the estuary, at the shingle bar at the eastern end of the beach at Budleigh Salterton. The site boundary extends along the OS Boundary Line mean high water mark, as far inland as the aqueduct near East Budleigh.

Sites to which the site is related: The site lies wholly within the Otter Estuary SSSI, which is wider than the rMCZ as it includes the estuarine marshland above the mean high water mark.

Features proposed for designation with the Otter Estuary rMCZ

Table II.3.21a Draft conservation objectives for the Otter Estuary rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal sand		M
	High energy infralittoral rock		M
	Coastal saltmarshes and saline reedbeds		M
	Intertidal coarse sediment		M
	Intertidal mud		M
Species FOCI	<i>Anguilla anguilla</i>	European eel	? M / R ¹

¹At the time of the vulnerability assessment meetings, no decision was taken whether the conservation objective for this feature should be 'maintain' or 'recover'. No quantitative information is included for this mobile FOCI species in the tables below, as the GIS data available was too coarse resolution to be meaningful. However, the species has been included in the draft conservation objectives on the basis of evidence provided to the project by the Environment Agency (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.21b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	0.02	<0.1%	1
Subtidal sand	<0.01	<0.1%	1

Table II.3.21c Intertidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Intertidal coarse sediments	<0.01	<0.1%	3
Intertidal mud	0.05	<0.1%	4, 3
Coastal saltmarshes and saline reedbeds	<0.01	<0.1%	3
Intertidal mud ¹	<0.01	<0.1%	3
Coastal saltmarshes and saline reedbeds ²	0.02	0.7%	3

¹ Features / areas already protected within an overlapping MPA. See the gap table (appendix 11) for details.

² The area of coastal saltmarsh calculated in this GIS analysis is likely to be an underestimate of the saltmarsh area present along the estuary (see the reference to Allen, 2010 in the detailed site description below), as the rMCZ site boundary is at OS Boundary Line mean high water, and the habitat might extend above that. The habitat is already protected within an overlapping MPA. See the gap table (appendix 11) for details.

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.03 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

Flowing due south, the lower 2km reach of the River Otter is bounded by sea embankment to the west and sandstone cliff (of up to 10m high) to the east. The estuary broadens to a maximum width of 500m. Here the deep, fine alluvium has enabled a well-developed pan and creek system to form (Allen, 2010). A shingle barrier running eastwards from the west shore virtually closes the estuary from the sea, with the river entering through a 5m gap. Behind the barrier the relatively extensive marsh constitutes a rich diversity of flora and fauna, and has a corresponding variety of bird species (Allen, 2010). The estuary is a nursery area for fish (including bass), with the supporting benthic habitats. One of the reasons for the inclusion of this and other estuarine rMCZs in the network was in recognition of the added ecological importance of estuaries in terms of productivity, and their ecological function as nursery areas.

Detailed site description

There are several distinct communities of mud-dwelling invertebrates in the estuary. Characteristic species include the bivalve Peppery Furrow-shell *Scrobicularia plana*, the ragworm *Nereis diversicolor* and the crustacean *Corophium volutator*. This variety, together with adjacent habitats, provides food for a corresponding variety of bird species, some of which can be present in large numbers, principally Curlew *Numenius arquata* and Lapwing *Vanellus vanellus*. The area is an important additional feeding station for birds from the nearby Exe Estuary, especially during severe weather (English Nature, 2001).

Burd (1989) described the Otter Estuary within the Saltmarsh survey of Great Britain. The site (a SSSI and Local Nature Reserve) has more saltmarsh vegetation than any other in Devon and, together with the tidal mudflats, provides an important feeding and resting area for over-wintering birds. The Otter has reaches which meander extensively, with varied associated in-stream habitats, including eroding bank faces and exposed riverine sediments. The exposed areas of sand and gravel deposited by river action are particularly valuable as habitats for invertebrates (Environment Agency, 2005). The salt marsh of the Otter Estuary at Budleigh Salterton consists of 33.3 ha (Allen, 2010). Fifty-six surface samples were collected by Allen (2010) from the Otter estuary salt marsh to determine the distribution of foraminifera.

Nie & Kennedy (1991) carried out surveys of parasites on the European eel (*Anguilla anguilla*) in two Devon estuaries. Sampling for *Anguilla anguilla* started in March 1987, and monthly samples were taken by electrofishing until July 1988 in the River Clyst, and until April 1988 in the River Otter (above and below the last bridge just before the estuary). Altogether, 233 eels were captured to analyse parasitic communities.

Stakeholder narrative: Assumptions and implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.21d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.21e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.21d Specific assumptions and implications relating to Otter Estuary rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Bottom-towed fishing gear will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings. It is uncertain whether the activity would be allowed in the site in the future, depending on the intensity it could cause impacts on seafloor features that would prevent the achievement of conservation objectives.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen (<i>may not be relevant in this area.</i>) o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.

<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Netting and longlining will not be allowed</p> <p><i>This assumption was recorded early on in the process, in order to protect nursery habitats and juveniles in all sites with draft conservation objectives for mobile FOCI. Stakeholder feedback has indicated that the assumption about longlining is inappropriate, as the activity does not happen inshore. An uncertainty remains around netting, where the activity may have an impact on nursery habitat - this uncertainty was not resolved through the VA</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for netters o Displacement of netters o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on netters where protected areas are close together <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o SAFFA fixed net restrictions apply.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users.

<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o A Steering Group member commented on the importance of taking into account shoreline management plan policies and planned activities.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>Pelagic trawls will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.

Passage of ships will be permitted Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o
Seaweed harvesting will be permitted Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o

Table II.3.21e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
n/a	n/a

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Commercial fishing*
 - Commercial fishing raised concerns that estuaries are surplus to the requirement of the ENG.
- *Environment Agency*
 - Estuarine partnership management arrangements should be listed as management measures for the site
- *Netting and longlining*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site. For sites that still have draft conservation objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact on nursery habitats or juvenile FOCI. This particular rMCZ was added to the network in the final planning stages, after the detailed work on developing assumptions had already happened, but given that the site has a draft conservation objective for *Anguilla anguilla*, European eel, the uncertainty around netting applies.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over
 - Improvements for the local economy
 - Education opportunities
 - Benefits to science
 - Focus for voluntary groups
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc)
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in

table II.3.21e (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.

- The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The Otter estuary is a relatively well-supported rMCZ with low levels of contention, as there are low levels of human activity within the estuary and there is no port. It is one of the three estuaries that were included in the developing recommendations relatively early on in the process (see progress report 3).

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

Site map series

On the following pages there are two maps of this site.

- The first map (FR_032a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_032b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.21b and II.3.21c, data sources are indicated in the tables.
- The third map (FR_032c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).

- Most rMCZ site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

Otter Estuary rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062006.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.




0 0.3 0.6 km



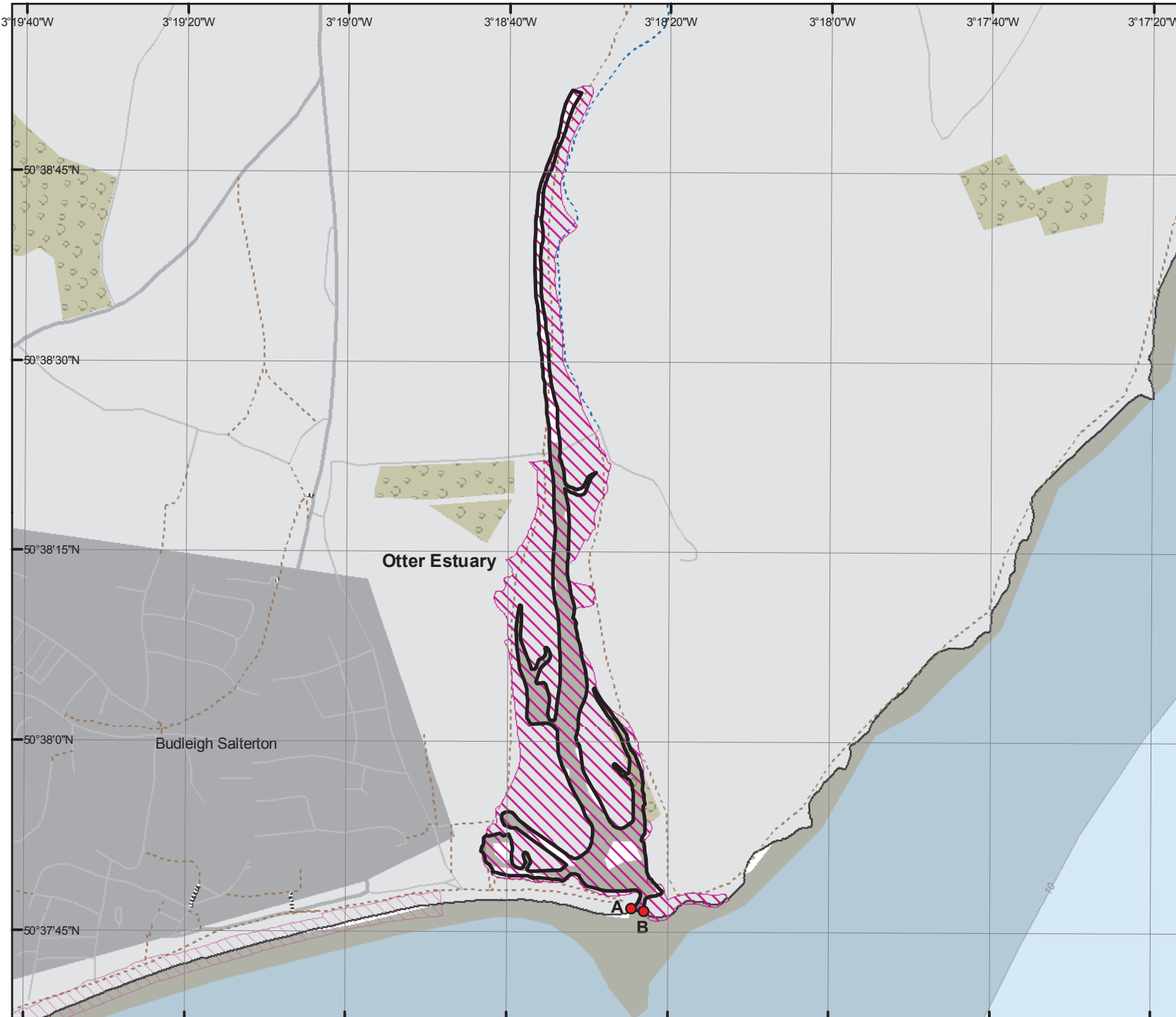
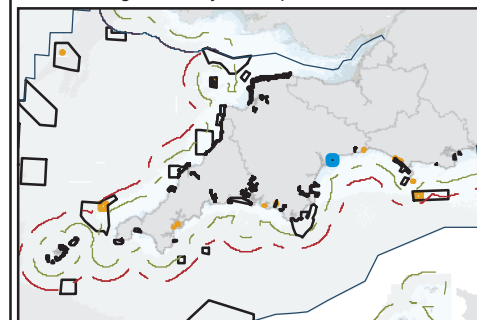
Lat/Long Co-ordinates (WGS84)

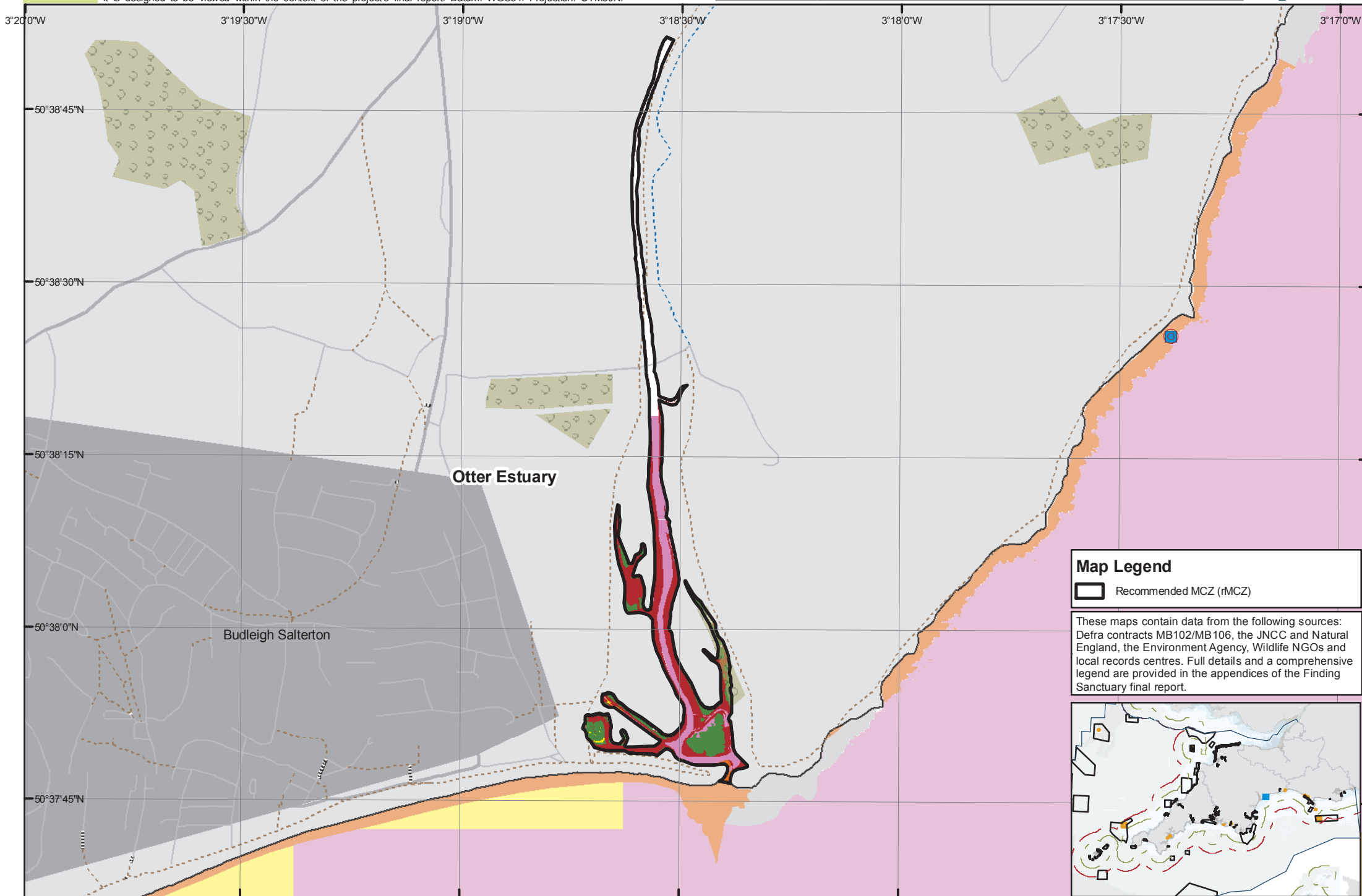
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.6297	-3.3068	50° 37' 46" N	3° 18' 24" W
B	50.6296	-3.3064	50° 37' 46" N	3° 18' 22" W

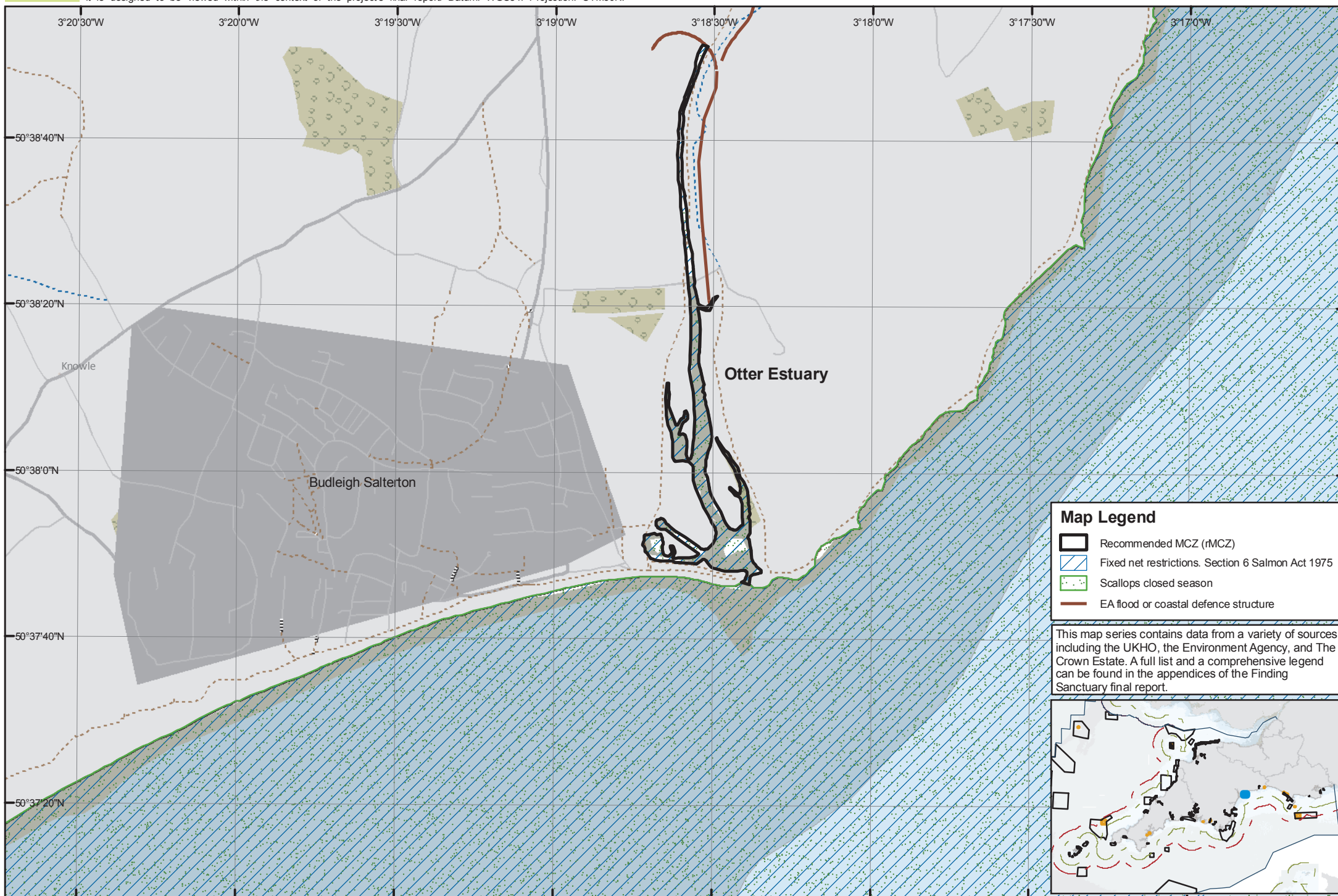
Map Legend

-  Recommended MCZ (rMCZ)
- Existing MPAs**
 -  SSSI (part of MPA network)
 -  SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.







II.3.22 Torbay rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.4335	-3.5117	50° 26' 0" N	3° 30' 41" W

Due to the shape of this site the centroid falls outside the rMCZ boundary.

Site surface area: 19.9 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The site boundary mainly follows the boundary of Lyme Bay and Torbay cSAC between Oddicombe Beach (along the shore to the north of Hope's Nose at Torquay), and Sharkham Point (just south of Berry Head, near Brixham). The site extends in the region of 1 - 2.5km out to sea, sometimes less. The areas within Brixham and Torquay harbours are not included. There is a seaward extension beyond the cSAC boundary around Berry Head, this Berry Head zone is recommended for the protection of seabirds and cetaceans (not seafloor features).

Sites to which the site is related: The site partially overlaps with Lyme Bay and Torbay candidate SAC. Several small Sites of Scientific Interest are located along the shoreline of this rMCZ, including Hope's Nose to Wall Hill, Meadfoot Sea Road, Daddyhole, Roundham Head, Saltern Cove, and Berry Head to Sharkham Point. The southern portion of the site (south of Berry Head) intersects with a no-trawling zone within the Start Point Inshore Potting Agreement (this agreement is described in more detail in the Skerries Bank and surrounds rMCZ site report).

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

This rMCZ consists of two zones. The area within the Torbay cSAC is recommended for the protection of ENG seafloor species and habitats not protected by the SAC designation. The zone around Berry Head is recommended for the protection of seabirds and cetaceans, but not for seafloor features. The Berry Head zone is suggested after detailed discussion within the Joint Working Group, on the basis that there is a known problem with motorised leisure craft causing disturbance to seabirds and collisions with cetaceans around Berry Head.

Features proposed for designation within Torbay rMCZ

Table II.3.22a Draft conservation objectives for Torbay rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal mud ¹		R
	Intertidal coarse sediment		M
	Intertidal mixed sediments		M
	Intertidal mud ²		M
	Intertidal sand and muddy sand		M
	Low energy intertidal rock		M
	Moderate energy intertidal rock		M
	Intertidal under boulder communities		M
	<i>Sabellaria alveolata</i> reefs	Honeycomb worm reefs	M
	Seagrass beds		R
Species FOCI	<i>Hippocampus guttulatus</i>	Long snouted seahorse	M
	<i>Ostrea edulis</i>	Native oyster	M
	<i>Padina pavonica</i>	Peacock's tail seaweed	M
	<i>Paludinella littorina</i>	Sea snail	M
Mobile species not listed in ENG	<i>Gavia arctica</i> ³	Black throated diver	M
	<i>Gavia immer</i> ³	Great northern diver	M
	<i>Podiceps cristatus</i> ³	Great crested grebe	M
	<i>Podiceps nigricollis</i> ³	Black necked grebe	M
	<i>Podiceps grisegena</i> ³	Red necked grebe	M
	<i>Podiceps auritus</i> ³	Slavonian grebe	M
	<i>Uria aalge</i> ⁴	Guillemot	M
	<i>Phocoena phocoena</i> ⁵	Harbour porpoise	M

¹Local and scientific feedback states that the habitat indicated as mud on the broad-scale habitat map for this site is probably a mixture of sandy mud and muddy sand, not pure mud.

²This habitat is on the draft conservation objective list because this feature is mapped in our combined EUNIS level 3 GIS data, although the habitat within Torbay is likely to be predominantly sandy habitat. The reason the broad-scale habitat map records it as mud is because of the habitat translation between EA habitat data and the EUNIS level 3 classification, which leads to a misclassification of some intertidal sandy areas as mud, and a consequent overestimate of the extent of intertidal mud in some areas (see appendix 8).

³Only within the zone around Berry Head – this is one of a number of wintering divers and grebes.

⁴Only within the zone around Berry Head – breeding guillemots.

⁵Only within the zone around Berry Head.

Of the draft conservation objectives listed in the table above, those for broad-scale habitats, FOCI habitats, and FOCI species apply to the whole site except the Berry Head zone. The draft conservation objectives for the birds and harbour porpoise apply in the Berry Head zone only.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within

the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.22b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal mud	8.83	0.1%	1, 2
High energy infralittoral rock ¹	0.26	<0.1%	1
Moderate energy infralittoral rock ¹	5.84	1.9%	1
Low energy infralittoral rock ¹	2.21	28.3%	1
Moderate energy circalittoral rock ¹	0.10	<0.1%	1
Subtidal sand ¹	<0.01	<0.1%	1
Low energy infralittoral rock ²	0.39	5.0%	1

¹ Features / areas already protected within an overlapping MPA. See gap table (appendix 11) for details.

² This is a small area of low energy infralittoral rock that falls just outside the candidate SAC boundary, on the Torquay side of the bay where the cSAC and rMCZ boundaries do not align exactly (see the maps at the end of this site report). The 2.21km² of the same habitat three rows earlier is the area that lies within the cSAC boundary. At the vulnerability assessment meetings, no draft conservation objective for this feature was added to the rMCZ list, as the feature was listed as already protected within the existing cSAC - not realising that part of the habitat lay beyond the cSAC boundary. As a general rule, all broad-scale habitats within rMCZs have a draft conservation objective, unless the whole area of habitat within the site is already protected. Therefore, this feature ought to be added to the conservation objective list. The full extent of this habitat within the rMCZ boundaries has been included in the overall network statistics in section II.2.8.

Table II.3.22c Intertidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 - MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy intertidal rock	0.07	1.4%	4
Low energy intertidal rock	0.06	2.0%	4
Intertidal coarse sediments	0.11	0.6%	4, 3
Intertidal sand and muddy sand	0.02	0.2%	4
Intertidal mud	0.48	0.3%	4, 3
Intertidal mixed sediments	0.11	2.5%	4
Moderate energy intertidal rock ¹	<0.01	<0.1%	4
Low energy intertidal rock ¹	0.03	1.0%	4
Intertidal sand and muddy sand ¹	<0.01	<0.1%	4
Intertidal mixed sediments ¹	<0.01	<0.1%	4

¹ Features / areas already protected within an overlapping MPA. See gap table (appendix 11) for details.

Table II.3.22d **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Intertidal underboulder communities		6		1
Honeycomb worm (<i>Sabellaria alveolata</i>) reefs		1		1
Seagrass beds	0.90	3		1
Subtidal sands and gravels ¹	7.83			1
Mud habitats in deep water ²		2		1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

² At the vulnerability assessment meetings, these two records were considered erroneous, and the habitat was not added to the draft conservation objective list.

Table II.3.22e **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Hippocampus guttulatus</i>	1		1
<i>Ostrea edulis</i>	4		1
<i>Padina pavonica</i> ¹	4	3	1
<i>Paludinella littorina</i>	1	1	1
<i>Eunicella verrucosa</i> ²	2		1, 5

¹ There is only one record of *Padina pavonica* in the amalgamated GIS FOCI datasets for this site, which is not older than 30 years. However, local and scientific feedback indicates that the habitat along the shore where the record is located is appropriate habitat for the species, so it has been kept on the draft conservation objective list.

² Features / areas already protected within an overlapping MPA. See gap table (appendix 11) for details.

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 6.26 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

Torbay is located on the south coast of Devon in the south west UK. The east facing bay is 6.4 km wide and the largest town on the bay is Torquay (Hirst & Attrill, 2008). The Devon Wildlife Trust

(1995) describes Torbay as ‘the jewel in south Devon’s crown’ for marine wildlife. They point to the profusion of animal species in damp shaded locations on the shore, citing particularly the limestone wall of Princess Pier in Torbay, and noting that Torre Abbey Sands is the only littoral site in the Bay for seagrass *Zostera marina*. The site extends from the coastline to depths of approximately 30 metres.

The rMCZ intersects with an area of higher than average benthic species and habitat diversity (as mapped by national data layers contract MB102). Local Group feedback has highlighted the sea caves present in and around Torbay, though rocky reefs and sea caves will be protected by the SAC designation. Local Group and Working Group discussions have also recognised the importance of the area for birds, with an important wintering bird roost at Broadsands, and the second most important area for wintering diver and grebe concentrations in the south west. The area is also important for bird breeding colonies, and guillemot feeding areas. Finally, the area has also been highlighted in Local Group feedback as being an important breeding area and nursery for commercial fish species.

Detailed site description

The inshore areas of Torbay are described as predominantly soft muddy sands with communities characterised by the heart urchin *Echinocardium cordatum* and brittlestars *Amphiura* spp. and *Ophiura* spp., whereas cleaner sands close inshore hold dense populations of razor shells *Ensis* spp., heart urchins *Echinocardium cordatum* and seagrass *Zostera marina* (Devon Wildlife Trust, 1995).

Communities of polychaete worms were described by Elwes (1908). Piddocks *Pholas dactylus* occurred in rock, submerged peat and clay substrata in Torbay. Sublittoral limestone rock pinnacles were considered especially rich with sea squirts, sea anemones and sponges common. Where the seabed becomes muddy, burrowing species including the angular crab *Goneplax rhomboides* and the red band fish *Cepola rubescens* were reported (Devon Wildlife Trust, 1995). The offshore seabed fauna of Great West Bay was extensively studied by Holme (1966). The substratum was relatively uniform, the community present was characterised as a ‘Boreal offshore muddysand association’; a community which corresponds to Petersen’s (1918) ‘*Echinocardium-filiformis*’ community. These communities were dominated by bivalve molluscs, holothurians (sea cucumbers) and other echinoderms (Davies, 1998). Permian conglomerate reef occurs in the middle of bay (Proctor, 1999).

Berry Head has considerable nature conservation importance for nesting seabirds and its cliff vegetation and is designated a Local Nature Reserve. The limestone has been eroded leading to the formation of caves, an uncommon marine habitat. Marine communities within the caves were described by Proctor (1985). Littoral caves pepper the headlands and islets of Torbay, and at Berry Head many extend into the sublittoral or are entirely sublittoral (Davies, 1998). The communities were described as ‘a colourful patchwork of tubeworms, barnacles, sponges, anemones, hydroids and sea squirts with fish and crustaceans common’ by Devon Wildlife Trust (in prep.). However, the marine biology of the caves remains incompletely described (Davies, 1998). Littoral habitats and communities of Berry Head were described by McCarter & Thomas (1980) in a study of south Devon. Algae were sparse; the communities were characterised by limpets, mussels *Mytilus edulis* and barnacles. Well developed lichen communities were recorded from the splash zones. Warner (1971) studied dense beds of the brittlestar *Ophiothrix fragilis*, and Hughes (1977) studied the ecology of hydroids off Berry Head (Davies, 1998).

A lot of survey effort has focussed on seagrass (*Zostera marina*) beds in Torbay. The Torbay Seagrass project is managed by Torbay Coast and Countryside Trust with the support of Devon Sea Fisheries Committee, Natural England and Torbay Council. They are funded by SITA (Landfill Trust) and carry

out a number of surveys and mapping. Torbay seagrass beds are also a study site for the EU INTERREG IV collaborative project Cephalopod Recruitment from English-Channel Spawning Habitats (CRESH, 2011). As part of this project seagrass beds in Torbay were surveyed for cuttlefish egg masses in the summers of 2010 and 2011 (see <http://www.marlin.ac.uk/cresh/>).

Proctor (1999) states that *Zostera* beds have been identified at seven sites around Torbay, most of them concentrated into two groups centred around the sheltered North West and South West corners of the bay. Many of the beds proved to be limited extent, but two were very large (the beds at Elberry Cove and Torre Abbey Sands). Very rich faunas are associated with them, particularly of burrowing worms, anemones and echinoderms. Proctor (1999) provides the following more site-specific information on seagrass beds in Torbay:

- At Breakwater Beach, Brixham (SX 932 567), the beach is made of limestone shingle, sloping down to low tide mark to a flat sandy bottom at a depth of 4 metres. *Zostera* bed forms a strip running parallel to the coast some 25 to 100 metres off the beach, on a substrate of muddy sand with small cobbles and shells. The main area (bed of 150 by 40 metres) lies off the small headland at the east end of the beach. To the west, a narrow belt of *Zostera* extends towards the breakwater (approx 10 metres wide). The muddy sand bottom beyond the bed is faunally rich, with abundant spider crabs *Macropodia* sp. and a colony of the square crab *Goneplax rhomboides*.
- At Fishcombe Cove (Just west of Brixham harbour, SX 919 570) the beach comprises shingle cobbles grading down to limestone slabs at low water mark. *Zostera* beds grow on a substrate of muddy sand with shells and pebbles (area of 140 by 60 metres in the middle of the cove). Narrow beds extend from the main bed to the north and the east (the north peters out after 50 m).
- At the far southwest corner of Torbay at Elberry Cove (SX 903 571), the shingle beach slopes down to a flat shore of clean sand, exposed at low spring tides. A very extensive bed of *Zostera* grows on the clean sand substrate here, covering an area of at least 150 by 300 metres, extending right across the cove at depth 1-2 metres (Proctor, 1999). The bed comprises scattered dense patches (distance between patches approx 3 to 10 metres). A narrow belt to the south connects it with another bed on south of Elberry Cove. The main bed extends north to Churston Point. Reports from divers suggest that *Zostera* beds may occur along most of this coastal strip from Elberry Cove to Fishcombe Cove (a distance of 1.6 km).
- A *Zostera* bed was reported off Livermead Head (SX 903 624) by Richard Wood (pers. comm. to C. Proctor) on clean sand at 2 metres (south from the north end of the headland). Small clumps were found in 1998. The Devon Wildlife Trust (DWT) reported small clumps growing at Livermead Sands.
- The wide sandy beach of Torre Abbey (SX 912 634) is the location of the largest *Zostera* bed known in Torbay. It is a clean sand beach with a very gentle slope. The bed grows on flat sand (with few shells and pebbles), from just above low water mark to depth of at least 3 metres. At the east of Harbreck Rock there is a bed of 300 by 300 metres, of which 300 by 90 metres of this is exposed at the lowest spring tides (extends seawards, continuing out unsurveyed. This may join the bed at the West side of Harbreck Rock on the seaward side. A clean sand burrowing invertebrate community is present.
- At Milestones Bay (SX 920 630), a small bay on east side of Torquay Harbour, limestone cobble beaches slope down below low water mark to a clean sand bottom. *Zostera* grows at 2 to 4 metres. A clean sand community similar to Torre Abbey and Elberry Cove exists.
- A small *Zostera* bed is also reported by local divers (ephemeral in nature) at Anstey's cove (SX 936 647). So, in general, *Zostera* occurs on sheltered soft bottoms in the shallow sublittoral. Isolated plants are found growing elsewhere in the bay.

Recent video and SCUBA surveys by the Torbay Coast and Countryside Trust's (TCCT) Torbay Seagrass Project have shown that there are at least 80 ha of seagrass meadows in Torbay (Hirst & Attrill, 2008). At Torre Abbey Sands off Torquay (50°27.68'N, 003°31.95'W) there is a *Zostera marina* L. bed that is exposed at extreme low water. The coverage of the intertidal bed is sparse and is made up of small patches of seagrass ranging from a few shoots to patches up to 1.6 m across, surrounded by sand, with more contiguous coverage present further into the subtidal. Hirst & Attrill (2008) sampled investigated the relationship between patch size, diversity and infaunal assemblage composition with the intention of defining a minimum *Zostera* patch size where the infaunal seagrass assemblage becomes distinct from the bare sand assemblage. The authors found that even small patches of seagrass comprising a few plants support a higher abundance and diversity of infaunal invertebrates than bare sand, indicating that *Zostera* patches have conservation value whatever their size.

There are several reports of seahorses within the seagrass beds of Torbay, and the site is described by The Seahorse Trust as a 'hotspot' for both species of Seahorse (*Hippocampus hippocampus* and *Hippocampus guttulatus*). The Seahorse Trust hold a large number of records from this area. Over the years prior to inclusion on the Wildlife and Countryside Act, they were also given by live Seahorses of both species by local fishermen from Torbay (Neil Garrick-Maidment, pers. comm.). During a 2008 Seasearch survey Sally Sharrock reported a spiny seahorse *Hippocampus guttulatus* found amongst the seagrass at Beacon Cove. The bed at Fishcombe Cove, described by Proctor (1999), is described as a dense, patchy meadow (edges with large patches of clear muddy sand), with a very rich fauna which includes *Hippocampus guttulatus*. The muddy bottom supports a very diverse burrowing fauna. Seahorses were found here in 1997 and again in 1998 (Neil Garrick-Maidment of the Seahorse Trust, pers. comm. to C. Proctor).

Ostrea edulis, *Padina pavonica*, and *Sabellaria alveolata* reefs have been reported during the 1992-95 Devon Wildlife Trust Torbay littoral survey. *Paludinella littorina* has been found in Torbay and surrounding area. Live snails from Torbay in shell drift were recorded in 1913 (Marshall 1913). Live snails were found in caves within St. Mary's Bay near Brixham by Light (1998), and shells were found in crevices at Hope's Nose (north of Tor Bay) recently by Killeen & Light (unpublished).

The sheltered limestone and sandstone shores of Torbay are rich in animals, many of which are more typically found underwater but can be found here in profusion in damp, shaded locations. Sponges in particular are abundant, many of the rocky shores hold over a dozen species (Devon Wildlife Trust, 1995).

Bouldery areas are occasionally consolidated by the frequent reefs of the honeycomb worm *Sabellaria alveolata* and these areas have varied rich and varied underboulder fauna. Hollicomber holds probably the densest population of the green sea urchin *Psammechinus miliaris* on the south west coast of Britain as well as acting from time to time as a settlement area for the common starfish *Asterias rubens* (Devon Wildlife Trust, 1995). Rocky ledges and boulders on the lower shore are heavily bored by piddocks and frequently possess a rich algal turf containing several rare or scarce species such as *Padina pavonica* and *Gigartina teedii* (Davies, 1998; Devon Wildlife Trust, 1995).

Two rare sublittoral habitats, peat bog and fossil forest, are found in the western end of Torbay. The peat bog is heavily bored by the common piddock. A layer of peat is also present intertidally, though submerged beneath the sandy beach (Devon Wildlife Trust, 1995).

In 2005 Garfish Cave and Corbridge Cave at Berry Head (Torbay) were surveyed by Chris Proctor, (local diver/caver). A team of 13 volunteer Seasearch divers carried out surveys over two weekends in March and April 2006, and further surveys of Garfish Cave were conducted by Chris Proctor's team in April. In a cave near Rock Dove Cave (a limestone cliff South Berry Head), fissures, cracks and crevices and a rich covering of turf especially near the cave entrance, on overhangs and up to 10m into the cave entrance were surveyed. *Caryophyllia inornata* was recorded as common together with the larger *Caryophyllia smithii*, the Devonshire cup coral, 7 species of sponge, 10 species of mollusc and 12 species of algae. From the cave entrance large boulders led down to smaller boulders, cobbles and sand patches at 6m below sea level. The boulders had little kelp cover at this time of year but many holdfasts indicated a thick summer growth. A wide arched entrance in the cliff has overhanging rock faces with small tubes extending upwards. The overhangs are heavily shaded with little weed growth but a rich encrusting fauna. *Dercitus bucklandi*, *Dysidea fragilis*, goosebump sponge, and *Cliona celata*, boring sponge, were amongst the 7 species of sponge recorded. There was abundant *Corynactis viridis*, the jewel anemone. *Alcyonium digitatum* and *Caryophyllia smithii* were common with *Alcyonium hibernicum* and *Caryophyllia inornata* also recorded amongst the total of 7 cnidarians. Ascidians included *Morchellium argus* and *Sidnyum elegans*. The floor of this entrance area had boulders in the centre with a narrow silt floored fissure on the east side with bib and leopard spotted goby present.

A dense bed of the brittle-star *Ophiothrix fragilis* was studied by SUCBA diving by Warner (1971). Sixty-six dives were carried out during 1967-69; a total of 74 hours underwater. The substrate during the survey was described as muddy gravel with rocky outcrops and a continuous, fairly weak current heavily laden with seston flowed over the bed. The muddy gravel became progressively muddier farther out from the shore. At 400m out the substrate is described as pure soft mud. Individuals occurred on rocky outcrops amongst the sessile epifauna. The brittle-star beds were described as restricted to 'hard grounds' just inside the two headlands (Hope's Nose and Berry Head). Seventy-eight other species were found during the surveys, the commonest being the bivalve *Abra alba*. Benthic sampling was carried out during the dives. Vertical rock faces were found to be pitted by boring bivalves.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.22f shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.22g shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details). These concerns were particularly significant for this site, as reflected under the additional comments below.

Table II.3.22f Specific assumptions and implications relating to Torbay rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Bottom-towed fishing gear will not be allowed</p> <p>The VA meetings considered scallop dredging for the site, and discussed that it may have to be excluded from part but not all of the site. This was based on data showing that the activity hardly takes place in most of the site. Other types of demersal fishing activities were not considered in detail.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o Change of method /reinvestment in other gear types may be needed o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There are outstanding concerns from the fishing industry over access for fisheries on mud habitats.

	<p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o The subtidal mud habitat will degrade if bottom gears are permitted within the site o MCZ boundaries already changed to reduce impacts on mobile fishing gear
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to the anchoring of large vessels). <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o General comment from SNCBs: a set distance is likely to be required from the edge of MCZ area where this activity is likely to impact on the MCZ features. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a closed disposal site within this rMCZ.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback has suggested excluding netting from the area, or restricting it so fixed nets are not allowed, in order to protect birds – these are currently not part of the conservation objectives (see ‘additional comments’). o Local Group feedback has suggested limiting potting. o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed

<p>Tourism and recreational activities will be permitted.</p> <p>Following discussions at the VA meetings, several tourism and leisure activities have been identified that would require management: anchoring would need to be prevented on seagrass areas, collisions with cetaceans (of motorised leisure craft) would need to be avoided, and seabird disturbance (noise) would need to be avoided around Berry Head.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Zoning/information/increased advice costs (generic) o Refer to Sea Torbay and Harbour management plans o Local Group feedback has suggested restricting boating activity, but has also highlighted that all leisure activities should be allowed to continue. The area is of great importance to tourism, with harbour activities, leisure sailing and water sports, and some people on the Local Group felt that any restrictions on these activities would have negative socio-economic consequences. o Local Group feedback has recognised the conflicts around leisure activities and conservation interests in the area, and also possible health and safety problems related to leisure activities. Zonation has been suggested as a possible tool to help resolve conflicts. o Some Local Group feedback indicates that they feel recreational activities may not have a negative impact on the conservation interests of the site.
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Following VA meetings, a need for management of anchoring on seagrass beds has been identified - please refer to the row above on tourism and recreational activities.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to the anchoring of small vessels). o Concerns have been voiced over potential damage of anchors to seagrass beds within the rMCZ, and the possibility of restricting or limiting anchoring in sensitive areas has been raised. This would mean zoning harbour and recreational activities. o Some Local Group feedback has raised concern about any restrictions on anchorage of small vessels, moorings for vessels or navigation aids o Safety concerns for drifting diving/angling boats due to inability to anchor. o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.

<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Following VA meetings, a potential need for managing aquaculture activities in this site has been identified.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is concern around potential increases in cost to these activities resulting from an MCZ designation, and a suggestion was made by a Steering Group member to model those costs.
<p>Coastal development and defence</p> <p>VA meetings highlighted that additional mitigation may be necessary, but this is not yet known.</p>	<p>Direct implications:</p> <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Coastal protection works within this site. o Possible restriction of construction works e.g. construction of breakwater; construction of third harbour
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users.

<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The Crown Estate have highlighted that the rMCZ is located near an area of waste water outfalls to the north which need to be able to continue. o A comment has been made to check with South West Water on their level of treatment in the area
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Zoning at the least (generic) / restriction of numbers
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The Crown Estate have highlighted that the rMCZ is located in an area with coastal protection works which need to be able to continue. o The Environment Agency ask for coastal erosion and flood risk management activities to be taken into account.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity

<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements) <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to maintenance dredging in ports). o It is essential that this activity can continue in this site, this has been indicated within the regional Working Groups as well as the Local Group. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Possible inability to dredge

<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Essential for compliance of shipping sector/economics o Impact on seagrass beds?
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to the passage of ships).
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Removal of seaweed is in the control of the Harbour master

Table II.3.22g VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – Scallop dredging	<p>Management:</p> <ul style="list-style-type: none"> - Effort management on subtidal mud habitats. Dredging permitted provided that such vessels use no more than 2 tow bars not exceeding 2.6m length with no more than 3 dredge attached to each tow bar. <p>Measure:</p> <ul style="list-style-type: none"> - Option 1: byelaw - Option 2: licence condition
Commercial Fishing – Scallop dredging	<p>Management:</p> <ul style="list-style-type: none"> - Prohibition of dredging over areas of seagrass. <p>Measure:</p> <ul style="list-style-type: none"> - Option 1: voluntary

	<ul style="list-style-type: none"> - Option 2: byelaw - Option 2: licence condition
Aquaculture	<p>Management</p> <ul style="list-style-type: none"> - Monitoring of sensitive rMCZ features as part of existing adaptive management plan <p>Measure</p> <ul style="list-style-type: none"> - To be determined
Tourism & Leisure - anchoring	<p>Management:</p> <ul style="list-style-type: none"> - Prioritisation of seagrass monitoring research programme; - Awareness raising of seagrass areas and potential impacts of anchoring <p>Measure:</p> <ul style="list-style-type: none"> - Voluntary
Tourism & Leisure	<p>Management</p> <ul style="list-style-type: none"> - Education and awareness of conduct for encounters with cetaceans <p>Measure</p> <ul style="list-style-type: none"> - Voluntary code of conduct - Voluntary 'Wise accreditation'
Tourism & leisure - vessel movement	<p>Management</p> <ul style="list-style-type: none"> - Seasonal (summer) speed restrictions around Berry Head <p>Measure</p> <ul style="list-style-type: none"> - Option 1: Byelaw - Option 2: Voluntary
Coastal Defence & Development	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application. It is not yet known whether any additional mitigation would be likely as a result of the rMCZ <p>Measure :</p> <ul style="list-style-type: none"> - Marine Licence

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following is a set of additional uncertainties relevant to this site:

- The NFFO representative stated the inclusion of bird features for this site without any clear indication of management measures created an uncertainty over the impact this site would have upon the fishing industry.
- The ports representative highlighted this as a site of particular concern to the ports sector, as they were uncertain over how the designation would affect their activities.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Anchoring of small vessels*
 - It was agreed that anchoring was incompatible with seagrass habitats. It was recommended that there was further liaison with the leisure industry to identify a mooring zonation scheme that benefits the seagrass habitat. It was recommended installing eco moorings at Fishcombe Cove.
 - Seagrass beds / anchoring: voluntary zoning has been discussed for years, would need further discussion with local stakeholders. This ought to tie in with health and safety discussions (e.g. zoning to protect swimmers from jetskis).
- *Seabirds and cetaceans*
 - The question was raised as to whether MCZ is the best / most appropriate vehicle for achieving the desired protection for seabirds and cetaceans around Berry Head. There is an existing but non-enforced byelaw within a small bay south of Berry Head. It is questionable whether another byelaw under an MCZ e.g. speed restriction would achieve a change to behaviour.
 - RYA suggest that codes of practice might be a better approach than new byelaws, seasonal buoys could be put in place to demarcate areas where code of practice applies.
 - RYA would not support any measure that would restrict passage of vessels.
 - Commercial fishing cannot support the inclusion of these species in the Draft conservation objectives.
 - Some other sectors felt they could not support a designation for seabirds and cetaceans and felt the local byelaws should cover this. Some reported that the byelaw is implemented by the harbour authority who doesn't enforce it, and this area is not mapped on the admiralty chart. The Berry Head zone with the draft conservation objectives for seabirds and cetaceans was ultimately agreed with reservations, on the strength of the rationale being used (i.e. that there was evidence of current activities causing disturbance to these species, and this needed addressing).
 - Current levels of human activity appear to be compatible with maintaining harbour porpoise numbers in this site. There is the potential for boat strike from pleasure craft which is a cause for concern. Monitoring of numbers and activities and impacts on these species, dissemination of codes of conduct for encounters, encouraging boat operators to become WiSE accredited and a 3 year review of baseline numbers (estimated from ERCCIS sightings data) would all help to maintain healthy populations of these mobile species. Healthy populations of harbour porpoises would suggest a healthy ecosystem within the site and would be an attraction for the general public and ecotourism. Mitigation measures would be required if there

was a decline in species numbers due to activities within the rMCZ (e.g. disturbance from boat pleasure craft, boat strike, bycatch from fishing activity).

- The conservation sector has proposed for the protection of wintering divers and grebes that a byelaw (for a non-disturbance zone in summer and dusk to dawn netting in the winter) would be necessary to determine that no deterioration in/loss of conservation status of the species making up the assemblage using the site (Black Throated Diver, Great Northern Diver, Great Crested Grebe, Black Necked Grebe, Red Necked Grebe, Slavonian Grebe) due to death, injury or disturbance. Mitigation measures would be required if there was a decline in species numbers due to activities within the rMCZ (e.g. disturbance from recreational disturbance, bycatch from fishing activity, built developments, pollution). Healthy populations of these species would suggest a healthy ecosystem within the site and would be an attraction for the general public and ecotourism.
 - Local Group feedback has suggested that additional resources ought to be made available to the harbour authority if an MCZ designation results in additional work.
- *Ports*
 - The Ports of Torbay (Torquay, Paignton and Brixham) have a significant role in serving the local, regional and national economy and are of strategic significance to the County of Devon. Efforts have been made to adjust the rMCZ boundary so that it avoids the inner harbours of each port, however, by pursuing this designation it is having a direct impact on 3 ports. Assumptions on shipping have not been clarified therefore there is a real risk to navigational safety that needs to be thoroughly investigated.
 - The port authority does not support this site.
 - Tor bay Harbour Authority - implications remain:
 - Competitiveness of port
 - Competitiveness of tourism based economy
 - Possible restriction on laying moorings
 - Loss of income from fishermen
 - Generic implications for ports (applicable to all rMCZs where port jurisdictions and activities overlap with the site, or are adjacent to the site):
 - Harbour Revision Orders, General Directions, Pilotage Directions etc.
 - Ports and harbours are limited to their jurisdiction.
 - Ability of port to comply with legal responsibilities e.g. Oil Spill Response Planning etc.
 - Administration, resource on and off the water, legal and technical specialists requirements associated with additional management and legal responsibilities should co-location be pursued.
 - Additional time and cost triggered by all of the above both to the port
 - Implications on other industries using the port or who wish to use the port in the future.
 - Existing management practices on and off water e.g vessel and activity management, speed, timing restrictions etc.
 - Existing emergency response – weather, pollution, security.
 - Dredging to ensure maintenance of safe navigable depths.
 - Berthing, mooring & anchoring or small & large vessels.
 - Ship building, maintenance, refurbishment & repair.
 - Maintenance, refurbishment & repair of port and harbour infrastructure.
 - New port and harbour infrastructure.

- Access & egress to and from harbour.
 - Recreational activities within harbour.
 - Ship access and egress to and from berths.
 - Significance of timescales, delays and cost to management practices.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.22g (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - Concerns were expressed with respect to inshore sites in general, but the Torbay rMCZ VA outcome elicited particularly strong negative feedback, because working group members felt that insufficient consideration had been given to local knowledge and evidence about the damage caused by bottom-towed mobile fishing gear (especially given the sensitive seagrass habitat present in the bay), and to the fact that local agreement to the MCZ recommendations had been won through many discussions and hard work.
 - This site was originally reduced in size to allow for scalloping to continue outside the rMCZ. Levels of effort by scallopers and dredgers has been seen to increase significantly and it was felt by some that if these activities were allowed to continue then there is no point including this site in the network.
 - The representative for charter skippers was strongly opposed to the outcome of the VA which suggested that the use of mobile gear will be allowed in this rMCZ. This opposition partly reflected the fact that this representative had spent a lot of time locally, speaking with stakeholders and getting local agreement for the site to be included in the recommended network, based on the assumption that mobile bottom-towed fishing gear would be excluded from the site.

- It was noted that closing this site to mobile gear use was supported by the local fishing community.
- The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Torbay rMCZ has raised concerns with the ports and harbours sector, who would prefer an alternative site to be found. The Torbay harbourmaster is not supportive of the site – he has been unsupportive from the beginning because of fears of impacts on harbour developments and operations. On the other hand, Torbay rMCZ has strong support from conservation and recreation representatives, and from Sea Torbay (a local cross-sectoral interest group). One of the Joint Working Group members spent a great deal of time communicating with local stakeholders, including Sea Torbay and local fishermen, and has gained support for this rMCZ (on the assumption that mobile bottom-towed gears would not be allowed in the site). This was one of the reasons why there was such a strong negative reaction to the outcome of the vulnerability assessment for Torbay rMCZ, with a sense of dismay at a lack of stronger management proposals following all the hard work to build local support for the site.

The Crown Estate provided feedback to state that the rMCZ is located in an area with coastal protection works, nearby waste water outfalls to the north and port/harbour facilities. They are supportive of the rMCZ with the assumption that MCZ designation would not restrict ongoing activities described.

The seabird and cetacean protection zone off Berry Head has strong support from the RSPB and other conservationists, as well as wider support from the stakeholders, who accept that there is a current problem with disturbance from speeding boats, and management would be beneficial. There is relatively broad support for voluntary agreements, but not for more byelaws (current byelaws in place near Berry Head are considered unenforceable by many).

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, SeaSearch 2009, MESH, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site. Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](http://jncc.defra.gov.uk/page-4)³².

Torbay Coast and Countryside Trust have data on cetaceans in Torbay and an ongoing record of activities and trends. Their data is also regularly shared with the Seawatch Foundation. Further information can be obtained from Nigel Smallbones from the Torbay Coast and Countryside Trust.

³² <http://jncc.defra.gov.uk/page-4>

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. In addition, there may be relevant information about the seagrass beds in Torbay in Black & Kochanowska (2004), and Devon Wildlife Trust (1996). Information and data on seabirds from the area of the rMCZ can be obtained from the RSPB.

Site map series

On the following pages there are three maps of this site.

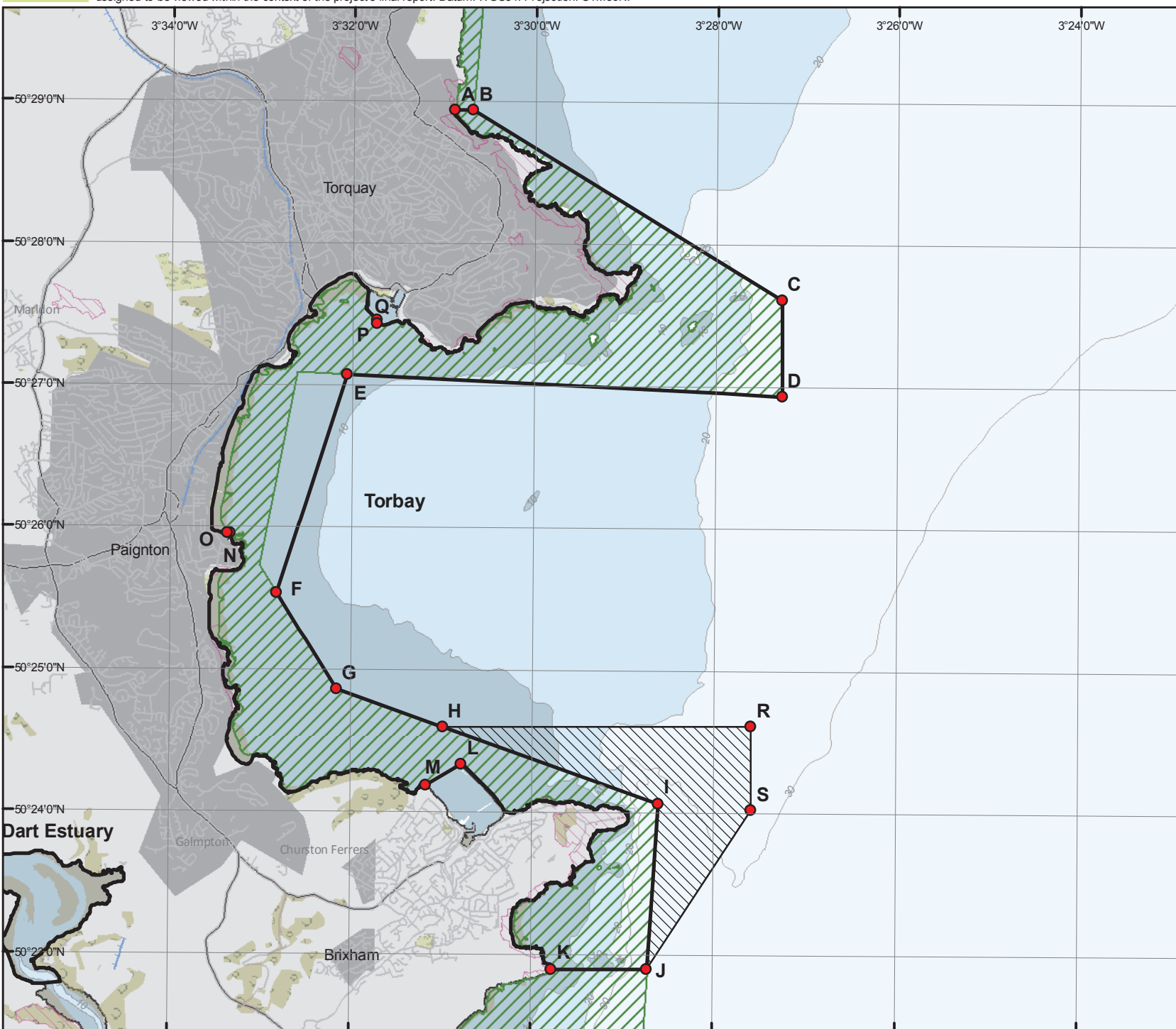
- The first map (FR_033a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_033b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOI. The data shown on this map corresponds with the information in tables II.3.22b to II.3.22e, data sources are indicated in the tables.
- The third map (FR_033c) shows socio-economic datasets excluding fisheries regulations. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- The fourth map (FR_033d) shows fisheries regulations data.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

Torbay rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 1 2 3 km



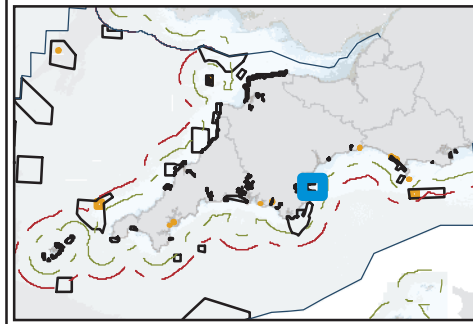
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.4824	-3.5149	50° 28' 56" N	3° 30' 53" W
B	50.4824	-3.5115	50° 28' 56" N	3° 30' 41" W
C	50.4602	-3.4546	50° 27' 36" N	3° 27' 16" W
D	50.4490	-3.4545	50° 26' 56" N	3° 27' 16" W
E	50.4513	-3.5344	50° 27' 4" N	3° 32' 3" W
F	50.4256	-3.5471	50° 25' 32" N	3° 32' 49" W
G	50.4144	-3.5361	50° 24' 51" N	3° 32' 9" W
H	50.4100	-3.5165	50° 24' 35" N	3° 30' 59" W
I	50.4011	-3.4769	50° 24' 4" N	3° 28' 36" W
J	50.3817	-3.4788	50° 22' 54" N	3° 28' 43" W
K	50.3817	-3.4963	50° 22' 53" N	3° 29' 46" W
L	50.4056	-3.5131	50° 24' 20" N	3° 30' 47" W
M	50.4032	-3.5195	50° 24' 11" N	3° 31' 10" W
N	50.4326	-3.5557	50° 25' 57" N	3° 33' 20" W
O	50.4327	-3.5563	50° 25' 57" N	3° 33' 22" W
P	50.4577	-3.5290	50° 27' 27" N	3° 31' 44" W
Q	50.4573	-3.5290	50° 27' 26" N	3° 31' 44" W
R	50.4102	-3.4598	50° 24' 36" N	3° 27' 35" W
S	50.4004	-3.4598	50° 24' 1" N	3° 27' 35" W

Map Legend

-  Recommended MCZ (rMCZ)
-  Zone within a rMCZ
- Existing MPAs**
-  SAC
-  SSSI (not part of MPA network)

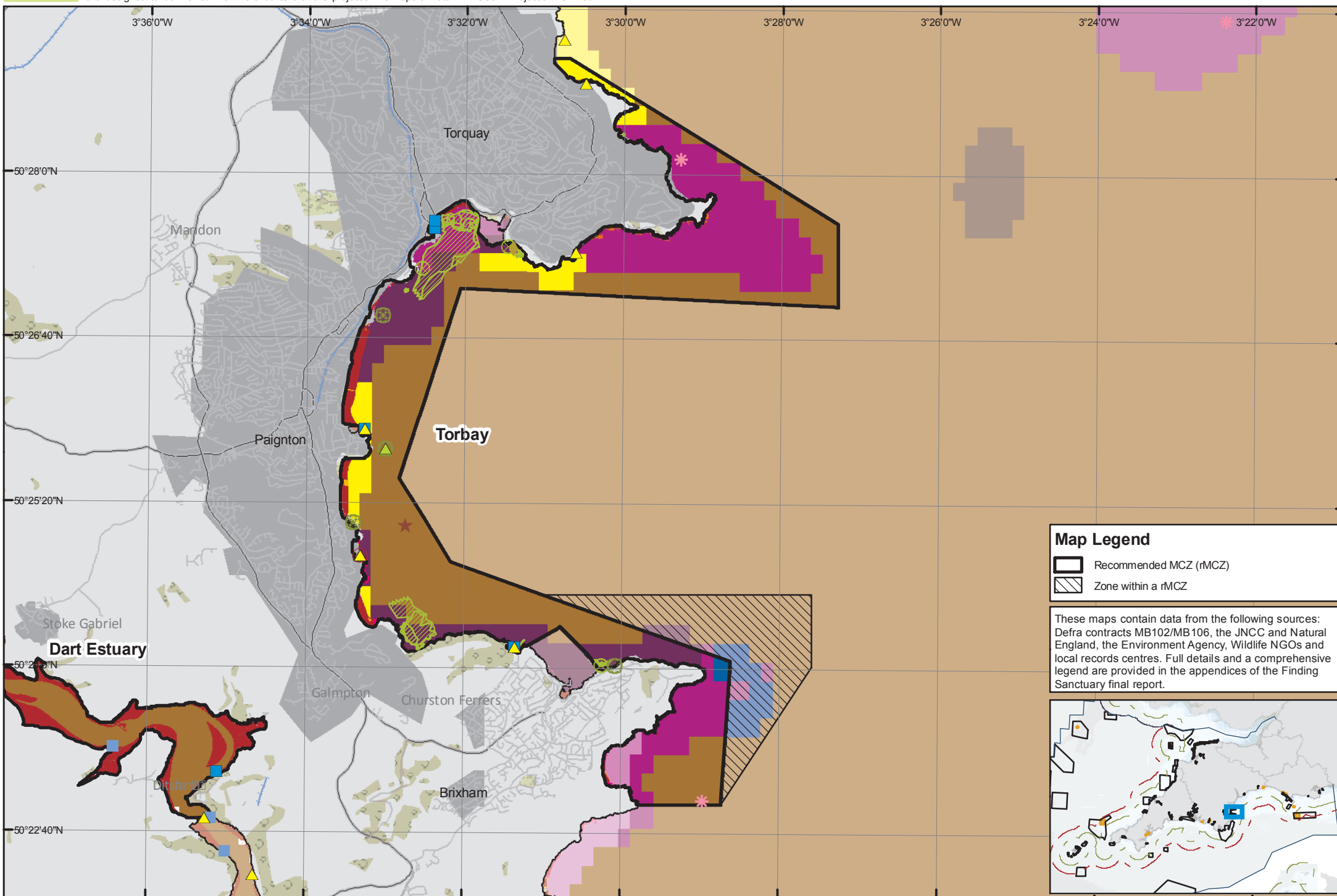
A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

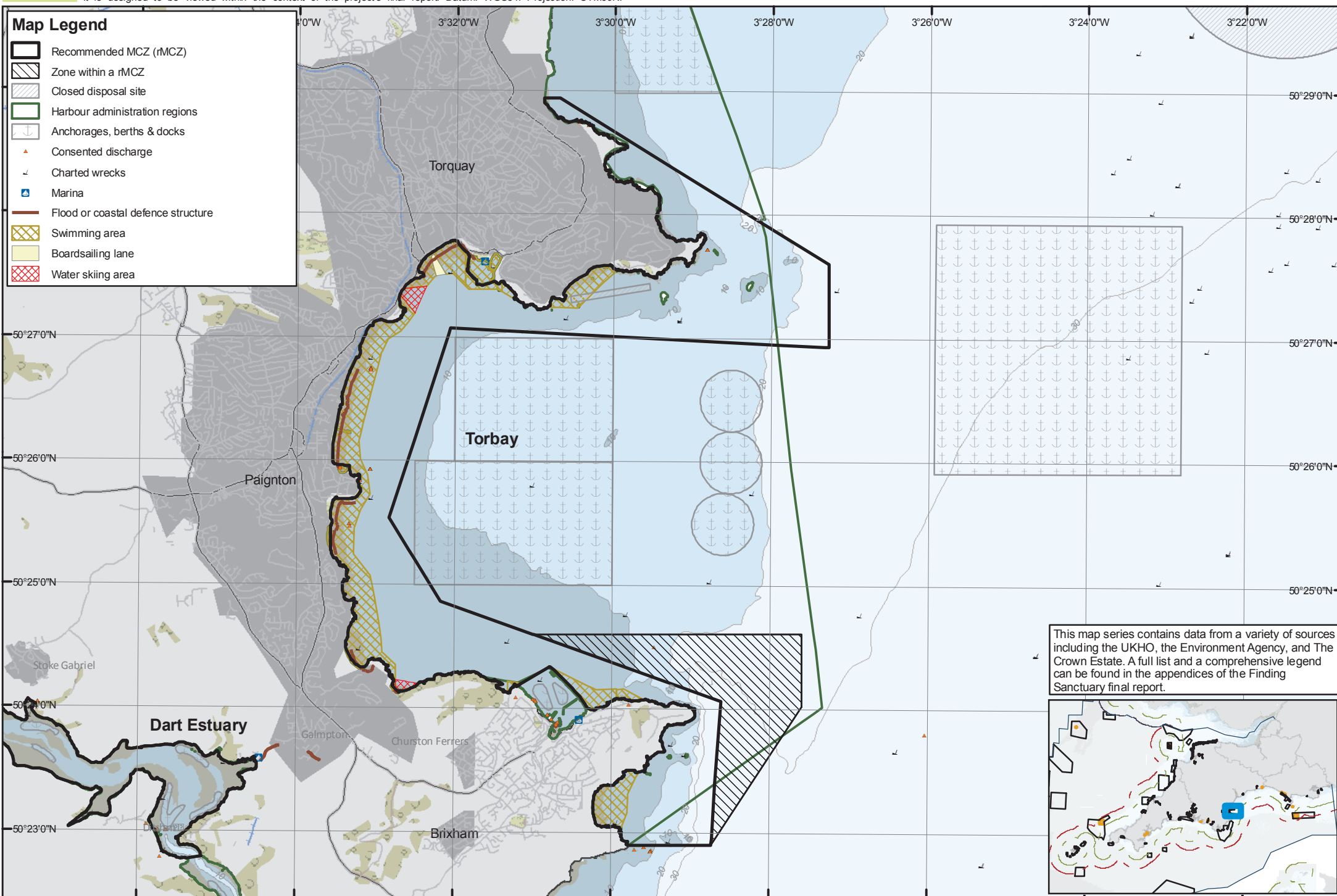


This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 1.5 3 km



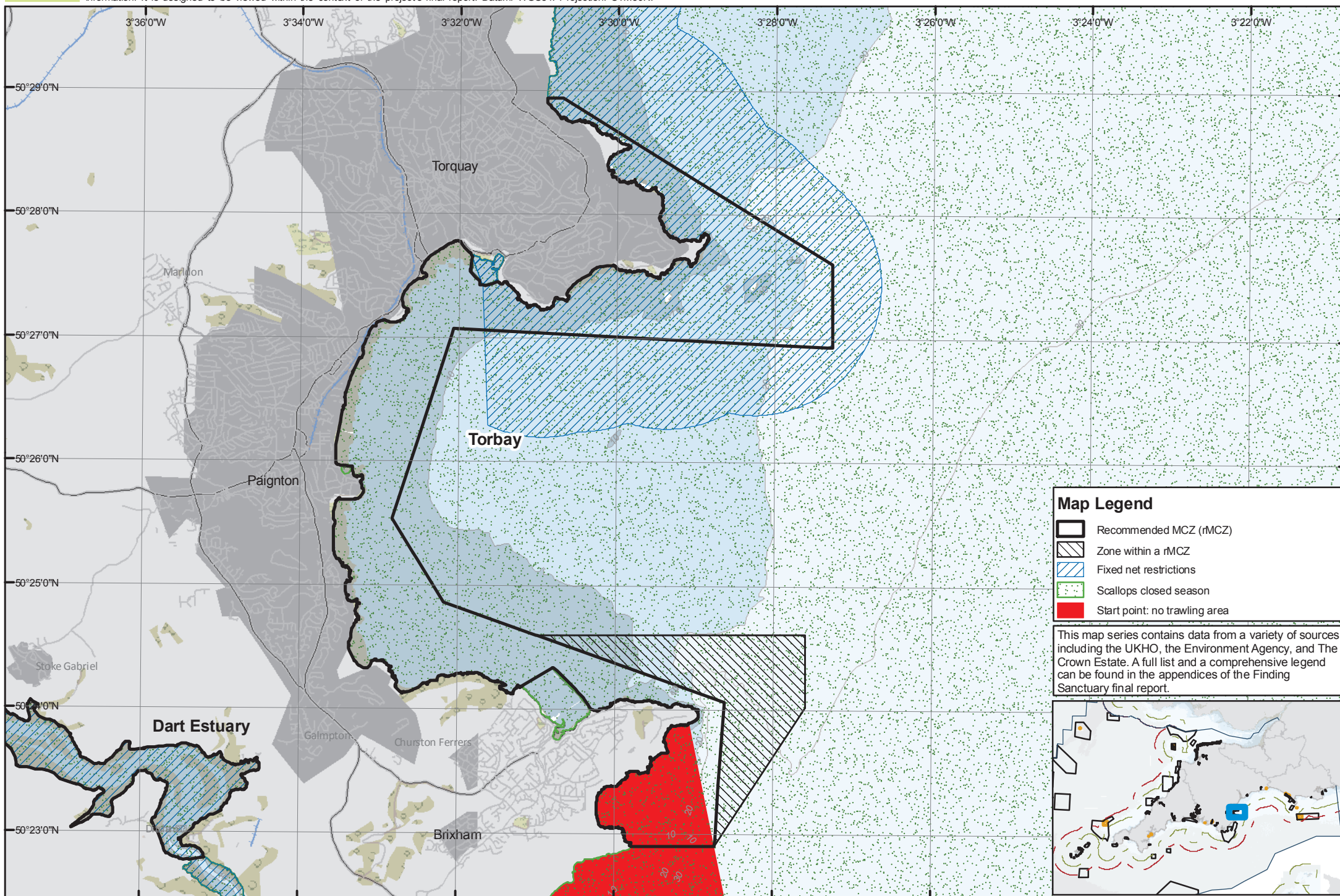


Torbay rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with information on fisheries regulations information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 1 2 3 km



II.3.23 Dart Estuary rMCZ

Basic site information

Site centre location (datum used: ETRS89)

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.3971	-3.6197	50° 23' 49" N	3° 37' 10" W

Site surface area: 4.7 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The site encompasses part of the upper Dart Estuary. The boundary follows the coastline along the OS Boundary Line mean high water mark from the Anchor Stone upstream as far as Totnes.

Sites to which the site is related: The site is approximately 4km upstream of part of the Lyme Bay and Torbay candidate SAC, which lies at the mouth of the Dart Estuary.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Dart Estuary rMCZ

Table II.3.23a Draft conservation objectives for the Dart Estuary rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal mud		M
	Intertidal mud		M
	Low energy intertidal rock		M
	Coastal saltmarsh & saline reedbeds		M
Habitat FOCI	Estuarine rocky habitats		M
	Intertidal under boulder communities		M
Species FOCI	<i>Alkmaria romijni</i> ¹	Tentacled lagoon-worm	M
	<i>Anguilla anguilla</i>	European eel	? M / R²

¹ There are no records of this species in our amalgamated GIS data layers for FOCI, however, during the vulnerability assessment meetings it was highlighted that NE have knowledge of recent survey data for this species within this site (G. Black, *pers. comm.*).

² At the time of the vulnerability assessment meetings, no decision was taken whether the conservation objective for this feature should be 'maintain' or 'recover'. No quantitative information is included for this mobile FOCI species in the tables below, as the GIS data available was too coarse resolution to be meaningful. However, the species has been included in the draft conservation objectives on the basis of evidence provided to the project by the Environment Agency (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.23b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal mud	2.28	<0.1%	1

Table II.3.23c Intertidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Low energy intertidal rock	<0.01	0.1%	4
Intertidal mud	1.90	1.1%	4, 3
Coastal saltmarshes and saline reedbeds ¹	0.02	0.8%	3
Intertidal coarse sediments ²	0.05	0.3%	3

¹ The areas of coastal saltmarsh in the Dart estuary are not as extensive as in other Devon estuaries, however, the amount calculated in this GIS analysis may still be an underestimate of the actual area of saltmarsh present along the upper estuary, as the rMCZ site boundary is at OS Boundary Line mean high water, and the habitat might extend above that.

² This habitat was not considered for this site during the vulnerability assessments, which may have been an oversight due to the very small area present not having been picked up in an earlier analysis. As a general rule, all broad-scale habitats within rMCZs have a draft conservation objective, unless the whole area of habitat within the site is already protected. Therefore, this feature ought to be added to the conservation objective list. The full extent of this habitat within the rMCZ boundaries has been included in the overall network statistics in section II.2.8.

Table II.3.23d FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Estuarine rocky habitats		5		1
Intertidal underboulder communities		1		1

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 1.02 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The Dart Estuary is a ria, with steep rocky shores near the mouth of the estuary, and stretches of meandering mudflats further upstream where the rMCZ boundaries are. The upper estuary is surrounded mainly by farmland, with small patches of woodland. One of the reasons for the inclusion of this and other estuarine rMCZs in the network was in recognition of the added ecological importance of estuaries in terms of productivity, and their ecological function as nursery areas.

Detailed site description

The Dart estuary was surveyed by the FSC (Moore, 1988), who described the Dart as very sheltered and an important pleasure boating area. Littoral and sublittoral habitats in the middle and upper estuary are predominantly mud, with occasional rock outcrops. In the lower estuary, muddy shores and adjacent sublittoral areas incorporate shingle with bedrock and other hard substrata. The mouth of the estuary has steep Dartmouth slate bedrock extending into the sublittoral. Mudflats within the estuary had low species richness but high biomass. Ragworm (*Hediste diversicolor*) was abundant throughout the estuary; all the infaunal communities were dominated by polychaete worms. Sublittoral habitats were predominantly composed of muddy pebbles and cobbles with sponges, hydroids and anemones characterising the communities recorded. Dredge samples of muddy sediments produced large numbers of polychaete worms. Dyer *et al.* (2000) analysed mudflats within the Dart estuary to establish a classification scheme of intertidal mudflats. The survey included classification into sediment type. Surveys were carried out between March and July 1998.

Exposed rocky shores at the mouth have extensive splash zones (extending 15m above chart datum) with well developed lichen communities. Mid shore habitats were dominated by barnacles and limpets. With increasing shelter, mid-shore habitats were characterised by algae. Rocky habitats within the lower and middle estuary had typical fucoid dominated communities (Moore, 1988). An early sublittoral survey at three sites at and near the mouth of the Dart was described by Forster (1954, 1955). The turbid water limits algal growth to shallow water. The communities in deeper water were dominated by seafans, *Eunicella verrucosa*, the soft coral *Alcyonium glomeratum* and the anemones *Corynactis viridis*, *Epizoanthus couchii* (wrightii) and *Actinothoe sphyrodeta* (Moore, 1988).

Alkmaria romijni was recorded in the Dart estuary during the 1991 Dart Estuary macrobenthic Subtidal survey and in 2006-2008 during the Water Framework Directive Benthic Surveys. Burd (1989) surveyed the Dart as part of *The Saltmarsh survey of Great Britain*.

The Seahorse Trust have received a large number of seahorse sightings from the Dart Estuary, as far upstream as Dittisham (within the rMCZ boundary) where both species have been seen, and all through the estuary region including the pontoons at Kingswear and as far as 1 mile out to sea. Like all the main estuaries of the South West, the Dart is very important for seahorse populations as it provides food and shelter (Neil Garrick-Maidment, *pers. comm.*).

Spencer *et al.* (1994) surveyed the intertidal area on areas of hard substrate (shell and stone) within the Dart Estuary. This study investigated spatial and temporal relationships between rainfall, river

flows and concentrations of *Escherichia coli* in mussels (*Mytilus* spp.) and Pacific oysters (*Crassostrea gigas*) from three harvesting areas in the Dart Estuary over the period 1996–2009. Mussels growing on the riverbed were found to be more contaminated than oysters growing in the water column. Schuwerack *et al.* (2007) collected water, sediments and crabs from mid-tide level at five sites in the Dart estuary (downstream of the rMCZ boundaries) in 2004. The rocky shore of Sugary Cove is a typically fucoid-dominated community, including *Ulva*, *Enteromorpha* spp., *Codium*, *Cladophora* in the littoral zone and *Laminaria* and *Chorda* spp. in the sub-littoral zone. Warfleet cove, The Pier, Sandquay and Noss Marina are mudflats with a low species richness and high biomass component.

Rossington *et al.* (2007) selected four estuaries from around the United Kingdom to give a range of morphological types, based on the behavioural characterisation of estuaries under conditions of accelerating sea-level rise. The authors described the Dart as a small estuary with very limited intertidal areas in comparison with the other three. Townsend *et al.* (2006) carried out a number of commercial surveys during 2004 and 2005 where sediment was collected (the general description of sediment in the dart was muddy).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities.

Table II.3.23e shows more specific working assumptions and implications that were recorded for this site over the course of the planning process. This site was a relatively late addition to the network (it was added after the third progress report). Most of the detailed work on recording assumptions and implications for the sites within the developing network configuration had already taken place before this site was added. Therefore, some of the content of table II.3.23e is based on what had previously been recorded for other sites in the network, based on assumptions that were implicit in the discussions over whether the site should be added to the network or not. Many of the assumptions and implications highlighted for this site are generic, and will apply to other rMCZs in the network as well. Site-specific comments from the later planning meetings (when the site was within the network) have also been added to the table.

Following that, table II.3.23f shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.23e Specific assumptions and implications relating to Dart Estuary rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site: none identified in VA meetings.	
Assumptions	Implications
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Bottom-towed fishing gear will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen (<i>may not be relevant in this area.</i>) o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.

<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Netting and longlining will not be allowed</p> <p><i>This assumption was recorded early on for other estuaries in the process, in order to protect nursery habitats and juveniles in all sites with draft conservation objectives for mobile FOCI. Stakeholder feedback has indicated that the assumption about longlining is inappropriate, as the activity does not happen inshore. An uncertainty remains around netting, where the activity may have an impact on nursery habitat - this uncertainty was not resolved through the VA</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for netters o Displacement of netters o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on netters where protected areas are close together <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o SAFFA fixed net restrictions apply.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed

<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Following VA meetings, a potential need for managing aquaculture</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Pacific oyster farming might need to use triploid stock to prevent escape & breeding of invasive species. o This would raise some issues as the Dart Harbour Commissioners and IFCA have concerns about the oyster fishery and the impacts of the MCZ on it. The outcome of

activities in this site has been identified.	<p>the vulnerability assessment may offer some assurance, but the harbour commissioners are still likely to be negative. Non-native oysters have already escaped into the Dart (based on stakeholder evidence).</p> <ul style="list-style-type: none"> o Since the VA meetings, several concerns around the use of triploid stock have been raised (see additional comments)
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o A Steering Group member commented on the importance of taking into account shoreline management plan policies and planned activities.
<p>Tourism and recreational activities will be permitted.</p> <p>Following VA meetings, a potential need for managing moorings activities in this site has been identified.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Current moorings may be causing an impact on the seafloor habitat, so this needs to be monitored. If problem is identified, eco-moorings or limiting the footprint of moorings might be appropriate. Assume no increase in mooring capacity will be permissible.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity

<p>Pelagic trawls will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what ‘prohibitively expensive’ means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o One active power cable, one inactive telecoms cable.
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged</i></p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p><i>areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.23f VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Aquaculture	Management: - Convert pacific oyster farming to triploid stock Measure: - To be determined
Leisure & Recreation	Management - Prioritisation of mooring impacts monitoring research programme. If issues are identified, then use of eco-moorings or establishing a footprint limit may be appropriate. An increase in mooring capacity may not be permitted. Measure - To be determined

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following is a set of additional uncertainties relevant to this site:

- There is an uncertainty about the outcome of any future monitoring of moorings to see if they cause damage to the seabed and whether this will mean potential changes to moorings further down the line.
- It was highlighted that there are boat yards in the estuary that may need consideration as far as possible impacts are concerned.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Commercial fishing*
 - Commercial fishing raised concerns that estuaries are surplus to the requirement of the ENG.
- *Environment Agency*
 - Estuarine partnership management arrangements should be listed as management measures for the site
- *The Wildlife Trusts*
 - Excluding lower estuary areas from MCZ limits the ecological value.
- *Navigation dredging*
 - Navigation dredging continues up the Dart to Totnes. The activity is restricted to bends in the river where sediment is deposited due to the reduction in flow rate. Whilst maintenance dredging does occur within the rMCZ this is a statutory duty for the harbour authority and should not be stopped.
- *Netting and longlining*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site. For sites that still have draft conservation objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact on nursery habitats or juvenile FOCI. This particular rMCZ was added to the network in the final planning stages, after the detailed work on developing assumptions had already happened, but given that the site has a draft conservation objective for *Anguilla anguilla*, European eel, the uncertainty around netting applies.
- *Ports*
 - It was stressed this recommendation does not have the support of the Dart harbour authority.
 - Regarding the rMCZ in the Dart, concerns still remain due to the absence of information on levels of protection, management measures, policing expectations and enforcement. To be specific, Dart Harbour Authority would welcome further details on what changes/ expectations if any that are envisaged in relation to: 1. moorings and 2. the Waddington Oyster fishery - so they can take an informed view on actual impact. In relation to these specific activities within the rMCZ this includes:
 - 1/3 of the moorings for the Dart which comprises 25% income for the Harbour Authority - 3 types of moorings used = Deep Water swinging moorings, trot moorings (in shallower water, involves ground chain and risers and holds for and aft of boats), and intertidal mud moorings - referred to by HA as category A, B and C

- 6 oyster bed licences for the Waddington fishery administered/ controlled by the Harbour Authority
 - As an example of existing environmental management in the Dart, the Harbour Authority have adopted a 'no more moorings' policy. Further details are available on their website: <http://www.dartharbour.org/moorings-moorings-policy/>. Feedback on these implications would be welcomed at the earliest possible convenience.
 - Loss of income for fishermen and related industries;
 - Loss of income for angling charter boats.
- *Aquaculture / Shellfish harvesting*
 - There are known to be static oyster beds (both Pacific and native oyster species) in the estuary as well as authorised fisheries for mussels, cockles, clam and crab. Each of the six licenses currently in existence entitles the License holder to 0.2 hectares, so 1.2 hectares total.
 - There are no plans for expansion – maintenance of the status quo are the intentions for the fishery.
 - The Duchy of Cornwall also issue licenses and maybe able to provide additional information.
 - Serious concerns were raised following the mention of triploid oyster stock in the vulnerability assessment discussion, as a method of preventing escape of breeding non-native oysters into the wild. The concerns are based on a lack of UK-sourced supply of triploid stock, and risks of importing disease with triploid stock from elsewhere.
- *Generic implications for ports (applicable to all rMCZs where port jurisdictions and activities overlap with the site, or are adjacent to the site)*
 - Harbour Revision Orders, General Directions, Pilotage Directions etc.
 - Ports and harbours are limited to their jurisdiction.
 - Ability of port to comply with legal responsibilities e.g. Oil Spill Response Planning etc.
 - Administration, resource on and off the water, legal and technical specialists requirements associated with additional management and legal responsibilities should co-location be pursued.
 - Additional time and cost triggered by all of the above both to the port.
 - Implications on other industries using the port or who wish to use the port in the future.
 - Existing management practices on and off water e.g vessel and activity management, speed, timing restrictions etc.
 - Existing emergency response – weather, pollution, security.
 - Dredging to ensure maintenance of safe navigable depths.
 - Berthing, mooring & anchoring of small & large vessels.
 - Ship building, maintenance, refurbishment & repair.
 - Maintenance, refurbishment & repair of port and harbour infrastructure.
 - New port and harbour infrastructure.
 - Access & egress to and from harbour.
 - Recreational activities within harbour.
 - Ship access and egress to and from berths.
 - Significance of timescales, delays and cost to management practices.

- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.23f (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - There was surprise that the vulnerability assessment for the Dart rMCZ indicated that its condition was sufficiently favourable for its features to require maintenance (rather than recovery). This favourable status would have been achieved despite the Dart Estuary not previously being included within a statutory conservation area.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

There was strong opposition from the harbour authority of Dartmouth against the inclusion of the Dart Estuary, which is the reason why the lower estuary is not included within the site boundary. The upper estuary was included despite the concerns from the port, because of the conservation interest of the estuary and the lack of current nature conservation designations in place. The harbourmaster and the Duchy of Cornwall have expressed concerns about the possible impacts of MCZ designation on moorings, aquaculture and cables. The IFCA have expressed strong concerns over the suggestion (from the vulnerability assessment) that triploid oyster stock might be required for oyster farming

(the Impact Assessment will cover this in more detail). There has also been concern from local farmers, about what an MCZ designation may mean for their farming practices in terms of the management of agricultural run-off and water quality standards.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Craig & Moreton (1986) and Environment Agency (2005). Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](#)³³.

Site map series

On the following pages there are three maps of this site.

- The first map (FR_034a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_034b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.23b to II.3.23d, data sources are indicated in the tables.
- The third map (FR_034c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

³³ <http://jncc.defra.gov.uk/page-4>

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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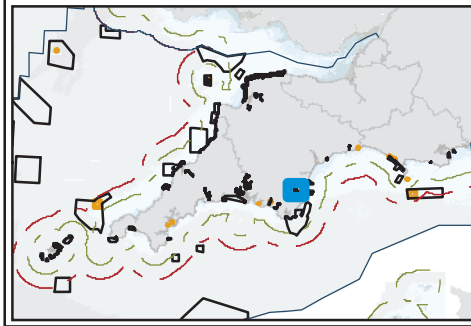
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.3795	-3.5895	50° 22' 46" N	3° 35' 22" W
B	50.3798	-3.5863	50° 22' 47" N	3° 35' 10" W

Map Legend

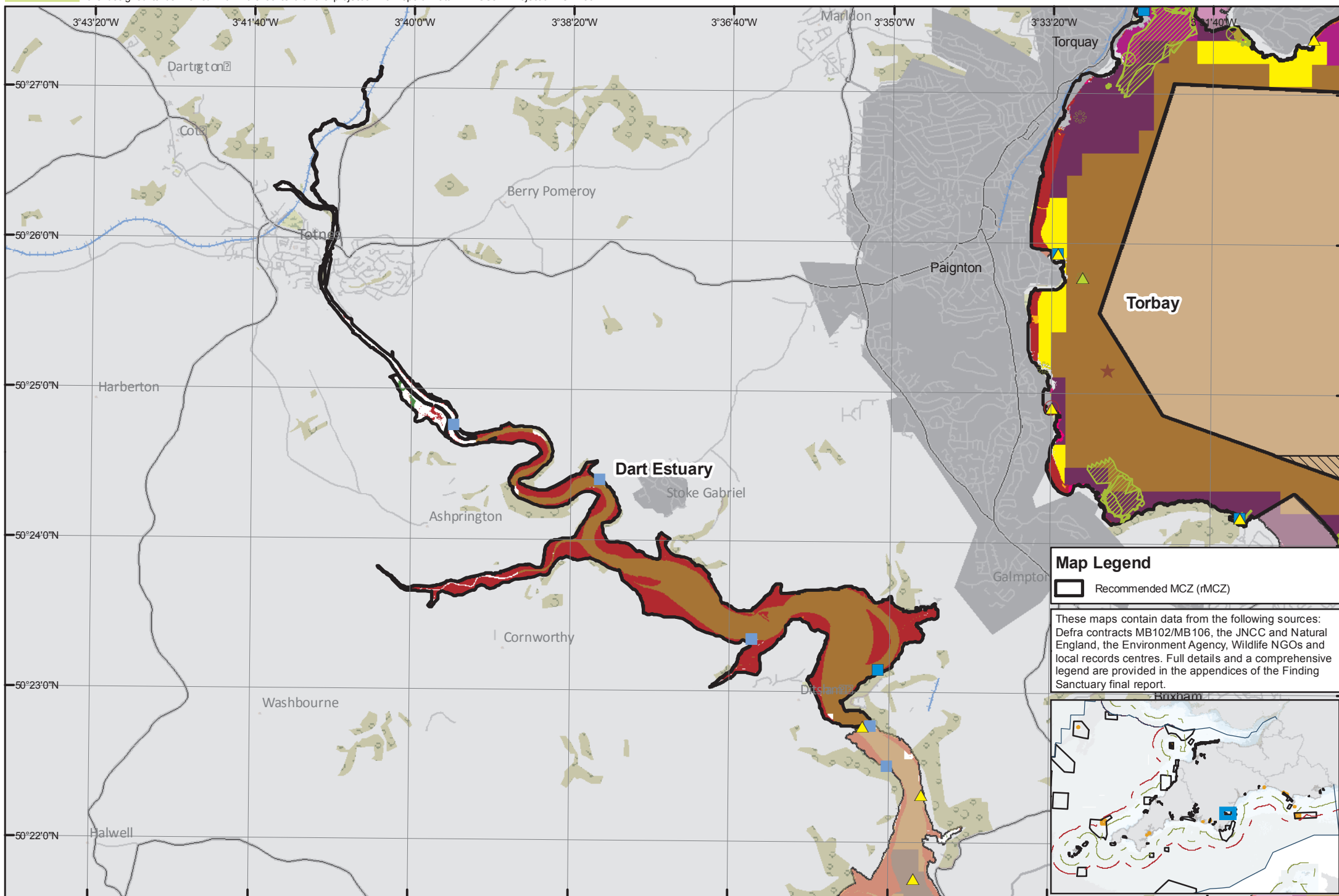
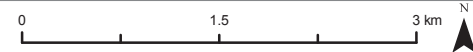
- Recommended MCZ (rMCZ)
- Existing MPAs**
- SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

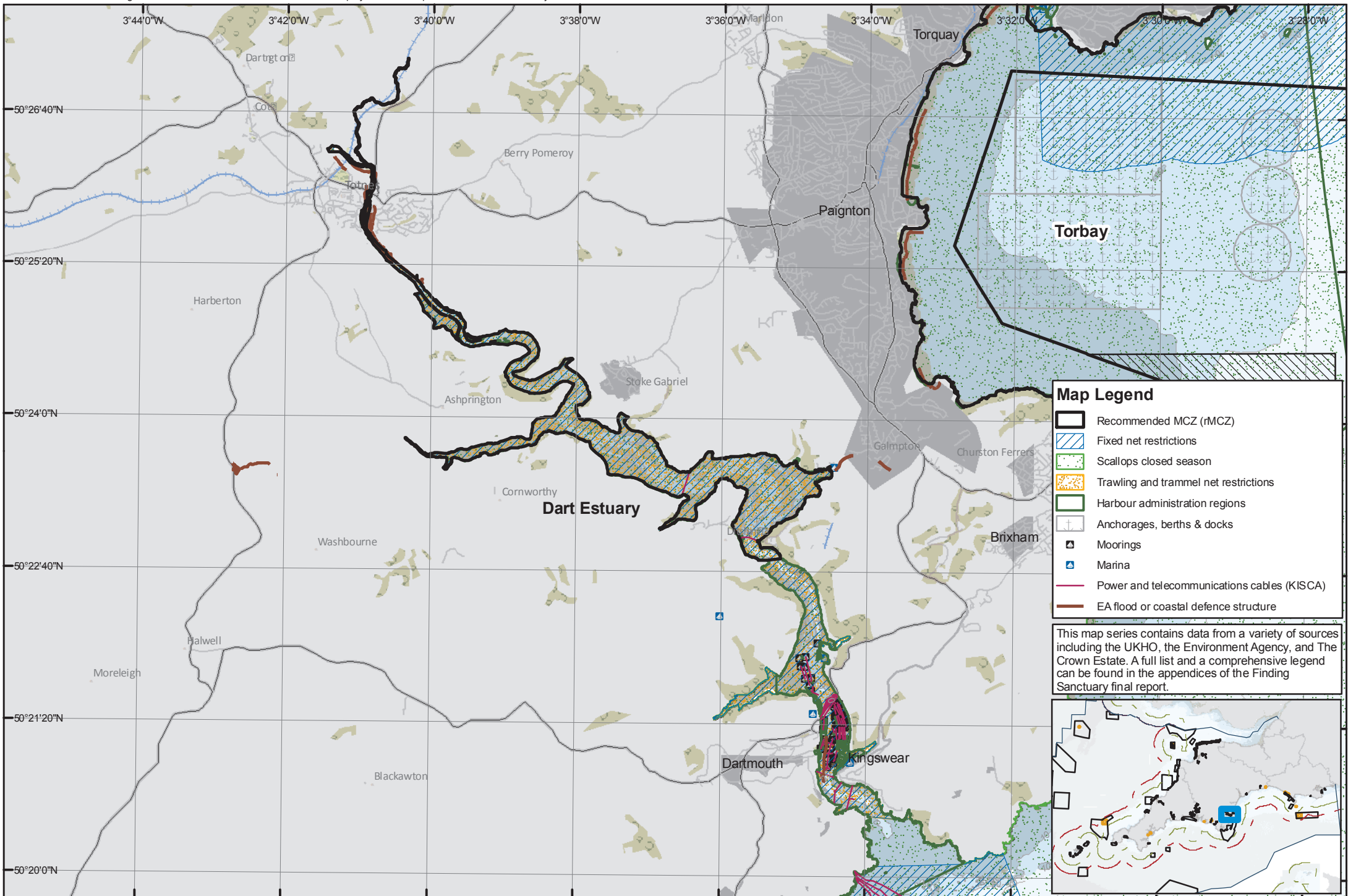
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This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 1 2 3 km



II.3.24 Skerries Bank and surrounds rMCZ

Basic site information

Site centre location (datum used: ETRS89)

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.1945	-1.8859	50° 11' 40" N	3° 37' 15" W

Site surface area: (calculated in ETRS89 – LAEA) 249.69 km²

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The landward boundary of the rMCZ runs along the high water mark from Leek Cove (on the eastern side of the Salcombe-Kingsbridge estuary mouth), around Prawle Point and Start Point to Torcross. The seaward boundary aligns with the boundaries of the eastern portion of the Start Point Inshore Potting Agreement (IPA), excluding a corridor that is trawled all year (see map FR_035d). Late in the process, there was discussion around a possible adjustment of the site boundary to include only those parts of the IPA that are closed to trawling year-round, which would cut the site into two portions separated by the areas that are trawled seasonally. In the end, the boundary adjustment was not carried out, and the current rMCZ boundary includes seasonally trawled portions (please refer to additional comments below).

Sites to which the site is related: The rMCZ overlaps with the Prawle Point to Plymouth Sound and Eddystone cSAC, and with the Prawle Point to Start Point draft SAC. Two SSSIs are located along the shoreline adjacent to this rMCZ: Prawle Point to Start Point, and Hallsands to Beesands. The Slapton Ley SSSI lies at the north-eastern tip of the rMCZ, and at the western end, the Salcombe and Kingsbridge estuary is also a SSSI.

Maps of the site are included at the end of this site report. The main site map shows lat/long points along the site boundary, with coordinates (calculated in WGS84 UTM30N). A map showing the IPA is included.

Features proposed for designation within the Skerries Bank and surrounds rMCZ

Table II.3.24a Draft conservation objectives for the Skerries Bank and Surrounds rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitat	Subtidal coarse sediment		M
	Subtidal mud		M
	Subtidal sand		M
	Moderate energy circalittoral rock		M
	Moderate energy infralittoral rock		M
	High energy infralittoral rock		M
	Moderate energy intertidal rock		M
	High energy intertidal rock		M
	Intertidal coarse sediment		M
	Intertidal mixed sediments		M
	Intertidal mud		M
	Intertidal sand and muddy sand		M
Habitat FOCI	Intertidal under boulder communities		M
Species FOCI	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Hippocampus hippocampus</i>	Short snouted seahorse	M
	<i>Palinurus elephas</i>	Spiny lobster	R

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes). The seafloor habitat area figures presented in the tables below do not include the seasonally trawled areas within the rMCZ site boundary.

Table II.3.24b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	1.27	0.2%	1, 2
Moderate energy infralittoral rock	4.41	1.4%	1
Moderate energy circalittoral rock	101.79	0.5%	1
Subtidal coarse sediment	12.50	<0.1%	1, 2
Subtidal sand	41.55	0.1%	1, 2
Subtidal mud	4.06	<0.1%	1
High energy infralittoral rock ¹	13.73	1.9%	1
Moderate energy infralittoral rock ¹	3.47	1.1%	1
High energy circalittoral rock ¹	0.11	<0.1%	1
Moderate energy circalittoral rock ¹	22.87	0.1%	1

¹ Features / areas already protected within an overlapping MPA. See the gap table (appendix 11) for details.

Table II.3.24c Intertidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock	0.30	4.2%	4
Moderate energy intertidal rock	0.02	0.4%	4
Intertidal coarse sediments	0.08	0.4%	4, 3
Intertidal sand and muddy sand	0.04	0.4%	4
Intertidal mud	0.03	<0.1%	4, 3
Intertidal mixed sediments	0.20	4.4%	4
High energy intertidal rock ¹	<0.01	<0.1%	4
Moderate energy intertidal rock ¹	<0.01	<0.1%	4
Intertidal sand and muddy sand ¹	<0.01	<0.1%	4
Intertidal mud ¹	<0.01	<0.1%	4
Intertidal mixed sediments ¹	<0.01	<0.1%	4

¹ Features / areas already protected within an overlapping MPA. See the gap table (appendix 11) for details.

Table II.3.24d FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Intertidal underboulder communities		1		1
Subtidal sands and gravels ¹	52.24			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.24e FOCI species recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Eunicella verrucosa</i>	1		1
<i>Hippocampus hippocampus</i>	1		1
<i>Palinurus elephas</i>	2		1
<i>Eunicella verrucosa</i> ¹	9		1
<i>Phymatolithon calcareum</i> ²	1	1	1

¹ Features / areas already protected within an overlapping MPA. See the gap table (appendix 11) for details.

² There is a single (old) record of this species of maërl present within the boundaries of this site. This was discussed during the vulnerability assessment, and given the wider environmental characteristics of the site, it was considered a likely erroneous record, or a small fragment of maërl washed in from elsewhere. The species was therefore not included on the list of draft conservation objectives for the site.

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 1.81 km² of seahorse area polygon (refer to appendix 8 for more information).

This rMCZ intersects with the Slapton Ley/Hallsands to Beesands Geological Conservation Review site.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

Skerries Bank and surrounding area comprises of a rocky coast open to the full force of prevailing winds and waves. Skerries Bank is a 7-km-long series of submerged sand and gravel habitat banks. (McCarter & Thomas, 1980). The site extends from the coast line to depths of approximately 70m. The rMCZ intersects with an area of higher than average benthic species diversity (mapped in national data layers MB102), and is located within an area of higher than average pelagic interest (see interactive PDF maps accompanying this report). Local Group feedback indicates that the area is also an important breeding area for flat fish, and breeding ground for mobile species.

The recommendation for this rMCZ is conditional upon the current management being maintained in the area. The area overlaps with the Start Point Inshore Potting Agreement (IPA – map FR_35d). The IPA started as a voluntary agreement between local inshore static and mobile gear fishermen, aiming to reduce conflict between fishing gears by creating areas that are permanently or seasonally closed to mobile fishing gear (trawling), so that those areas can be used by static gear (in particular, potting). The IPA is now a legal license variation, managed through the MMO. The area is seen by some as a ‘de-facto’ MPA, as it prevents damage from bottom-towed gears in the static gear zones. For that reason, it was proposed as a part of the network configuration.

Detailed site description

Littoral and sublittoral communities at the mouth of the Salcombe and Kingsbridge Estuary were described by Earll (1978). Tows were carried out by Holme between 1975 and 1984. Exposed rocky shores were dominated by barnacles with rich sublittoral fringe communities characterised by *Fucus serratus* and *Laminaria digitata*. A dense kelp forest characterises infralittoral habitats at many sites. Epiphytic red algae grew in profusion on the kelp stipes and the adjacent bedrock. Species recorded include *Delesseria sanguinea*, *Dilsea carnosus*, *Plumaria elegans* and the tufted coralline alga *Corallina officinalis*. The fauna were characteristic of wave-exposed conditions and included the sponges *Pachymatisma johnstonia* and *Clathrina coriacea*, and the sea squirt *Distomus variolosus* (Davies, 1998).

Start Bay was surveyed by Holme (1966) during a wide-ranging study of the English Channel. Faunal associations within the bay were identified as ‘Boreal offshore muddy-sand’ and ‘Boreal offshore mud’ associations. ‘Boreal offshore muddy-sand’ was characterised by bivalve and gastropod molluscs, burrowing crustaceans (e.g. *Callinassa subterranea*), brittlestars, heart urchins *Echinocardium cordatum*, and sea cucumbers. ‘Boreal offshore mud’ was characterised by the burrowing echinuran *Maxmuelleria lankesteri* (Davies, 1998). Sediments in the area have also been described by Poulton *et al* (2002; In Jones *et al.* 2004).

The reef areas of Lyme Bay which comprise of rock and mixed ground extend from Portland Bill to central Lyme Bay and off Start Point. Their species which are listed for conservation are *Axinella*

dissimilis, *Pentapora fascialis* (ross coral), *Alcyonium digitatum* (Dead man's fingers), *Eunicella verrucosa* (Pink sea fan), and *Leptopsammia pruvoti* (Sunset cup coral) (Rees *et al.* 2010). *Eunicella verrucosa* has been recorded recently in the Skerries Bank and surrounding area by Seasearch (2008) and during the 1995-97 DWT Yealm Head to Start Point sublittoral survey. *Palinurus elephas* was recorded in the 1992 DWT Seasearch Salcombe to Prawle Point survey.

In 2005 Ambios Ltd undertook a side scan sonar survey of Start Bay. The detailed site survey enabled the authors to fully characterise areas where there were data gaps from the Lyme Bay mapping study. The Devon Biological Records Centre also has a substrate map of Lyme Bay which includes the Skerries Bank area.

Start Bay has a series of shingle banks and sandy coves leading to the rocky headland of Start Point. Staff and students from Slapton Ley Field Centre have collected a considerable amount of unpublished information on the littoral communities of Start Bay and the rocky shores between Start Point and Prawle Point (Davies, 1998). McCarter & Thomas (1980) described littoral communities around Start Point. The exposed sloping shores are dominated by limpets and barnacles with sparse mussels and algae with well developed lichen communities on the upper shore and in the splash zones. Steep littoral zones were predominantly limpet and barnacle-dominated, while increasing shelter to the east of the point results in greater algal biomass.

Austin & Masselink (2006) took morphological measurements of sediments around Start Point and Slapton Sands. Additionally, Ruiz De Alegria-Arzaburu & Masselink (2010) studied the storm response and beach rotation within Start Bay. Skerries Bank is a large 'banner bank' comprising of shelly sand (Hails, 1975) that stretches across half of Start Bay from Start Point, and has a minimum depth of 5 m ODN. Slapton Sands is exposed to a low-to-medium energy wave climate and is the largest of four gravel barriers in Start Bay, the others being Hallsands, Beesands and Blackpool Sands. At high tide, these gravel barriers represent separate environments, but, except for Blackpool Sands, they are connected during spring low tide. Start Bay as a whole can be considered a closed sediment cell: except for some localised cliff erosion, which mainly produces easily erodible fragments of shale, there is no sediment supply to the beaches Ruiz De Alegria-Arzaburu & Masselink (2010).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities.

Table II.3.24f shows more specific working assumptions and implications that were recorded for this site over the course of the planning process. The most important specific assumption underlying the inclusion of this site in the network was that the current management of the area under the Inshore Potting Agreement would be maintained.

Following that, table II.3.24g shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They

started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.24f Specific assumptions and implications relating to Skerries Bank and surrounds rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to the anchoring of large vessels). <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback indicated that some members wanted anchoring to be allowed throughout this site, there was no indication of whether this referred to small or large vessels. o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.

<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o This rMCZ is located within an area overlapping Start Bay closed disposal site. Reopening this disposal site would not be compatible with the assumptions as stated. o General comment from SNCBs: a set distance is likely to be required from the edge of MCZ area where this activity is likely to impact on the MCZ features.
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Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>The existing fishery management regime will be maintained without change.</p> <p><i>The current management regime has been established through fishermen working together to reduce gear conflict. Most of the site is currently closed permanently to bottom-towed fishing gear (to allow potting to take place), but some parts allow bottom-towed fishing gear seasonally or year-round.</i></p> <p>This assumption was reviewed during the VA meetings, and maintained in essence. An additional requirement was identified to prevent the removal of the spiny lobster from any part of the rMCZ.</p>	<p>Direct implications:</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The fishing industry would rather not interfere with the IPA – it has taken a long time to get working and allows access to both mobile and static gears, notably with the use of lanes for trawls. o The SW Fishing Industry MCZ Planning Group is concerned that although the intention is to maintain existing fisheries management regime under the IPA, towed gear activities in the seasonal closed areas will be threatened in the future due to their inclusion within the site boundary. The industry wishes to have these areas excluded as had been indicated in earlier discussions on the site and their inclusion undermines their acceptance of the site. The counter argument that those areas would come under pressure to open up to full access seems implausible given the well established existing IPA regime to manage static and mobile gear fisheries. o Comments and proposals based on assumption that current IPA is working. Local input suggests some doubt. o As a precaution, and to increase local confidence, development of management measures should include independent assessment of current management. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o There are existing fishery management measures in place, as this rMCZ follows the outline of the Start Point Inshore Potting Agreement / existing fishery byelaw. There is a risk of alienating stakeholders who have previously worked together to manage their activities in this area, if the restrictions within this area are changed. o Specific concern has been raised about the potential further limitation of mobile bottom-towed fishing gears within the site. This would mean loss of economic activity, affecting/displacing SWFPO and SWIFA members

	<ul style="list-style-type: none"> o Local Group feedback indicates that up to 12 vessels dredge within the areas where the activity is allowed, 6 of them being regular users of the area. o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>The VA meetings stated that the removal of spiny lobster would not be permitted in this rMCZ (see previous row).</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed o Local Group feedback has raised the possibility of restricting or excluding netting from Start Bay. This is not currently part of the working assumptions for the site. <p>Static nets catching female spawning crabs was highlighted as a possible problem, but local Feedback from Devon Wildlife Trust states that the impacts of netting are not well understood in the site.</p>

<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p> <p>Given this assumption, there are still the following concerns:</p> <p>o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in:</p> <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions <p>o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets.</p> <p>o Enforced co-location with MCZs would dramatically restrict deployment.</p> <p>If the assumption turns out to be wrong:</p> <p>o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities.</p> <p>o Increased competition for sea space with other sea users.</p> <p>o Good wind resource, landscape buffer requirements making deployment less likely.</p> <p>o Minor tidal resource at headland but already within an SAC.</p>
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>

<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o This rMCZ is located within an area with aquaculture leases, and there is concern about possible impacts on current management of this activity resulting from MCZ designation.
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay

<p>This activity was considered at the VA meetings, which determined that cable installation and operation would be permitted with no additional mitigation likely to be required as a result of the rMCZ.</p>	<ul style="list-style-type: none"> o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Possible cable route to renewables resources.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>This activity was considered at the VA meetings, which determined that cable installation and operation would be permitted with no additional mitigation likely to be required as a result of the rMCZ.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o This rMCZ is located within an area with telecommunication cables linking the UK mainland from Torbay to Guernsey, Jersey and onto France. Two active and three inactive telecoms cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback indicated a possible need for zoning of leisure activities within the area, to help resolve conflicts between uses and to resolve possible health and safety issues.
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p>The project team have advised that this would mean that the dredged</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p>

<p><i>areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>o Possible effects on ports and harbours (this is a general concern, not just relating to maintenance dredging in ports).</p>
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o heritage wrecks present in this site: Moor Sand and Salcombe Cannon</p>
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p> <p>Given this assumption, there are still the following concerns:</p> <p>o Possible effects on ports and harbours (this is a general concern, not just relating to the anchoring of small vessels).</p> <p>o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.</p>
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p> <p>Given this assumption, there are still the following concerns:</p> <p>o Possible effects on ports and harbours (this is a general concern, not just relating to the passage of ships).</p>
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>

Table II.3.24g VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing	<p>Management</p> <ul style="list-style-type: none"> - Continuation of existing access arrangements (see South Devon Crabbing Trawling and Crabbing Chart). <p>Measure</p> <ul style="list-style-type: none"> - Option 1: Voluntary - Option 2: Byelaw - Option 3: Licence condition - Option 4: Current management body, with additional representation from conservation advisory body
Commercial Fishing	<p>Management</p> <ul style="list-style-type: none"> - Removal of <i>Palinurus elephas</i> (crawfish) not permitted <p>Measures</p> <ul style="list-style-type: none"> - Option 1: Voluntary - Option 2: Byelaw
Cables	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application. It is expected that cable installation & operation would be permitted with no additional mitigation likely to be required as a result of the rMCZ. <p>Measure:</p> <ul style="list-style-type: none"> - Marine Licence

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *The Inshore Potting Agreement*
 - This site was included in the network recommendations to recognise the conservation benefits of the management regime that is currently in place within the area (the Start Point Inshore Potting Agreement). Local Group feedback indicates that there is good evidence that the sea bed is in good condition in the no trawling areas within this site, and that the current IPA is a well-policed agreement.
 - The area is considered a *de-facto* MPA by some, and making it an MCZ (on the assumption that current management would be maintained) would serve to consolidate the conservation benefits of the site for the future, and allow it to be 'counted' within the context of the overall network. However, there is a strong feeling amongst stakeholders that if the MCZ designation altered the current management of the site, then that would have more negative consequences than benefits (in particular, loss of goodwill of people who have been working together over years to reduce conflict). Therefore, the recommendation for this rMCZ is made on the condition that the current management under the IPA would be maintained.
 - This site differs from other rMCZs, in that it includes zones where the working assumption is that mobile bottom-towed fishing gears would be allowed to continue seasonally. In all other rMCZs, the working assumption is that bottom-towed gears would not be allowed (because they would prevent the achievement of conservation objectives). A solution to this logical inconsistency (suggested within the Local Group) might have been to reduce the size of the Skerries Bank and surrounds rMCZ, to only cover the area where trawling is permanently excluded. This would have meant dividing the site into two parts, including only the red areas on the Inshore Potting Agreement map (see end of this site report).
 - Discussions at the vulnerability assessment meetings highlighted the possible consequences of including the seasonally trawled areas within the rMCZ: Natural England highlighted that the inclusion of the seasonally trawled areas ('corridors') would mean that for the seafloor habitat within the corridors, the conservation objectives would not be met, unless the mobile gear was excluded from the entire site. The project team identified this as a potential danger to the condition based on which the site had been recommended by the stakeholder group, i.e. that current management should be maintained.
 - This prompted the project team to review the previous stakeholder discussions around this site, and reconsider the boundary. At the final Joint Working Group meeting in June 2011, the project team stated that the site boundary would be revised to only include the areas currently closed to trawling year-round, splitting the site into two parts. We regarded this boundary adjustment as a correction rather than a change, as the intention was to maintain the integrity of the stakeholder recommendations.
 - However, the suggested two-part boundary caused negative feedback from stakeholders within the JWG and from outside the working group. Concerns were raised that excluding the seasonally trawled areas would be perceived as an indication that the area within the trawl corridors is not ecologically important,

which might lead to pressure to open it year-round to mobile gears. This was perceived as a potential danger to the condition based on which the site had been recommended, i.e. that current management should be maintained.

- The dilemma we faced as a project team was that everyone was essentially expressing the same concern ('maintain current management'), but whichever way we drew the site boundary, there was a perceived risk. Ultimately, we returned the site boundary to the original single site, which includes the trawl corridors. As such, the site recommendation is treated in the same way as the Bideford to Foreland Point example, where the site recommendation states that dredging of the shipping channel should be allowed to continue within the rMCZ boundary, but that the part of the seafloor affected is not counted towards ENG targets. The seafloor habitat area figures presented in the tables above therefore do not include the seasonally trawled areas.
- There was some concern raised about the effectiveness of the enforcement of the current management regime in the area. A JWG member stated that the existing IPA is broken regularly by trawlers, and it was suggested that only vessels with VMS should be permitted to fish in this area (this statement was not supported by a fishing industry representative).
- *Generic implications for ports (applicable to all rMCZs where port jurisdictions and activities overlap with the site, or are adjacent to the site)*
 - Harbour Revision Orders, General Directions, Pilotage Directions etc.
 - Ports and harbours are limited to their jurisdiction.
 - Ability of port to comply with legal responsibilities e.g. Oil Spill Response Planning etc.
 - Administration, resource on and off the water, legal and technical specialists requirements associated with additional management and legal responsibilities should co-location be pursued.
 - Additional time and cost triggered by all of the above both to the port.
 - Implications on other industries using the port or who wish to use the port in the future.
 - Existing management practices on and off water e.g. vessel and activity management, speed, timing restrictions etc.
 - Existing emergency response – weather, pollution, security.
 - Dredging to ensure maintenance of safe navigable depths.
 - Berthing, mooring & anchoring of small & large vessels.
 - Ship building, maintenance, refurbishment & repair.
 - Maintenance, refurbishment & repair of port and harbour infrastructure.
 - New port and harbour infrastructure.
 - Access & egress to and from harbour.
 - Recreational activities within harbour.
 - ship access and egress to and from berths.
 - Significance of timescales, delays and cost to management practices.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.

- Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, results from the regional vulnerability assessment discussions were presented to the group (the VA process is described in part I). The regional VA meetings included some initial discussions on site management, but did not reach any firm conclusions, nor did they review the previous working assumptions in detail. The presentation of the outcome of the regional VA discussions generated concern within the JWG. For many of the inshore sites, this concern was based on the apparent lack of management suggested for bottom-towed mobile fishing gear, and the comments made by members of the JWG are described in detail in the other inshore rMCZ site reports. However, as explained above, this site is an exception to the others, in that it was suggested for inclusion by stakeholders on the condition that the current management of the Inshore Potting Agreement be maintained – and in this site, that does include some small areas that are seasonally trawled.
 - Please also refer to the Steering Group statement made in response to the vulnerability assessment process, which refers to the network and process as a whole (section II.2.1).

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

This rMCZ is supported by a cross-section of stakeholders as long as the existing management regime (Inshore Potting Agreement) is not affected. The site was one of the first that was drawn onto a map by stakeholder representatives (see the first progress report) in the Devon Local Group.

The Crown Estate provided feedback to state that this rMCZ is located within a wave resource area. It is also located within an area with telecommunication cables linking the UK mainland from Torbay to Guernsey, Jersey and on to France. It also overlays a small area with an aquaculture lease and Start Bay closed disposal site. The Crown Estate is supportive with the assumption that MCZ designation would not restrict ongoing activities described.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MESH, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Black (1995), Cleator (1995), Grist and Smith (1995), Munro (1992), Nunny (1992), and Smith (1995a;b).

Site map series

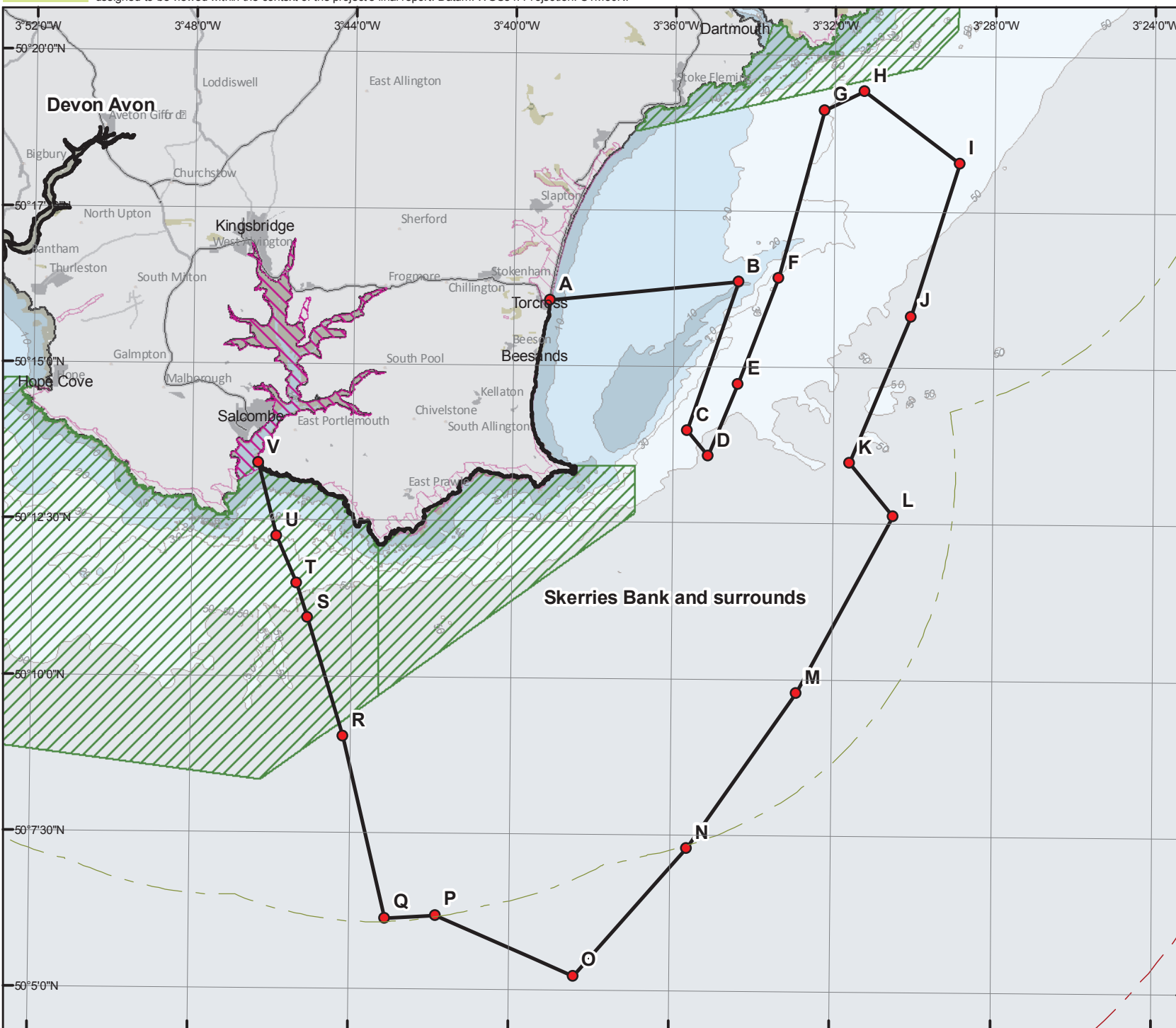
On the following pages there are four maps of this site.

- The first (map FR_035a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference.
- The second map (map FR_035b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.24b to II.3.24e, data sources are indicated in the tables.
- The third (map FR_035c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- The fourth map (FR_035d) shows the areas managed under the current Inshore Potting Agreement referred to several times in the site report.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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0 2 4 8 km



Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.2677	-3.6517	50° 16' 3" N	3° 39' 6" W
B	50.2730	-3.5733	50° 16' 22" N	3° 34' 24" W
C	50.2332	-3.5941	50° 13' 59" N	3° 35' 38" W
D	50.2264	-3.5854	50° 13' 35" N	3° 35' 7" W
E	50.2456	-3.5731	50° 14' 44" N	3° 34' 23" W
F	50.2740	-3.5564	50° 16' 26" N	3° 33' 22" W
G	50.3190	-3.5380	50° 19' 8" N	3° 32' 16" W
H	50.3240	-3.5213	50° 19' 26" N	3° 31' 16" W
I	50.3048	-3.4814	50° 18' 17" N	3° 28' 52" W
J	50.2640	-3.5014	50° 15' 50" N	3° 30' 5" W
K	50.2248	-3.5265	50° 13' 29" N	3° 31' 35" W
L	50.2106	-3.5082	50° 12' 38" N	3° 30' 29" W
M	50.1631	-3.5482	50° 9' 47" N	3° 32' 53" W
N	50.1215	-3.5932	50° 7' 17" N	3° 35' 35" W
O	50.0873	-3.6399	50° 5' 14" N	3° 38' 23" W
P	50.1032	-3.6973	50° 6' 11" N	3° 41' 50" W
Q	50.1023	-3.7181	50° 6' 8" N	3° 43' 5" W
R	50.1507	-3.7364	50° 9' 2" N	3° 44' 10" W
S	50.1824	-3.7513	50° 10' 56" N	3° 45' 4" W
T	50.1915	-3.7563	50° 11' 29" N	3° 45' 22" W
U	50.2040	-3.7646	50° 12' 14" N	3° 45' 52" W
V	50.2237	-3.7727	50° 13' 25" N	3° 46' 21" W

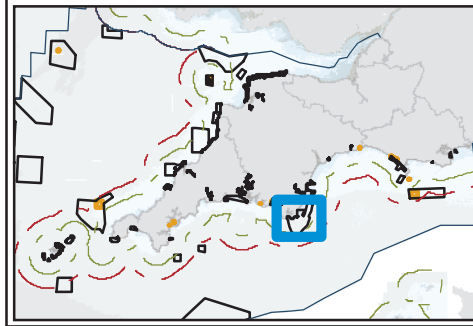
Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- Recommended MCZ (rMCZ)

Existing MPAs

- SAC
- SSSI

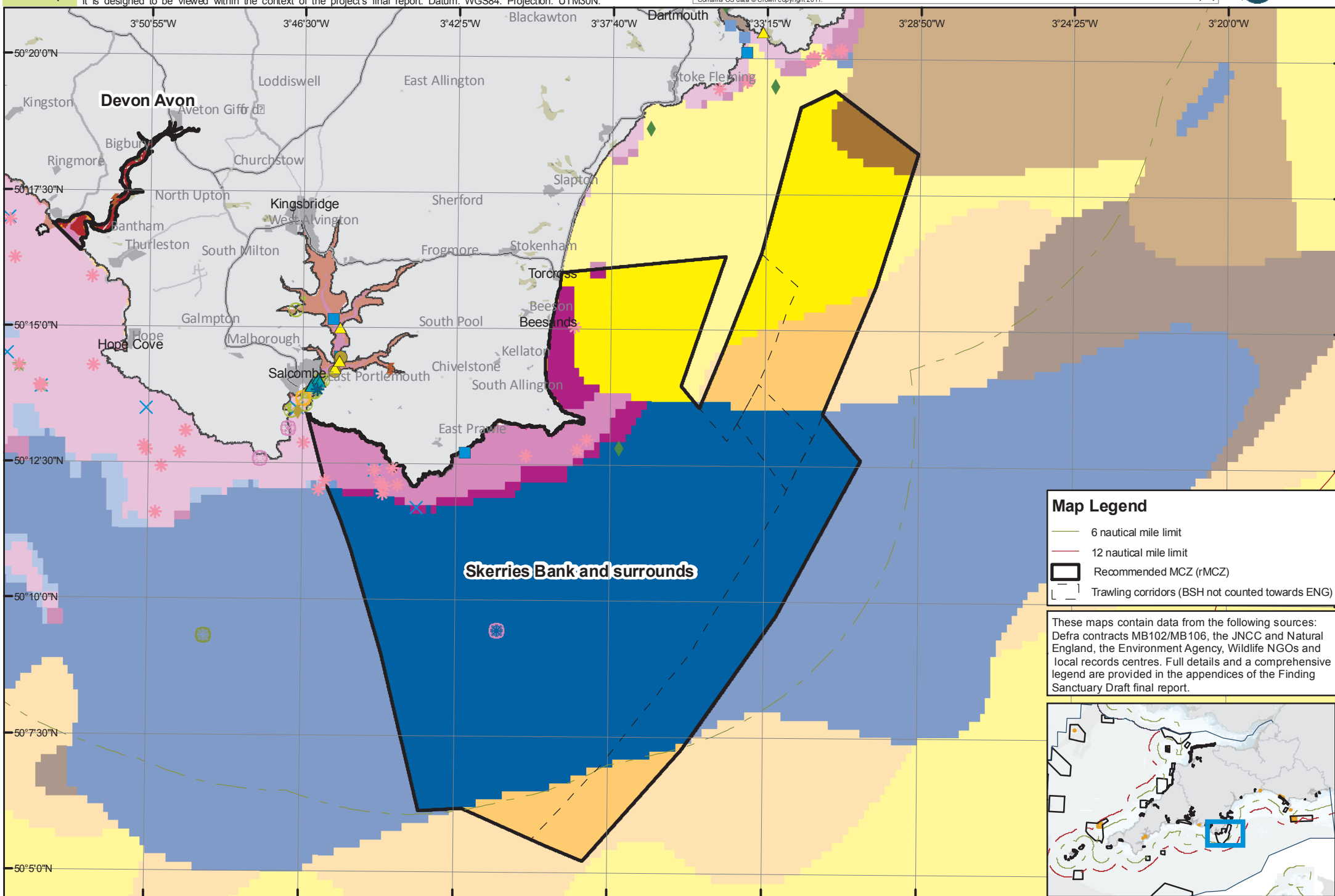
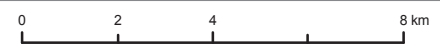
A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



Skerries Bank and Surrounds rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

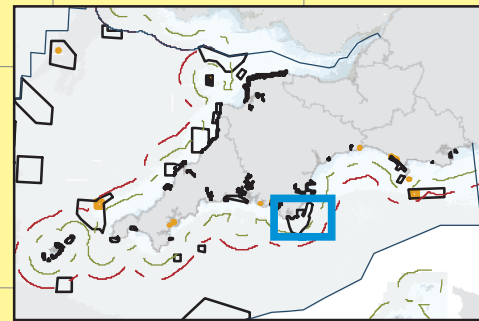
Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- ▬ Recommended MCZ (rMCZ)
- - - Trawling corridors (BSH not counted towards ENG)

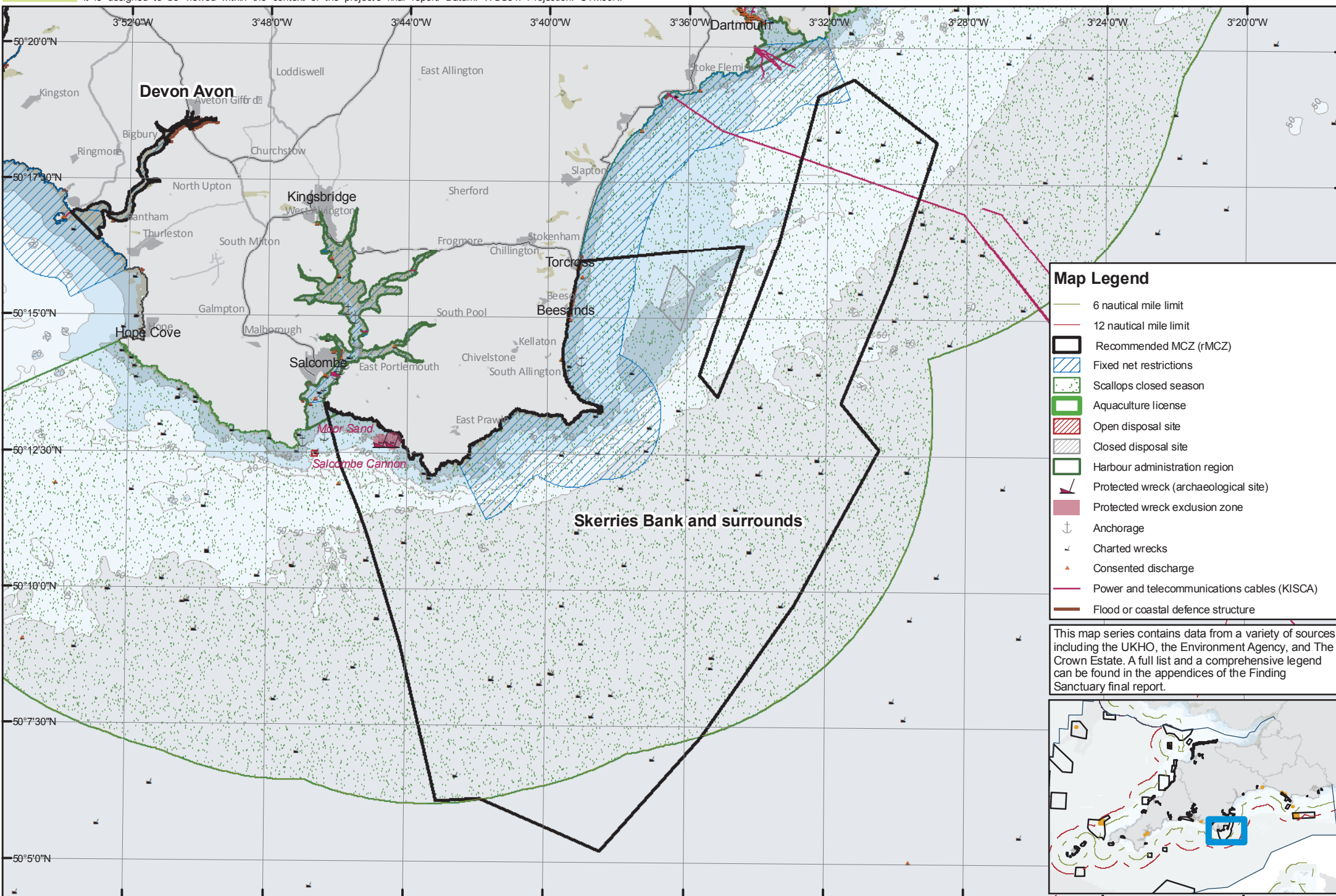
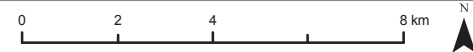
These maps contain data from the following sources: Defra contracts MB102/MB106, the JNCC and Natural England, the Environment Agency, Wildlife NGOs and local records centres. Full details and a comprehensive legend are provided in the appendices of the Finding Sanctuary Draft final report.

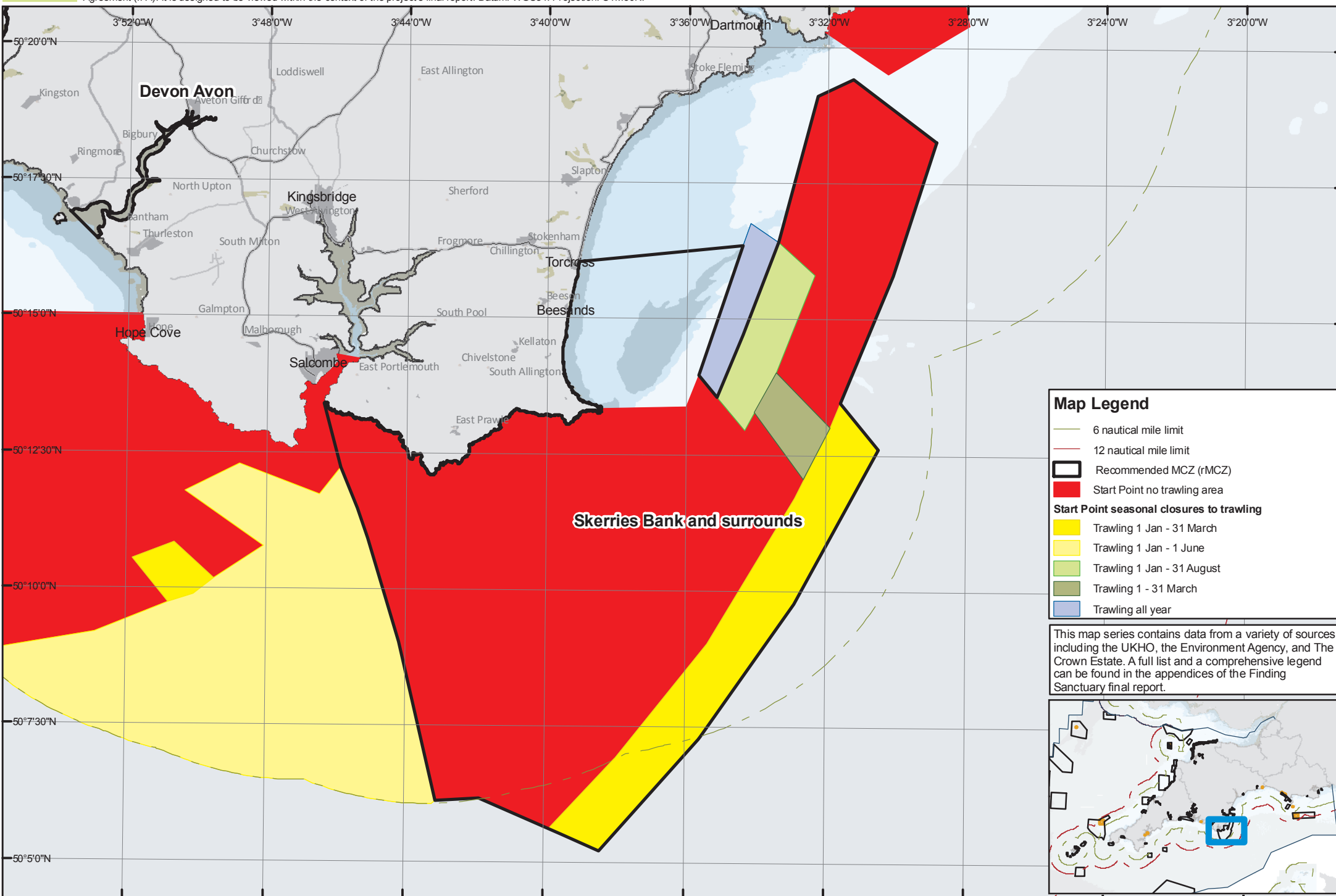


Skerries Bank and Surrounds rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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II.3.25 Devon Avon Estuary rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.2883	-3.8694	50° 17' 17" N	3° 52' 9" W

Due to the shape of the rMCZ, this centroid falls outside the site boundary.

Site surface area: 1.84 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The rMCZ encompasses the whole Devon Avon estuary up to the mean high water mark (mapped using OS Boundary Line mean high water), as far as Aveton Gifford. The seaward boundary has been drawn across the estuary mouth, from the end of the Burgh Island causeway at Bigbury-on-Sea to Long Stone on the eastern side of the estuary.

Sites to which the site is related: At the estuary mouth, there is a very small area of overlap between this site and the Prawle Point to Plymouth Sound and Eddystone candidate SAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within the Devon Avon Estuary rMCZ

Table II.3.25a Draft conservation objectives for the Devon Avon Estuary rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal mud		M
	Subtidal sand		M
	High energy infralittoral rock		M
	Coastal saltmarshes and saline reedbeds		M
	Intertidal coarse sediment		M
	Intertidal mud		M
	Intertidal sand and muddy sand		M
	Moderate energy intertidal rock		M
Species FOCI	<i>Alkmaria romijni</i> ¹	Tentacled lagoon-worm	M
	<i>Anguilla anguilla</i>	European eel	? M / R ²

¹There is only a single record of this species in the amalgamated GIS data layer for FOCI. However, the habitat in the estuary is the right habitat for the species, on that basis, the species is included on the list of draft conservation objectives for the site.

²At the time of the vulnerability assessment meetings, no decision was taken whether the conservation objective for this feature should be 'maintain' or 'recover'.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.25b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	0.24	<0.1%	1
Subtidal sand	<0.01	<0.1%	1
Subtidal mud	<0.01	<0.1%	1
High energy infralittoral rock ¹	0.01	<0.1%	1

¹ Features / areas already protected within an overlapping MPA. See the gap table (appendix 11) for details.

Table II.3.25c **Intertidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy intertidal rock	0.04	0.9%	4
Intertidal coarse sediments	0.01	<0.1%	3
Intertidal sand and muddy sand	0.10	0.8%	4
Intertidal mud	1.12	0.7%	4, 3
Coastal saltmarshes and saline reedbeds ¹	0.07	2.1%	3
Intertidal sand and muddy sand ²	<0.01	<0.1%	4

¹ The area of coastal saltmarsh calculated in this GIS analysis might be an underestimate of the saltmarsh area present along the estuary, as the rMCZ site boundary is at OS Boundary Line mean high water, and the habitat might extend above that. However, a visual comparison between the GIS data for this habitat within the rMCZ and the aerial imagery available on the Ordnance Survey website indicates that any difference is probably minimal.

² Features / areas already protected within an overlapping MPA. See the gap table (appendix 11) for details.

Table II.3.25d **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Alkmaria romijni</i>	1		1

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.19 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The Devon Avon Estuary is a small estuary (approximately 4 km long) consisting predominantly of a sand bottom (Kelley, 1988). According to Davidson *et al.* (1991), who conducted a comprehensive review of all estuaries in Great Britain, the Avon estuary has a total surface area of 213.5 ha, of which 146.2 ha are intertidal. The estuarine shoreline is 19.8 km long and the tidal channel is 7.8 km long. The estuary has a narrow sheltered inlet and extends for 7 km from the sands at Bigbury-on-sea and Bantham at the mouth to Aveton Gifford. The estuary has steep-sided margins, cut into relatively weak Devonian slates and grits, and is generally considered a ria-type (drowned river) estuary (Masselink *et al.* 2009). The estuary has since been in-filled by an accumulation of sediment and, at low water, the channels are narrow and shallow (Davies, 1998).

The five main depositional environments in the Avon estuary include beach and dune deposits at Bantham Ham and Cockleridge, an extensive ebb-tidal delta forming part of the tombolo behind

Burgh Island, a flood tidal delta with several intertidal shoals in the outer estuary, a main tidal channel that meanders along the entire estuary with a tidal weir at Aveton Gifford and salt marshes in the upper estuary (Masselink *et al.* 2009).

One of the reasons for the inclusion of this and other estuarine rMCZs in the network was in recognition of the added ecological importance of estuaries in terms of productivity, and their ecological function as nursery areas.

Detailed site description

The estuary has been described as having a coarse, scoured channel at the mouth and the head of the estuary; predominantly coarse and fine sand in the lower estuary, and a mixture of fine sand (channel and intertidal shoals) and silt (salt marsh and tidal flat) in the upper estuary. Sediment sorting generally increased from the head to the mouth of the estuary (Blake *et al.* 2007).

Uncles *et al.* (2007) reported on work undertaken by PML Applications Ltd for the Avon Siltation Study. They concluded that the lower estuary was dominated by sand-sized sediment. The upper part of the estuary had a scoured, river-like channel of very coarse sediment deposits associated with fast ebb current speeds due to tides and freshwater flow across the weir, whereas the central to upper part of the estuary had a high percentage of fine sediment, much of which was muddy, that corresponded to a minimum depth in the longitudinal, main-channel bed profile. As the estuary widened, progressing down-estuary, the silt and clay contribution to the bed sediment increased dramatically (averaging over sections) and exceeded 50%. At about 2.5 km from the weir the silt and clay fraction peaked at about 52% and, combined with the very fine sand and fine sand fractions, constituted the majority (> 87%) of bed sediments at this location. The percentage contribution of fine sand and smaller sediments then fell steadily progressing toward the sea. Main-channel grain sizes were much greater than those over the intertidal areas.

The salt marsh sediments in the Devon Avon are up to about 1m thick and are underlain by intertidal sand. A radiocarbon measurement at the base of the salt-marsh sediments in the main marsh of the estuary indicated that the marshes have been in existence for at least 500 years (Blake *et al.* 2007). The Devon Avon salt marshes are naturally constrained by the topography and geology of the river valley.

The salt marshes surveyed by Atkins (2010) were largely limited to pioneer vegetation, with a narrower band of low to mid marsh species and small areas of mid-upper marsh species. Upper salt marsh vegetation was not found within the key salt marsh areas surveyed adjacent to the main river channel, but may be found along some of the tributaries that flow into the channel, which were not included in the survey. The marshes are likely to be vulnerable to future sea level rise and coastal squeeze due to the constraints placed upon them by the valley sides. The zonation of the salt marsh units was surveyed and assessed according to the general definitions within the JNCC Guidance as follows: Pioneer marsh (*Salicornia* spp., *Suaeda maritima*, *Aster tripolium* with bare mud and sand), low-mid marsh (continuous cover with *Puccinellia maritima* or *Atriplex portulacoides* often dominant) and mid-upper marsh (*Festuca rubra*, *Limonium vulgare*, *Armeria maritima*, *Plantago maritima* often dominant).

During a survey of the benthic macroinvertebrate infauna of the Devon Avon in May 1991, the National Rivers Authority (Barfield, 1994) recorded one specimen of *Alkmaria romijni* (tentacle lagoon worm) at Villa Crusoe within the Avon Estuary in sheltered thick deep mud.

Sampling of four major taxonomic groups was carried out by Attrill *et al.* (2009) in three different estuaries in the South West including the Devon Avon. Oligochaetes; amphipod crustaceans (mainly *Gammarus* spp.; the ragworm *Nereis diversicolor* and either mysids (mainly *Neomysis integer*) or the brown shrimp *Crangon crangon*, depending on which was common were sampled (Attrill *et al.* 2009).

The mouth of the estuary has semi-exposed rock platforms with rich rockpool, underboulder and overhang communities on the low shore. In a study by Bishop & Holme (1980) the sediment shores at the mouth had characteristic exposed shore crustacean-polychaete communities. There is a small Pacific oyster fishery at Hexdown (Spencer *et al.*, 1994). Scarlett *et al.* (2007) collected sediment and *Corophium volutator* from an intertidal area of the Avon estuary near Aveton Gifford, south Devon UK.

The Avon estuary was also surveyed by Moore (1988b) who reported a restricted range of habitats. Smith & Laffoley (1992) described the saline lagoons and lagoon-like habitats within the Avon. Sheehan *et al.* (2010) conducted further sediment grain size analysis in the Devon Avon during July and August in the summers of 2003 and 2004. Burd (1989) surveyed the Devon Avon during the Saltmarsh survey of Great Britain.

Like all the main estuaries of the South West, the Devon Avon is potentially very important for seahorse populations as it provides food and shelter. The Seahorse Trust does not have sightings for seahorses in this area, but a lack of sightings does not mean that they are not there (Neil Garrick-Maidment, pers. comm.).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities.

Table II.3.25e shows more specific working assumptions and implications that were recorded for this site over the course of the planning process. This site was a relatively late addition to the network (it was added after the third progress report). Most of the detailed work on recording assumptions and implications for the sites within the developing network configuration had already taken place before this site was added. Therefore, some of the content of table II.3.25e is based on what had previously been recorded for other sites in the network, based on assumptions that were implicit in the discussions over whether the site should be added to the network or not. Many of the assumptions and implications highlighted for this site are generic, and will apply to other rMCZs in the network as well. Site-specific comments from the later planning meetings (when the site was within the network) have also been added to the table.

Following that, table II.3.25f shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group

meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.25e Specific assumptions and implications relating to Devon Avon Estuary rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site: None identified during VA meeting	
Assumptions	Implications
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Bottom-towed fishing gear will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen (<i>may not be relevant in this area.</i>) o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.

<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Netting and longlining will not be allowed</p> <p><i>This assumption was recorded early on in the process, in order to protect nursery habitats and juveniles in all sites with draft conservation objectives for mobile FOCI. Stakeholder feedback has indicated that the assumption about longlining is inappropriate, as the activity does not happen inshore. An uncertainty remains around netting, where the activity may have an impact on nursery habitat - this uncertainty was not resolved through the VA</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for netters o Displacement of netters o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on netters where protected areas are close together <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o SAFFA fixed net restrictions apply.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Given this assumption, there are still the following concerns: <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users.

<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Following VA meetings, a potential need for managing aquaculture activities in this site has been identified.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Pacific oyster farming might need to use triploid stock to prevent escape & breeding of invasive species. o Since the VA meetings, several concerns around the use of triploid stock have been raised (see additional comments)
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o A Steering Group member commented on the importance of taking into account shoreline management plan policies and planned activities.

Activities assumed to be allowed to continue / occur within the site

Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed

	Benefits: <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>Pelagic trawls will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	Direct implications: <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	Direct implications: <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements) <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o One inactive unknown cable.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by

Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
Passage of ships will be permitted Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o
Seaweed harvesting will be permitted Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o

Table II.3.25f VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Aquaculture	Management: - Convert pacific oyster farming to triploid stock Measure: - To be determined

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Commercial fishing*
 - Commercial fishing raised concerns that estuaries are surplus to the requirement of the ENG.
- *Aquaculture*
 - Serious concerns were raised following the mention of triploid oyster stock in the vulnerability assessment discussion, as a method of preventing escape of breeding non-native oysters into the wild. The concerns are based on a lack of UK-sourced supply of triploid stock, and risks of importing disease with triploid stock from elsewhere.
- *Environment Agency*
 - Suggest using existing estuarine partnership agreements already in place as basis for protection measures.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Mobile species*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site. For sites that still have draft conservation objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the

stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact on nursery habitats or juvenile FOCI. This particular rMCZ was added to the network in the final planning stages, after the detailed work on developing assumptions had already happened, but given that the site has a draft conservation objective for *Anguilla anguilla*, European eel, the uncertainty around netting applies.

- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.25f (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

There are relatively low levels of human activity within the Devon Avon estuary, and this site is relatively uncontroversial, compared to other rMCZs. However, concerns have been raised by the IFCA over the statement in the vulnerability assessment outcome that triploid oyster stock may be considered as a management measure affecting aquaculture.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

Site map series

On the following pages there are three maps of this site.

- The first map (FR_036a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and

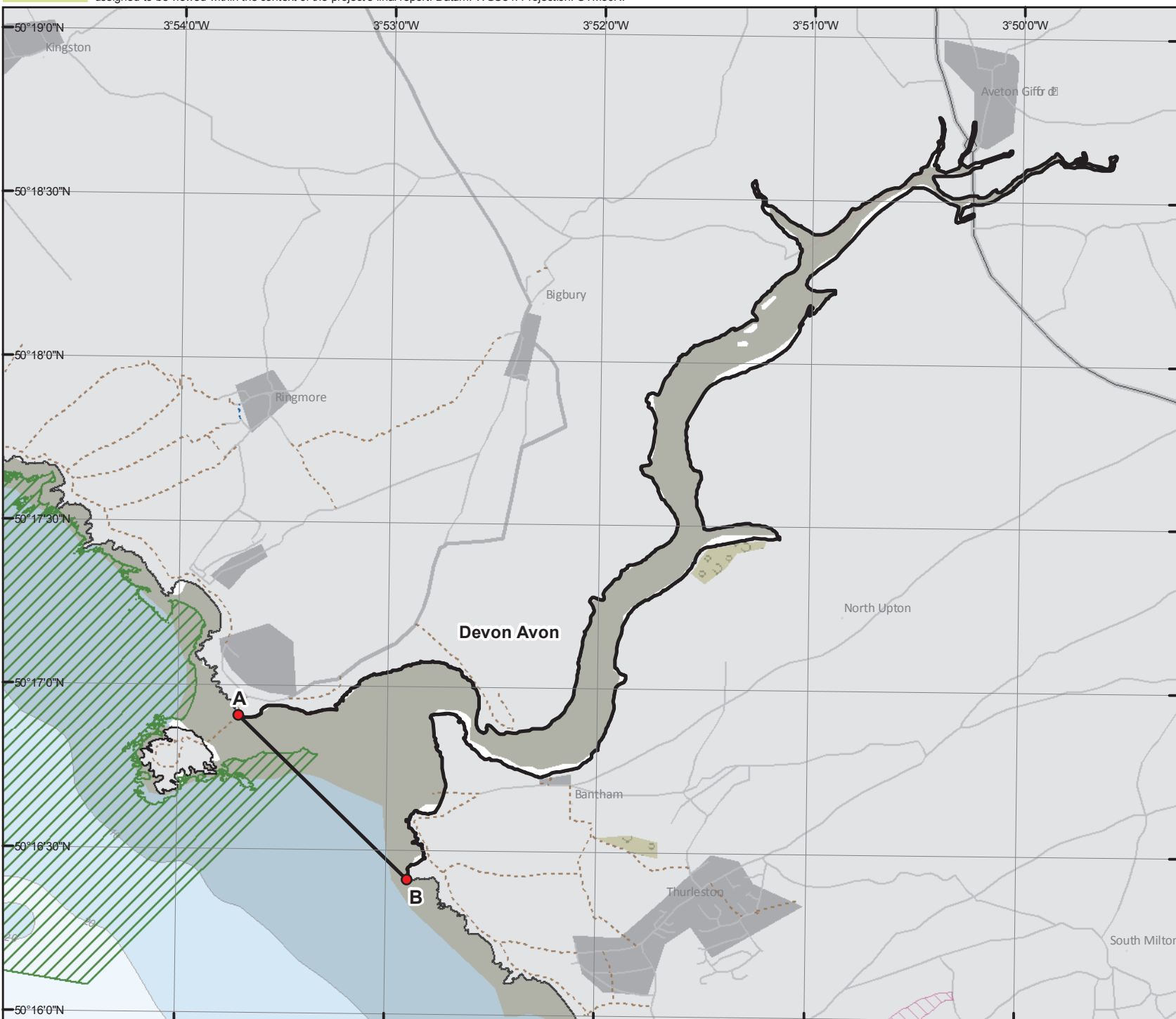
existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.

- The second map (FR_036b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.25b to II.3.25d, data sources are indicated in the tables.
- The third map (FR_036c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data License No. 062005.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 0.3 0.6 1.2 km



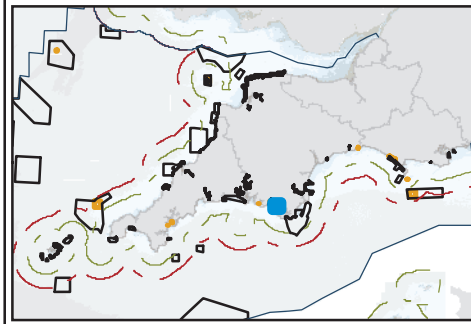
Lat/Long Co-ordinates (WGS84)

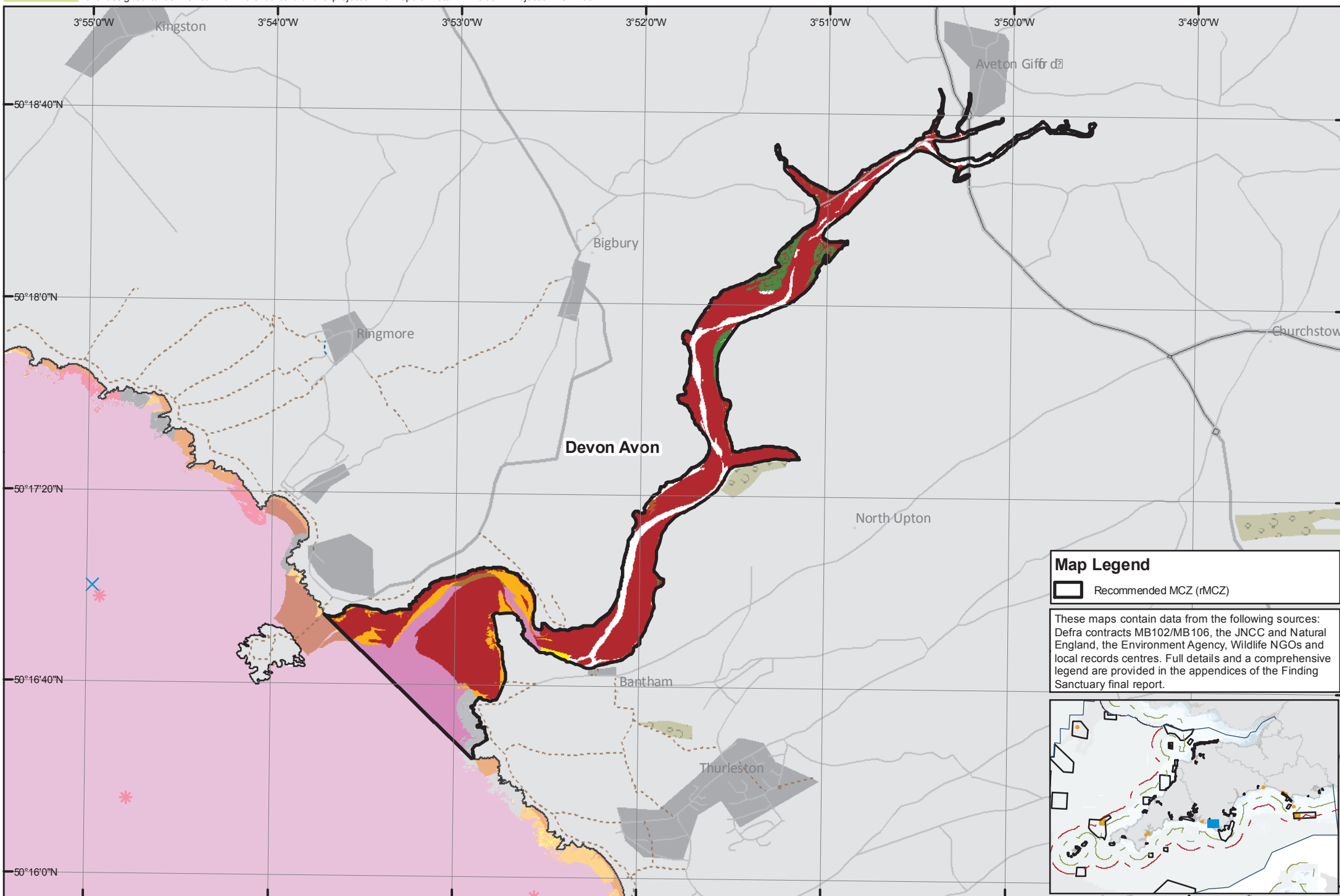
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.2818	-3.8952	50° 16' 54" N	3° 53' 42" W
B	50.2735	-3.8817	50° 16' 24" N	3° 52' 53" W

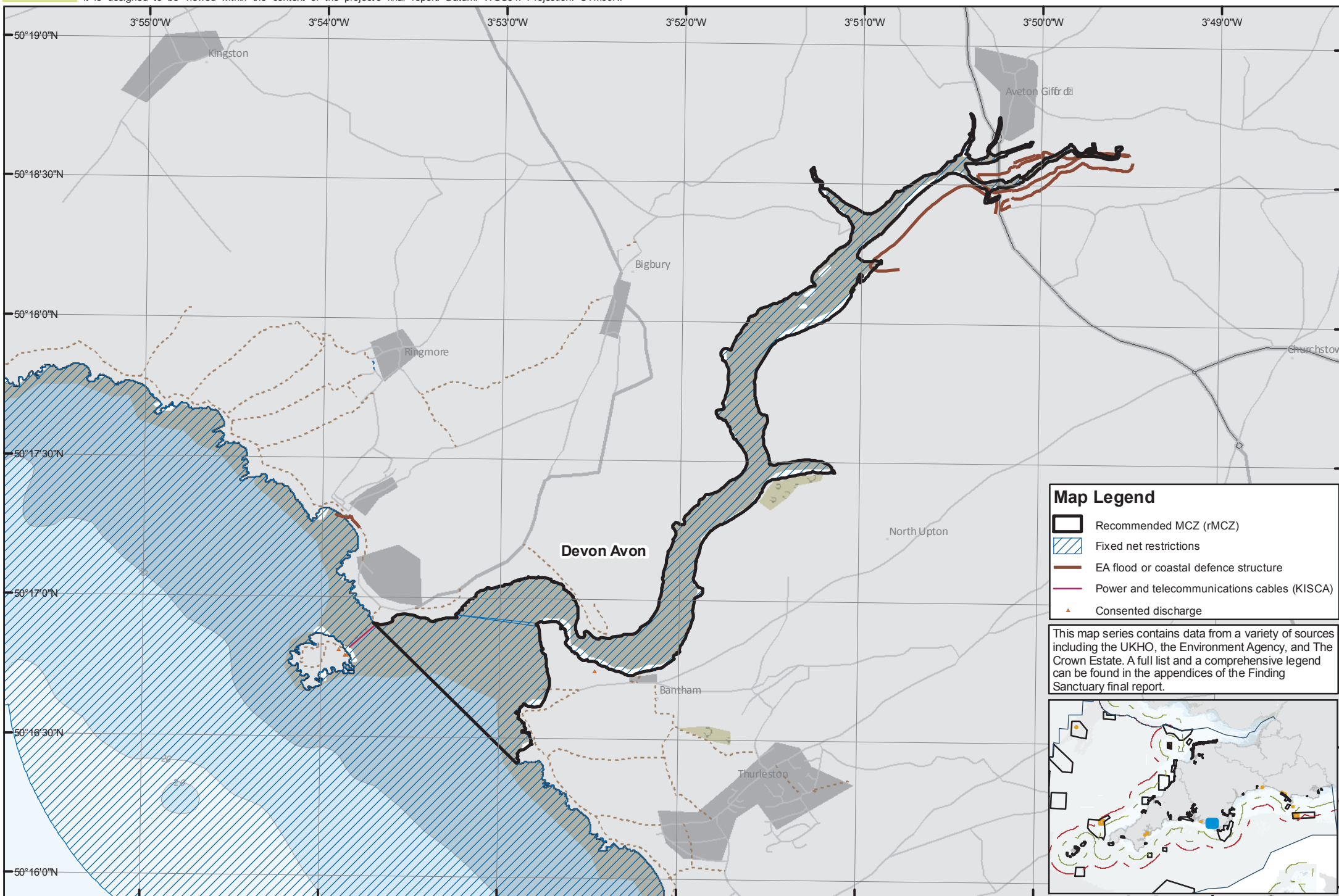
Map Legend

- Recommended MCZ (rMCZ)
- Existing MPAs**
- SAC

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



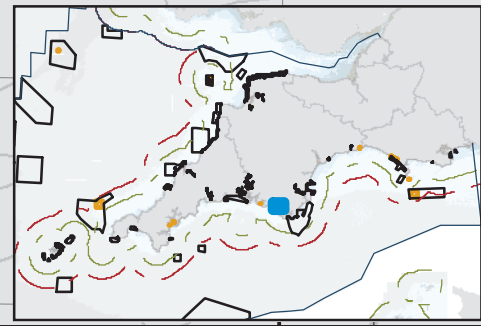




Map Legend

- Recommended MCZ (rMCZ)
- Fixed net restrictions
- EA flood or coastal defence structure
- Power and telecommunications cables (KISCA)
- Consented discharge

This map series contains data from a variety of sources including the UKHO, the Environment Agency, and The Crown Estate. A full list and a comprehensive legend can be found in the appendices of the Finding Sanctuary final report.



II.3.26 Erme Estuary rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.3147	-3.9438	50° 18' 53" N	3° 56' 37" W

Due to the shape of this site the centroid falls outside the rMCZ boundary.

Site surface area: 1.32 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The rMCZ encompasses the whole Erme estuary up to the mean high water mark (mapped using OS Boundary Line mean high water), as far as the weir just south of Sequer's Bridge (where the A379 crosses the river). The seaward boundary of the rMCZ has been drawn at the estuary mouth, from a point at Battsborough Island to Fernycombe Point.

Sites to which the site is related: The site contains the Erme Estuary recommended reference area. The Erme estuary is a SSSI (which the rMCZ falls fully within), and at the estuary mouth, there is an area of overlap between this site and the Prawle Point to Plymouth Sound and Eddystone candidate SAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within the Erme Estuary rMCZ

Table II.3.26a Draft conservation objectives for the Erme Estuary rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Appendix 20:

Broad-scale habitats	Subtidal mud	M	
	Subtidal sand	M	
	Low energy infralittoral rock	M	
	Moderate energy infralittoral rock	M	
	High energy infralittoral rock	M	
	High energy intertidal rock	M	
	Intertidal coarse sediment	M	
	Intertidal mixed sediments	M	
	Low energy intertidal rock	M	
	Moderate energy intertidal rock	M	
Habitat FOCI	Estuarine rocky habitats	M	
	Sheltered muddy gravels	M	
Species FOCI	<i>Anguilla anguilla</i>	European eel	? M / R ¹

¹ At the time of the vulnerability assessment meetings, no decision was taken whether the conservation objective for this feature should be 'maintain' or 'recover'. No quantitative information is included for this mobile FOCI species in the tables below, as the GIS data available was too coarse resolution to be meaningful. However, the species has been included in the draft conservation objectives on the basis of evidence provided to the project by the Environment Agency (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.26b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	0.14	<0.1%	1
Moderate energy infralittoral rock	0.03	<0.1%	1
Low energy infralittoral rock	0.07	0.9%	1
Subtidal sand	0.04	<0.1%	1
Subtidal mud	<0.01	<0.1%	1
High energy infralittoral rock ¹	0.28	<0.1%	1
Low energy infralittoral rock ¹	<0.01	<0.1%	1
Subtidal mud ¹	<0.01	<0.1%	1

¹ Features / areas already protected within an overlapping MPA. See the gap table (appendix 11) for details.

Table II.3.26c Intertidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock	<0.01	<0.1%	4
Moderate energy intertidal rock	0.03	0.5%	4
Low energy intertidal rock	<0.01	0.2%	4
Intertidal coarse sediments	0.02	0.1%	4, 3
Intertidal mixed sediments	<0.01	0.1%	4
Moderate energy intertidal rock ¹	<0.01	<0.1%	4
Intertidal coarse sediments ¹	<0.01	<0.1%	4
Intertidal sand and muddy sand ¹	0.01	<0.1%	4
Intertidal mud ¹	0.55	0.3%	4, 3
Coastal saltmarshes and saline reedbeds ²	0.07	2.3%	3

¹ Features / areas already protected within an overlapping MPA. See the gap table (appendix 11) for details.

² The area of coastal saltmarsh calculated in this GIS analysis might be an underestimate of the saltmarsh area present along the estuary, as the rMCZ site boundary is at OS Boundary Line mean high water, and the habitat might extend above that. Stakeholder feedback stated that on the eastern bank of the upper estuary near Great Orcheton Farm, a breach in a seawall has led to the creation of an area of saltmarsh. This is clearly visible on aerial imagery available on the Ordnance Survey website (and on google maps), but is not mapped in our GIS dataset. Features / areas already protected within an overlapping MPA. Refer to the gap table (appendix 11) for details.

Table II.3.26d FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Estuarine rocky habitats		3		1
Sheltered muddy gravels	0.07			1

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.72 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The Erme is a narrow, sheltered estuary approximately 6.5 km long. It is very secluded, has steep wooded banks and a notified SSSI for its woodland interest. It lies within an Area of Outstanding Natural Beauty, and within the South Devon Heritage Coast (Davies 1998). The Erme Estuary is also designated as a Several Fishery and has managed bait and shellfish collecting (EEMAG, 2003). The

estuary remains largely unaffected by industrialisation (compared with for example the Tamar estuary) and therefore has been the focus of a number studies (Price *et al.* 2005).

One of the reasons for the inclusion of this and other estuarine rMCZs in the network was in recognition of the added ecological importance of estuaries in terms of productivity, and their ecological function as nursery areas. The area around the Erme estuary is privately owned by the Flete Estate. There is a protected archaeological wreck within this site (the Erme Estuary), and another one close to the site boundary at the estuary mouth (the Erme Ingot).

Detailed site description

The habitats are predominantly sedimentary with some broken sand scoured bedrock at the mouth. Mobile sediments near the channel have a typical crustacean-polychaete community characterised by the amphipods *Bathyporeia pilosa* and *Eurydice pulchra*. More sheltered sediment infaunal communities are characterised by ragworm *Hediste diversicolor*. Low shore shingle and cobble habitats are colonised by the brackish water algae *Fucus ceranoides*. The estuary is a spawning ground for sea trout and has a population of the European Otter (Davies 1998).

Anguilla anguilla was reported in the Erme during the 1992-97 Devon Wildlife Trust Stoke Point and Erme Estuary littoral survey.

Luoma & Bryan (1978) took sediment samples from the oxidized surface layer of intertidal sediments within the Erme to determine the availability of sediment-bound lead to *Scrobicularia plana*. Turner *et al.* (2009) collected sediment from the marine reaches of the estuary during June 2008. This was used as a control to antifouling paint contaminated sediment studies. Jones & Turner (2009) collected approximately 6 L of surficial sandy sediment at low water from the marine reaches of the estuary, and Sheehan *et al.* (2010) surveyed the Erme during July and August in the summers of 2003 and 2004. Sediments were classified as poorly sorted sandy muds (mean 5.3 ± 0.03 SE).

Sampling of four major taxonomic groups was carried out by Attrill *et al.* (2009) in the Erme estuary: oligochaetes; amphipod crustaceans (mainly *Gammarus* spp.); the ragworm *Nereis diversicolor* and either mysids (mainly *Neomysis integer*) or the brown shrimp *Crangon crangon*, depending on which was common.

Like all the main estuaries of the South West, the Erme is potentially very important for seahorse populations as it provides food and shelter. The Seahorse Trust does not have sightings for seahorses in this area, but a lack of sightings does not mean that they are not there (Neil Garrick-Maidment, pers. comm.).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved. This assumption applies to all activities.** Table II.3.26e shows more

specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.26f shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.26e Specific assumptions and implications relating to Erme Estuary rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Bottom-towed fishing gear will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen (may not be relevant in this area) o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from

	<p>concentrating effort in alternative grounds or due to new fishing ground searching activity.</p> <ul style="list-style-type: none"> o Local Group feedback indicated that this area is a key spider crab fishery (May-July).
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Definition of large vessel needs to be clarified o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Netting and longlining will not be allowed</p> <p><i>This assumption was recorded early on in the process, in order to protect nursery habitats and juveniles in all sites with draft conservation objectives for mobile FOCI. Stakeholder feedback has indicated that the assumption about longlining is inappropriate, as the activity does not happen inshore. An uncertainty remains around netting, where the activity may have an impact on nursery habitat - this uncertainty was not resolved through the VA</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for netters o Displacement of netters o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on netters where protected areas are close together <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o SAFFA fixed net restrictions apply.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users.

<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>Pelagic trawls will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Estuary is privately owned? Would this be permitted anyway? How does the Erme estuary management plan relate to this? o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements) <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements.

	<p>o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.</p>
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o Could provide income opportunities</p>
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p> <p>Benefits:</p> <p>o Positive implications for local economy – advertising the ‘selling point’ of the Erme as an MCZ</p>
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o Heritage wreck present in this site: Erme Estuary. Another heritage wreck is situated within 150m of the site boundary, at the estuary mouth (the Erme Ingot).</p>

<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Definition of small vessel needs to be clarified o Concern about possible impacts on any eelgrass beds or fan mussels present voiced by a Steering Group member o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.26f VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
n/a	n/a

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within

(or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile species*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site. For sites that still have draft conservation objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact on nursery habitats or juvenile FOCI. This particular rMCZ was added to the network in the final planning stages, after the detailed work on developing assumptions had already happened, but given that the site has a draft conservation objective for *Anguilla anguilla*, European eel, the uncertainty around netting applies.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over
 - Improvements for the local economy
 - Education opportunities
 - Benefits to science
 - Focus for voluntary groups
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc)
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.

- **Management measures**
 - Estuarine partnership management arrangements should be listed as management measures for the site.
 - The Local Group made a suggestion to adapt current estuary management to include zoning e.g. no-take zones.
- **Reaction to the vulnerability assessment process and outcomes**
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.26f (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

There are low levels of human activity within this rMCZ, so it is less contentious than most of the other sites in the network. It was one of the three estuaries added to the developing recommendations relatively early in the process (see progress report 3). Ports and harbours are supportive of this rMCZ, as there is no port within it.

Supporting documentation

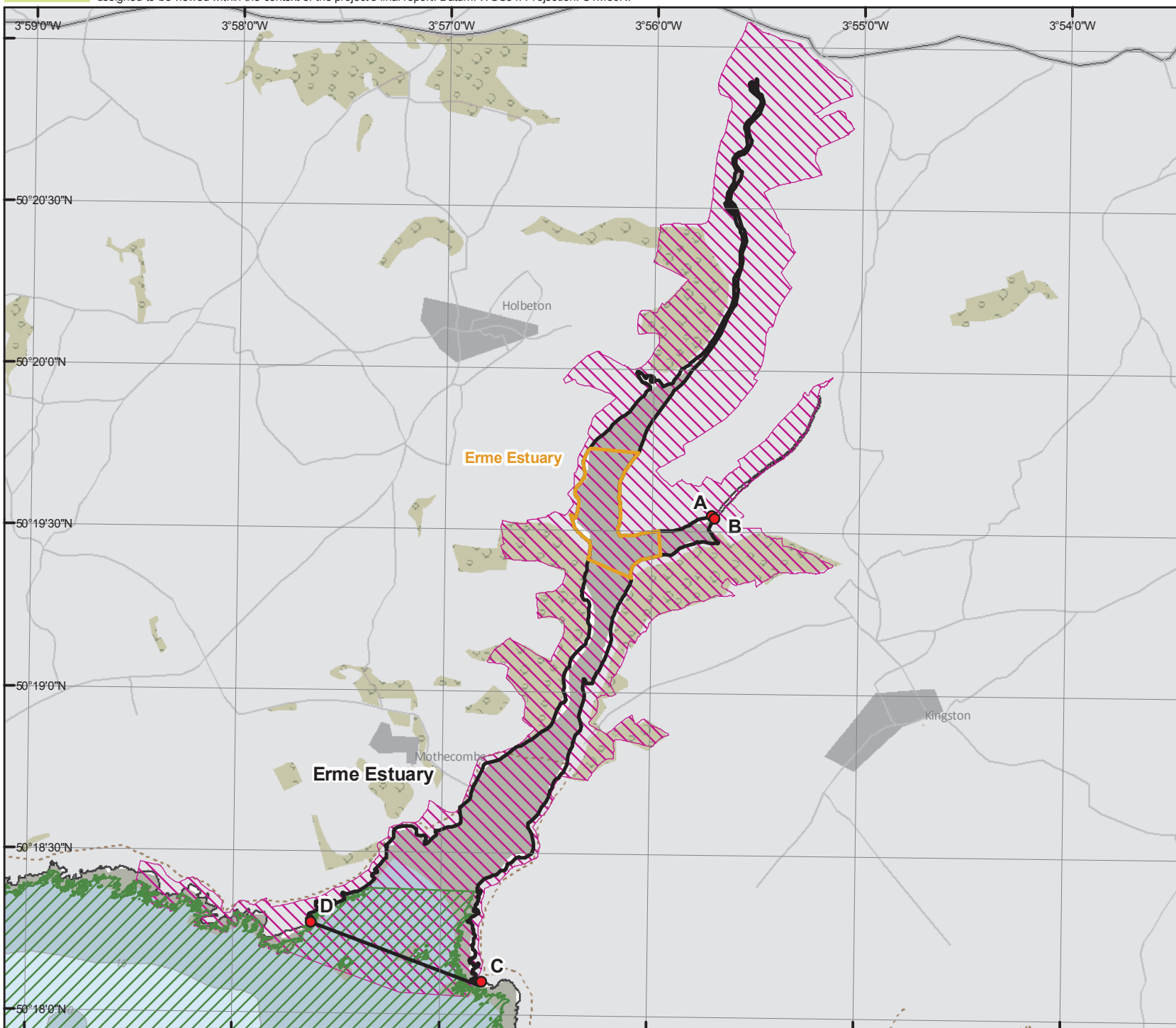
GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

Site map series

On the following pages there are three maps of this site.

- The first map (FR_037a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_037b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.26b to II.3.26d, data sources are indicated in the tables.
- The third map (FR_37c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



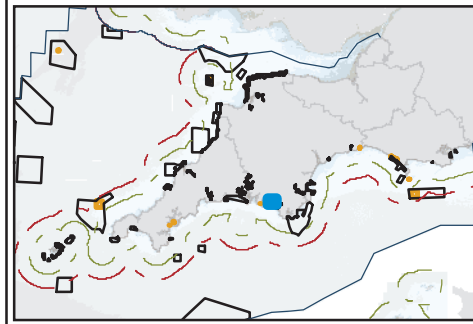
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.3258	-3.9285	50° 19' 32" N	3° 55' 42" W
B	50.3257	-3.9283	50° 19' 32" N	3° 55' 41" W
C	50.3016	-3.9466	50° 18' 5" N	3° 56' 47" W
D	50.3046	-3.9603	50° 18' 16" N	3° 57' 37" W

Map Legend

- Recommended MCZ (rMCZ)
- Recommended reference area
- Existing MPAs**
 - SAC
 - SSSI (part of MPA network)

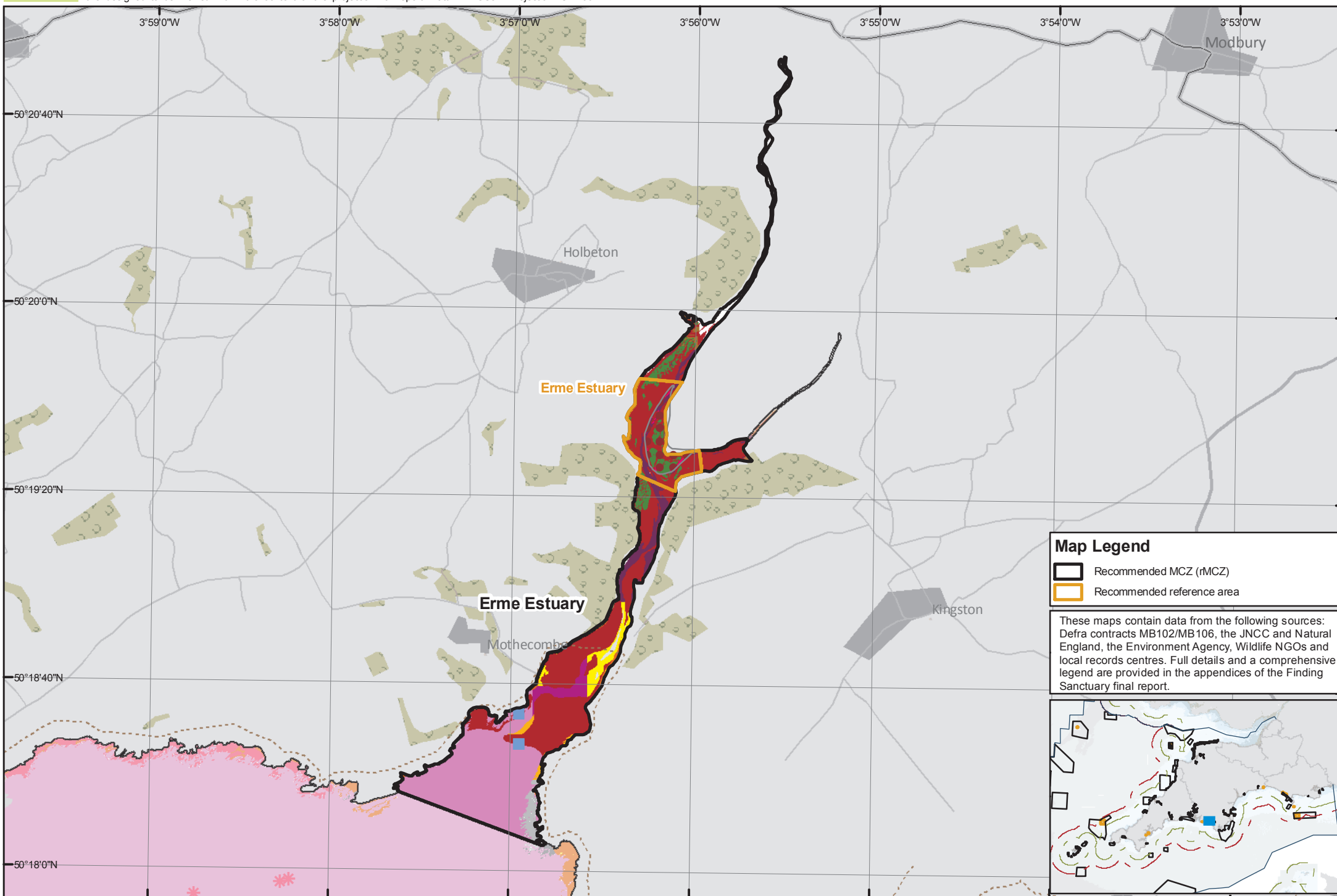
A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

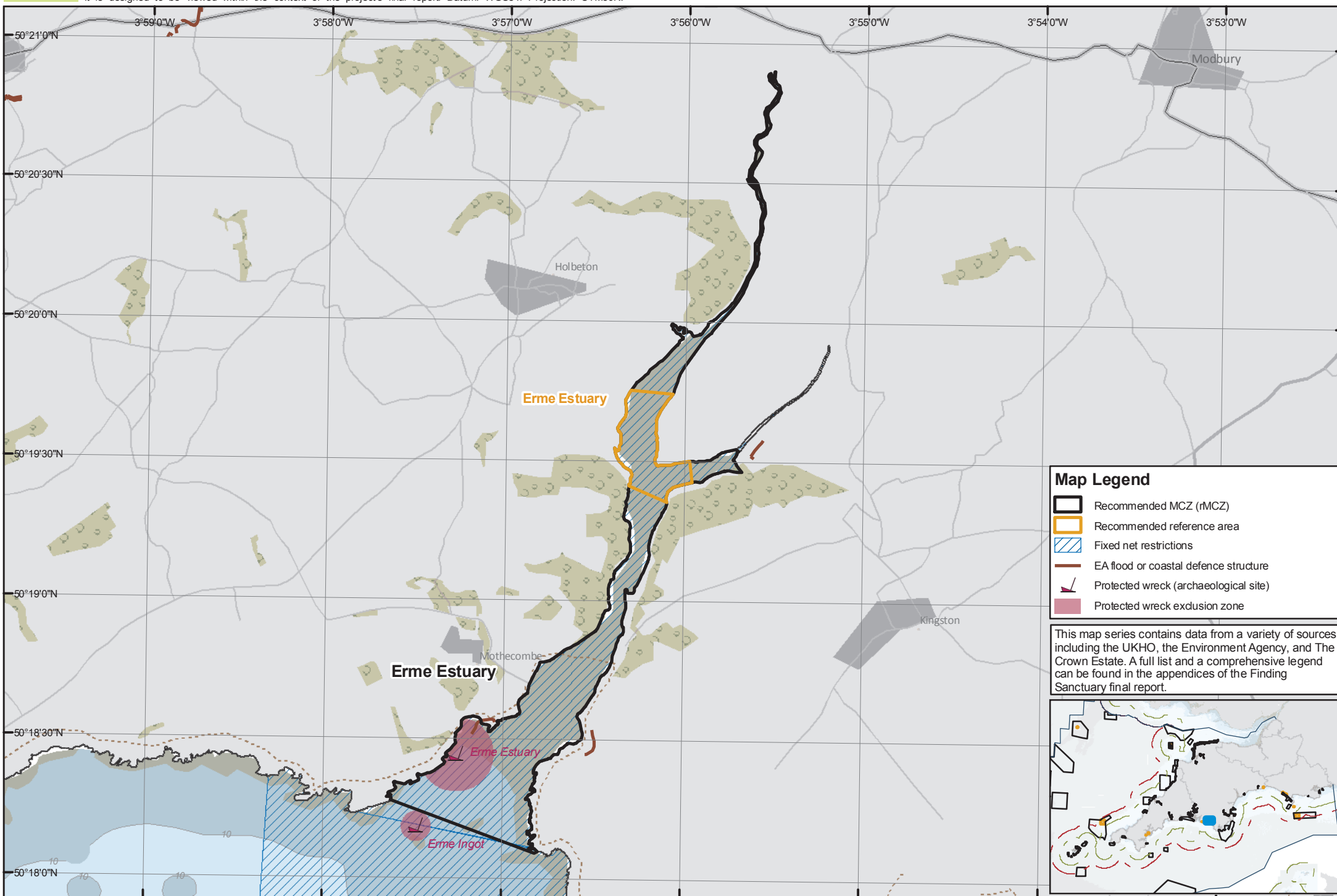


This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062008.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 0.7 1.4 km





II.3.27 Tamar Estuary Sites rMCZ

Basic site information

This site consists of two component parts. The centroid lat/long is a centroid calculated for a two-part site polygon.

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.4241	-4.2214	50° 25' 26" N	4° 13' 17" W

Site surface area: 15.3 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: This site consists of two spatially separate component areas. The upper Tamar and Tavy estuaries form one part, along the OS Boundary Line mean high water mark from Gunnislake to just north of the Tamar Bridge at Saltash. The second part consists of the Lynher estuary with its smaller tributaries, along the mean high water mark from the tidal limits at Tideford and north of Landrake to Jupiter point near the mouth of the Lynher.

Sites to which the site is related: The site is included within the Plymouth Sound and Estuaries SAC and overlaps with the Tamar Estuaries complex SPA. The Tamar-Tavy portion of the rMCZ lies within the Tamar-Tavy Estuary SSSI. The Lynher portion of the rMCZ lies within the Lynher Estuary SSSI.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within the Tamar Estuary Sites rMCZ

Table II.3.27a Draft conservation objectives for the Tamar Estuary Sites rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Broad-scale habitats	Intertidal biogenic reefs		M
	Intertidal coarse sediment		M
Habitat FOCI	Blue Mussel beds (including intertidal beds on mixed and sandy sediments)		M
Species FOCI	<i>Ostrea edulis</i>	Native oyster	M
	<i>Osmerus eperlanus</i>	Smelt	? M / R ¹
	<i>Anguilla anguilla</i>	European eel	? M / R ¹

¹ At the time of the vulnerability assessment meetings, no decision was taken whether the conservation objective for this feature should be 'maintain' or 'recover'. No quantitative information is included for this mobile FOCI species in the tables below, as the GIS data available was too coarse resolution to be meaningful. However, the species has been included in the draft conservation objectives on the basis of evidence provided to the project by the Environment Agency (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes). The figures are presented for the site as a whole, not the two areas separately. Any feature present in both parts is counted as a single replicate for the network-level statistics in section II.2.8.

Table II.3.27b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Low energy infralittoral rock ¹	0.03	0.4%	1
Subtidal coarse sediment ¹	0.02	<0.1%	1
Subtidal mud ¹	4.19	<0.1%	1, 2
Subtidal mixed sediments ¹	0.21	<0.1%	1, 2

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

Table II.3.27c Intertidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 - MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Intertidal coarse sediments	0.04	0.2%	3
Intertidal biogenic reefs	<0.01	12.9%	4
Low energy intertidal rock ¹	0.02	0.5%	4
Intertidal mud ¹	9.05	5.3%	4, 2, 3
Coastal saltmarshes and saline reedbeds ¹	0.28	9.2%	3
Intertidal biogenic reefs ¹	<0.01	<0.1%	4

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

Table II.3.27d FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Blue Mussel beds		1		1
Estuarine rocky habitats ¹	< 0.01			1
Seagrass beds ¹	< 0.01			1

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

Table II.3.27e FOCI species recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Ostrea edulis</i>	4	4	1, 3

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 3.67 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

One of the reasons for the inclusion of this and other estuarine rMCZs in the network was in recognition of the added ecological importance of estuaries in terms of productivity, and their ecological function as nursery areas. A specific reason for including the upper Tamar and Lynher estuaries was that they are the only estuaries in the south-west where there is good evidence that they are used by the mobile FOCI *Osmerus eperlanus* (smelt), based on evidence provided to the project by the Environment Agency (see appendix 8).

Detailed site description

The Tavy's intertidal mudflats in the upper estuary consist predominantly of silt and clay. In the central and upper estuary, superficial bed sediments in the main channel, and on the upper shores of both banks when these are not salt marsh, comprise a mixture of predominantly coarse, non-cohesive sediments with very small fractions of silt and clay. Sediment on the upper mudflat areas is essentially homogeneous and has a silt and clay content of greater than 80% (dry weight). The silt and clay content is less (but still >70%) as the mudflats increase their slopes approaching the main channel (Uncles & Stephens, 2000). Pilditch *et al.* (2008) conducted sediment analysis at a high-shore intertidal site, just below the high-water neap tide (HWNT) level, on the east bank of the Tavy estuary at Blaxton. Extensive mudflats on the western shore of Hamoaze, in Lynher Estuary and northward along the Tamar are backed by shale or saltmarsh on the upper shore (Hiscock & Moore, 1986). Small areas of shingle shore are present, and particularly well-developed in the area of Torpoint (Hiscock & Moore, 1986).

Dyer *et al.* (2000) analysed mudflats within the Tamar estuary sites (including the Lynher) to establish a classification scheme of intertidal mudflats. The survey included classification into sediment type. Surveys were carried out between March and July 1998. Craig & Moreton (1986) conducted two surveys of South West England estuaries during the periods June-August 1981, and October 1982. Sediment samples were collected at low water from intertidal sites in the Tamar. Bale *et al.* (2007) collected sediment samples using a small inflatable boat to access intertidal mud at a number of stations along the axis of the Tamar Estuary at elevations between low water and mid tide. Sediment cores for flume experiments were also collected by Pope *et al.* (2006) from locations within the Tamar estuary.

Smith (1981) sampled populations of *Littorina saxatilis* at some 30 coastal and offshore stations, most of them in Cornwall (including the Isles of Scilly), and at 35 stations along the banks of the estuaries of the Rivers Camel, Tamar and Fal. The shore platforms in the Tamar at the higher tidal levels were mainly artificial walls, low cliffs and beaches of muddy-sand that carry a litter of firmly bedded slates and stones. In the upper reaches of the Tamar and within its many 'lakes' and tributary estuaries, the burden of mud increases and the shores are dominated by extensive mud-

flats and saltings (Smith, 1981). Luoma & Bryan (1978) also collected sediment samples from the oxidized surface layer of intertidal sediments within the Tamar.

Bayne *et al.* (1983) studied mussels at six sites on the English and Welsh coasts. Fecundity and physiological measurements of an extensive well established population in the Lynher estuary were taken during the study. Hiscock & Moore (1986) also reported blue mussel beds in the Tamar estuary site during their survey of Harbours, Rias and Estuaries of Southern England. Mussel beds are present on intertidal sediment flats in the Lynher and Hamoaze. Those surveyed were colonised by *Elminius modestus* with generally frequent *Littorina saxatilis* and *Littorina littorea*. *Cerastoderma edule* were also present in the sediment between. Attached algae or algae living on stones amongst the mussels included *Fucus vesiculosus* and *Ascophyllum nodosum*. On the lower shore at Jupiter Point, mussels were colonised by filamentous red algae and by abundant *Halichondria* spp. and *Bowerbankia imbricata* as well as occasional *Crepidula fornicata* and *Myxilla incrustans* (Hiscock & Moore, 1986). Interstitial fauna sampled at Passage Point contained abundant *Cirriformia tentaculata* and a few other worms and amphipods. At St Johns Lake, the mussel bed was dominated by *Cirratulus cirratus* (Hiscock & Moore, 1986). Further research on mussels in the Tamar estuary has been carried out by Bignell *et al.* (2011) and Shaw *et al.* (2011).

Matt McHugh and colleagues at the Marine Biological Association have surveyed the estuary on a weekly basis between 2004 and 2009 between Cargreen and West Mud. They have also come across *Ostrea edulis* whilst surveying the Tavy area. *Mytilus edulis* is present at Cargreen, at the mouth of the Tavy, and at West Mud. *Anguilla anguilla* is regularly caught by anglers at Kingsmill Lake (M. McHugh, Marine Biological Association, pers. comm.).

Jack Sewell from the MBA has found one or two *Ostrea edulis* individuals during a few one-off surveys at Beggars Island at the mouth of the River Lynher. Surveys are to continue with youth-led SHARC (Surveying Habitats and Researching Coasts) group (MBA group) (Jack Sewell, Marine Biological Association, pers. comm.).

There are many studies that highlight the importance of the site for Smelt (*Osmerus eperlanus*), the earliest dating back well over a century. Buckland (1875) recorded that ‘... but for actual bait, with a rod and line at flood tide, a red worm is generally thought all that is necessary. At Plymouth, where I have both witnessed and enjoyed a great deal of smelt fishing, I have seen nought else employed. ... Lambhay Point was a favourite resort for smelt fishers some years since. Traffic encroachments have now interfered considerably with the successful prosecution of the sport in this immediate quarter. ... At Plymouth ... no perceptible diminution of numbers has been discoverable except at the old rendezvous of Lambhay Point. In the Sound, near ‘The Mallard’ excellent smelt fishing is still to be had, and great quantities are taken there during the summer months.’

Later sources, however, refer to the smelt as a relatively recent arrival on the south coast of Devon and Cornwall (e.g. JMBA 1973 in Maitland, 2003). Several studies have highlighted that the species breeds in the Tamar estuary, based on reports of adult fish with maturing gonads having been caught, as well as larvae, post-larvae and juveniles. Successful spawning events and indications of an established population were reported in the 1970s, highlighting the area just below Gunnislake Weir as a spawning area, and feeding areas for post-larvae between 5 and 10km downstream from the spawning zone (JMBA 1975, 1975 in Maitland, 2003). A recent review of records of this species seems to indicate that the Tamar estuary is a uniquely important location for smelt within the south-west region: ‘... the spawning grounds are just below Gunnislake Weir. ... I have a lot of trawl data and also plots of larval and post-larval distributions for the Tamar. A similar survey for the Dart did not show any. I spent a lot of time looking at old records and in the majority of these ‘smelt’ referred

to *Atherina*. There was one for the Exe for which the species was uncertain. ... smelt were there (Tamar) in 1981 with population densities up to 4 per m³. Most of the samples are still with me and I have a lot of scales and scale readings.’ (P.R. Dando, University of Wales, Bangor, e-mail dated 20 November, 2002. Quoted in Maitland, 2003).

As a bycatch, smelt were taken in the River Tamar in 1988 in EA licensed salmon seine nets at Weir Quay (P.J. Coates, South Wales Sea Fisheries Committee, e-mail dated 14 November, 2002. Quoted in Maitland, 2003). Potts & Swaby (1993) record that ‘Cucumber smelt (*Osmerus eperlanus*) has been caught by beam trawl in the Tamar Estuary but only following high rainfall and when the salinity is low (Hutchings, pers. comm. 1992. In Maitland, 2003).’ ‘Adults observed by myself in National Marine Monitoring Programme annually: 1999, 2000, 2001 – qualitative information only, though a range of sizes. ... anecdotal evidence of large numbers of smelt migrating ... Spawning in and around tidal limit at Gunnislake.’ (S. Toms, Environment Agency, e-mail dated 3 December, 2002. Quoted in Maitland, 2003).

Within the Tamar and Lyhner estuaries, Calstock Bend to Weir Quay was considered of national marine biological importance (Hiscock & Moore, 1986). A well developed estuarine gradient and the presence of littoral and sublittoral hard strata are the important features in the Tamar estuary. The rarely encountered hydroid *Cordylophora caspia* was recorded in high densities. Where the estuary opens out at Weir Quay, the polyhaline *Hartlaubella gelatinosa* was recorded on shells and other hard strata. In the area off Ballast Punt, Torpoint, low shore shale cobbles and boulders support a rich assemblage of finely branching algae and a rich underboulder fauna. The cobbles and boulders on mud extend into the sublittoral (Davies, 1998).

Reef habitats occur within the Plymouth estuaries which comprises intertidal and subtidal low energy reefs, including some composed of limestone. This relatively soft rock is extensively bored by the bivalve *Hiatella arctica* and the Spionid worms *Polydora spp.*, and harbours a rich fauna. In the sublittoral this steep-sided reef is dominated by a dense hydroid and bryozoan turf interspersed with anemones and ascidians. The sublittoral is of particular importance for its kelp- and animal-dominated habitats. Abundant populations of the slow growing, long-lived, nationally important pink sea-fan *Eunicella verrucosa* also occur at this site. The reef feature is in full salinity and subject to strong coastal influence (English Nature, 2000).

Widdows *et al.* (2007a) measured sediment properties and macrofauna at two locations on the Tamar and Tavy estuaries. *Spartina anglica* saltmarsh is present in the Tavy, and *Phragmites australis* beds on the upper tidal riverbanks of the Tamar at Calstock.

The Tamar estuaries are a prime, very important site for both species of seahorse. The Seahorse Trust has records of a number of live and dead specimens from this region, many of which have been provided by the Marine Biological Association in Plymouth (Neil Garrick-Maidment, *pers. comm.*).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under**

current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved. This assumption applies to all activities.

Table II.3.27f shows more specific working assumptions and implications that were recorded for this site over the course of the planning process. This site was a relatively late addition to the network (it was added after the third progress report). Most of the detailed work on recording assumptions and implications for the sites within the developing network configuration had already taken place before this site was added. Therefore, some of the content of table II.3.27f is based on what had previously been recorded for other sites in the network, based on assumptions that were implicit in the discussions over whether the site should be added to the network or not. Many of the assumptions and implications highlighted for this site are generic, and will apply to other rMCZs in the network as well. Site-specific comments from the later planning meetings (when the site was within the network) have also been added to the table.

Following that, table II.3.27g shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.27f Specific assumptions and implications relating to Tamar Estuary Sites rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site: none identified during VA meetings	
Assumptions	Implications
Aggregate extraction will not be allowed	Direct implications: <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence.
Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Given this assumption, there are still the following concerns: <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.

<p>Bottom-towed fishing gear will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen (<i>may not be relevant in this area.</i>) o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of and incidental to the Public Right of Navigation
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Netting and longlining will not be allowed</p> <p>This assumption was recorded early on in the process, in order to protect nursery habitats and juveniles in all sites with draft conservation objectives for mobile FOCI. Stakeholder feedback has indicated that the assumption about longlining is inappropriate, as the activity does not happen inshore. An uncertainty</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for netters o Displacement of netters o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on netters where protected areas are close together <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o SAFFA fixed net restrictions apply.

remains around netting, where the activity may have an impact on nursery habitat - this uncertainty was not resolved through the VA

Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions

Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.

Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings

Implications

Direct implications:

o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.)

Given this assumption, there are still the following concerns:

- o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed
- o There would be costs if monitoring is needed

The installation, operation and maintenance of renewable energy devices will be permitted

Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.

Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings

Direct implications:

Given this assumption, there are still the following concerns:

- o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in:
 - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring
 - delays to renewables development
 - delays, lost revenue and additional costs associated with cable repair activity restrictions
- o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets.
- o Enforced co-location with MCZs would dramatically restrict deployment.

If the assumption turns out to be wrong:

- o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed,

	<p>increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities.</p> <p>o Increased competition for sea space with other sea users.</p>
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o Pacific oyster farming might need to use triploid stock to prevent escape & breeding of invasive species.</p> <p>o Since the VA meetings, several concerns around the use of triploid stock have been raised (see additional comments)</p>
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o A steering group member stated that this activity does take place within this site.</p> <p>o A steering group member stated that their understanding is that bait collection may be restricted for intertidal habitat protection.</p>
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p> <p>Given this assumption, there are still the following concerns:</p> <p>o A Steering Group member commented on the importance of taking into account shoreline management plan policies and planned activities.</p>

Activities assumed to be allowed to continue / occur within the site.	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>Pelagic trawls will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements) <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring . o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o New cables and pipelines need to be permitted - the Tamar is a 'must cross' river to service Devon & Cornwall.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Four active power cables, one active unknown cable, seven inactive telecoms cables and a gas pipeline.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we

place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	would adopt that size in MCZ planning. o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
Passage of ships will be permitted Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o
Seaweed harvesting will be permitted Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o

Table II.3.27g VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
n/a	n/a

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *MOD*
 - MOD activities take place in the southern reaches of the estuary which may not be compatible with an MCZ.
- *The Wildlife Trusts*
 - Adding features to current SAC/SPA/SSSI protection will result in more holistic approach to site management
- *Netting and longlining*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site. For sites that still have draft conservation objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact on nursery habitats or juvenile FOCI. This particular rMCZ was added to the network in the final planning stages, after the detailed work on developing assumptions had already happened, but given that the site has a draft conservation objective for *Osmerus eperlanus*, smelt and *Anguilla anguilla*, European eel, the uncertainty around netting applies.
- *Aquaculture*
 - Serious concerns were raised following the mention of triploid oyster stock in the vulnerability assessment discussion, as a method of preventing escape of breeding non-native oysters into the wild. The concerns are based on a lack of UK-sourced supply of triploid stock, and risks of importing disease with triploid stock from elsewhere.
- *Generic implications for ports (applicable to all rMCZs where port jurisdictions and activities overlap with the site, or are adjacent to the site)*
 - Harbour Revision Orders, General Directions, Pilotage Directions etc.
 - Ports and harbours are limited to their jurisdiction.
 - Ability of port to comply with legal responsibilities e.g. Oil Spill Response Planning etc.
 - Administration, resource on and off the water, legal and technical specialists requirements associated with additional management and legal responsibilities should co-location be pursued.
 - Additional time and cost triggered by all of the above both to the port.
 - Implications on other industries using the port or who wish to use the port in the future.

- Existing management practices on and off water e.g vessel and activity management, speed, timing restrictions etc.
- Existing emergency response – weather, pollution, security.
- Dredging to ensure maintenance of safe navigable depths.
- Berthing, mooring & anchoring of small & large vessels.
- Ship building, maintenance, refurbishment & repair.
- Maintenance, refurbishment & repair of port and harbour infrastructure.
- New port and harbour infrastructure.
- Access & egress to and from harbour.
- Recreational activities within harbour.
- Ship access and egress to and from berths.
- Significance of timescales, delays and cost to management practices.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - The Tamar Estuary Consultative Forum (TECF) current management measures e.g. zoning etc should be included in the potential management for this site. The forum should be involved in the management and implementation of the site.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.27g (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

A range of human use and socio-economic considerations led to the upper estuarine reaches only being included in this rMCZ (the upper reaches is also where smelt breed, and the main reason for the inclusion of this site was the presence of smelt). The boundaries were defined by the Tamar Estuaries Consultative Forum at the request of the Working Group. The Duchy of Cornwall have voiced concerns over potential restrictions to moorings and other licensed commercial activities, and the Tamar Estuaries Consultative Forum has voiced concerns over whether they have the resources necessary to deal with site implementation. Stakeholders have emphasized the importance that the estuary forum be involved in future management and implementation of the site.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MESH, MB102, Cornwall Wildlife Trust, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Gee *et al.*, (1985), Langston *et al.* (2003), Warwick and Price (1975, 1979), and Warwick and Radford, 1989. Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](http://jncc.defra.gov.uk/page-4)³⁴.

Site map series

On the following pages there are three maps of this site.

- The first map (FR_038a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_038b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOI. The data shown on this map corresponds with the information in tables II.3.27c to II.3.27e, data sources are indicated in the tables.
- The third map (FR_038c) shows socio-economic datasets, excluding fisheries regulation. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- The fourth map (FR_38d) shows fisheries regulation data.

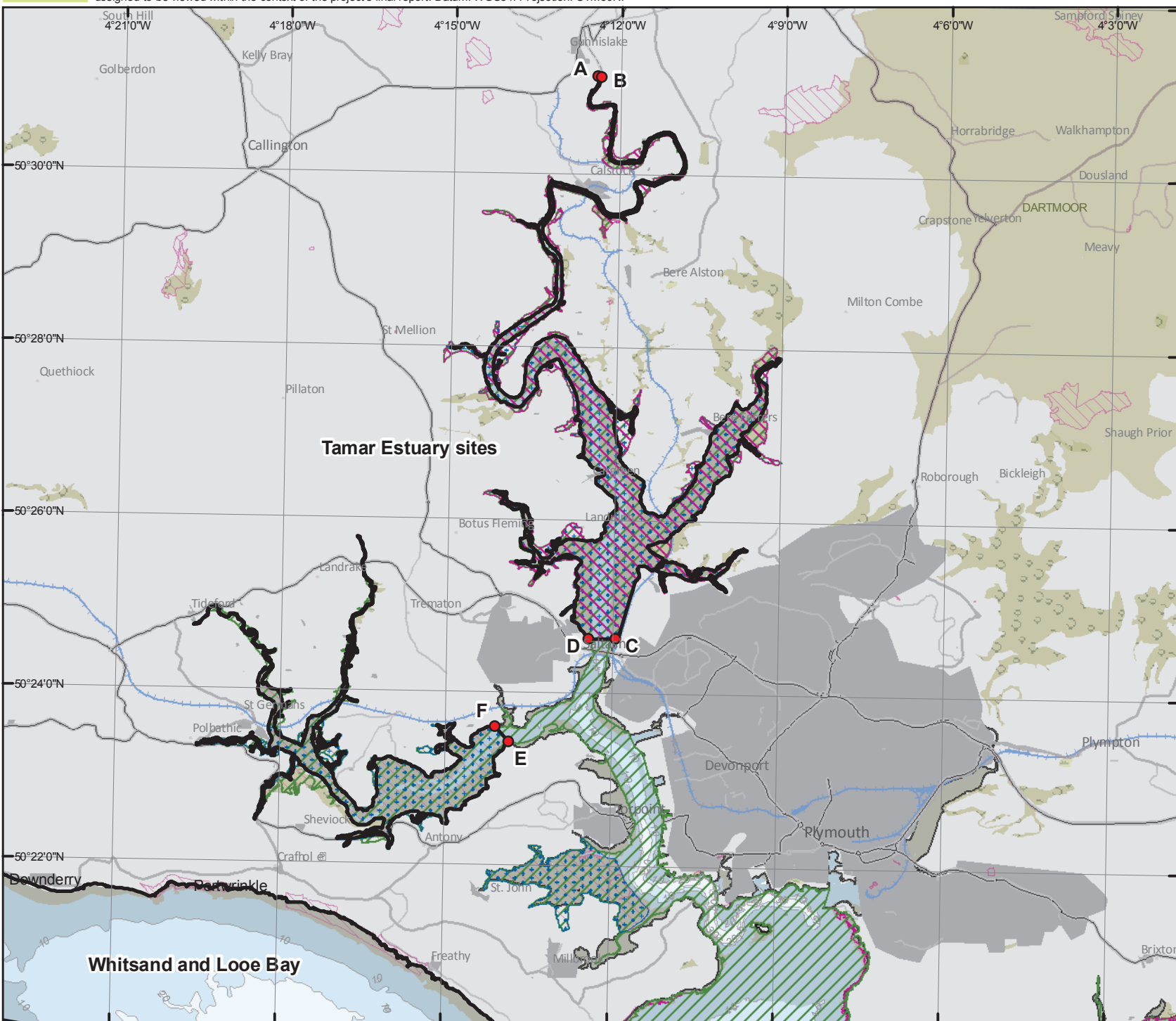
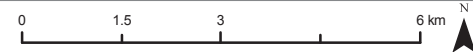
³⁴ <http://jncc.defra.gov.uk/page-4>

- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

Tamar Estuary rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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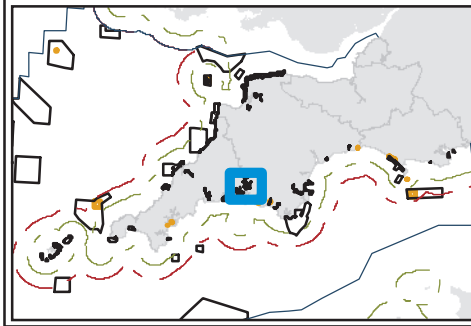
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.5192	-4.2069	50° 31' 9" N	4° 12' 24" W
B	50.5190	-4.2059	50° 31' 8" N	4° 12' 21" W
C	50.4106	-4.1991	50° 24' 38" N	4° 11' 56" W
D	50.4105	-4.2070	50° 24' 37" N	4° 12' 25" W
E	50.3904	-4.2309	50° 23' 25" N	4° 13' 51" W
F	50.3934	-4.2351	50° 23' 36" N	4° 14' 6" W

Map Legend

- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - SPA
 - SSSI (part of MPA network)
 - SSSI (not part of MPA network)

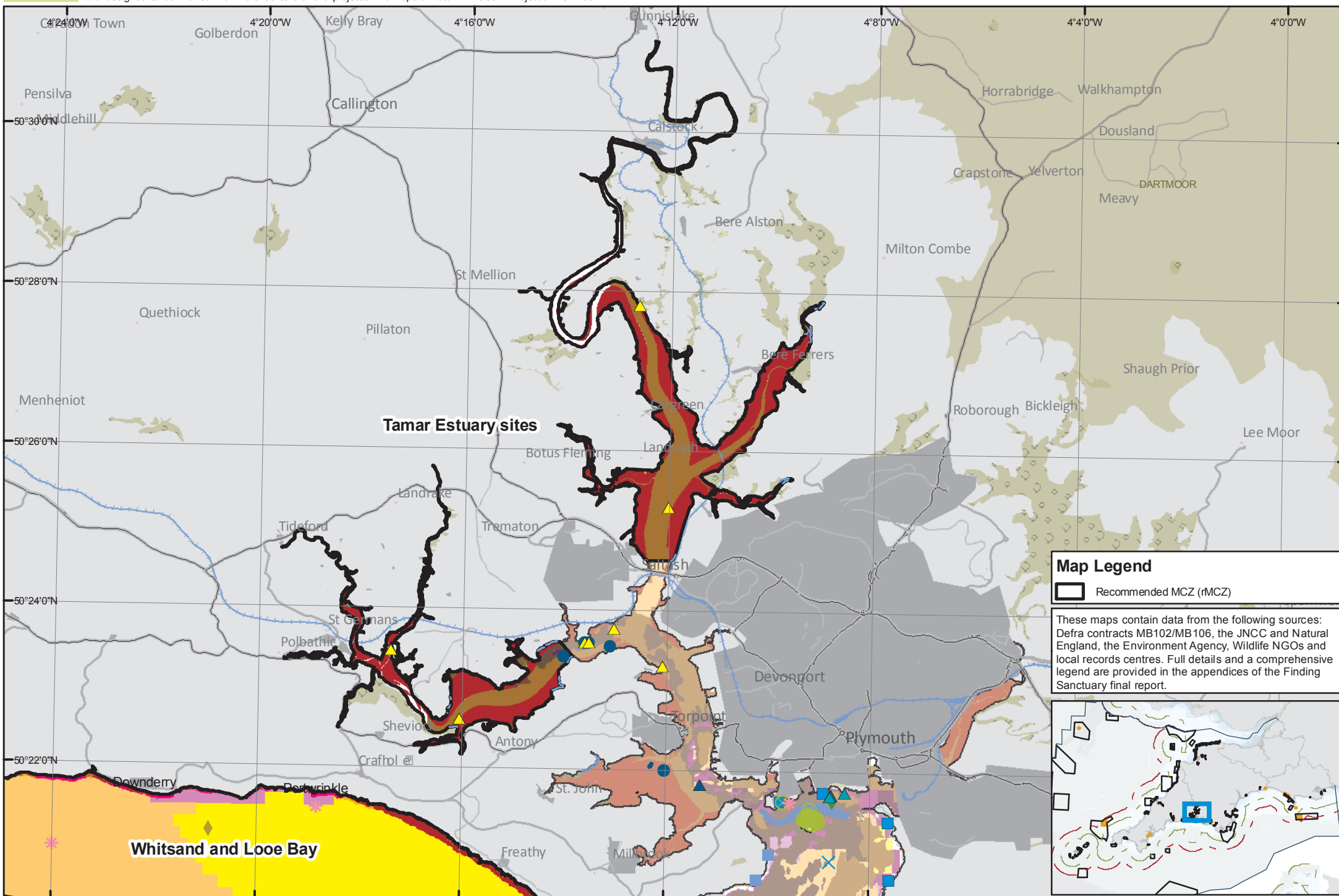
A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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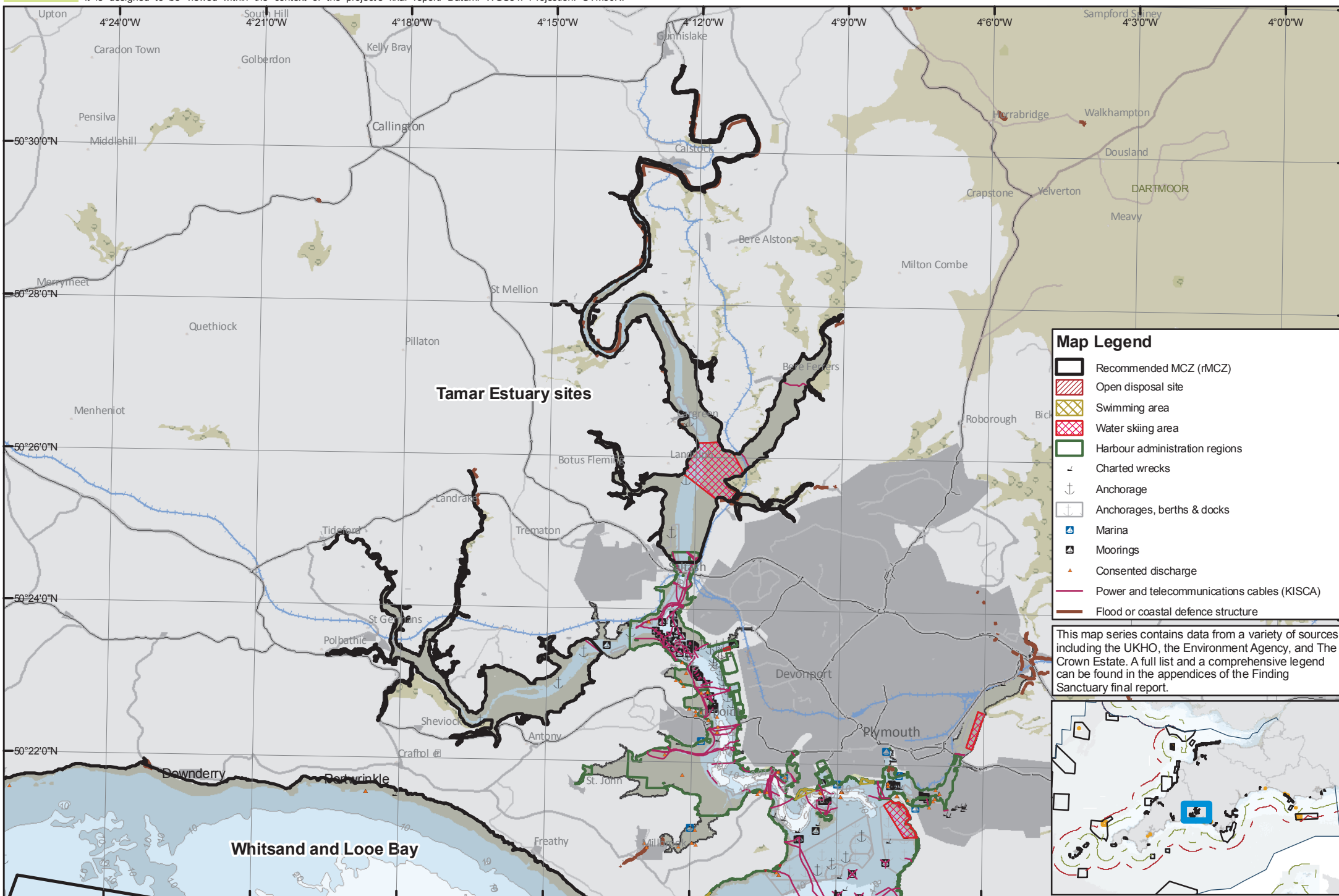
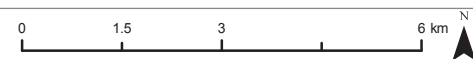
0 2.5 5 km



Tamar Estuary rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

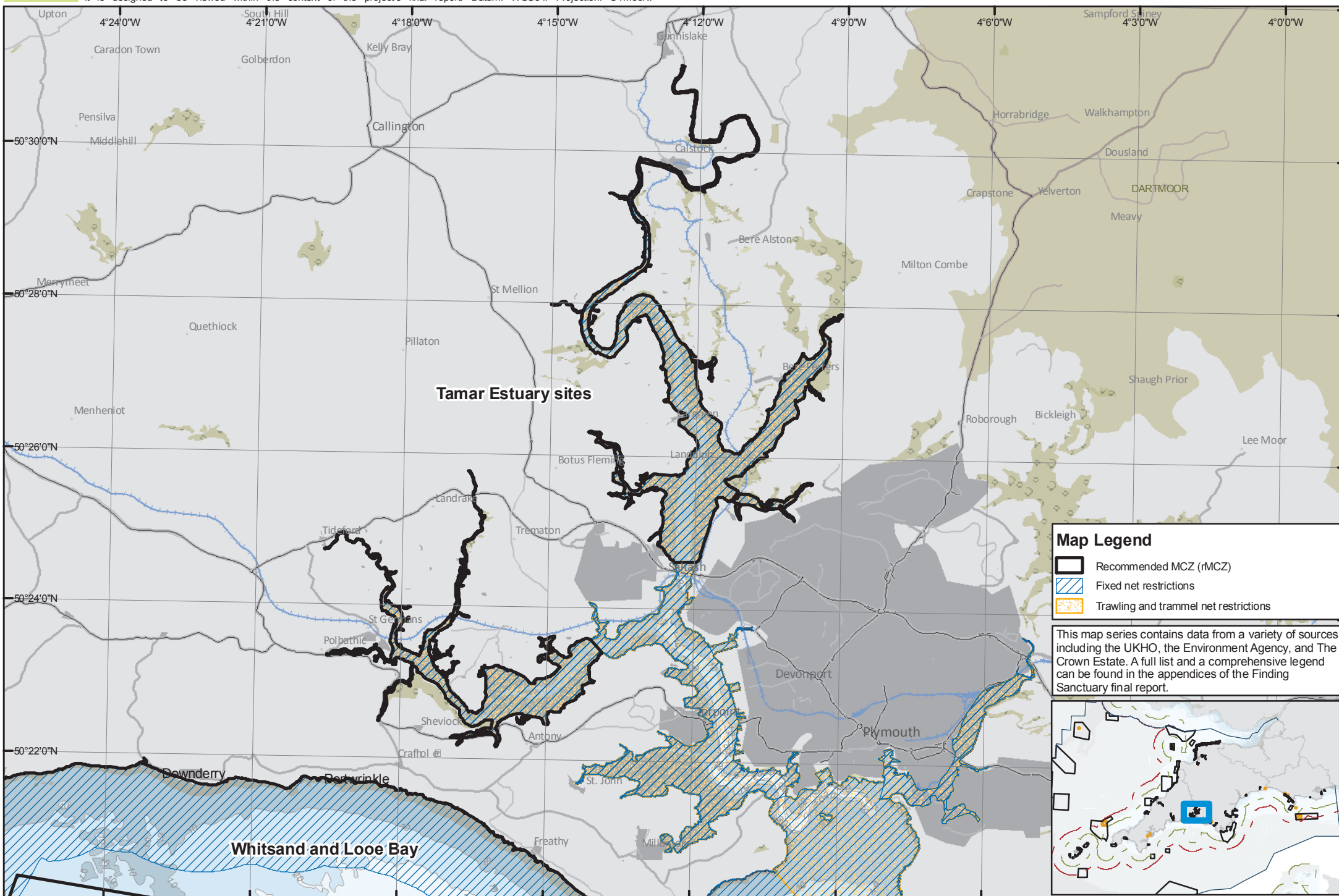
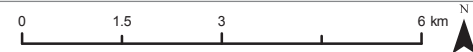
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Tamar Estuary rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with information on fisheries regulation. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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II.3.28 Whitsand and Looe Bay rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.3434	-4.3459	50° 20' 36" N	4° 20' 45" W

Site surface area: 51.5 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The site boundary follows the coastline along the OS Boundary Line mean high water mark from Hore Stone near Talland Bay in the west, to a point between Queener Point and Long Cove on Rame Head in the east. The seaward boundary is formed by a straight line across the bay, with a small extension jutting out to the south around Looe Island (following the outline of the Looe voluntary marine conservation area).

Sites to which site is related: The site lies to the west of the Plymouth Sound and Estuaries SAC and includes the Looe voluntary marine conservation area. Eglarooze Cliff SSSI, and Whitsand Bay and Rame Head SSSI lie along the shoreline of the rMCZ.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Whitsand and Looe Bay rMCZ

Table II.3.28a Draft conservation objectives for Whitsand and Looe Bay rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitat	Subtidal coarse sediment		M
	Subtidal sand		M
	Moderate energy circalittoral rock ¹		M
	High energy infralittoral rock		M
	High energy intertidal rock		M
	Intertidal coarse sediment		M
	Intertidal mixed sediments		M
	Intertidal sand and muddy sand		M
	Low energy intertidal rock		M
	Moderate energy intertidal rock		M
Habitat FOCI	Seagrass beds		M
Species FOCI	<i>Amphianthus dohrnii</i>	Sea-fan anemone	M
	<i>Arctica islandica</i>	Ocean quahog	M
	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Gobius cobitis</i>	Giant Goby	M
	<i>Haliclystus auricula</i>	Stalked jellyfish	M
	<i>Hippocampus guttulatus</i>	Long snouted seahorse	M

¹ There is no data in the combined EUNIS level 3 GIS data (described in appendix 8), but local group and scientific feedback states that there are rocky ledges present in the bay. There are hard substrate species present (e.g. pink sea fan), and a detailed sidescan sonar dataset of the seafloor of the area exists which shows the rocky ledges (see detailed site description).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.28b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	1.26	0.2%	1
Subtidal coarse sediment	25.61	<0.1%	1
Subtidal sand	22.35	<0.1%	1
Subtidal sand ¹	<0.01	<0.1%	1

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

Table II.3.28c **Intertidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock	0.03	0.4%	4
Moderate energy intertidal rock	0.07	1.5%	4
Low energy intertidal rock	0.06	1.7%	4
Intertidal coarse sediments	0.47	2.4%	4, 3
Intertidal sand and muddy sand	0.18	1.6%	4
Intertidal mixed sediments	0.45	10.0%	4
High energy intertidal rock ¹	0.02	0.2%	4
Intertidal coarse sediments ¹	<0.01	<0.1%	4
Intertidal mud ¹	0.01	<0.1%	3
Intertidal mixed sediments ¹	<0.01	0.2%	4
Intertidal mud ²	0.95	0.6%	3

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

² Part of the extent of this habitat within the rMCZ boundary is protected within an overlapping MPA (see appendix 11). This feature was not discussed at the vulnerability assessment meeting for this site, which may have been an oversight (i.e. the mistaken assumption that the whole extent of the habitat was already protected). As a general rule, all broad-scale habitats within rMCZs have a draft conservation objective, unless the whole area of habitat within the site is already protected. Therefore, this feature ought to be added to the conservation objective list. The full extent of this habitat within the rMCZ boundaries has been included in the overall network statistics in part II.2.8.

Table II.3.28d **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Seagrass beds	0.02			1
Subtidal sands and gravels ¹	42.91			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.28e **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Amphianthus dohrnii</i>	4		1, 3
<i>Arctica islandica</i>	3		1, 5
<i>Eunicella verrucosa</i>	26	1	1, 3, 5
<i>Gobius cobitis</i>	3	1	1, 3
<i>Haliclystus auricula</i>	2	1	1, 3
<i>Hippocampus guttulatus</i>	1		3
<i>Phymatolithon calcareum</i> ¹	1		1

¹ There is a single record of this species of maërl present within the boundaries of this site. This was discussed during the vulnerability assessment, and given the wider environmental characteristics of the site, it was

considered a likely erroneous record, or a small fragment of maërl washed in from elsewhere. The species was therefore not included on the list of draft conservation objectives for the site.

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 1.16 km² of seahorse area polygon (refer to appendix 8 for more information).

This rMCZ intersects with Rame Head & Whitsand Bay Geological Conservation Review site.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

Whitsand Bay is a 6km stretch of sand and shingle with gullies carved by strong tides and cross currents (Davies, 1998). The combined EUNIS level 3 GIS data (described in appendix 8) maps the whole subtidal area of the site as sediment, but local group and scientific feedback states that there are rocky ledges present in the bay. There are hard substrate species present (e.g. pink sea fan), and a detailed sidescan sonar dataset of the seafloor of the area exists which shows the rocky ledges (Stephen Cotterell, University of Plymouth and Keith Hiscock, Marine Biological Association, pers. comm.). The depth range of the rMCZ is 0 to 25m. The site intersects with an area of higher than average benthic species diversity (within the south-west context). Local Group feedback indicates that this is a good breeding area and nursery for commercial fish species, as well as an important site for seabirds. Local Group feedback mentions that blue mussel beds, intertidal underboulder communities, tide swept biotopes, the fan mussel *Atrina pectinata* and the sunset cup coral *Leptopsammia pruvoti* are found at this site, but we have no data mapped for these FOCI in this area. There was a suggestion from some Local Group members to add protection for birds to this site. Local Group feedback also mentions this area is an important habitat for seahorses, confirming the data mapped by The Seahorse Trust.

Detailed site description

Poulton et al (2002) in Jones et al (2004) describe sediments in the coastal area around Whitsand Bay. East Whitsand Bay composed of clean sand also dominated by polychaetes with *Magelona mirabilis* occurring in abundance. Further west, the sediment is muddier and characterised by an *Echinocardium cordatum* – *Amphiura filiformis* community (Holme, 1966).

Hannafore Point (opposite Looe Island) was highlighted as an area of special interest for the range of habitats present by Davies (1998). An extensive series of gullies, overhangs, reefs and rockpools were present on the lower shore. Also extensive shallow lagoons, partially sand-filled supported a great variety of plants and animals, including patches of *Zostera marina*. *Jania rubens*, a southern species of red coralline alga was unusually abundant within these pools (Davies, 1998). *Arctica islandica* was recorded at Hannafore Point by J Nunn for the Conchological Society of Great Britain & Ireland in 2003 (included in MB102 data). The Marine Conservation Society also undertook a Seasearch Survey in 2009, where they recorded *Arctica islandica* on the seabed to west of James Eagan Layne. In 2006, *Arctica islandica* was sampled during the Norman Holmes Resurvey of the English Channel Survey (Hinz et al., 2011).

Southward *et al.* (2004) undertook dredging, trawling, SCUBA diving to recover *Solidobalanus fallax*, during which active searches for *Eunicella verrucosa* were carried out. At the wreck of 'Rosehill', west Whitsand Bay, *Eunicella verrucosa* was reported at 29m on in 2002 and 2003. *Eunicella verrucosa* has also been recorded by several SeaSearch surveys in recent years in the Looe and Whitsand Bay area, as has *Amphianthus dohrnii*. *Gobius cobitis* was recorded in the area during the 1952-1983 British Coasts survey of *Gobius cobitis* (Wheeler, 1993).

Records were made and images were collected by Hiscock *et al.* (2010) on all of the dives that the authors undertook on the reef since 2004. The dives were undertaken about once a month in the first 18 months following placement of HMS Scylla on 27 March 2004. Sea fans, *Eunicella verrucosa*, were first observed in August 2007.

Most of the seahorse sightings in this region are of short snouted seahorses and have come mainly from the Looe area. This does not mean that they are not in Whitsand Bay as there is anecdotal evidence that they have or do live here (Neil Garrick-Maidment, pers. comm). Nick Pope from the Marine Biological Association has conducted biological surveys around Looe Island and the surrounding area.

Offshore sediment communities were described by Holme (1953). His results indicated, that off Rame Head, the sediment was mainly fine sand and mud. Infaunal communities were numerically dominated by polychaetes but, in addition, the sea cucumbers *Leptosynapta inhaerens* and *Trachythyone elongata* and the burrowing prawn *Callinassa subterranean* were present (Davies, 1998).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.28f shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.28g shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.28f Specific assumptions and implications relating to Whitsand and Looe Bay rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. o The SW Fishing Industry MCZ Planning Group has noted significant concerns over this site given the implied closure of an inshore ground.

<p>Bottom-towed fishing gear will not be allowed</p> <p><i>Project team comment: the last bullet point under 'implications' may not be a problem if there is a limit on the amount of static gear used.</i></p> <p>This activity was discussed during the VA meetings, and it was determined that the activity would probably not need managing in the whole site, but it might need exclusion from the eastern portion of the site, over specific FOCI and BSH (see right hand column). Note that benthic towed gear would also not be permitted over the small seagrass area near Looe, however, the activity currently does not take place there so no management is necessary.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o For small boats this area is fished when the weather is too rough to go elsewhere so there are safety implications. o Loss of ground for bottom-towed gear fishermen (Local Group feedback mentions that this is an important trawling ground for Plymouth and Looe (no. of vessels not known) fishermen). o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>This activity was discussed at the VA meeting, and it is expected that disposal of material at the nearby Rame Head disposal site would be permitted to continue with no additional mitigation likely to be required as a result of the rMCZ.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o General comment from SNCBs: a set distance is likely to be required from the edge of MCZ area where this activity is likely to impact on the MCZ features. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is currently an active disposal site adjacent to - within 150m of this rMCZ (at Rame Head), and concern has been raised that this would not be compatible with the assumption as stated (not because it overlaps with the site boundary itself, but because it is close and there may be downstream impacts such as siltation within the rMCZ from its use). However, the environmental impacts of the Rame Head disposal site have been independently assessed on behalf of the MMO and found to be tolerable (see report on MMO website). o Concern that 150m offshore is not a sufficient buffer to prevent impact of disposal site. o Local Group feedback has raised concerns that the knock-on effects of the Rame Head dump site on the rMCZ reduce the viability of the rMCZ. o If there is any uncertainty that develops regarding the continued existence of this adjacent disposal site then this should be addressed in the economic impact assessment and the continued inclusion of this site in the network reconsidered. o Dumping of large amounts of spoil from capital dredging is likely to impact on MCZ - based on previous experience.

<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o This area is the only local anchorage in periods of easterly winds and therefore a significant issue for navigational safety and economic impact for the port. Large vessels over the size of 24 metres will anchor regularly during easterlies and therefore serious consideration should be given to relaxing this restriction for navigational safety and economic reasons or the site reconsidered. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
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Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed o Local Group feedback indicates that the Local group discussed the possibility of limiting netting in the area, to enhance fish stocks, but that there was more evidence needed on the impacts of netting on the site. It is not clear whether this related to ring netting or static netting. The restriction of static netting is not currently part of the working assumptions for the site.
<p>Ring netting will be permitted, but there may need to be a limit on the amount of gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Potential wind resource, but landscape buffer and aviation danger area making deployment less likely.
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p>

Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	o The Crown Estate have highlighted that the rMCZ contains a waste water outfall which needs to be able to continue.
Aquaculture of fin fish and shell fish will be permitted with mitigation / management Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o
Coastal development and defence will be permitted with mitigation/management. Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o Environment Agency notes that within the Looe Estuary (which flows into this rMCZ but is not within the site boundary), the coastal defence policy is 'hold the line' in the town and 'managed retreat' in the estuary.
Crab tiling / bait digging will be permitted with mitigation / management Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling. Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o Given this assumption, there are still the following concerns: o Local Group feedback indicates potential benefits to recreational angling. o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed Benefits: o Potential for increased and enhanced leisure and recreational activity

<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what ‘prohibitively expensive’ means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Benefits:</p> <ul style="list-style-type: none"> o Profound socio-economic effects – cost benefits o Local Group feedback mentions potential benefits to diving (James Egan Layne and Scylla wrecks); and a stakeholder representative stated they would like it explicitly recorded that the assumption should apply to recreational sub-aqua diving o Local Group feedback mentions that wildlife watching and recreational angling could benefit.

<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>This activity was discussed during the VA meeting, and it is expected that maintenance dredging would be permitted with no additional mitigation likely to be required as a result of the rMCZ.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning. o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation. o There are seagrass beds present in this rMCZ, and concern was expressed that anchoring would not be compatible with seagrass beds.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.28g VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing	<p>Management:</p> <ul style="list-style-type: none"> - Option 1: Dredges and beam trawls: Prohibition of fishing over specific BSH/FOCIs in the rMCZ. These are: moderate energy circalittoral rock, <i>Amphianthus dohrnii</i>, <i>Arctica islandica</i>, <i>Eunicella verrucosa</i>. - Option 2: no management <p>Measure:</p> <ul style="list-style-type: none"> - Option 1: voluntary - Option 2: byelaw
Navigational Dredging	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application or by the Harbour Authority. It is expected that maintenance dredging would be permitted with no additional mitigation likely to be required as a result of the rMCZ. <p>Measure :</p> <ul style="list-style-type: none"> - Marine Licence or Harbour Acts and Orders
Disposal at Sea	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application for disposal of material at the Rame Head disposal site. It is expected that disposal of material at the site would be permitted with no additional mitigation likely to be required as a result of the rMCZ <p>Measure :</p> <ul style="list-style-type: none"> - Marine Licence

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or

some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Due to the crude resolution of fisheries activities mapping it is possible that the vulnerability of this site to bottom gears has been under estimated. This should be considered in the design of management measures for this site.
 - Seasonal closures are an inappropriate measure for benthic conservation.
 - Whitsand and Looe Bay site boundary was moved inshore to specifically avoid areas used by bottom-towed gears on the assumption that these activities would be excluded from the whole site.
 - The whole site should be closed to bottom trawling.
- *Dumping and disposal sites*
 - The licensed disposal site of Rame Head has existed for years and, notwithstanding local pressures, its effect on the environment has been deemed tolerable by independent assessors. The designation of an MCZ so close to the site may well lead to a view being formed that its location is undesirable, forcing a search for a new site away from what is an acceptable one. Both the MoD & the civilian port authorities require use of the site. Assurance that its proximity to the MCZ boundary will not cause its future use to be threatened is sought.
 - Without use of this site the ports infrastructure (both military & civilian) would be compromised.
 - It was decided to leave the boundary as it is, despite the proximity of the disposal area, because a recent report for the MMO did not see it as a problem (Cefas, 2010) and the site is unlikely to be relocated. The ports sector are concerned that if this is designated an MCZ they could be asked to move the disposal site or will become vulnerable to refusal when applying for the licence to dispose at this site. It was agreed that uncertainties regarding the socio-economic impact of the rMCZ on port dredging activities needs capturing.
 - A working group member stated that dumping of large amounts of spoil from capital dredging is likely to impact on MCZ - based on previous experience
- *The Wildlife Trusts*
 - Protection and enhancement of VMCA habitats may benefit local education activities and local businesses e.g. glass bottom boat
- *Generic implications for ports (applicable to all rMCZs where port jurisdictions and activities overlap with the site, or are adjacent to the site)*
 - Harbour Revision Orders, General Directions, Pilotage Directions etc.
 - Ports and harbours are limited to their jurisdiction.
 - Ability of port to comply with legal responsibilities e.g. Oil Spill Response Planning etc.

- Administration, resource on and off the water, legal and technical specialists requirements associated with additional management and legal responsibilities should co-location be pursued.
 - Additional time and cost triggered by all of the above both to the port.
 - Implications on other industries using the port or who wish to use the port in the future.
 - Existing management practices on and off water e.g vessel and activity management, speed, timing restrictions etc.
 - Existing emergency response – weather, pollution, security.
 - Dredging to ensure maintenance of safe navigable depths.
 - Berthing, mooring & anchoring of small & large vessels.
 - Ship building, maintenance, refurbishment & repair.
 - Maintenance, refurbishment & repair of port and harbour infrastructure.
 - New port and harbour infrastructure.
 - Access & egress to and from harbour.
 - Recreational activities within harbour.
 - Ship access and egress to and from berths.
 - Significance of timescales, delays and cost to management practices.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.28g (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that

allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The Local Group has raised concern over the proximity to the licensed disposal ground and the resulting deterioration in the quality of the area. The Working Group recognised this concern, but kept the site in the recommendations. The Queen's harbourmaster at Plymouth is concerned about any potential restrictions on the use of the disposal site in future, as is the MOD.

There is a small number of local Looe-based mobile gear fishermen (using otter trawls), who are concerned that the site will restrict their fishing grounds. However, the site has strong support from conservationists, and the area of the VMCA around Looe Island was added in response to a suggestion from the Local Group.

The Crown Estate provided feedback to state that the area is located in a wave resource area. It is also within an area where there is a wastewater outfall, and the disposal site off Rame Head is less than 1km from the site boundary. They support the rMCZ based on the assumption that the activities they mention can continue.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MESH, Cornwall Wildlife Trust, Seasearch 2009, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

There is further information about the Looe voluntary marine conservation zone (the western portion of the rMCZ) available via Cornwall Wildlife Trust's website (including a [map of the VMCA](#)³⁵, further [information about the wildlife found there](#)³⁶, and [information on how to volunteer for the area](#)³⁷), and also via the [website of Looe Boat Owners Association](#)³⁸.

Dr Stephen Cotterell at the University of Plymouth has carried out survey work in Whitsand Bay and has high resolution seabed acoustic data that indicates the presence of rocky outcrops in the subtidal area.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Holme

³⁵ http://www.cornwallwildlifetrust.org.uk/Resources/Cornwall%20Wildlife%20Trust/PDF%20Documents/Looe_Voluntary_Marine_Conservation_Area_map.pdf

³⁶ http://www.cornwallwildlifetrust.org.uk/conservation/livingseas/yourshore/Discovering_the_Wonders_of_Looe_Marine_Heritage_Cornwall_Wildlife_Trust

³⁷ http://www.cornwallwildlifetrust.org.uk/nature_reserves/where_to_find_the_nature_reserves_1/st_georges_island/Looe_Island_volunteering

³⁸ <http://lboa.co.uk/Conservation.aspx>

(1961), Hinz *et al.* (2011), and Kaiser *et al.* (1998) – these papers report on benthic invertebrate research carried out in the English Channel.

Site map series

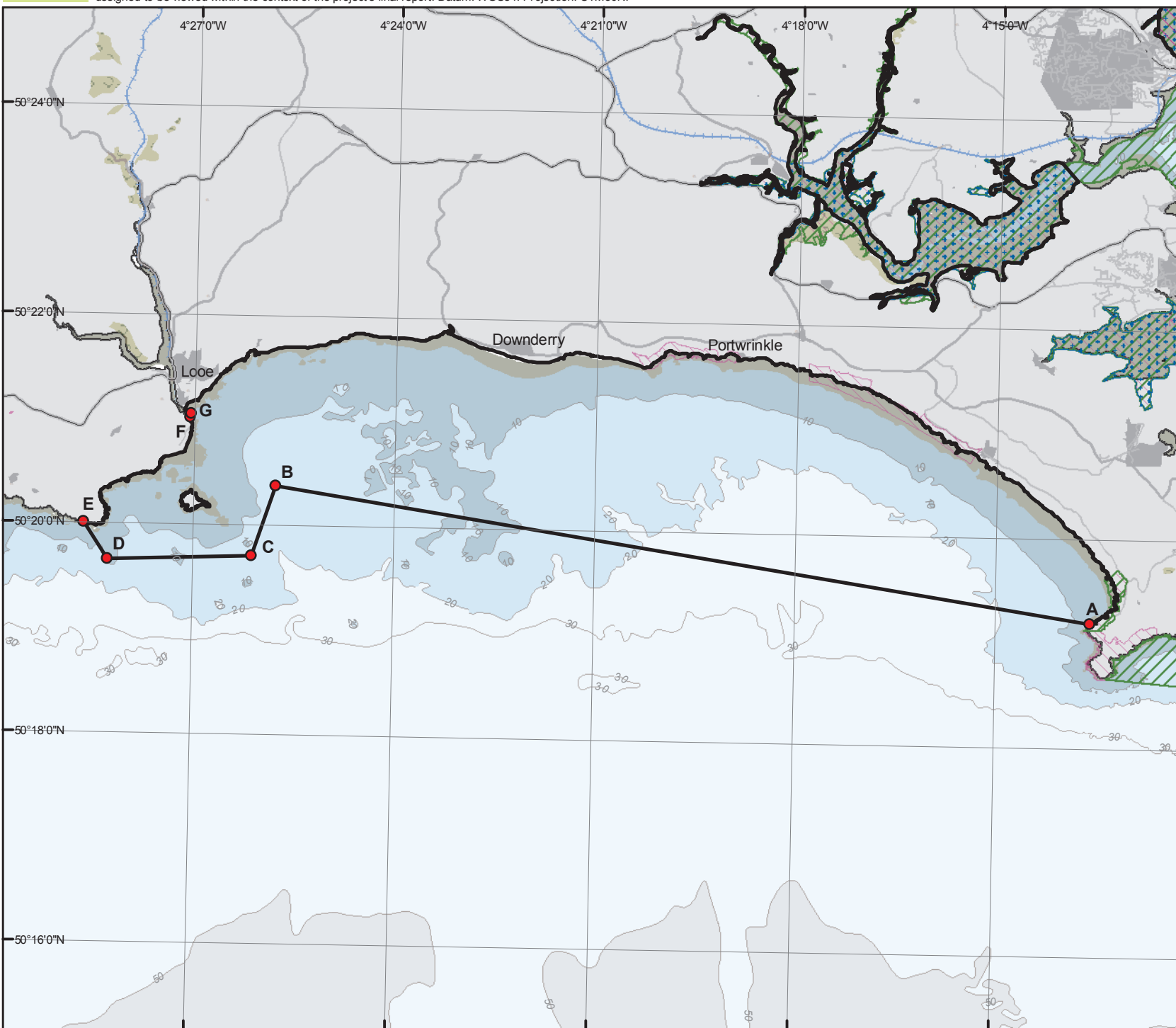
On the following pages there are three maps of this site.

- The first map (FR_039a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_039b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.28b to II.3.28e, data sources are indicated in the tables.
- The third map (FR_039c) shows key socio-economic datasets.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062008.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 1 2 4 km



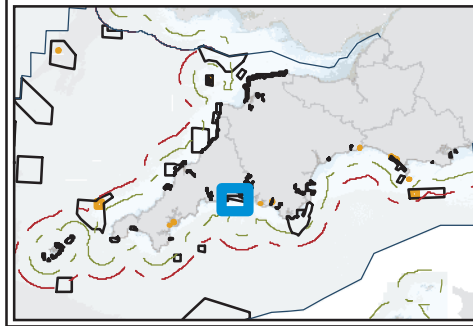
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.3198	-4.2264	50° 19' 11" N	4° 13' 34" W
B	50.3396	-4.4296	50° 20' 22" N	4° 25' 46" W
C	50.3284	-4.4353	50° 19' 42" N	4° 26' 7" W
D	50.3276	-4.4712	50° 19' 39" N	4° 28' 16" W
E	50.3334	-4.4772	50° 20' 0" N	4° 28' 37" W
F	50.3504	-4.4512	50° 21' 1" N	4° 27' 4" W
G	50.3509	-4.4510	50° 21' 3" N	4° 27' 3" W

Map Legend

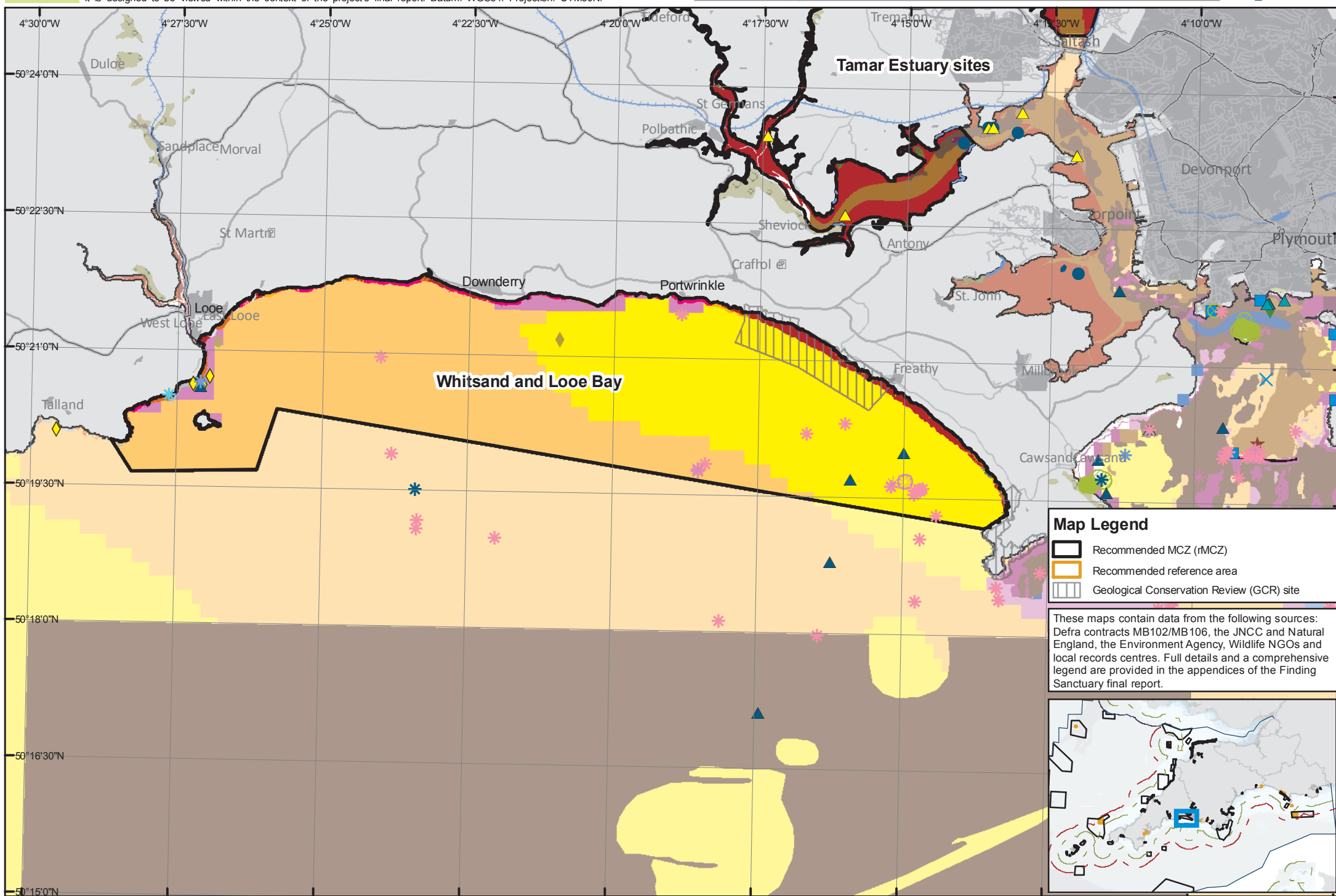
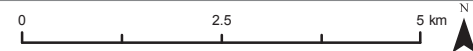
- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - SPA
 - SSSI (part of MPA network)
 - SSSI (not part of MPA network)

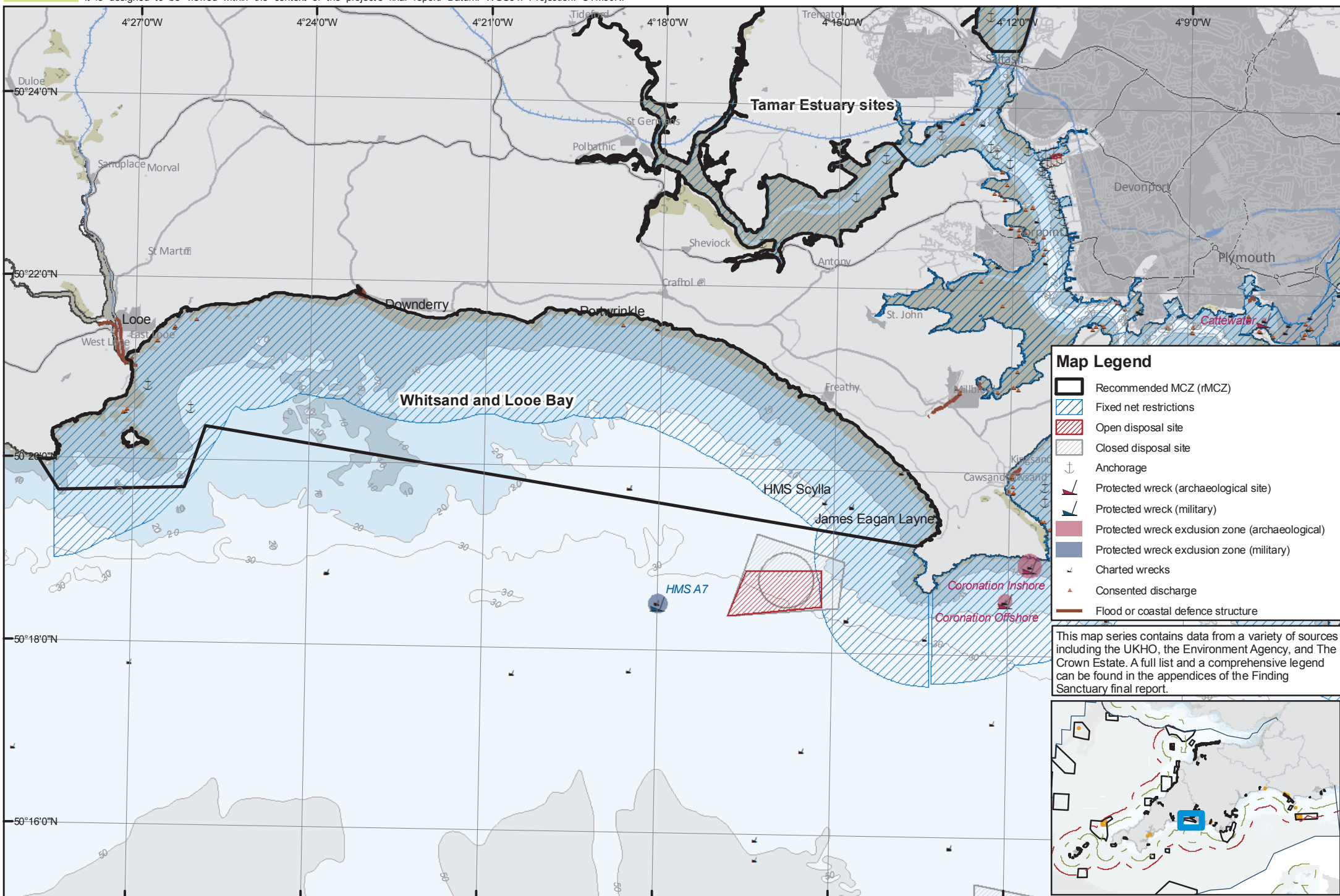
A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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II.3.29 Upper Fowey and Pont Pill rMCZ

Basic site information

This site consists of two component parts. The centroid lat/long is a centroid calculated for a two-part site polygon.

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.3699	-4.6393	50° 22' 11" N	4° 38' 21" W

This rMCZ occupies two distinct locations. The site centroid therefore falls outside the boundary of the rMCZ.

Site surface area: 2 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: This rMCZ consists of two parts. The larger part consists of the upper Fowey estuary, based on the boundary of the Fowey Estuary Voluntary Marine Conservation Area. The site boundary follows the coastline along the OS Boundary Line mean high water mark, from the tidal limit at Lostwithiel to Bodmin Pill, a small tributary to the estuary south of Golant. The second part consists of Pont Pill, a tributary estuary flowing into the Fowey on the eastern side, at Polruan.

Sites to which the site is related: The site encompasses the Fowey Estuary Voluntary Marine Conservation Area, managed through the Fowey Estuary Partnership. There is a coastal SSSI (Polruan to Polperro) to the south, extending eastwards along the shore from the mouth of the estuary.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Upper Fowey and Pont Pill rMCZ

Table II.3.29a Draft conservation objectives for the Upper Fowey and Pont Pill rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Coastal saltmarshes and saline reedbeds		M
	Intertidal coarse sediment		M
	Intertidal mud		M
	Intertidal sand and muddy sand		M
	Low energy intertidal rock		M
Habitat FOCI	Estuarine rocky habitats		M
	Sheltered muddy gravels		M
Species FOCI	<i>Anguilla anguilla</i>	European eel	? M / R ¹

¹At the time of the vulnerability assessment meetings, no decision was taken whether the conservation objective for this feature should be 'maintain' or 'recover'. No quantitative information is included for this mobile FOCI species in the tables below, as the GIS data available was too coarse resolution to be meaningful. However, the species has been included in the draft conservation objectives on the basis of evidence provided to the project by the Environment Agency (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes). No subtidal broad-scale habitats are mapped within this rMCZ. The figures are presented for the site as a whole, not the two areas separately. Any feature present in both parts is counted as a single replicate for the network-level statistics in section II.2.8.

Table II.3.29b **Intertidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Low energy intertidal rock	0.02	0.7%	4
Intertidal coarse sediments	<0.01	<0.1%	3
Intertidal sand and muddy sand	<0.01	<0.1%	4
Intertidal mud	1.51	0.9%	4, 3
Coastal saltmarshes and saline reedbeds ¹	0.01	0.4%	3

¹ The area of coastal saltmarsh calculated in this GIS analysis may be an underestimate of the saltmarsh area present along the estuary, as the rMCZ site boundary is at OS Boundary Line mean high water, and the habitat might extend above that (Friend *et al.*, 2006, give a figure of 3ha of saltmarsh within the estuary).

Table II.3.29c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Estuarine rocky habitats		13		1
Sheltered muddy gravels	0.01			1
Seagrass beds ¹	< 0.01			1

¹ There are seagrass beds present within the Fowey estuary, but they are primarily located in the lower estuary between Polruan and Fowey. A tiny fragment has been mapped in the upper estuary, within the rMCZ boundary, a circular polygon of about 10m diameter originating from the MB102 dataset – possibly a conversion of a point record into a circular polygon. No draft conservation objective has been included for this habitat.

Table II.3.29d **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Hippocampus guttulatus</i> ¹	1	1	3

¹ A single record of this species of seahorse is located within the boundaries of this rMCZ, provided by Cornwall Wildlife Trust, and dating from 1960. No draft conservation objective has been included for this species in this rMCZ.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The Fowey estuary is a ria, with areas of intertidal mud and saltmarsh in the upper reaches of the estuary. Fowey has a sheltered natural harbour which has been a busy port since the middle ages. The port has been important for shipping of locally mined china clay (Davies (ed.) 1998). The total area of the estuary (the whole estuary, not the rMCZ) is 305 ha, of which 146 ha are intertidal mud and sand deposits and 3 ha are saltmarsh (Friend *et al.* 2006). One of the reasons for the inclusion of this and other estuarine rMCZs in the network was in recognition of the added ecological importance of estuaries in terms of productivity, and their ecological function as nursery areas.

Detailed site description

The Fowey ria system comprises the River Fowey catchment, the Fowey estuary, the cliffs and bays adjacent to the ria mouth, and part of the inner continental shelf of the English Channel. Previously, large quantities of sediment were introduced into the upper ria by ore mining activity. Today, in common with other rias, the Fowey receives a low riverine sediment input. Material from maintenance dredging in the lower ria is dumped in a spoil ground outside the ria mouth. In September 1996 the sediments of the system were investigated using an integrated approach to determine sediment distribution and sediment transport pathways. Surface sediments were analysed for grain size and mineralogy. Grain size trend analysis was used to examine sediment dispersal patterns away from the locus of deposition in the spoil ground. Archived data was used to

investigate the seabed morphology and to determine long-term (100 year) bathymetric changes (Friend *et al.* 2006). During sampling in the upper reaches, several examples of recent channel bank collapse were observed. The Fowey estuary was surveyed by Burd (1989) during the Saltmarsh survey of Great Britain. The estuary was visited by the MBA and SMBA Intertidal Survey Unit (Powell *et al.* 1978) and later surveyed by the FSC during the study of Harbours, Rias and Estuaries in Southern Britain; the results are included in Moore (in prep.).

Pirrie *et al.* (2002) carried out geochemical analyses of intertidal sediments from the northern part of the Fowey Estuary, Cornwall, UK. Seventeen shallow (< 1 m) cores, 6.5 cm in diameter, were manually recovered from the intertidal sediments predominantly in the northern part of the estuary. The impact of crab-tiling on *Carcinus maenas* population structure was determined by Sheehan *et al.* (2008) by sampling crabs from tiled estuaries and non-tiled estuaries using baited drop-nets. Data were collected from the Fowey estuary on two sampling occasions: October-November 2004 and May-June 2005. Sediment samples were collected by Luoma & Bryan (1978) from the oxidized surface layer of intertidal sediments in the Fowey estuary. Rogers (2001) also collected sediment samples (~250 g) at harbour and estuarine sites either by grab or core sampling from small boats or on foot from bankside access points.

Mytilus edulis was collected from a small population on the Fowey estuary mussel bed (Kent, 1979). A survey of the macro-invertebrate fauna of the Fowey River receiving china clay wastes was carried out during 1971 and 1972 by Nuttall & Beilby (1973). Bryan & Hummerstone (1973) compared concentrations of zinc and cadmium in the polychaete *Nereis diversicolor* with those of the sediments in the estuaries of 26 rivers which included the Fowey estuary. Worms and sediments were collected from the upper part of the Fowey estuary.

Anguilla anguilla was reported during the 1986 OPRU Fowey Estuary survey (sourced from MB102).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities.

Table II.3.29e shows more specific working assumptions and implications that were recorded for this site over the course of the planning process. This site was a relatively late addition to the network (it was added after the third progress report). Most of the detailed work on recording assumptions and implications for the sites within the developing network configuration had already taken place before this site was added. Therefore, some of the content of table II.3.29e is based on what had previously been recorded for other sites in the network, based on assumptions that were implicit in the discussions over whether the site should be added to the network or not. Many of the assumptions and implications highlighted for this site are generic, and will apply to other rMCZs in the network as well. Site-specific comments from the later planning meetings (when the site was within the network) have also been added to the table.

Following that, table II.3.29f shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.29e Specific assumptions and implications relating to Upper Fowey and Pont Pill rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site: none identified at the VA meeting.	
Assumptions	Implications
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen (<i>may not be relevant in this area.</i>) o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.

<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Netting and longlining will not be allowed</p> <p><i>This assumption was recorded early on in the process, in order to protect nursery habitats and juveniles in all sites with draft conservation objectives for mobile FOCI. Stakeholder feedback has indicated that the assumption about longlining is inappropriate, as the activity does not happen inshore. An uncertainty remains around netting, where the activity may have an impact on nursery habitat - this uncertainty was not resolved through the VA</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for netters o Displacement of netters o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on netters where protected areas are close together <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o SAFFA fixed net restrictions apply.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users.

<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Following VA meetings, a potential need for managing aquaculture activities in this site has been identified.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o measures needed to avoid the introduction of non-native species. o Since the VA meetings, several concerns around the use of triploid stock have been raised (see additional comments)
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Following VA meetings, a potential need for managing this activity in this site has been identified.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o A Steering Group member commented on the importance of taking into account shoreline management plan policies and planned activities.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>Pelagic trawls will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Four active power cables, one active unknown cable, seven inactive telecoms cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.

Passage of ships will be permitted Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o
Seaweed harvesting will be permitted Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o

Table II.3.29f VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports

Sector	Potential Management
Bait digging	Management: - Reduction of bait digging effort over the intertidal mud Measure: - Option 1: permit scheme - Option 2: maximum extraction and/or visit limits - Option 3: monitoring of activity - Option 4: awareness raising of impacts of bait digging and best practice / code of conduct
Aquaculture	Management - Reduce risk of introduction of non-indigenous species from relaying of mussel seed. Most likely mechanism to achieve this to be determined. Measure - To be determined

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what

activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Commercial fishing*
 - Commercial fishing raised concerns that estuaries are surplus to the requirement of the ENG.
- *Aquaculture*
 - Serious concerns were raised following the mention of triploid oyster stock in the vulnerability assessment discussion, as a method of preventing escape of breeding non-native oysters into the wild. The concerns are based on a lack of UK-sourced supply of triploid stock, and risks of importing disease with triploid stock from elsewhere.
- *Environment Agency*
 - Suggest using existing estuarine partnership agreements (if already in place) as basis for protection measures.
- *Ports*
 - The port authority was keen for the estuary to become a rMCZ in hope this will bring in funding.
- *The Wildlife Trusts*
 - Excluding lower estuary areas from MCZ limits ecological value.
- *Netting and longlining*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site. For sites that still have draft conservation objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact on nursery habitats or juvenile FOCI. This particular rMCZ was added to the network in the final planning stages, after the detailed work on developing assumptions had

already happened, but given that the site has a draft conservation objective for Anguilla Anguilla, European eel, the uncertainty around netting applies.

- *Generic implications for ports (applicable to all rMCZs where port jurisdictions and activities overlap with the site, or are adjacent to the site)*
 - Harbour Revision Orders, General Directions, Pilotage Directions etc.
 - Ports and harbours are limited to their jurisdiction.
 - Ability of port to comply with legal responsibilities e.g. Oil Spill Response Planning etc.
 - Administration, resource on and off the water, legal and technical specialists requirements associated with additional management and legal responsibilities should co-location be pursued.
 - Additional time and cost triggered by all of the above both to the port.
 - Implications on other industries using the port or who wish to use the port in the future.
 - Existing management practices on and off water e.g vessel and activity management, speed, timing restrictions etc.
 - Existing emergency response – weather, pollution, security.
 - Dredging to ensure maintenance of safe navigable depths.
 - Berthing, mooring & anchoring of small & large vessels.
 - Ship building, maintenance, refurbishment & repair.
 - Maintenance, refurbishment & repair of port and harbour infrastructure.
 - New port and harbour infrastructure.
 - Access & egress to and from harbour.
 - Recreational activities within harbour.
 - Ship access and egress to and from berths.
 - Significance of timescales, delays and cost to management practices.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in

table II.3.29f (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.

- The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The lower part of the estuary, which is the part that is most heavily used, is not included within the rMCZ. The Fowey harbourmaster has welcomed the rMCZ as a way to reinforce the existing VMCA. Stakeholders have recognised the importance of engaging with the local estuary partnership in site management and implementation.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: MB102, Cornwall Wildlife Trust, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. *Anguilla anguilla* was recorded during the 1985 OPRU HRE Fowey Estuary survey (Rostron, 1985).

Site map series

On the following pages there are three maps of this site.

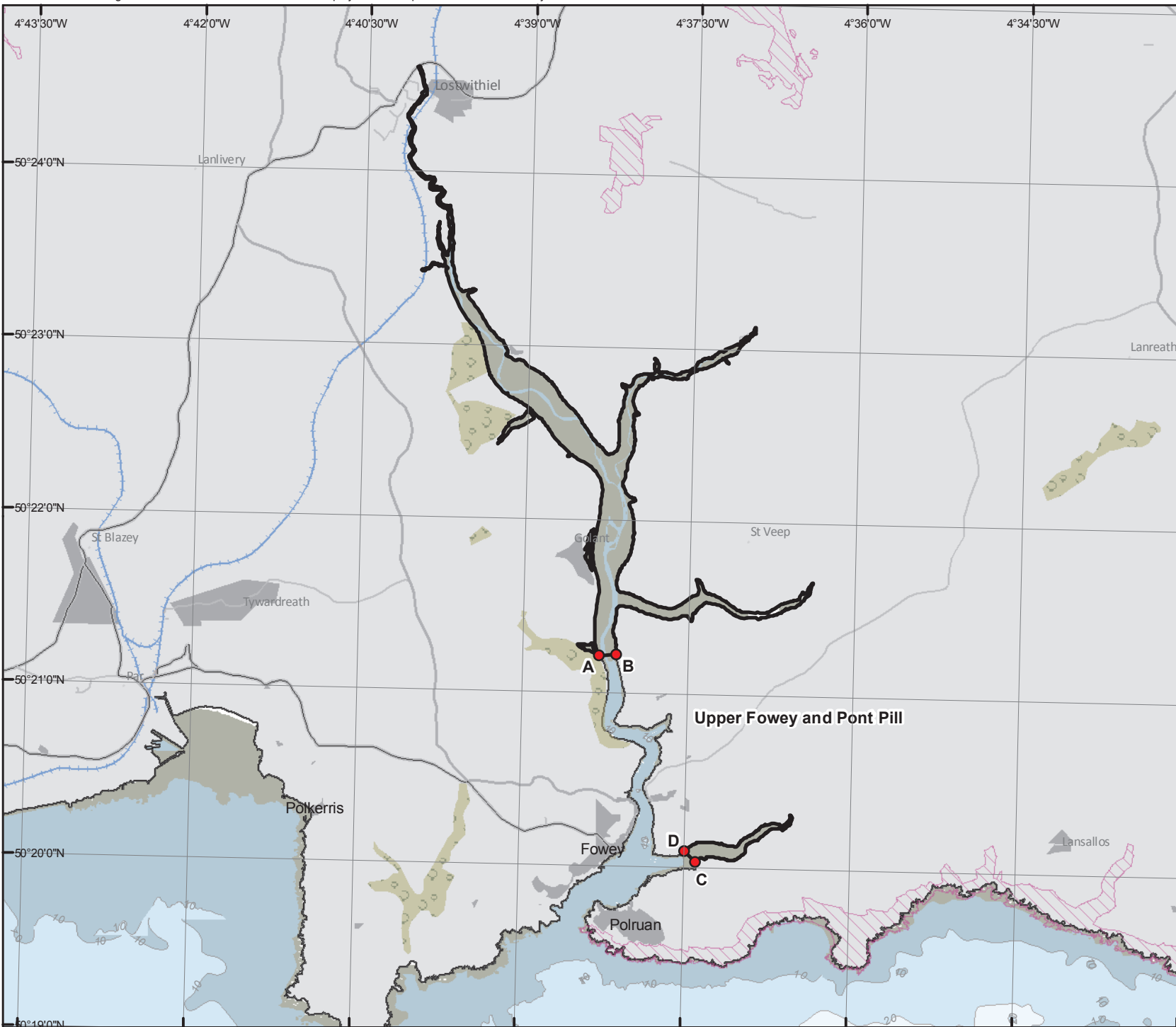
- The first map (FR_040a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_040b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.29b and II.3.29c, data sources are indicated in the tables.
- The third map (FR_040c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).

- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062006.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.



0 0.5 1 2 km



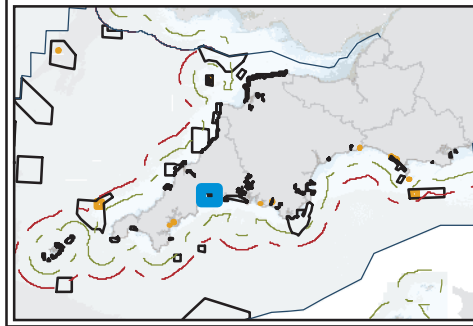
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.3536	-4.6384	50° 21' 12" N	4° 38' 18" W
B	50.3537	-4.6359	50° 21' 13" N	4° 38' 9" W
C	50.3338	-4.6232	50° 20' 1" N	4° 37' 23" W
D	50.3348	-4.6248	50° 20' 5" N	4° 37' 29" W

Map Legend

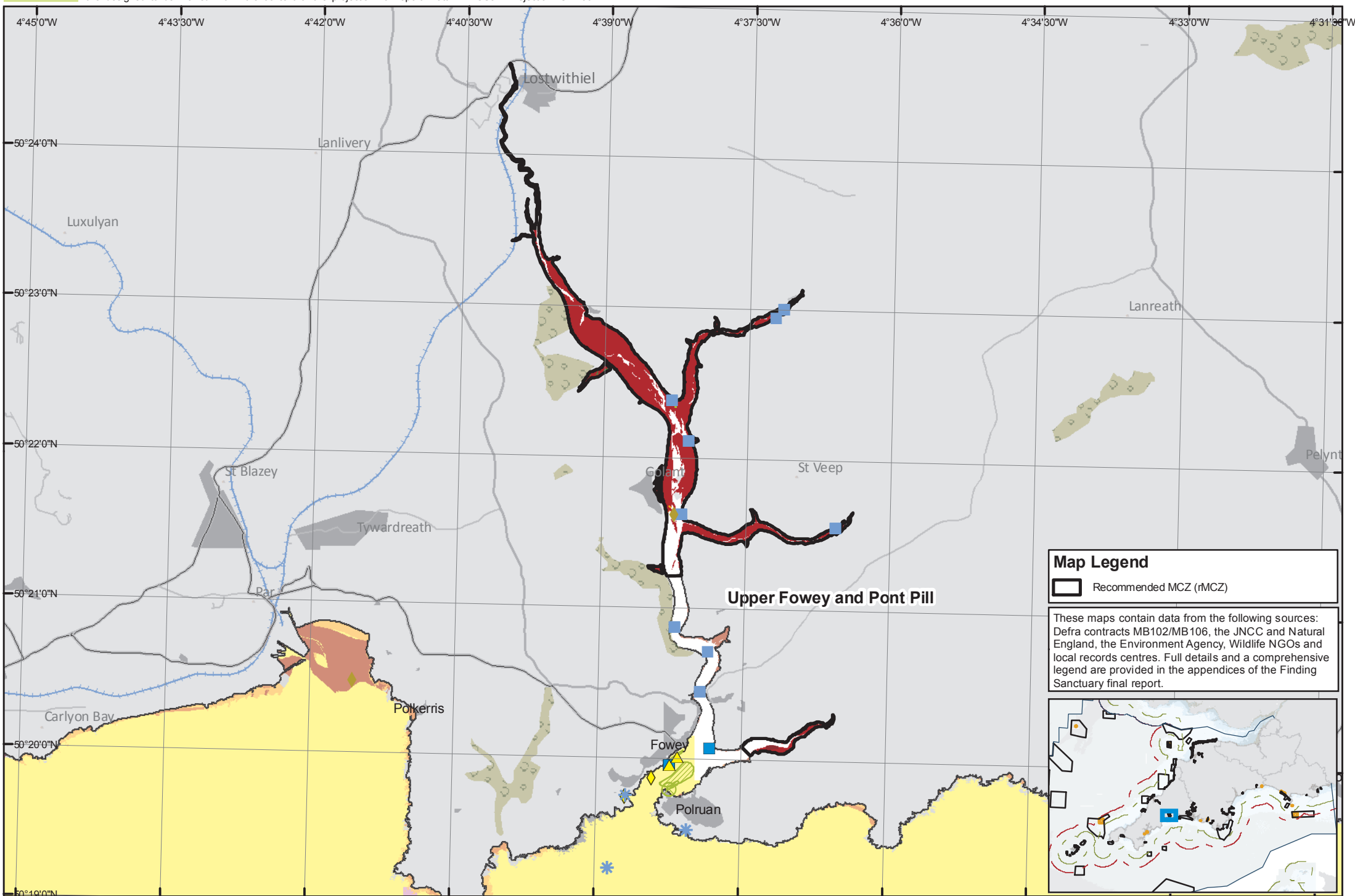
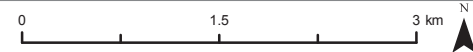
-  Recommended MCZ (rMCZ)
- Existing MPAs**
-  SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

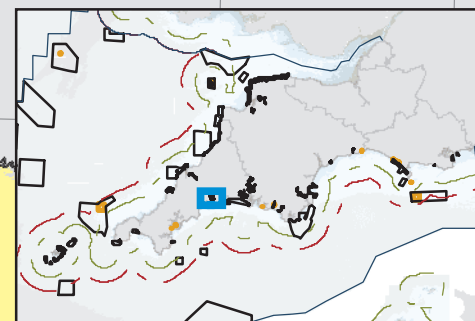
Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062006.004. Land basemap part
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Map Legend

Recommended MCZ (rMCZ)

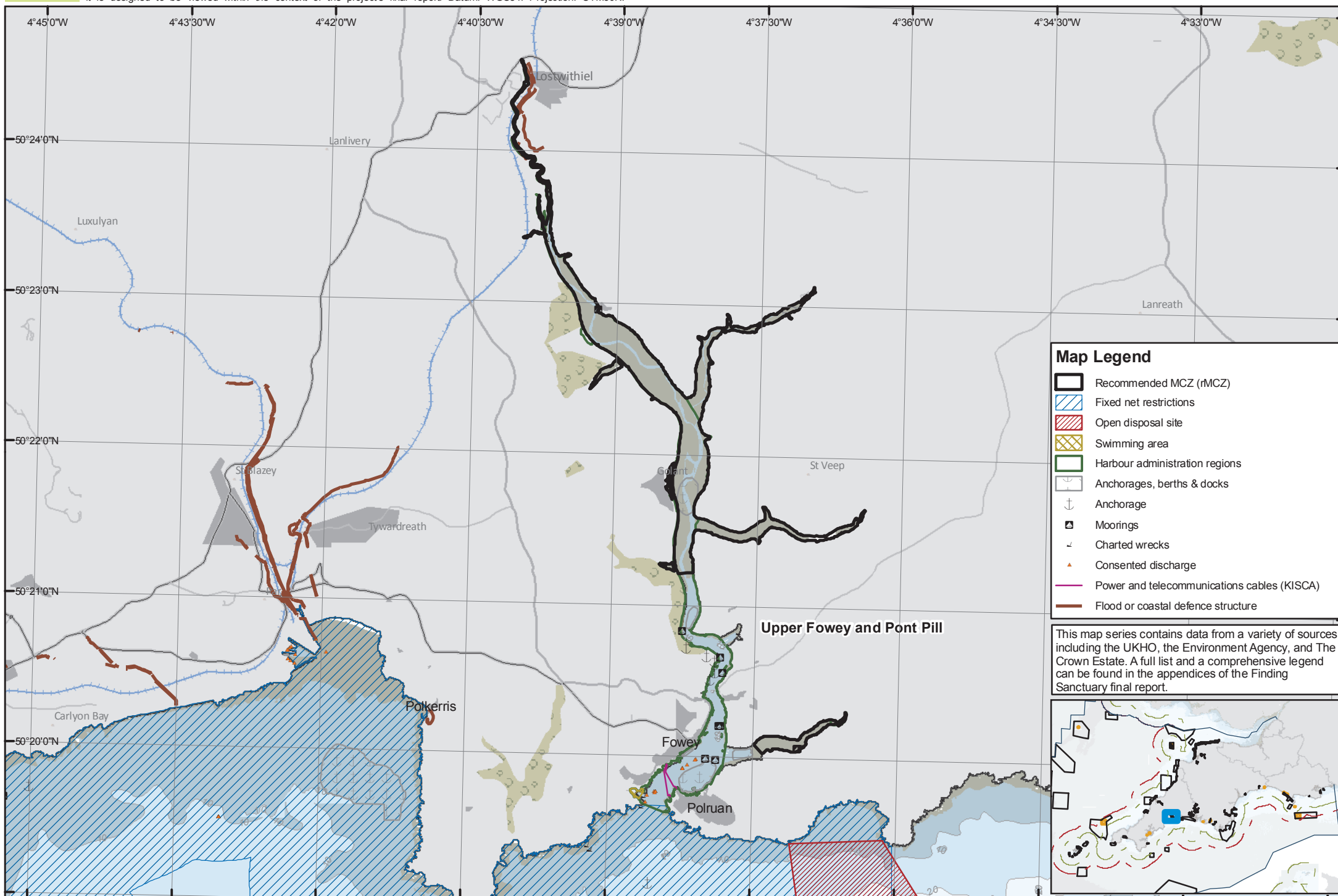
These maps contain data from the following sources:
Defra contracts MB102/MB106, the JNCC and Natural England, the Environment Agency, Wildlife NGOs and local records centres. Full details and a comprehensive legend are provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 0.5 1 2 km



Map Legend

- Recommended MCZ (rMCZ)
- Fixed net restrictions
- Open disposal site
- Swimming area
- Harbour administration regions
- Anchorages, berths & docks
- Anchorage
- Moorings
- Chartist wrecks
- Consented discharge
- Power and telecommunications cables (KISCA)
- Flood or coastal defence structure

This map series contains data from a variety of sources including the UKHO, the Environment Agency, and The Crown Estate. A full list and a comprehensive legend can be found in the appendices of the Finding Sanctuary final report.

II.3.30 South-East of Falmouth rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
49.9830	-4.7143	49° 58' 58" N	4° 42' 51" W

Site surface area: 25 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The site is a simple square, with borders running north-south and east-west, measuring 5km on each side in line with ENG guidelines. The north-west corner of the rMCZ intersects with the 12nm limit, the remainder of the site lies beyond 12nm.

Sites to which the site is related: The site lies approximately 22km south-west of the Fal and Helford SAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within South-East of Falmouth

*Table II.3.30a Draft conservation objectives for South-East of Falmouth rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.***

Broad-scale habitats	Subtidal coarse sediment		R
	Subtidal sand		R

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.30b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal coarse sediment	24.35	<0.1%	1
Subtidal sand	0.69	<0.1%	1

Table II.3.30c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	21.01			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The site is located in an area of seasonal frontal systems, which means the area has high productivity and scores highly as an area of additional ecological (pelagic) importance (see AAEI map, FR_081). The area is heavily used by fishermen, in particular, mobile benthic and pelagic gear fishermen. The site's seabed is approximately 70 metres below chart datum.

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

Poulton *et al.* (2002) In Jones *et al.* (2004) describe the offshore sediments around the coast of Britain which included the English Channel. The consequences of a changing climate have been relatively well documented in the English Channel for fish, plankton and intertidal benthos (see, for example, Genner *et al.* 2004; Hawkins *et al.* 2008). During the 1950s, Norman Holme sampled benthic infaunal and epifaunal communities on a large geographical scale spanning the entire English Channel (Holme, 1961, 1966). Part of Holme's benthic survey was revisited in 2006, covering a large extent of the Channel coast (Hinz *et al.* 2011). The main aims of this resurvey were to describe the current status of benthic communities and compare the data to the historic survey to investigate potential changes in the communities. Comparison of the 1950s and 2006 surveys showed benthic species distributions remained similar, in general, with little or no obvious trends consistent with warming sea temperatures.

Benthic biodiversity and seabed sediments derived from cluster analysis of presence/absence data was carried out by Rees *et al.* (1999) in the general area around South-East of Falmouth. It may be that this work overlapped the rMCZ, but further checks need to be made.

Site narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities.

Table II.3.30d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process. This site was a relatively late addition to the network (it was added after the third progress report). Most of the detailed work on recording assumptions and implications for the sites within the developing network configuration had already taken place before this site was added. Therefore, some of the content of table II.3.30d is based on what had previously been recorded for a previous, larger site that had been included in the developing network configuration in the area, and which was replaced by two smaller sites, South-East of Falmouth rMCZ and South of Falmouth rMCZ, following Local Group and fisheries sector feedback. The previously stated assumptions were implicit in the discussions over whether the site should be added to the network or not. Many of the assumptions and implications highlighted for this site are generic, and will apply to other rMCZs in the network as well. Site-specific comments from the later planning meetings (when the site was within the network) have also been added to the table.

Following that, table II.3.30e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.30d Specific assumptions and implications relating to South-East of Falmouth rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot). This site has been recently added to the network (after the third progress report). No detailed assumptions were drawn up by the working groups & project team for this site specifically.

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging)</p> <p><i>This activity was discussed in the VA meetings, and the assumption was confirmed.</i></p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK (Mobile benthic fishing does occur in the area, which is deemed important for scalloping and beam trawling. However, this rMCZ was selected by the Working Groups out of several building blocks in the area, as it was deemed the least contentious to the fishing industry and it was recognised that a protected area is required in this area in order to meet the Ecological Network Guidance). o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear

	<p>and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.)</p> <ul style="list-style-type: none"> o The SW Fishing Industry MCZ Planning Group notes significant concerns over this site given the importance of the fishing grounds in this area. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity. <p>Benefits:</p> <ul style="list-style-type: none"> o Protection of areas of high pelagic interest will increase ecological value of network
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback indicated that some Local group members thought that mitigation measures should be put in place to prevent bycatch in static nets, including regulation of when and how nets are set. Other Local Group members indicated that bycatch of birds was not a problem in set nets in this area. The protection of birds is not currently included in the developing conservation objectives for this site. o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Attracting the funding (for development) may be harder in the first place as sites with MPA designations within them will be less attractive to potential investors o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 -

	<p>£1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities.</p> <ul style="list-style-type: none"> o Increased competition for sea space with other sea users. o Potential longer term wave resource area, but navigational constraints significant.
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Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate

	<p>change targets etc.</p> <ul style="list-style-type: none"> o Possible cable route to renewables resources.
<p>The operation of cables (power and telecommunications) and pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.30e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	<p>Management:</p> <ul style="list-style-type: none"> - Prohibition of fishing within the rMCZ <p>Measure:</p> <ul style="list-style-type: none"> - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within

(or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - Most of this rMCZ lies beyond the 12nm limit. For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'

- **Reaction to the vulnerability assessment process and outcomes**
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.30e (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

This rMCZ is located within a region that has high pelagic productivity, and which is heavily fished by static and mobile gear fishermen, both UK and non-UK. There is strong gear conflict. Fishing representatives are not supportive of this site, but find this rMCZ less bad than a larger area that was included in this region previously (see third progress report). The rMCZ is strongly supported by conservationists, as it lies within an area of additional ecological importance because of its high productivity and seasonal frontal systems. The current rMCZ (together with the South of Falmouth rMCZ) represents the outcome of a genuine negotiation between conservation and fishing interests, where both sides have gained and lost – fishermen would have preferred no rMCZs at all in this area, and conservationists would have preferred the larger area previously included in the developing recommendations.

The Crown Estate provided feedback to state that they were supportive of this rMCZ. Early Local Group feedback indicated that this area was preferred to other alternatives containing the same broad scale habitats, and it was considered the ‘least bad’ option in that area.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

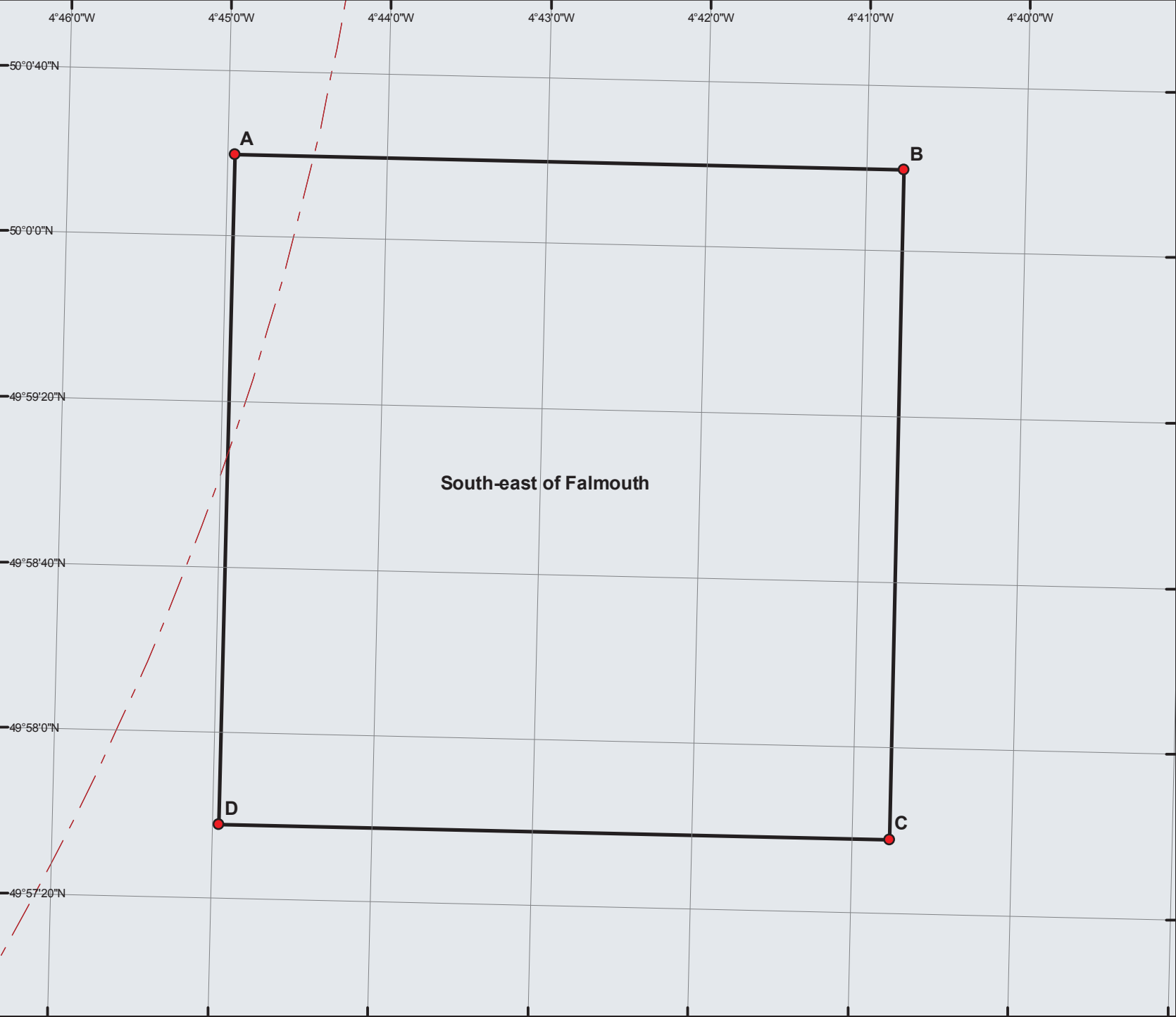
Site map series

On the following pages there are two maps of this site.

- The first map (FR_042a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and

existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.

- The second map (FR_042b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.30b, data sources are indicated in the table.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



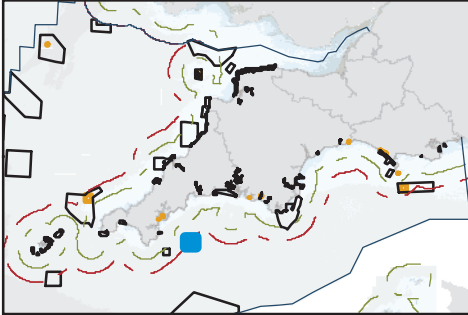
Lat/Long Co-ordinates (WGS84)

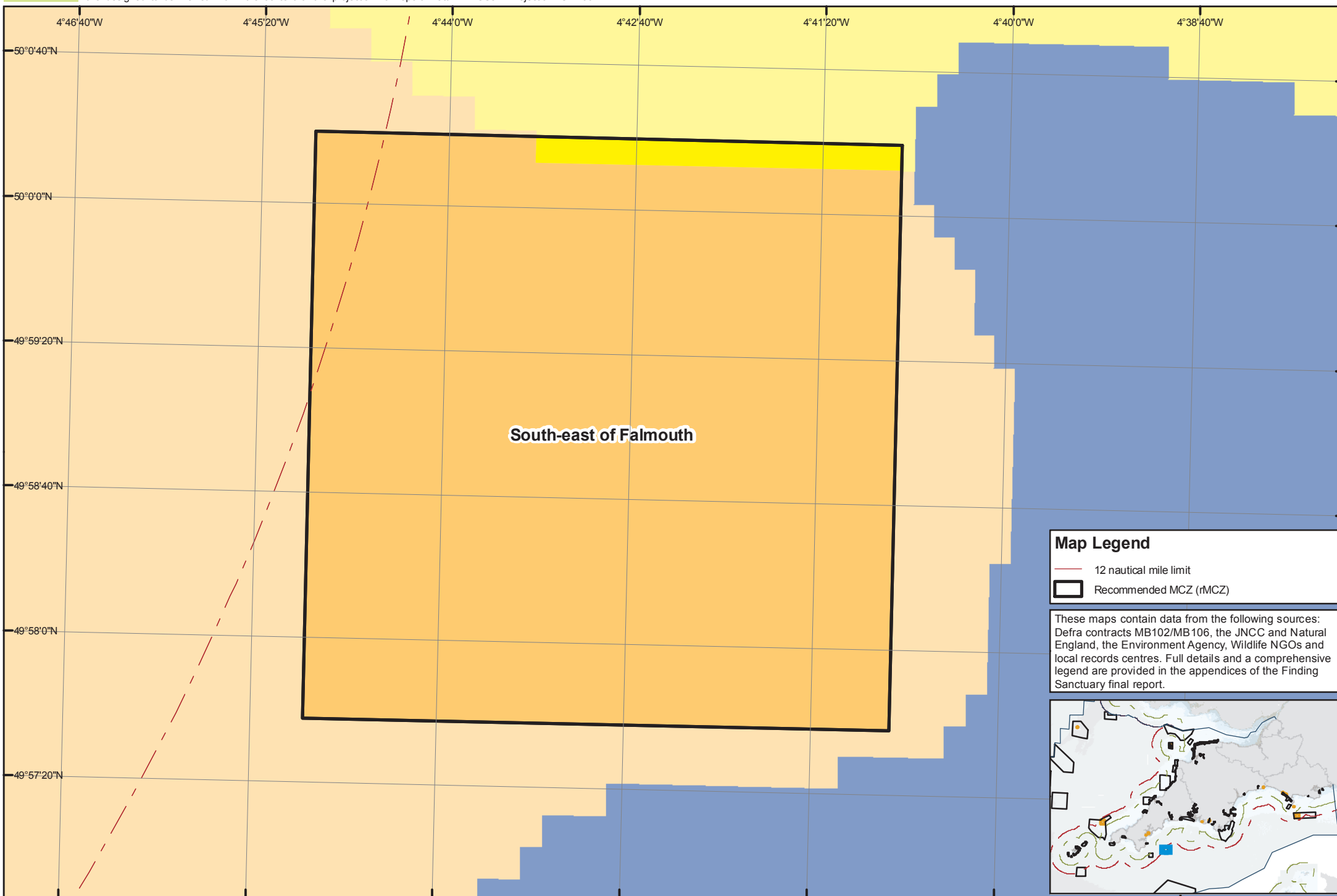
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.0055	-4.7492	50° 0' 19" N	4° 44' 57" W
B	50.0055	-4.6794	50° 0' 19" N	4° 40' 46" W
C	49.9605	-4.6794	49° 57' 37" N	4° 40' 45" W
D	49.9605	-4.7492	49° 57' 37" N	4° 44' 57" W

Map Legend

- 12 nautical mile limit
- ▭ Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





II.3.31 South of Falmouth rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
49.9077	-4.9760	49° 54' 27" N	4° 58' 33" W

Site surface area: 25 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea (on the boundary to Region III: Celtic Waters)

Site boundary: The site is a simple square, with borders running north-south and east-west, measuring 5km on each side in line with ENG guidelines. The north-west corner of the site intersects with the 6nm limit, the remainder of the site lies beyond 6nm.

Sites to which the site is related: The site lies approximately 9 km east of the Lizard Point candidate SAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within South of Falmouth rMCZ

*Table II.3.31a Draft conservation objectives for the South of Falmouth rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.***

Broad-scale habitats	Moderate energy circalittoral rock		R
	Subtidal coarse sediment		R

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.31b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy circalittoral rock	2.69	<0.1%	1
Subtidal coarse sediment	22.29	<0.1%	1

Table II.3.31c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	22.86			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The site is located in an area of seasonal frontal systems, which means the area has high productivity and scores highly as an area of additional ecological (pelagic) importance (see AAEL map, FR_081). The area is heavily used by fishermen, in particular, mobile benthic and pelagic gear fishermen. The depth of the site ranges from 77 to 83 metres.

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

Poulton *et al.* (2002) In Jones *et al.* (2004) describe the offshore sediments around the coast of Britain which included the English Channel. The consequences of a changing climate have been relatively well documented in the English Channel for fish, plankton and intertidal benthos (see, for example, Genner *et al.* 2004; Hawkins *et al.* 2008). During the 1950s, Norman Holme sampled benthic infaunal and epifaunal communities on a large geographical scale spanning the entire English Channel (Holme, 1961; 1966). Part of Holme's benthic survey was revisited in 2006, covering a large extent of the Channel coast (Hinz *et al.* 2011). The main aims of this resurvey were to describe the current status of benthic communities and compare the data to the historic survey to investigate potential changes in the communities. Comparison of the 1950s and 2006 surveys showed benthic species distributions remained similar, in general, with little or no obvious trends consistent with warming sea temperatures.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities.

Table II.3.31d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process. This site was a relatively late addition to the network (it was added after the third progress report). Most of the detailed work on recording assumptions and implications for the sites within the developing network configuration had already taken place before this site was added. Therefore, some of the content of table II.3.31d is based on what had previously been recorded for a previous, larger site that had been included in the developing network configuration in the area, and which was replaced by two smaller sites, South-East of Falmouth rMCZ and South of Falmouth rMCZ, following Local Group and fisheries sector feedback. The previously stated assumptions were implicit in the discussions over whether the site should be added to the network or not. Many of the assumptions and implications highlighted for this site are generic, and will apply to other rMCZs in the network as well. Site-specific comments from the later planning meetings (when the site was within the network) have also been added to the table.

Following that, table II.3.31e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.31d Specific assumptions and implications relating to South of Falmouth rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot). This site has been recently added to the network (after the third progress report). No detailed assumptions were drawn up by the working groups & project team for this site specifically.

Activities assumed to not be allowed within the site	
Assumptions	Implications
Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging) This activity was discussed in the VA meetings, and the assumption was confirmed.	Direct implications: <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK (Mobile benthic fishing does occur in the area, which is deemed important for scalloping and beam trawling. However, this rMCZ was selected by the Working Groups out of several building blocks in the area, as it was deemed the least contentious to the fishing industry and it was recognised that a protected area is required in this area in order to meet the Ecological Network Guidance). o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o The SW Fishing Industry MCZ Planning Group notes

	<p>significant concerns over this site given the importance of the fishing grounds in this area.</p> <ul style="list-style-type: none"> o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity. <p>Benefits:</p> <ul style="list-style-type: none"> o Protection of areas of high pelagic interest will increase ecological value of network
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback indicated that some Local group members thought that mitigation measures should be put in place to prevent bycatch in static nets, including regulation of when and how nets are set. Other Local Group members indicated that bycatch of birds was not a problem in set nets in this area. The protection of birds is not currently included in the developing conservation objectives for this site. o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Attracting the funding (for development) may be harder in the first place as sites with MPA designations within them will be less attractive to potential investors. o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o There is some overlap with accessible wind resource area. o Possible medium term wave resource area, but navigational constraints significant.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Possible cable route to renewables resources, further offshore.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Two active telecoms cables.

<p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.

Passage of ships will be permitted Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o
Seaweed harvesting will be permitted Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o

Table II.3.31e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	Management: - Prohibition of fishing within the rMCZ Measure: - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - Most of this rMCZ lies beyond the 6nm limit. There may be non-UK vessels with historical rights that fish within the area. For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.31e (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that

allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

This rMCZ is located within a region that has high pelagic productivity, and which is heavily fished by static and mobile gear fishermen, both UK and non-UK. There is strong gear conflict. Fishing representatives are not supportive of this site, but find this rMCZ less bad than a larger area that was included in this region previously (see third progress report). The rMCZ is strongly supported by conservationists, as it lies within an area of additional ecological importance because of its high productivity and seasonal frontal systems. The current rMCZ (together with the South-east of Falmouth rMCZ) represents the outcome of a genuine negotiation between conservation and fishing interests, where both sides have gained and lost – fishermen would have preferred no rMCZs at all in this area, and conservationists would have preferred the larger area previously included in the developing recommendations.

The Crown Estate provided feedback to state that they were supportive of this rMCZ. Early Local Group feedback indicated that this area was preferred to other alternatives containing the same broad scale habitats, and it was considered the ‘least bad’ option in that area.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

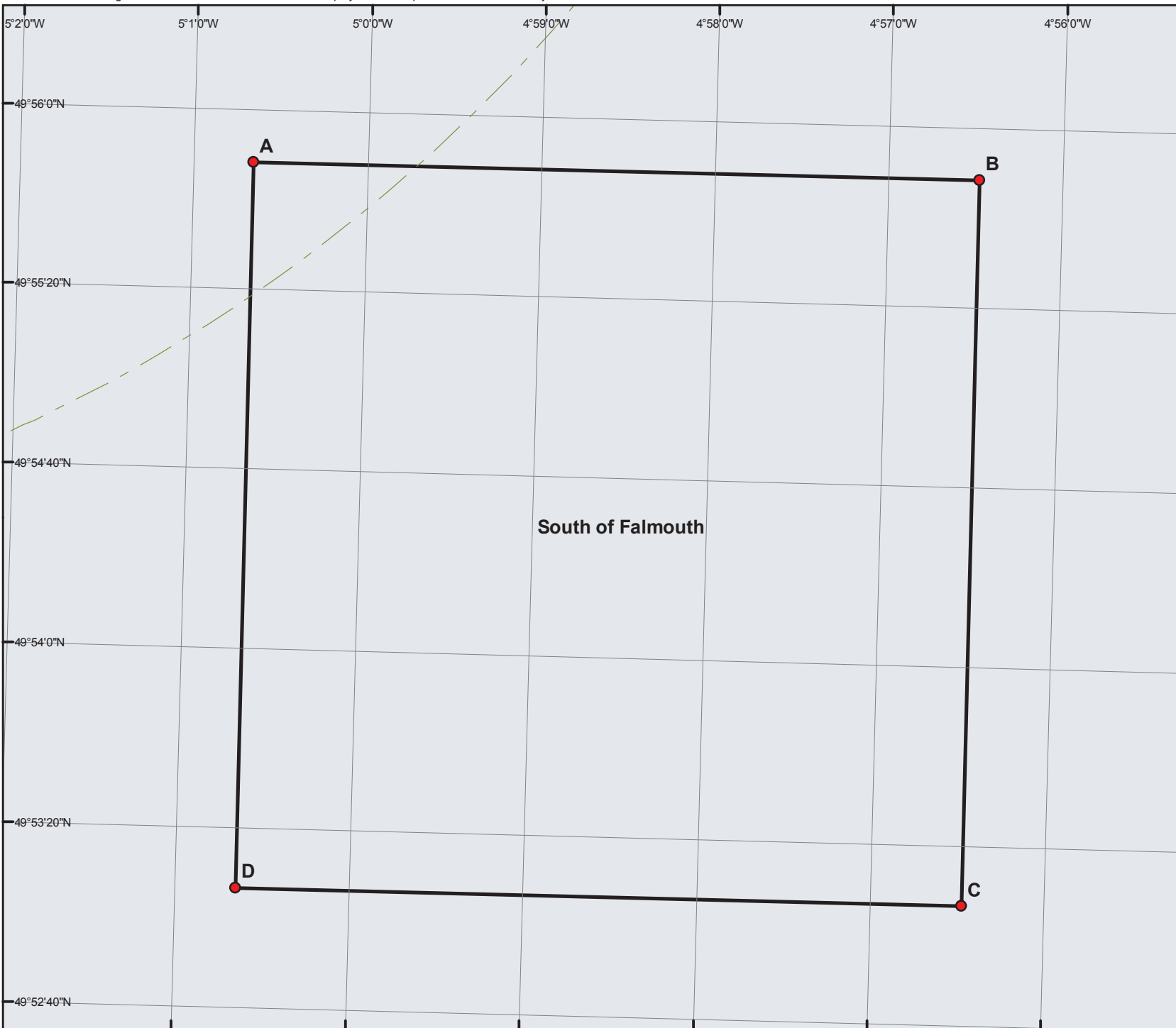
Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

Site map series

On the following pages there are three maps of this site.

- The first map (FR_043a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_043b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.3.31b, data sources are indicated in the table.
- The third map (FR_043c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).

- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



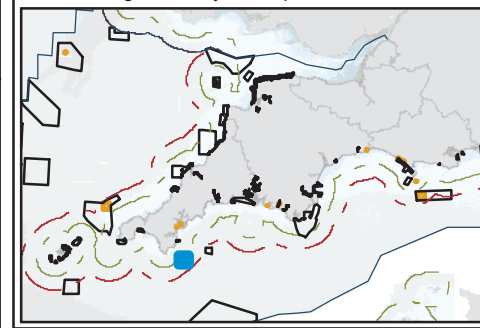
Lat/Long Co-ordinates (WGS84)

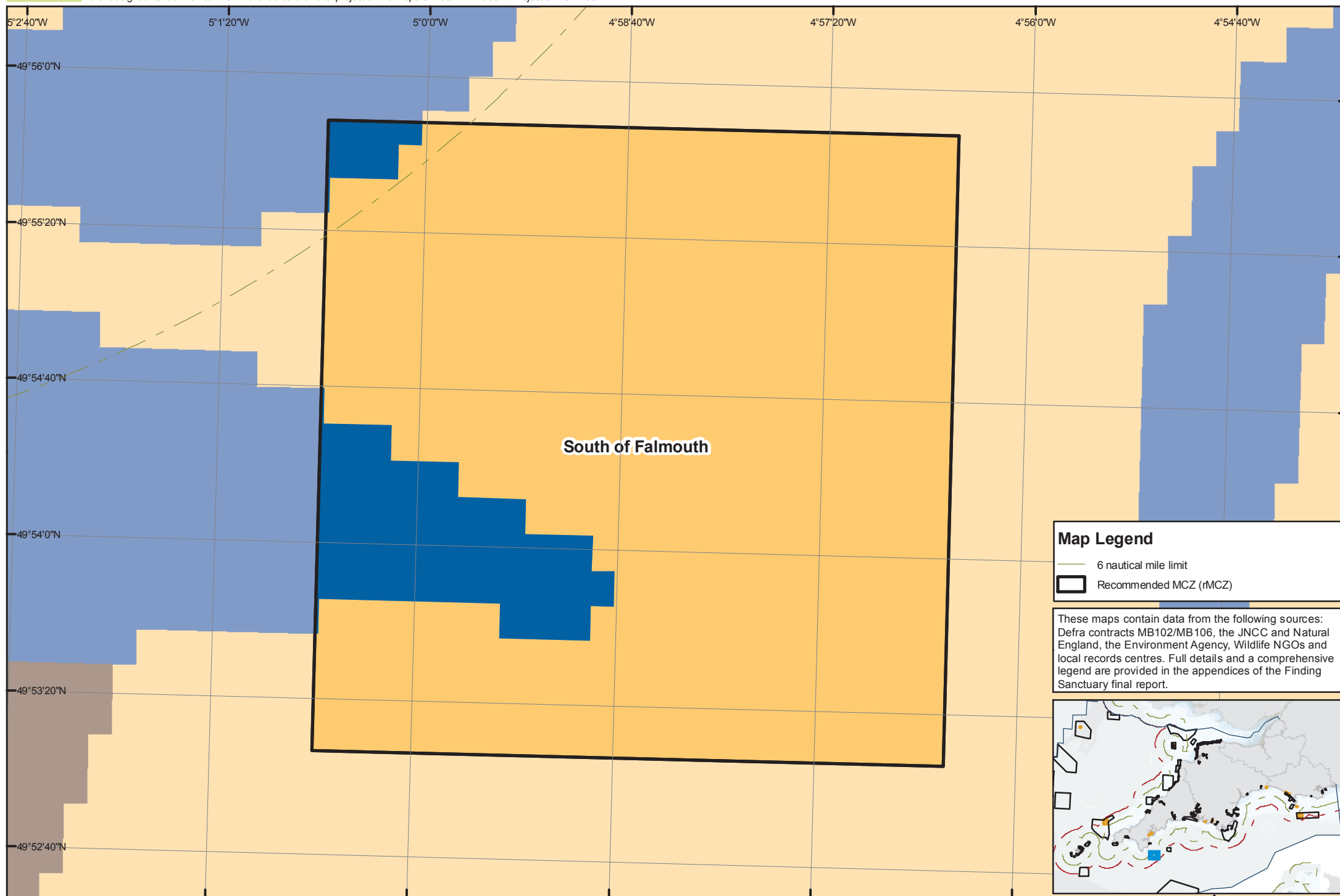
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	49.9301	-5.0108	49° 55' 48" N	5° 0' 39" W
B	49.9302	-4.9413	49° 55' 48" N	4° 56' 28" W
C	49.8852	-4.9412	49° 53' 6" N	4° 56' 28" W
D	49.8852	-5.0108	49° 53' 6" N	5° 0' 38" W

Map Legend

- 6 nautical mile limit
- Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



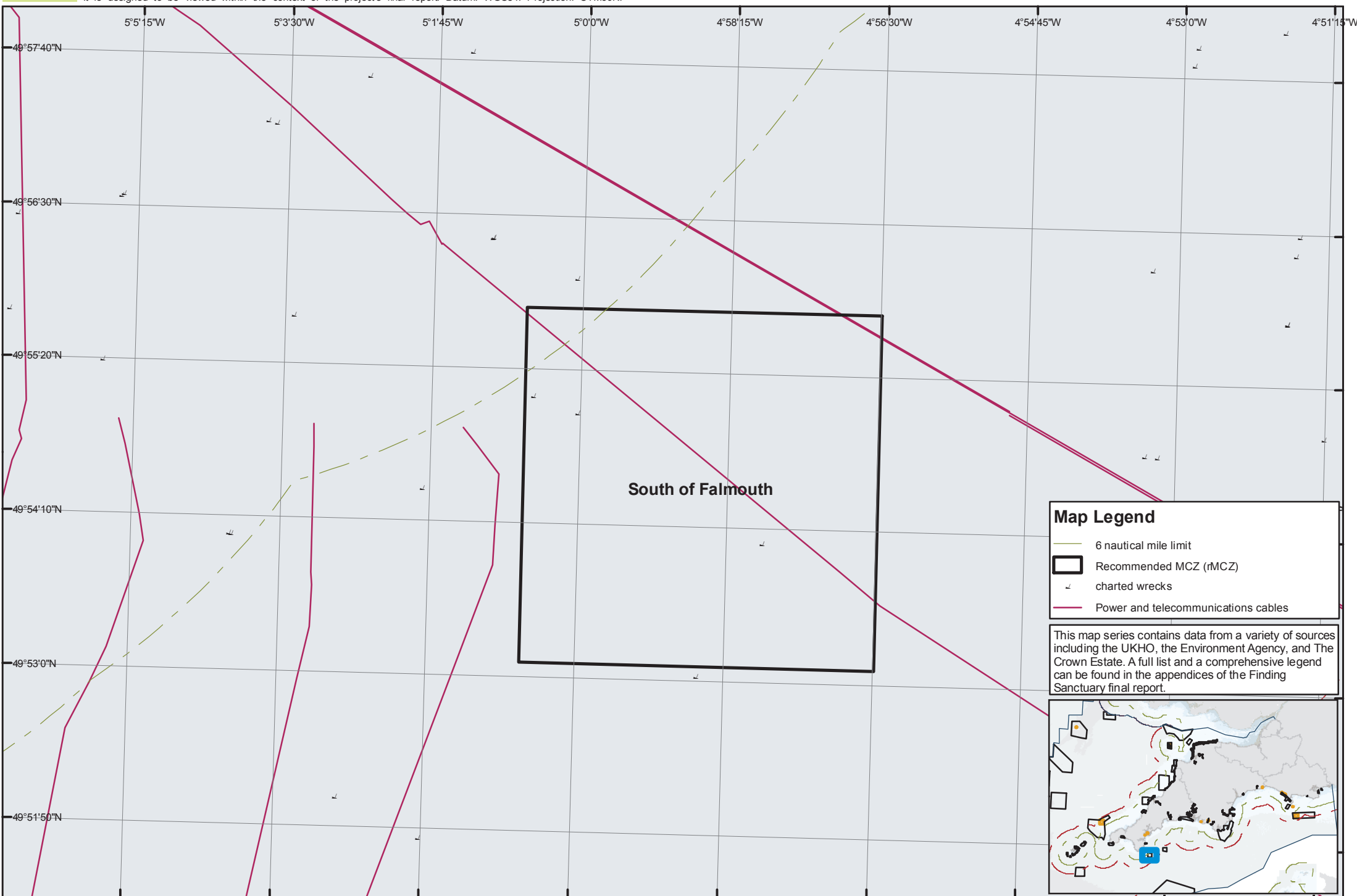


South of Falmouth rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062008.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 0.5 1 2 km



II.3.32 The Manacles rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.0467	-5.050	50° 2' 48" N	5° 3' 0" W

Site surface area: 3.5 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters (on the boundary to Region II: Greater North Sea)

Site boundary: The landward boundary of this site runs along the OS Boundary Line mean high water mark from Porthoustock Point around Manacle Point, as far as Polcres (the small bay at Dean Quarries). The seaward boundary is rectangular, with borders running east-west and north-south, extending about 2.3km to sea, to encompass the Manacles rocky reef.

Sites to which site is related: The Coverack to Porthoustock SSSI extends along the shoreline of the rMCZ. The north-western corner of the rMCZ clips the southern tip of the Fal and Helford SAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within the Manacles rMCZ

Table II.3.32a Draft conservation objectives for the Manacles rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal coarse sediment		M
	Subtidal macrophyte-dominated sediment		M
	Subtidal mixed sediments		M
	Subtidal sand		M
	Moderate energy circalittoral rock		M
	Moderate energy infralittoral rock		M
	Intertidal coarse sediment		M
	Intertidal mixed sediments		M
	Intertidal mud		M
	Intertidal sand and muddy sand		M
	Moderate energy intertidal rock		M
Habitat FOCI	Maërl beds		M
Species FOCI	<i>Amphianthus dohrnii</i>	Sea-fan anemone	M
	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Haliclystus auricula</i>	Stalked jellyfish	M
	<i>Leptopsammia pruvoti</i>	Sunset cup-coral	M
	<i>Palinurus elephas</i>	Spiny lobster	R
Mobile species not listed in ENG	<i>Cetorhinus maximus</i>	Basking sharks	M
	<i>Phocoena phocoena</i>	Harbour porpoise	M

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.32b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy infralittoral rock	0.19	<0.1%	1, 2
Moderate energy circalittoral rock	0.18	<0.1%	2
Subtidal coarse sediment	0.95	<0.1%	1, 2
Subtidal sand	0.96	<0.1%	1, 2
Subtidal mixed sediments	0.08	<0.1%	2
Subtidal macrophyte-dominated sediment	1.03	5.1%	1, 2
Moderate energy infralittoral rock ¹	<0.01	<0.1%	1, 2
Subtidal sand ¹	0.01	<0.1%	1, 2
Subtidal macrophyte-dominated sediment ¹	<0.01	<0.1%	1, 2

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

Table II.3.32c Intertidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 - MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy intertidal rock	0.04	0.7%	4
Intertidal coarse sediments	0.03	0.2%	4, 3
Intertidal sand and muddy sand	<0.01	<0.1%	4
Intertidal mud	<0.01	<0.1%	4
Intertidal mixed sediments	0.02	0.4%	4
Moderate energy intertidal rock ¹	<0.01	<0.1%	4
Intertidal coarse sediments ¹	<0.01	<0.1%	3

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

Table II.3.32d FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Maerl beds	1.01			1
Maerl beds ¹	< 0.01			1
Subtidal sands and gravels ²	1.61			1

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

² Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.32e **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Amphianthus dohrnii</i>	3		1, 3
<i>Eunicella verrucosa</i>	58	3	1, 3, 5
<i>Haliclystus auricula</i>	1	1	3
<i>Leptopsammia pruvoti</i>	2		3
<i>Palinurus elephas</i>	2		1

Local Group feedback also indicates that the FOCI habitats 'fragile sponge & anthozoan communities on subtidal rocky habitats' and 'intertidal underboulder communities' are present in this site, but we do not have records of these features mapped. These features are therefore not reflected in the tables above. In the network statistics (section II.2.8), this site has not been counted as a replicate for these non-mapped FOCI.

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.43 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The Manacles are a large underwater rocky reef system and a popular dive spot due to the high number of shipwrecks that surround them. The depth of the site is between 14 and 57 metres below sea level (chart datum). The primary reason for selecting this area as a rMCZ was the high-quality reefs present in the site, and the associated FOCI species (protection of broad-scale habitats was not a primary reason for the selection of this site, and the size of the area does not meet the minimum size guidelines for broad-scale habitats in the ENG). Local stakeholder and scientific feedback indicates that there are productive tidal fronts in this area. The area is of importance for basking sharks, and an important feeding area for small cetaceans, in particular, harbour porpoises and (seasonally) minke whales. Local Group feedback indicates that this is one of the best examples of pink sea fan communities and the pink sea fan anemone in the region.

Detailed site description

Wood (2003) found dense populations of *Eunicella verrucosa* at the Manacles in surveys carried out in 2001 / 2002, particularly on the flat open seabed below The Voices on The Manacles, and on Pencra Reef nearby. All of these sites were at least 20m below chart datum. Twenty-six of the sea fans had the sea fan anemone on them (*Amphianthus dohrnii*). The Ross coral *Pentapora foliacea* has also been recorded at the site (Davies, 1998). Southward *et al.* (2004) carried out dredging, trawling, and SCUBA diving to recover *S. Fallax*, during which active searches for *Eunicella verrucosa* were carried out. One colony was observed at 30 m on Raglan Reef on the Manacles in 2003. *E. verrucosa* has also been recorded during the 1981 South Cornwall sublittoral survey (James, 1983)

and 1980 NCC Isles of Scilly & south Cornwall sublittoral survey (Dipper, 1981). *Amphianthus dohrnii* has been reported in the area from 1980-present MarLIN UK expert sighting records (Brown, 1980) and the 2005 MCS Seasearch survey of the Manacles, Cornwall.

Palinurus elephas has been recorded both during the 2005 and 2006 MCS Seasearch of the Manacles, Cornwall. There have been a number of Short Snouted Seahorses seen around the Manacles area over the years and the area is a perfect type of site for this species (Neil Garrick-Maidment, *pers. comm.*).

The west of the Manacles has deeply gullied outcropping bedrock, with gullies opening out into an area of large boulders. Gully sides almost sheer and up to 5m high. The top of the gully sides contain sparse kelp and red foliose algae. The gully floor and sides are dominated by hydroids, including *Aglaophenia pluma* and *Halecium halecinum* (abundant). Anthozoans were also strongly represented, with *Actinothoe sphyrodetta*, occasional colonies of *Alcyonium glomeratum*, *Caryophyllia*, *Corynactis* and *Metridium senile* (James, 1983).

In the east, the seabed consisted of large boulders and rocky outcrops separated by areas of muddy shell gravel. The majority of the rock surface is covered by a hydroid/bryozoans turf in which *Polyzonias* and *Obelia dichotoma* were all common. Other conspicuous species included *Eunicella verrucosa*, *Alcyonium digitatum*, *Nemertesia antennina* and *Pentapora foliacea* (James, 1983).

At the north, an open cliff face dropping down to a large shelf of coarse sand and broken shell was reported. This in turn sloped gently away to further drop-off. The cliff face was overhung in places, with deep crevices, small caves and splits in the rock. The rock surface was carpeted with barnacles and *Corynactis*, with a small amount of hydroid/bryozoans turf. *Antedon bifida* and *Metridium senile* was also prominent (James, 1983).

Bloomfield & Solandt (2006) report on 20 years of Basking Shark sightings off the British coast, which includes several sightings off the Manacles, described as a 'hotspot' for congregations of Basking sharks when there are high densities of copepods.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.32f shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.32g shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.32f Specific assumptions and implications relating to The Manacles rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging)</p> <p>This was discussed at the VA meeting and confirmed.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen (Steering Group feedback indicates that scallopers use the area beyond the feature of The Manacles). o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Local fishing industry wish to see the site restricted to the vicinity of the Manacles feature in order to avoid the location of their existing activities. o The SW Fishing Industry MCZ Planning Group notes significant concerns over this site given the importance of the fishing grounds in this area. o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.

<p>Pelagic trawls will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group suggestions have included the seasonal exclusion of trawlers (note that no unanimously supported suggestions were made).
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>Tourism and recreational activities will be permitted.</p> <p>The VA meetings considered that a code of conduct may be needed for recreational divers to avoid impacts on sensitive species and habitats on the rocky seafloor. Previous WG and LG meetings considered this area of importance for cetaceans and basking sharks, and following JWG5 the Wildlife Trusts have advised a code of conduct and voluntary wildlife tour operator accreditation schemes to avoid disturbance to and collisions with these animals in this area.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o A suggestion was made by a Local Group member to impose a speed restriction on motorised vessels to protect cetaceans and basking sharks. <p>Benefits:</p> <ul style="list-style-type: none"> o There is a substantial socio-economic benefit from recreational divers visiting this area. Also, most dive boats do not anchor. o Protection of attractive and interesting seabed habitats will help support local diving businesses
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Attracting the funding (for development) may be harder in the first place as sites with MPA designations within them

	<p>will be less attractive to potential investors.</p> <ul style="list-style-type: none"> o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback has indicated that there is an area (only partially in Manacles) suitable for suspended mussel culture. The person making the comment was concerned that, if made a MCZ, this activity should be permitted. Existing farms are starting up in these bays.
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
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Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Possible cable route to renewables resources.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.

<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o A suggestion was made by a Local Group member to impose a speed restriction on motorised vessels to protect cetaceans and basking sharks.
<p>Acoustic Surveys, sonar</p> <p>The Working Groups had not made any explicit assumptions about acoustic surveys / sonar in this site, nor were any made by the project team in their 'homework' on assumptions for inshore sites. A member of the Steering Group stated at the February 2011 meeting that the assumption should be made that acoustic surveys will be allowed e.g. sub bottom profiling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.32g VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	Management: - Prohibition of fishing within the rMCZ Measure: - Option 1: voluntary - Option 2: byelaw
Tourism & Leisure	Management - Education and awareness of conduct for encounters with backing sharks, cetaceans Measure - Voluntary code of conduct - Voluntary 'Wise accreditation'
Tourism & Leisure	Management - Education and awareness of conduct for diving Measure - Voluntary code of conduct

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.

- *The Wildlife Trusts*
 - There is some concern that the reduced size of the rMCZ (compared to an original building block that extended beyond the rocky reef), and consequent lack of buffer around the reef features, limits the ecological value of designation.
 - Exclusion of netting would increase diver safety in a heavily used site.
- *Anchoring and aggregates*
 - This rMCZ was realigned to take account of anchoring and aggregate export.
- *Seabirds and cetaceans*
 - Codes of practice may be a better way to achieve management of leisure boats (if necessary) than byelaws.
 - Current levels of human activity appear to be compatible with maintaining basking shark and harbour porpoise numbers in this site. There is the potential for boat strike from pleasure craft which is a cause for concern. Monitoring of numbers and activities and impacts on these species, dissemination of codes of conduct for encounters, encouraging boat operators to become WiSE accredited and a 3 year review of baseline numbers (estimated from ERCCIS sightings data) would all help to maintain healthy populations of these mobile species. Healthy populations of harbour porpoises and basking sharks would suggest a healthy ecosystem within the site and would be an attraction for the general public and ecotourism. Mitigation measures would be required if there was a decline in species numbers due to activities within the rMCZ (e.g. disturbance from boat pleasure craft, boat strike, bycatch from fishing activity)
- *Netting and longlining*
 - A Local Group fishing representative suggested looking at static net access with the use of pingers to mitigate by-catch, and the Local Group suggested that a speed limit could be considered to protect cetaceans and basking sharks.
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site.
 - The netting / longlining assumption and the Local Group suggestions have been superseded by the fact that the stakeholder group agreed on a different set of assumptions for mobile species (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions).
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.

- Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
- The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.32g (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

This site was unanimously suggested by the Cornwall Local Group. The Local Group strongly support this rMCZ, they view it as an essential component of the network.

A fishing representative on the Steering Group commented that they would not support an rMCZ extending beyond the feature of The Manacles itself, and the boundary of the site was adjusted from a larger pre-cursor to bring it close to the reef feature in order to accommodate this concern.

The Crown Estate provided feedback on what was a much bigger building block in the area (iH12), stating that they were supportive of the area becoming a rMCZ.

Dean Quarries are concerned over impacts on their jetty & dredged channel for boat access for freighting stone, and Falmouth Harbour expressed concern over any potential impacts on their shipping lane close by.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MESH, MB102, Environment Agency intertidal habitat data, data from Cornwall Wildlife Trust, and Seasearch 2009. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Seaqwest Southwest sightings, both ad hoc and effort based, land and boat based, CWT basking shark project data, and Seaquest Netsafe acoustic data are available for *Cetorhinus maximus* in the area of the rMCZ. Key Cornish datasets have been analysed recently with University of Exeter in Cornwall and papers have been written which support the raw data (See Witt *et al.* in prep; Pikesley *et al.* in press).

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There is also a lot of local knowledge about the site within the Local Group. Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](http://jncc.defra.gov.uk/page-4)³⁹.

Seaqwest Southwest sightings, both ad hoc and effort based, land and boat based, CWT basking shark project data, and Seaquest Netsafe acoustic data are available for *Cetorhinus maximus* in the area of the rMCZ. Key Cornish datasets have been analysed recently with University of Exeter in Cornwall and papers have been written which support the raw data (See Witt *et al.* in prep; Pikesley *et al.* in press).

Site map series

On the following pages there are four maps of this site.

- The first map (FR_044a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_044b) shows the rMCZ boundary over broad-scale habitats. The data shown on this map corresponds with the information in tables II.3.32b and II.3.32c, data sources are indicated in the tables.
- The third map (FR_044c) shows records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.32b to II.3.32e, data sources are indicated in the tables. In most site reports, broad-scale habitats and FOCI are shown on a single map, but for this site they have been split, because there is a large area of the FOCI habitat 'maërl beds' mapped as a polygon feature within the site, and if that polygon is layered on top of the broad-scale habitats data, it is easily confused with the broad-scale habitat 'high energy infralittoral rock', as the symbology is similar (see appendix 7).
- The fourth map (FR_044d) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).

³⁹ <http://jncc.defra.gov.uk/page-4>

- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

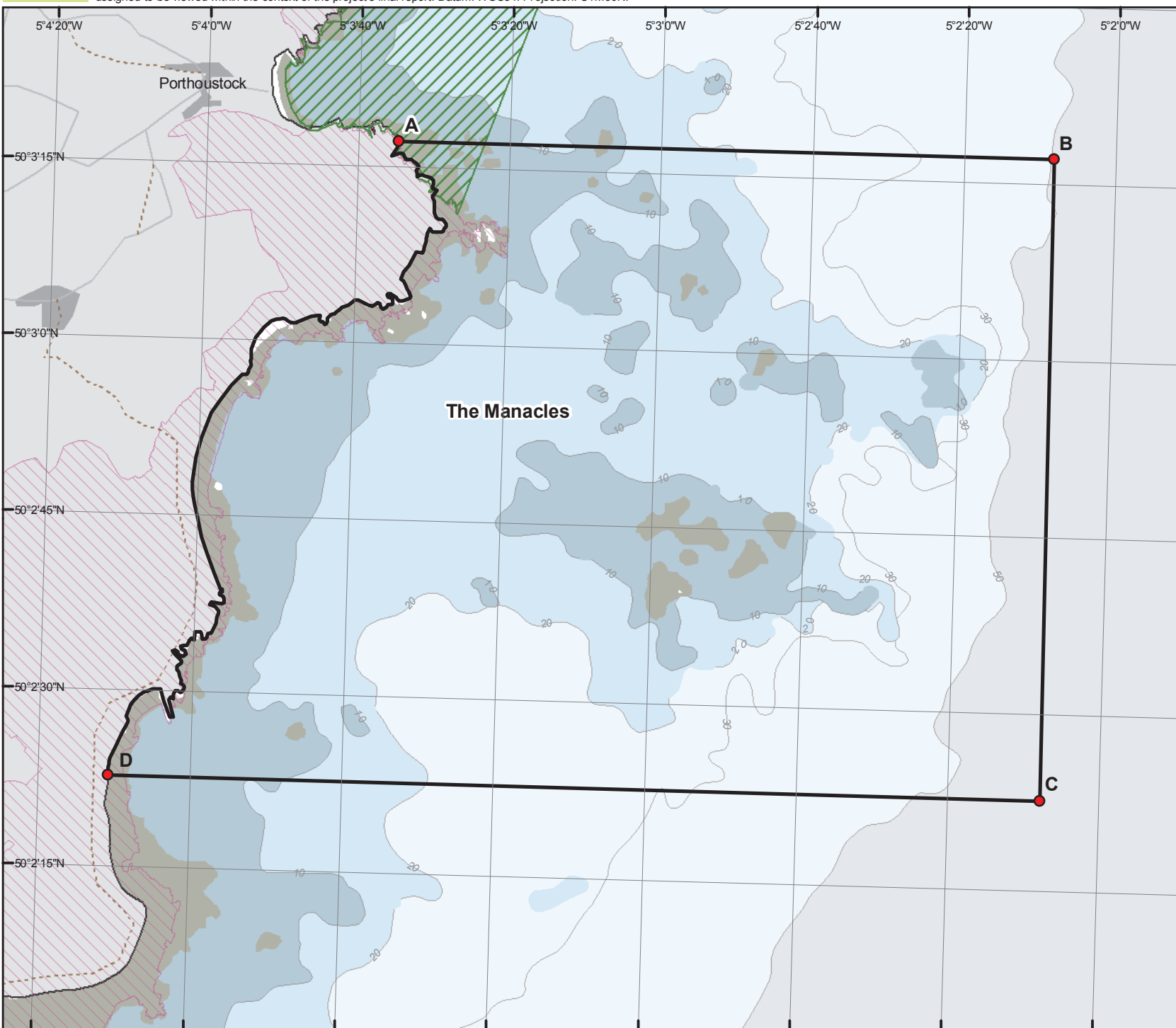
The Manacles rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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0 0.3 0.6 km




N



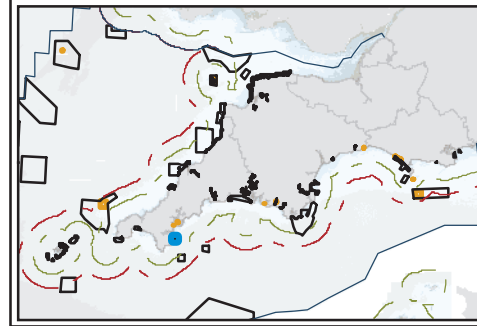
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.0548	-5.0596	50° 3' 17" N	5° 3' 34" W
B	50.0548	-5.0356	50° 3' 17" N	5° 2' 8" W
C	50.0396	-5.0355	50° 2' 22" N	5° 2' 7" W
D	50.0396	-5.0696	50° 2' 22" N	5° 4' 10" W

Map Legend

-  Recommended MCZ (rMCZ)
- Existing MPAs**
-  SAC
-  SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

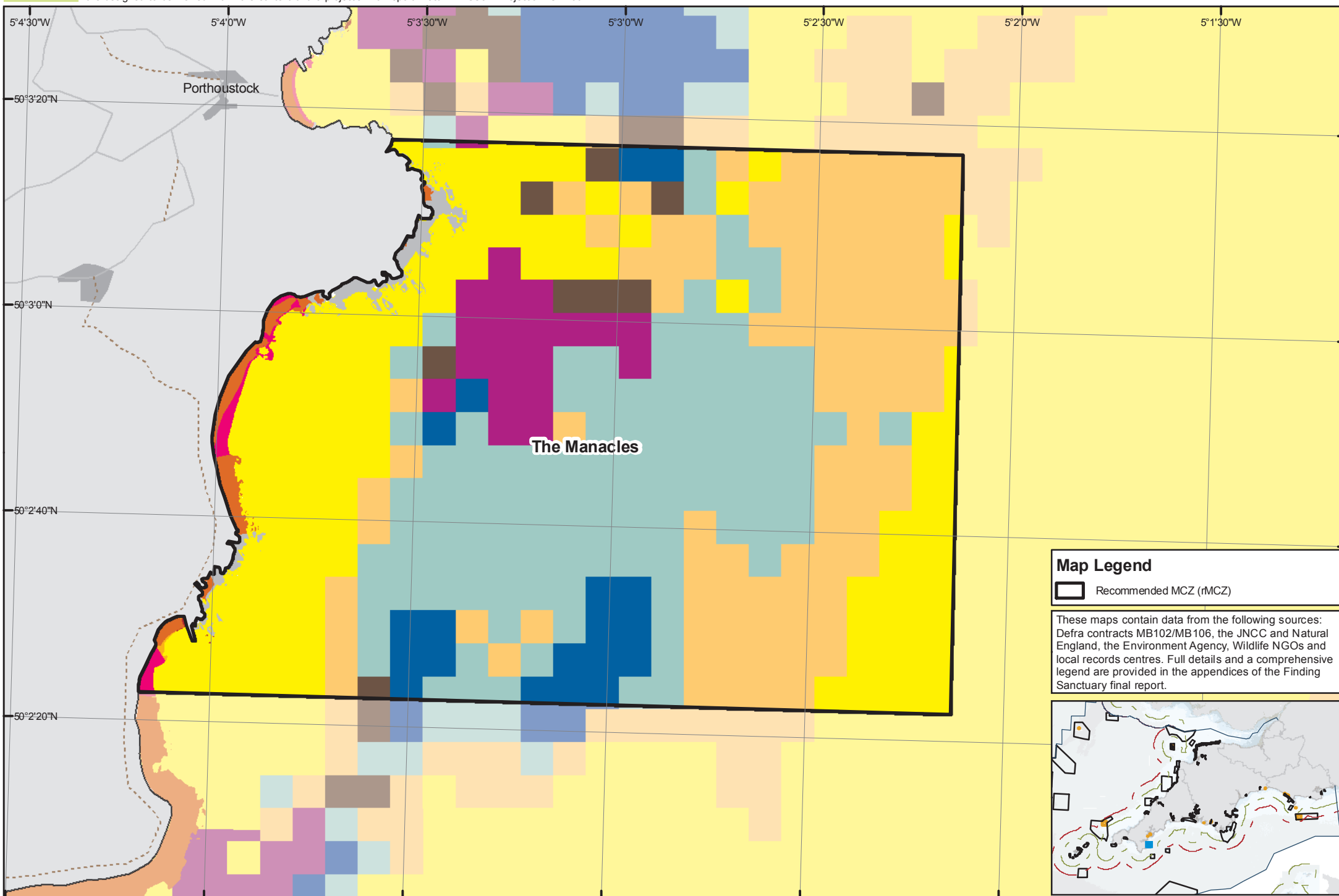


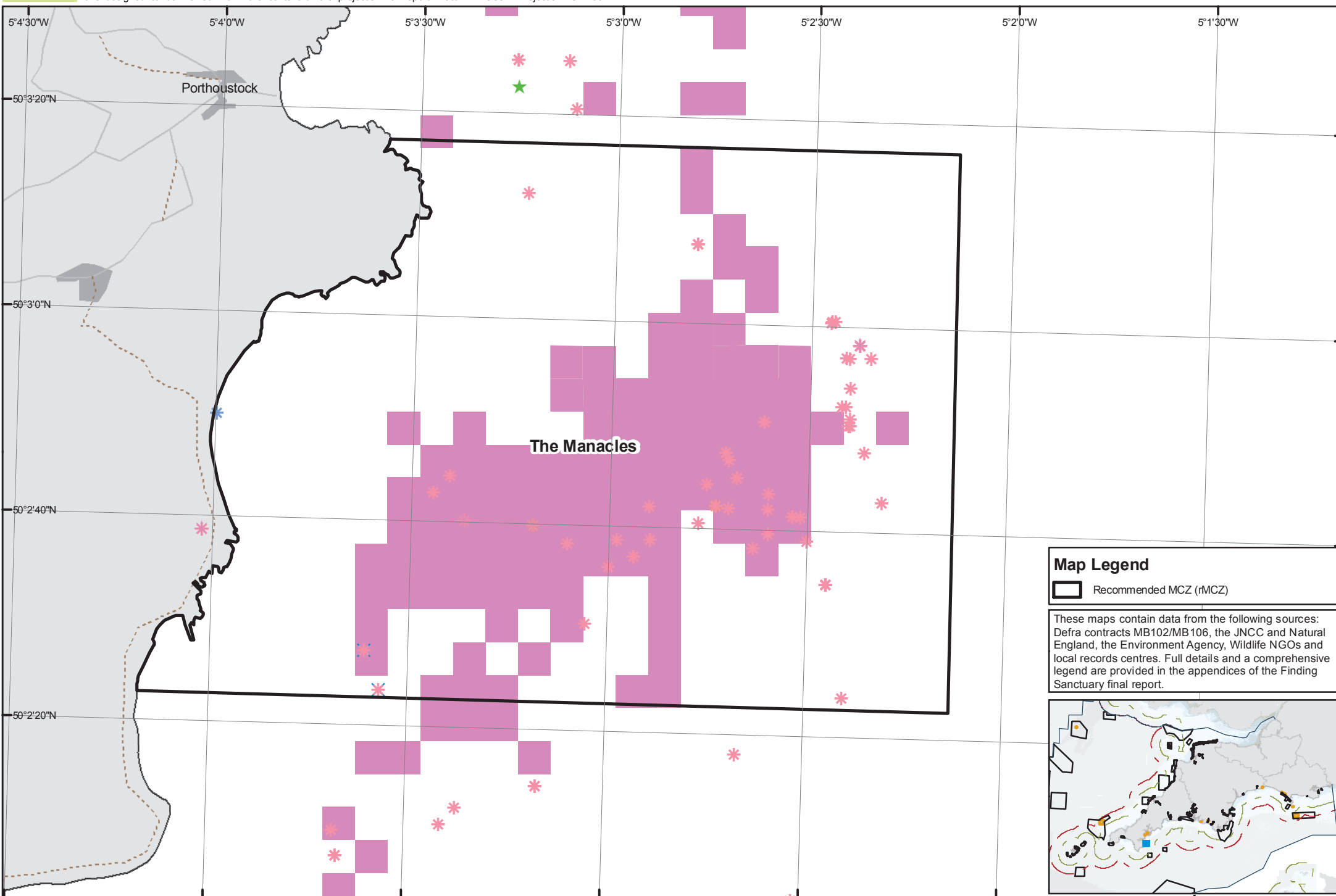
This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with broad scale habitats. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 0.3 0.6 km

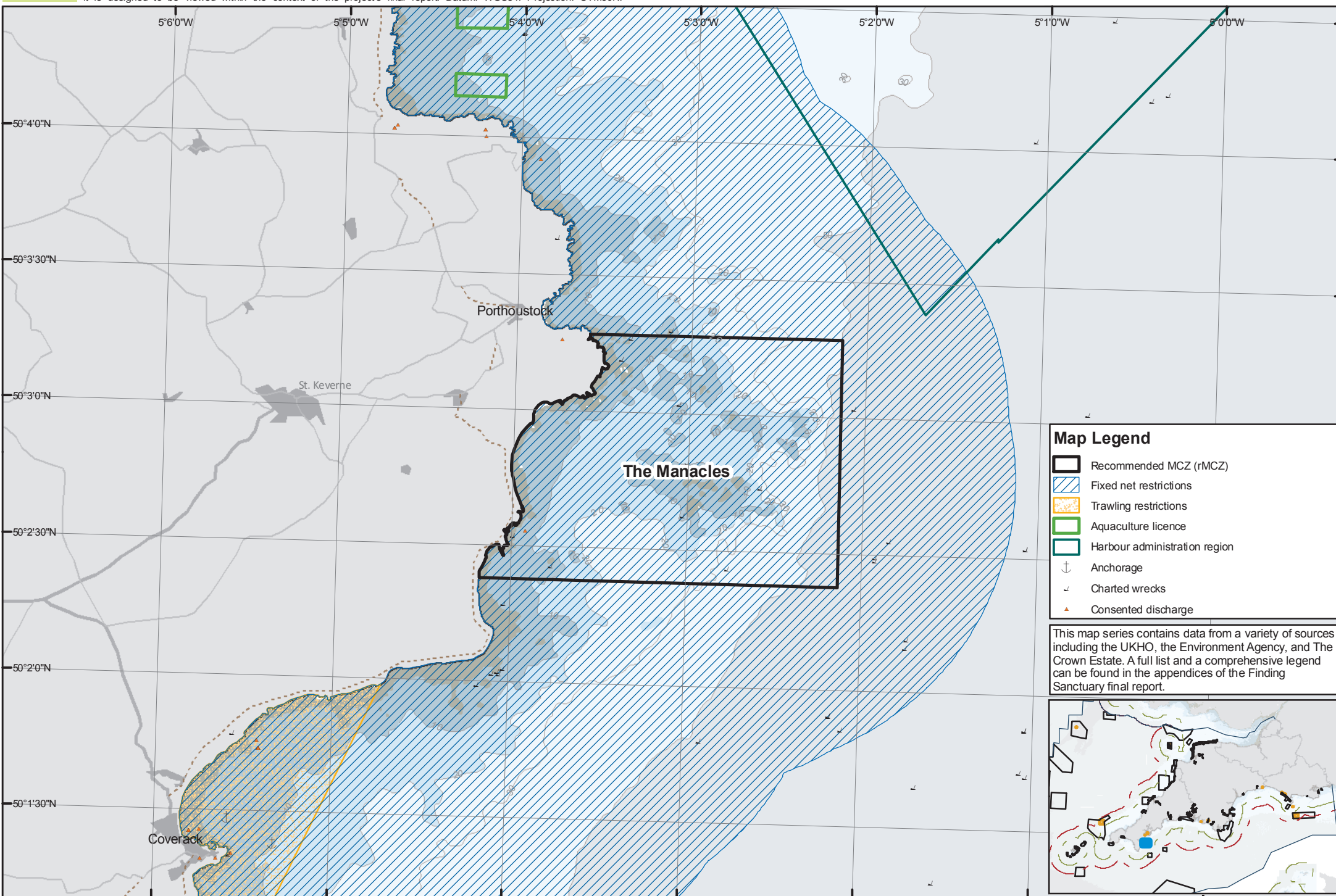
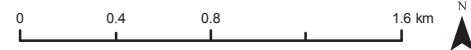
N





This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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II.3.33 Mounts Bay rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.1111	-5.4701	50° 6' 39" N	5° 28' 12" W

Site surface area: 11.2 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The site boundary follows the coastline along the OS Boundary Line mean high water mark from the beach at Long Rock (west of Marazion), around St Michael's Mount to Cudden Point, between Praa Sands and Perranuthnoe. From the beach at Long Rock, the site boundary extends N-S for approximately 2.8km, and from there it extends eastwards to Cudden Point.

Sites to which the site is related: There is a small coastal SSSI on the southern side of St Michael's Mount, and another coastal SSSI at Cudden Point (Cudden Point to Prussia Cove).

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Mounts Bay rMCZ

Table II.3.33a Draft conservation objectives for the Mounts Bay rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Broad-scale habitats	Subtidal mixed sediments		M
	Subtidal sand		M
	High energy infralittoral rock		M
	High energy intertidal rock		M
	Intertidal coarse sediment		M
	Intertidal mixed sediments		M
	Intertidal sand and muddy sand		M
	Moderate energy intertidal rock		M
Habitat FOCI	Seagrass beds		M
Species FOCI	<i>Arctica islandica</i>	Ocean quahog	M
	<i>Gobius cobitis</i>	Giant Goby	M
	<i>Haliclystus auricula</i>	Stalked jellyfish	M
	<i>Lucernariopsis campanulata</i>	Stalked jellyfish	M
	<i>Lucernariopsis cruxmelitensis</i>	Stalked jellyfish	M

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

*Table II.3.33b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.*

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	0.16	<0.1%	1
Subtidal sand	10.32	<0.1%	1
Subtidal mixed sediments	0.01	<0.1%	1

*Table II.3.33c **Intertidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.*

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock	0.12	1.7%	4
Moderate energy intertidal rock	0.04	0.9%	4
Intertidal coarse sediments	0.56	2.9%	4, 3
Intertidal sand and muddy sand	<0.01	<0.1%	4
Intertidal mixed sediments	<0.01	0.2%	4

*Table II.3.33d **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.*

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Seagrass beds	0.01			1
Subtidal sands and gravels ¹	9.31			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.33e **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Arctica islandica</i>	2	1	3
<i>Gobius cobitis</i>	3		3
<i>Haliclystus auricula</i>	4	4	3
<i>Lucernariopsis campanulata</i>	1	1	1
<i>Lucernariopsis cruxmelitensis</i>	1	1	1
<i>Atrina pectinata</i> ¹	1	1	3
<i>Phymatolithon calcareum</i> ¹	1	1	3

¹ There is a single record of each of these two species (fan shell and maërl) present within the boundaries of this site. Both records are old (dating from between 1900 and 1910). Neither species was included on the list of draft conservation objectives for the site.

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.94 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

Mounts Bay rMCZ encompasses an area of relatively sheltered coast (compared to other parts of the Cornish coastline), encompassing the area around the iconic landmark of St Michael's Mount. The bay is predominantly sandy, with infralittoral and intertidal rocky outcrops that support algal communities, and sheltered areas with seagrass beds present. The depth of the site ranges from the shoreline to approximately 17 metres below sea level. The area intersects with an area of higher than average benthic species diversity (within the south-west context, mapped from MB102 data). The Environment Agency has highlighted the nursery function of the area, and the importance of the area as a sea trout foraging area. Local Group feedback has indicated that this area is of importance for wintering diving birds. Indirectly, Local Group feedback has also indicated that the area is of importance for basking sharks and cetaceans (by Local Group members having suggested that measures be put in place to protect these features).

Detailed site description

Mounts Bay is one of the more sheltered stretches of the South Cornwall coast where there are extensive sandy shores and rocky reefs. Sublittoral habitats and communities were surveyed by James (1983). Infralittoral habitats were characterised by dense kelp forests; circalittoral bedrock was characterised by sea anemones, especially the jewel anemone *Corynactis viridis*.

Stackhouse cove near Cudden Cove is a semi-exposed rocky shore backed by low cliffs which consists of a series of sloping irregular platforms dissected by deep gullies. Upper and midshore habitats

were dominated by limpets and snails. Low shore habitats had a wide variety of algae; vertical walls within gullies had rich sponge and sea squirt communities. St Michaels Mount is a tidal island separated from the mainland by a paved causeway. Boulder shores on the north-west corner had exceptionally rich communities with a very high biomass. Large specimens of the red alga *Palmaria palmata* were found here. A small seagrass (*Zostera marina*) bed was found to the east of the causeway. Great Hogus reef located to the west of St Michael's Mount is an isolated rock outcrop set within a long sandy coast. The reef was an important reference area following the Torrey Canyon oil spill in 1967 (Powell *et al.* 1978).

A single specimen of *Arctica islandica* was recorded in 1992 during a littoral Survey by a member of the Porcupine Marine Natural History Society. The Conchological Society reported a live specimen of *Paludina littorina* off Rinsey Head (SW 590 296) in 2000.

Mounts Bay is home to both species of Seahorse and the Seahorse Trust has a number of sightings throughout the bay. Its relatively sheltered aspect means that it has a good habitat and plenty of sheltered shallow water for seahorses to thrive, especially the Spiny Seahorse which is known to occupy the seagrass meadows in the region (Neil Garrick-Maidment, pers. comm).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.33f shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.33g shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.33f Specific assumptions and implications relating to Mounts Bay rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen o Given that this area is surrounded by a number of major Cornish fishing ports it is expected to be heavily fished. However only one trawler is known to work within the area. o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.

<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Disposal of material at the Mounts Bay disposal site (beyond the boundaries of this rMCZ) was discussed in the VA. It is expected that disposal of material at the site would be permitted with no additional mitigation to be required as a result of the rMCZ.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o General comment from SNCBs: a set distance is likely to be required from the edge of MCZ area where this activity is likely to impact on the MCZ features. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is an open/active disposal site in Mounts Bay and a closed disposal site in waters adjacent to Newlyn and Penzance harbour. If disposal in the active site were to be discontinued this would have detrimental impact on the ports. The boundaries have been amended to exclude these sites. o Although the VA stated that this activity would be able to continue in the Mounts Bay disposal site, there is concern about impacts on future license applications.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to the anchoring of large vessels). <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Coastal development and defence</p> <p>Impacts on the rMCZ conservation objectives would need to be considered in any licence application. It is not yet known whether any additional mitigation would be likely as a result of the rMCZ</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o A Steering Group member commented that there are managed retreat sites along the shoreline of this rMCZ.
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic. Stakeholder feedback indicates that this statement may not be appropriate for this site as static gear fishing is not taking place to such an extent. It is already an area where no towing happens so there would be no change.)

	<p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The Environment Agency have suggested adding a netting restriction in the water column to protect fish nursery function and sea trout foraging. o SAFFA fixed net restrictions apply adjacent to this site. o Local group feedback has included the suggestion to allow static nets with pingers, which implies that the area is of importance for cetaceans. Other Local Group feedback has suggested restricting gill and trammel netting to avoid cetacean bycatch. Cetaceans are not currently part of the developing conservation objectives. o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Near-shore wave resource potential within parts of site. o Good wind resource, landscape buffer requirements making deployment less likely.

<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o This rMCZ is located within an area overlapping the Mounts Bay open disposal site and Newlyn Harbour closed disposal site. Not permitting disposal or reopening the closed disposal site would not be compatible with the assumptions as stated.
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o A Steering Group member commented that there are managed retreat sites along the shoreline of this rMCZ.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local group feedback has indicated this as a good area for recreational sea anglers targeting bass and plaice. o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Possible cable route to renewables resources.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is an active power cable located within this rMCZ (at Marazion). These activities need to remain unrestricted.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The area is used for recreational boating, including moorings. There is concern around this activity being impacted. <p>Benefits:</p> <ul style="list-style-type: none"> o Potential benefits to ecotourism and the diving industry.
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to maintenance dredging in ports).
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general

<p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>concern, not just relating to the anchoring of small vessels).</p> <ul style="list-style-type: none"> o Recreational boat mooring should not be affected. o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to the passage of ships). o Local Group feedback has included a suggestion to add a speed limit to protect basking sharks in the area. Basking sharks are currently not part of the developing conservation objectives.
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.33g VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Disposal at Sea	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application for disposal of material at the Mounts Bay disposal site. It is expected that disposal of material at the site would be permitted with no additional mitigation likely to be required as a result of the rMCZ <p>Measure :</p> <ul style="list-style-type: none"> - Marine Licence
Coastal Defence & Development	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application. It is not yet known whether any additional mitigation would be likely as a result of the rMCZ <p>Measure :</p> <ul style="list-style-type: none"> - Marine Licence

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*

- Due to the crude resolution of fisheries activities mapping it is possible that the vulnerability of this site to bottom gears has been under estimated. This should be considered in the design of management measures for this site.
- Seasonal closures are an inappropriate measure for benthic conservation.
- *Dumping and disposal sites*
 - Sediment plumes created by beach replenishment schemes need to be considered as a possible pressure upon the site.
 - Concern 150m offshore is not a sufficient buffer to prevent impact of disposal site
- *Anchoring*
 - Anchoring is not compatible with seagrass beds.
- *Non-ENG listed mobile species*
 - Some Local Group members have suggested measures be put in place to protect basking sharks and cetaceans in Mounts Bay.
- *Generic implications for ports (applicable to all rMCZs where port jurisdictions and activities overlap with the site, or are adjacent to the site)*
 - Harbour Revision Orders, General Directions, Pilotage Directions etc.
 - Ports and harbours are limited to their jurisdiction.
 - Ability of port to comply with legal responsibilities e.g. Oil Spill Response Planning etc.
 - Administration, resource on and off the water, legal and technical specialists requirements associated with additional management and legal responsibilities should co-location be pursued.
 - Additional time and cost triggered by all of the above both to the port.
 - Implications on other industries using the port or who wish to use the port in the future.
 - Existing management practices on and off water e.g vessel and activity management, speed, timing restrictions etc.
 - Existing emergency response – weather, pollution, security.
 - Dredging to ensure maintenance of safe navigable depths.
 - Berthing, mooring & anchoring or small & large vessels.
 - Ship building, maintenance, refurbishment & repair.
 - Maintenance, refurbishment & repair of port and harbour infrastructure.
 - New port and harbour infrastructure.
 - Access & egress to and from harbour.
 - Recreational activities within harbour.
 - Ship access and egress to and from berths.
 - Significance of timescales, delays and cost to management practices.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.

- Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
- The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.33g (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The site boundary for this rMCZ was retracted from a precursor site which covered the whole bay. The southern boundary of the rMCZ was brought in closer to shore, in order to avoid the disposal sites in the outer bay, and the western part of the bay was excluded following feedback from the ports representative at Cornwall Council about anchorages outside Newlyn harbour. The re-drawing of the site boundary addressed key concerns by the ports sector and The Crown Estate, and as a result the site is less controversial. However, the Wildlife Trusts commented that the reduced size of the rMCZ means that areas of seagrass bed in the western half of Mounts Bay are no longer within the site (although seagrass beds near St Michael's Mount are still within the boundary). As a result, the ecological value of the designation is lower than it might have been if the larger site had gone forward.

The Crown Estate indicated that the area includes an active power/telecommunications cable at Marazion, and recreational boat mooring and port/harbour facilities. In addition there is the Mounts Bay open disposal site and Newlyn Harbour closed disposal site. They are supportive with the assumption that MCZ designation would not restrict ongoing activities described.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, Environment Agency intertidal habitat data, and records from Cornwall Wildlife Trust. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. Additional relevant information might be found in Turk (1974).

Site map series

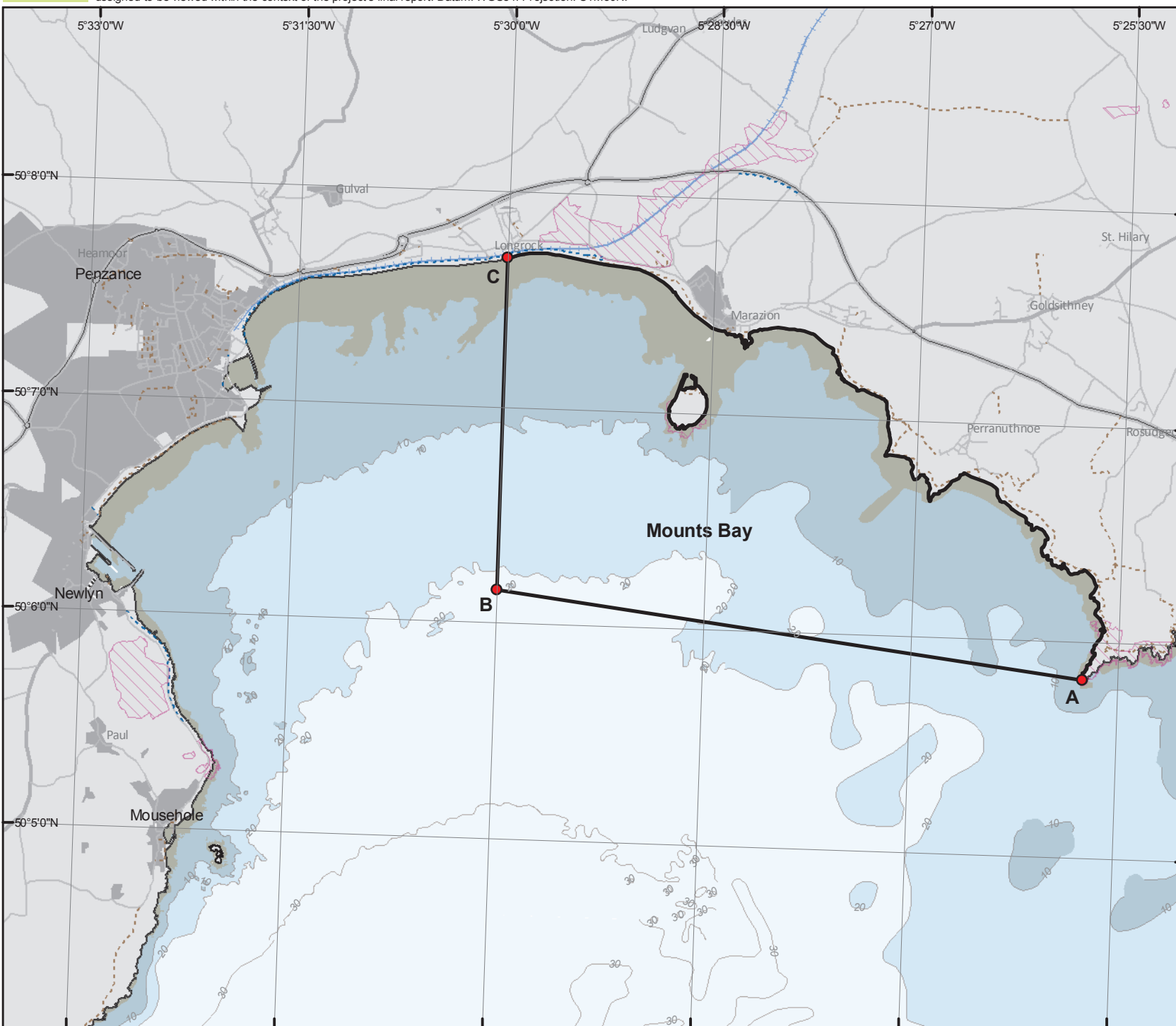
On the following pages there are three maps of this site.

- The first map (FR_045a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_045b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.33b to II.3.33e, data sources are indicated in the tables.
- The third map (FR_045c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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0 0.5 1 2 km



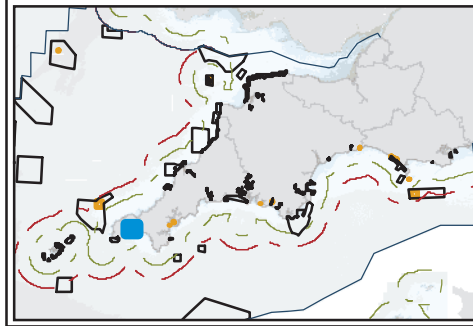
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.0971	-5.4293	50° 5' 49" N	5° 25' 45" W
B	50.1026	-5.5000	50° 6' 9" N	5° 29' 59" W
C	50.1282	-5.5000	50° 7' 41" N	5° 29' 59" W

Map Legend

- Recommended MCZ (rMCZ)
- Existing MPAs**
- SSSI (not part of MPA network)

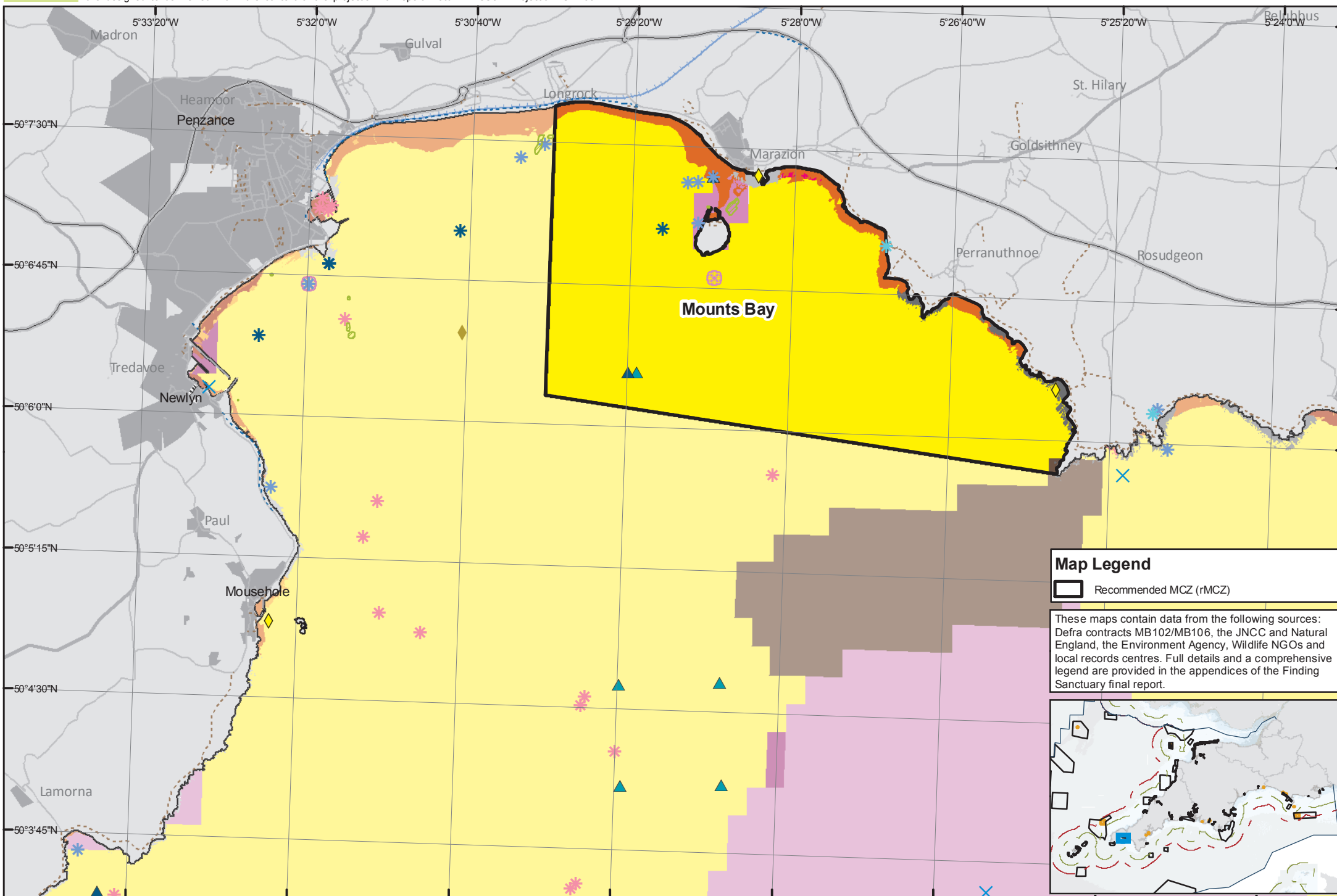
A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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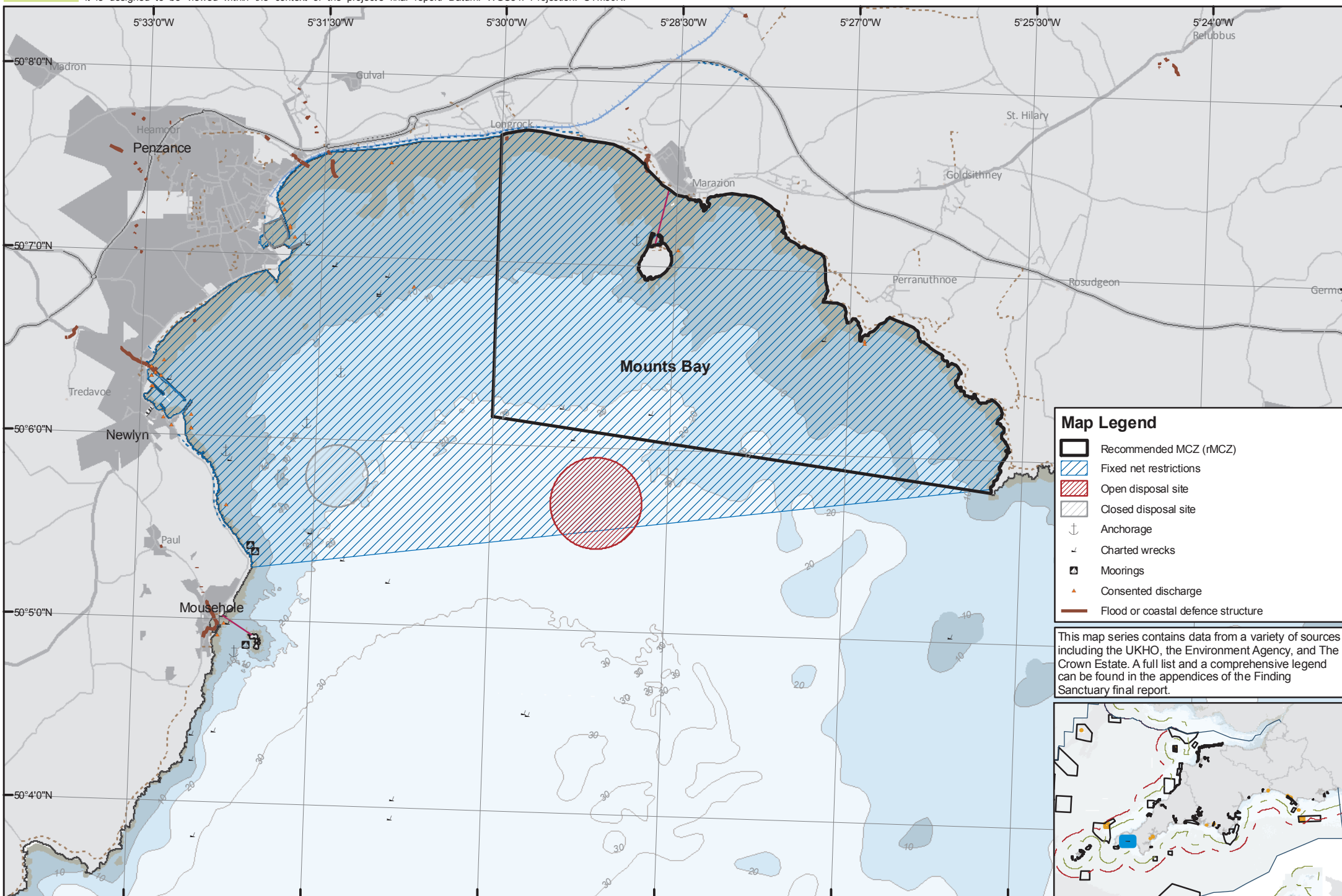
0 0.5 1 2 km



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 0.5 1 2 km



II.3.34 Land's End rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.0257	-5.6743	50° 1' 32" N	5° 40' 27" W

Site surface area: 18.6 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The site boundary follows the coastline along the OS Boundary Line mean high water mark from Treen Cliff / Cribba Head to the east of Porthcurno, to Gwennap Head in the west. The seaward boundary extends westwards for about 3.5km and then runs back in an arch towards Cribba Head. The Land's End Peninsula is located in a high wave resource area, and the renewables sector had concerns that there might be no place of access to the shoreline for potential future infrastructure (including cables) to be built, if the rMCZ boundary was to extend as far as the southern boundary of the Land's End and Cape Bank cSAC. This is why the northern boundary of the rMCZ has been cut off in a line that is parallel to the cSAC boundary, leaving a free 'corridor' between the two sites. [The boundary shown on the site map series was hand-digitised from a hand-drawn boundary, and may require some smoothing.]

Sites to which the site is related: Two coastal SSSIs are located alongside this rMCZ: Treen Cliff SSSI in the east and Porthgwarra to Pordenack Point SSSI in the west.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Land's End rMCZ

Table II.3.34a Draft conservation objectives for Land's End rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.26. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal coarse sediment		M
	Subtidal sand		M
	Moderate energy circalittoral rock		M
	Moderate energy infralittoral rock		M
	High energy circalittoral rock		M
	High energy infralittoral rock		M
	High energy intertidal rock		M
	Intertidal coarse sediment		M
	Intertidal mud ¹		M
	Intertidal sand and muddy sand		M
Species FOCI	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Paludinella littorina</i>	Sea snail	M
Mobile species not listed in ENG	<i>Cetorhinus maximus</i>	Basking shark	M
	<i>Tursiops truncatus</i>	Bottlenose dolphin	M
	<i>Phocoena phocoena</i>	Harbour porpoise	M
	Seabirds ²		M

¹The recording of this habitat in this rMCZ is likely to be down to a mistranslation in habitat types between classification systems (see appendix 8), the habitat present is intertidal sand, as this stretch of coast is exposed to wave action.

²Species to be confirmed. The site encompasses Runnelstone reef, which is of importance for feeding birds.

Table II.3.34b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	3.36	0.5%	1
Moderate energy infralittoral rock	0.27	<0.1%	1
High energy circalittoral rock	0.09	<0.1%	1
Moderate energy circalittoral rock	1.74	<0.1%	1
Subtidal coarse sediment	1.92	<0.1%	1
Subtidal sand	11.09	<0.1%	1

Table II.3.34c **Intertidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock	0.03	0.4%	4
Intertidal coarse sediments	0.01	<0.1%	4, 3
Intertidal sand and muddy sand	0.02	0.1%	4
Intertidal mud	0.03	<0.1%	4, 3

Table II.3.34d **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	9.52			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.34e **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Eunicella verrucosa</i>	2		1
<i>Paludinella littorina</i>	1	1	3

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

This site encompasses an arc of sea area around an exposed shoreline with granite cliffs and sandy inlets. The site occupies a depth range between 0 and approximately 60 metres. It contains the Runnelstone reef, a hazard to mariners but ecologically of high importance for a large range of mobile species, including seabirds, cetaceans and basking sharks who use the area as a feeding area. Stakeholder feedback (from scientists and conservationists on the regional and local stakeholder groups) indicates that the area is of importance for migratory seabirds including Balearic shearwaters, auks, kittiwakes and gannets, that it is an important feeding area for small cetaceans, in particular harbour porpoises and seasonally, minke whales, that basking sharks frequent the area, and that the area is an important haul-out and pupping location for grey seals. *Haliclystus auricula* and *Palinurus elephas* have been recorded close to the boundaries of this rMCZ, and may also be present within it. The Land's End peninsula (from Penzance to St Ives) is the only place in the region where the gooseneck barnacle *Pollicipes pollicipes* has been recorded, including near Land's End itself, Sennen Cove, and at Tater Du (MB102 data and Keith Hiscock, *pers. comm.*). This rMCZ intersects with an area of higher than average benthic species diversity (within the south-west context, as mapped from MB102 data).

Detailed site description

The Land's End peninsula is a granite outcrop exposed to the full force of the Atlantic breakers (Davies, ed. 1998). The area contains fine examples of very exposed rocky shore communities. Upper shores are dominated by barnacles, limpets and winkles. Low shores are carpeted with the pink tufted coralline alga *Corallina officinalis* and overlain with the kelp *Alaria esculenta* (Natural England, 2010).

Sublittoral habitats and communities were surveyed by James (1983) during the South Cornwall Sublittoral Survey of 1981. Carn Base and Porthcurno in the Land's End rMCZ are both subject to extreme wave action and strong tidal streams. James (1983) reported the water here 'conspicuously clearer' than elsewhere in the South Cornwall survey area. A dense forest of *Laminaria hyperborea* covered the shallow horizontal surfaces, with an understory dominated by foliose red, green and brown algae. The sublittoral fringe recorded at Porthcurno contained *Alaria esculenta*, *Himanthalia elongata*, *Mytilus edulis* and coralline red algae. With increasing depth, vertical surfaces become dominated by *Corynactis* and *Metridium*, with tubes of Jassid amphipods prevalent on upfaces. At 34m at Carn Base, several other species appeared, including *Holothuria*, *Stolonia socialis* and *Raspailia*, all of which occurred in shallow water at more sheltered sites (James, 1983). *Eunicella verrucosa* has also been observed in the Land's End area in 2003 and 2005 Seasearches of Penzance and Land's End.

The SeaWatch Southwest project is a volunteer project that encourages members of the public to report any sightings of Basking Sharks and other megafauna that they make around the coast. In 2007 the project was developed to record marine and avian megafauna sightings off Gwennap Head, at the western end of the rMCZ boundary. A large number of basking sharks have been observed interacting at the surface. The project intends to run for at least 5 years. Annual reports of the project are available for download on their [website](#)⁴⁰ (e.g. Wynn *et al.* 2010). The work of the project has highlighted the importance of the Runnelstone reef as a feeding area for seabirds, and the site is considered an important stage on the migration route of the Balearic Shearwater (Russell Wynn, *pers. comm.*).

Another volunteer project recording sightings of marine megafauna around the southwest is Seaquest southwest, co-ordinated jointly by Devon and Cornwall Wildlife Trusts (see their [website](#)⁴¹).

Bloomfield & Solandt (2006) report on 20 years of Basking Shark sightings off the British coast, which includes several sightings off Land's End. The Wildlife Trusts Basking Shark Project was established in 1999, and in 2006 completed eight years of effort-corrected line transect surveys in the waters off the west coast of the UK. During the first three years (1999-2001), the project concentrated on the south coast of Devon and Cornwall (Bloomfield & Solandt, 2006). Several key sites for the species were identified, including the areas around Lizard Point and Land's End (information is available to download [here](#)⁴²).

Stakeholder narrative: Assumptions and Implications

⁴⁰ www.seawatch-sw.org

⁴¹ http://www.ercis.co.uk/wildlife_recording/Marine_Recording/seaquest_southwest

⁴² <http://baskingsharks.wildlifetrusts.org/>

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.34f shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.34g shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.34f Specific assumptions and implications relating to Land's End rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Aggregate extraction will not be allowed <i>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</i>	Direct implications: <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. Given this assumption, there are still the following concerns: <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging) <i>Activity not taking place / not taking place at high enough levels to cause</i>	Direct implications: <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen (but the area is difficult to fish) o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where

a problem in this site, so this was not considered during the VA meetings	<p>protected areas are close together</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Tourism and recreational activities will be permitted.</p> <p>Following JWG5, the Wildlife Trust have indicated a need for education / voluntary code of conduct to avoid disturbance to basking sharks and cetaceans.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group members have raised concerns over disturbance to grey seal haul-out sites, and have suggested measures to ensure no approach within 100m of shoreline and no disturbance from land where seal sites exist <p>Benefits:</p> <ul style="list-style-type: none"> o Benefits to ecotourism o By publicising Codes of Conduct you increase the public awareness of species of interest within an area and this encourages increased tourism with benefits the local economy.

<p>Static fishing gear will be permitted, with possible need for mitigation against bycatch of cetaceans, sharks and seabirds. There may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback suggests the possibility of excluding gill netting within a mile off the shoreline, or a seasonal netting restriction. Local Group fishing representatives suggested allowing netting with pingers. o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed o A Steering Group member raised concern that longlining may be prohibited in the site, a prohibition they would not support, on the basis that longlining in the area is small scale only from small vessels and for tagged Bass scheme. o Pinger trial to reduce cetacean bycatch still ongoing. Results to inform management of netting in MCZ.
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o This area has been highlighted as an area of significant nearshore wave energy resource, which would be lost as an exploitable resource. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Attracting the funding (for development) may be harder in the first place as sites with MPA designations within them will be less attractive to potential investors. o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. o MCZ boundaries have already changed to meet needs of renewable energy sector

	<p>o A Steering Group member commented to question whether the wave resource would really be exploitable in such a remote rural area, and that if not, this consideration should be discounted as part of the discussion. However, the wave resource potential of the area was highlighted repeatedly during Working Group discussions, and also by The Crown Estate. We consider this to be a relevant consideration, which (previously) led to the Working Groups developing two alternative sites in this location.</p> <p>If the assumption turns out to be wrong:</p> <p>o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities.</p> <p>o Increased competition for sea space with other sea users.</p> <p>o Excellent Wind resource but landscape buffer requirements likely to deter development .</p> <p>o Potential near shore wave resource.</p> <p>Benefits:</p> <p>o This site boundary has been drawn in such a way to allow cabling for renewable devices from Land's End.</p>
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings.</p>	<p>Direct implications:</p> <p>o</p>
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings.</p>	<p>Direct implications:</p> <p>o</p>

Crab tiling / bait digging will be permitted with mitigation / management Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o A Steering Group member commented that this assumption is not relevant to this area
Beach replenishment will be permitted with mitigation / management Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o
Pelagic trawls will be permitted with mitigation against bycatch of cetaceans, sharks and seabirds. Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o Given this assumption, there are still the following concerns: o Local group feedback suggests that mobile netting may be causing bycatch problems.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling. Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o Given this assumption, there are still the following concerns: o The rationale for this assumption has been strongly questioned in recent comments, as bycatch is not considered a problem for the kind of longlining in the region. o Handliners might face possible additional costs for mitigation measures and costs due to monitoring needed Benefits: o Potential for increased and enhanced leisure and recreational activity
The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for	Direct implications: o Should cables not be permitted, this will have a significant effect on the worldwide transmission of data. This area is one of a few in Cornwall suitable for cable landings and should be preserved at all costs.

<p>renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>o If renewable energy cables are assumed to be permitted throughout the network then there is no reason why Telecom and other cables should not also.</p> <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Possible cable route to renewables resources.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Should operation be discontinued the consequences will be significant at a national and international economy level. o Four active and eighteen inactive telecoms cables.

<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o A Steering Group member stated that it is imperative that 'small vessel' is defined and definition is universally accepted and clear of ambiguity – consultation should take place on the meaning/ definition. This comment was recorded on a sheet that related to this specific rMCZ but would presumably apply to all rMCZs where this assumption about small vessels anchoring has been made. o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group members have raised concerns over disturbance to grey seal haul-out sites, and have suggested measures to ensure no approach within 100m of shoreline and no disturbance from land where seal sites exist.

Seaweed harvesting will be permitted	Direct implications: o
Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	

Table II.3.34g VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1. The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Tourism & Leisure	Management - Education and awareness of conduct for encounters with backing sharks, cetaceans Measure - Voluntary code of conduct - Voluntary 'Wise accreditation'

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Site name*
 - o Several stakeholder representatives and a SAP member have commented that the site name is not appropriate, since the rMCZ is not located directly at Land's End, but at Porthcurno on the southern side of the Land's End peninsula. Alternative

suggestions have included naming the site after the Runnelstone reef, Gwennap Head, or Porthcurno.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *Renewables*
 - The corridor-shaped gap in between this rMCZ and the candidate SAC boundary to the north of it was left in order to accommodate the concerns of the renewables sector. The Land's End peninsula is a high wave resource area, which may be exploited in the future, and there was concern about the entire stretch of coastline being given protected status, potentially hampering access for wave energy installations and cable routes.
- *Traditional fishing*
 - Local Group feedback highlights the existence of traditional fishing methods in the area, and the Local Group would like to see these activities enhanced and protected. Concern was raised over any potential moves to put in place a reference area within this area, because small fishing boats based in coves would be unable to move to alternative fishing grounds, and the fishing carried out by the small cove boats is deemed sustainable.
 - These Local Group concerns were discussed during group work sessions at the Joint Working Group, and several JWG members commented that they would not wish to recommend a site that might impact negatively on small-scale cove fishermen using traditional and low-impact fishing methods in the area.
 - Local Group feedback indicates that the Runnelstone 'box' has been successful in protecting the area and the livelihoods of local cove fishermen. An extension of similar regulation would offer protection and security to cove fishermen.
- *Seabirds and cetaceans*
 - Codes of practice may be a better way to achieve management of leisure boats (if necessary) than byelaws.
 - Current levels of human activity appear to be compatible with maintaining basking shark, bottlenose dolphin and harbour porpoise numbers in this site. There is the potential for boat strike from pleasure craft which is a cause for concern. Monitoring of numbers and activities and impacts on these species, dissemination of codes of conduct for encounters, encouraging boat operators to become WiSE accredited and a 3 year review of baseline numbers (estimated from ERCCIS sightings data) would all help to maintain healthy populations of these mobile species. Healthy populations of bottlenose dolphins, harbour porpoises and basking sharks would suggest a healthy ecosystem within the site and would be an attraction for the general public and ecotourism. Mitigation measures would be required if there was a decline in species numbers due to activities within the rMCZ (e.g. disturbance from boat pleasure craft, boat strike, bycatch from fishing activity).
- *Netting and longlining*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in

the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site. For sites that still have draft conservation objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact on nursery habitats or juvenile FOCI.

- *Generic implications for ports (applicable to all rMCZs where port jurisdictions and activities overlap with the site, or are adjacent to the site)*
 - Harbour Revision Orders, General Directions, Pilotage Directions etc.
 - Ports and harbours are limited to their jurisdiction.
 - Ability of port to comply with legal responsibilities e.g. Oil Spill Response Planning etc.
 - Administration, resource on and off the water, legal and technical specialists requirements associated with additional management and legal responsibilities should co-location be pursued.
 - Additional time and cost triggered by all of the above both to the port.
 - Implications on other industries using the port or who wish to use the port in the future.
 - Existing management practices on and off water e.g vessel and activity management, speed, timing restrictions etc.
 - Existing emergency response – weather, pollution, security.
 - Dredging to ensure maintenance of safe navigable depths.
 - Berthing, mooring & anchoring or small & large vessels.
 - Ship building, maintenance, refurbishment & repair.
 - Maintenance, refurbishment & repair of port and harbour infrastructure.
 - New port and harbour infrastructure.
 - Access & egress to and from harbour.
 - Recreational activities within harbour.
 - Ship access and egress to and from berths.
 - Significance of timescales, delays and cost to management practices.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.

- **Monitoring**
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- **Reaction to the vulnerability assessment process and outcomes**
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.34g (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

There is strong support for an rMCZ in this area from the Cornwall Local Group, who unanimously suggested what was originally building block iK5, and supported the slightly larger Land's End 'co-location' site that was included in the third progress report. The smaller site was eventually selected due to concerns from the renewables sector (as described in the site boundary description at the beginning of this site report). There is strong support from conservationists for this site.

The Runnelstone reef was one of the first specific locations that was suggested to be put forward for protection within the Finding Sanctuary project, by a participant of Finding Sanctuary's science workshops in early 2008, before the project had become formalised (see part I).

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, Cornwall Wildlife Trust, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Seaqwest Southwest sightings, both ad hoc and effort based, land and boat based, CWT basking shark project data, and Seaquest Netsafe acoustic data are available for *Cetorhinus maximus* in the area of the rMCZ. Key Cornish datasets have been analysed recently with University of Exeter in Cornwall and papers have been written which support the raw data (See Witt *et al.* in prep; Pikesley *et al.* in press).

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

Further information about the Runnelstone reef and its importance for seabirds, cetaceans and other mobile megafauna can be obtained from [Seawatch Southwest](http://www.seawatch-sw.org/)⁴³. Information and data on seabirds from the area of the rMCZ can be obtained from the RSPB.

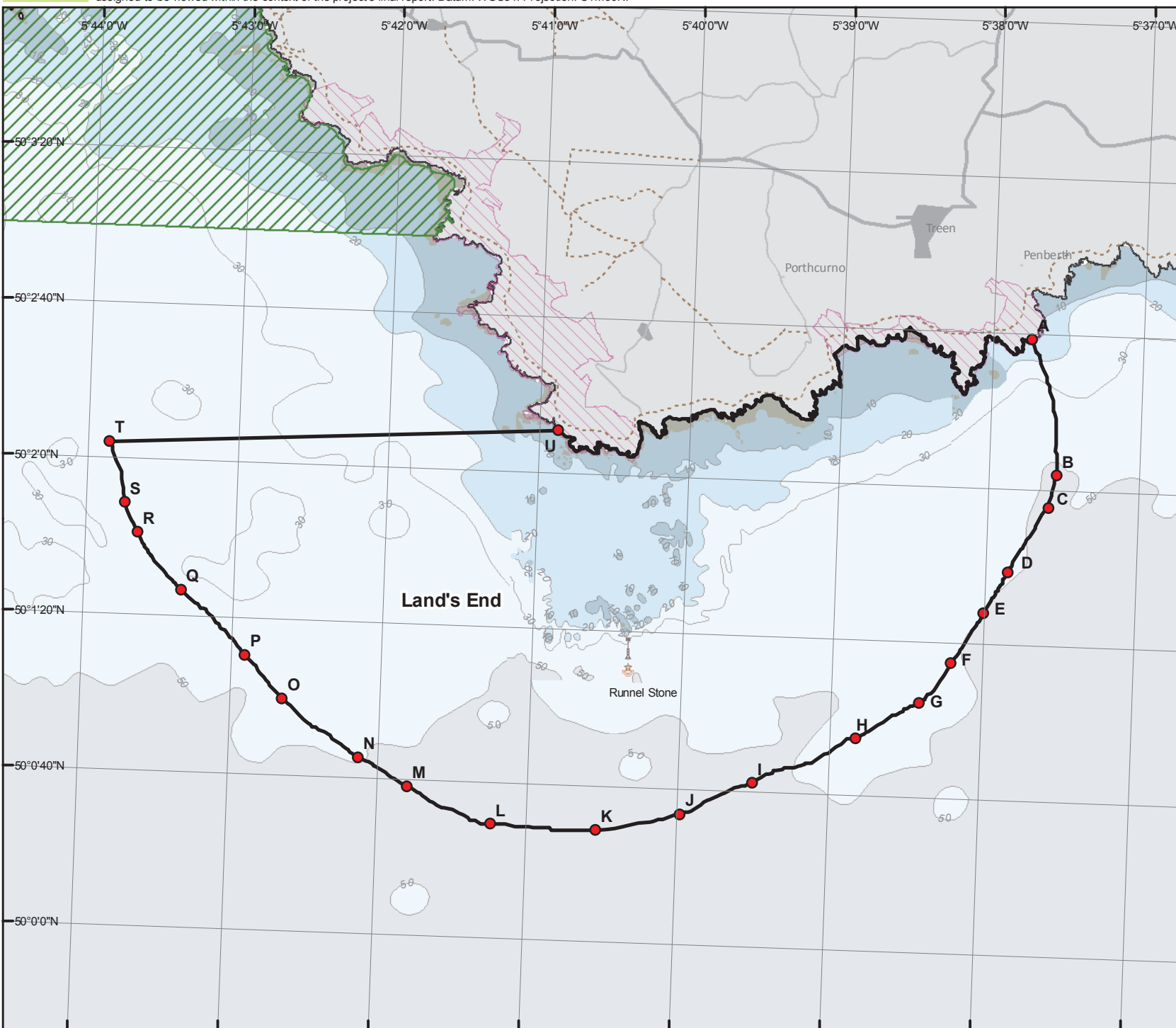
Site map series

On the following pages there are three maps of this site.

- The first map (FR_046a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_046b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOI. The data shown on this map corresponds with the information in tables II.3.15b, II.3.15c, and II.3.15e, data sources are indicated in the tables.
- The third map (FR_046c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

⁴³ <http://www.seawatch-sw.org/>




This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.



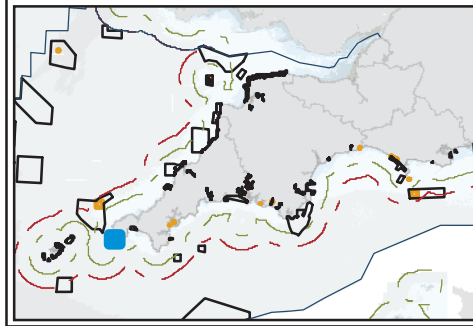
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.0441	-5.6290	50° 2' 38" N	5° 37' 44" W
B	50.0344	-5.6258	50° 2' 3" N	5° 37' 32" W
C	50.0321	-5.6266	50° 1' 55" N	5° 37' 35" W
D	50.0274	-5.6309	50° 1' 38" N	5° 37' 51" W
E	50.0244	-5.6333	50° 1' 27" N	5° 38' 0" W
F	50.0207	-5.6368	50° 1' 14" N	5° 38' 12" W
G	50.0178	-5.6401	50° 1' 4" N	5° 38' 24" W
H	50.0151	-5.6471	50° 0' 54" N	5° 38' 49" W
I	50.0117	-5.6583	50° 0' 42" N	5° 39' 29" W
J	50.0093	-5.6662	50° 0' 33" N	5° 39' 58" W
K	50.0079	-5.6755	50° 0' 28" N	5° 40' 31" W
L	50.0081	-5.6871	50° 0' 29" N	5° 41' 13" W
M	50.0106	-5.6966	50° 0' 38" N	5° 41' 47" W
N	50.0125	-5.7021	50° 0' 45" N	5° 42' 7" W
O	50.0166	-5.7107	50° 0' 59" N	5° 42' 38" W
P	50.0195	-5.7150	50° 1' 10" N	5° 42' 54" W
Q	50.0241	-5.7224	50° 1' 26" N	5° 43' 20" W
R	50.0280	-5.7274	50° 1' 40" N	5° 43' 38" W
S	50.0302	-5.7289	50° 1' 48" N	5° 43' 44" W
T	50.0345	-5.7308	50° 2' 4" N	5° 43' 51" W
U	50.0364	-5.6812	50° 2' 10" N	5° 40' 52" W

Map Legend

-  Recommended MCZ (rMCZ)
- Existing MPAs**
-  SAC
-  SSSI (not part of MPA network)

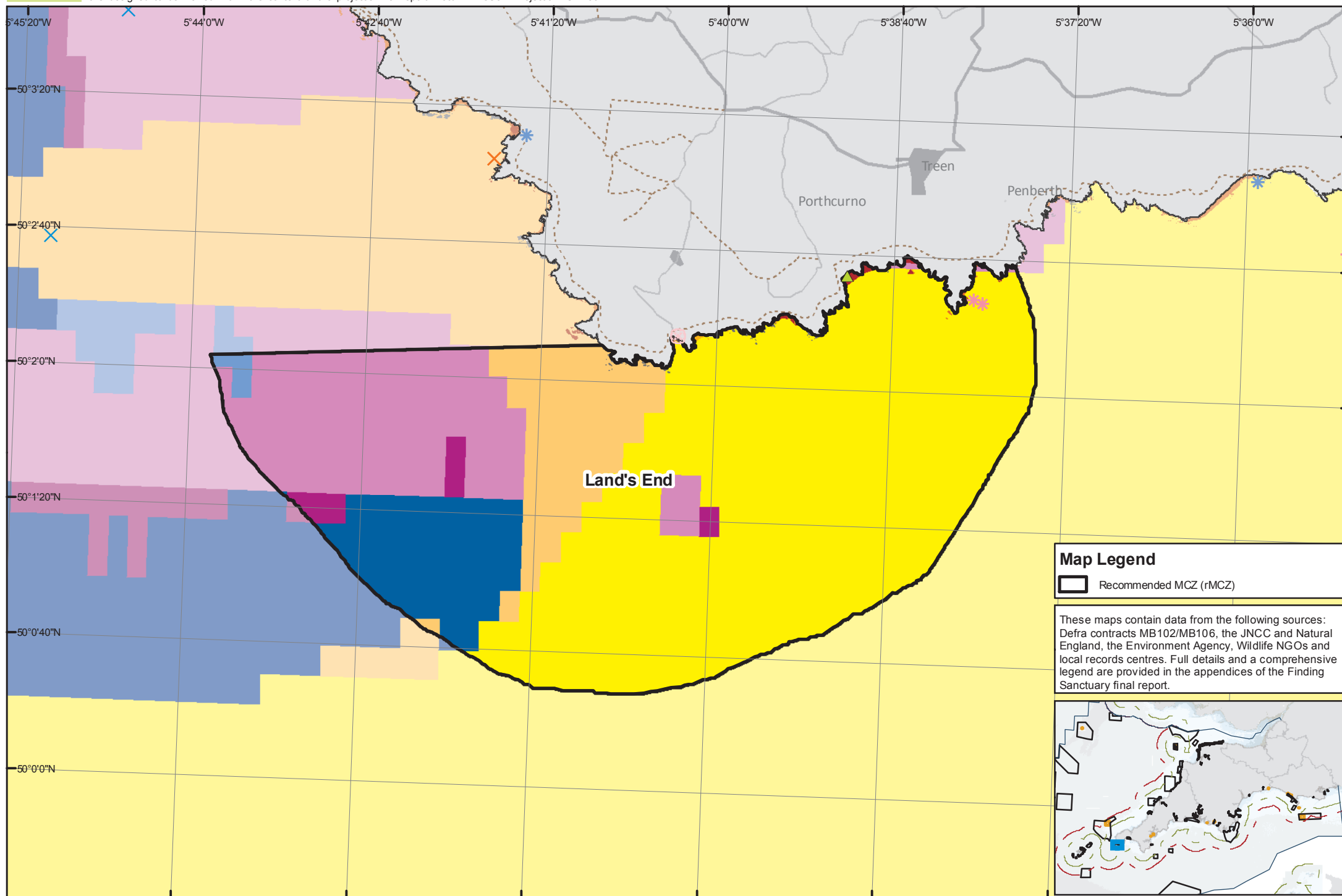
A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data License No. 002005.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

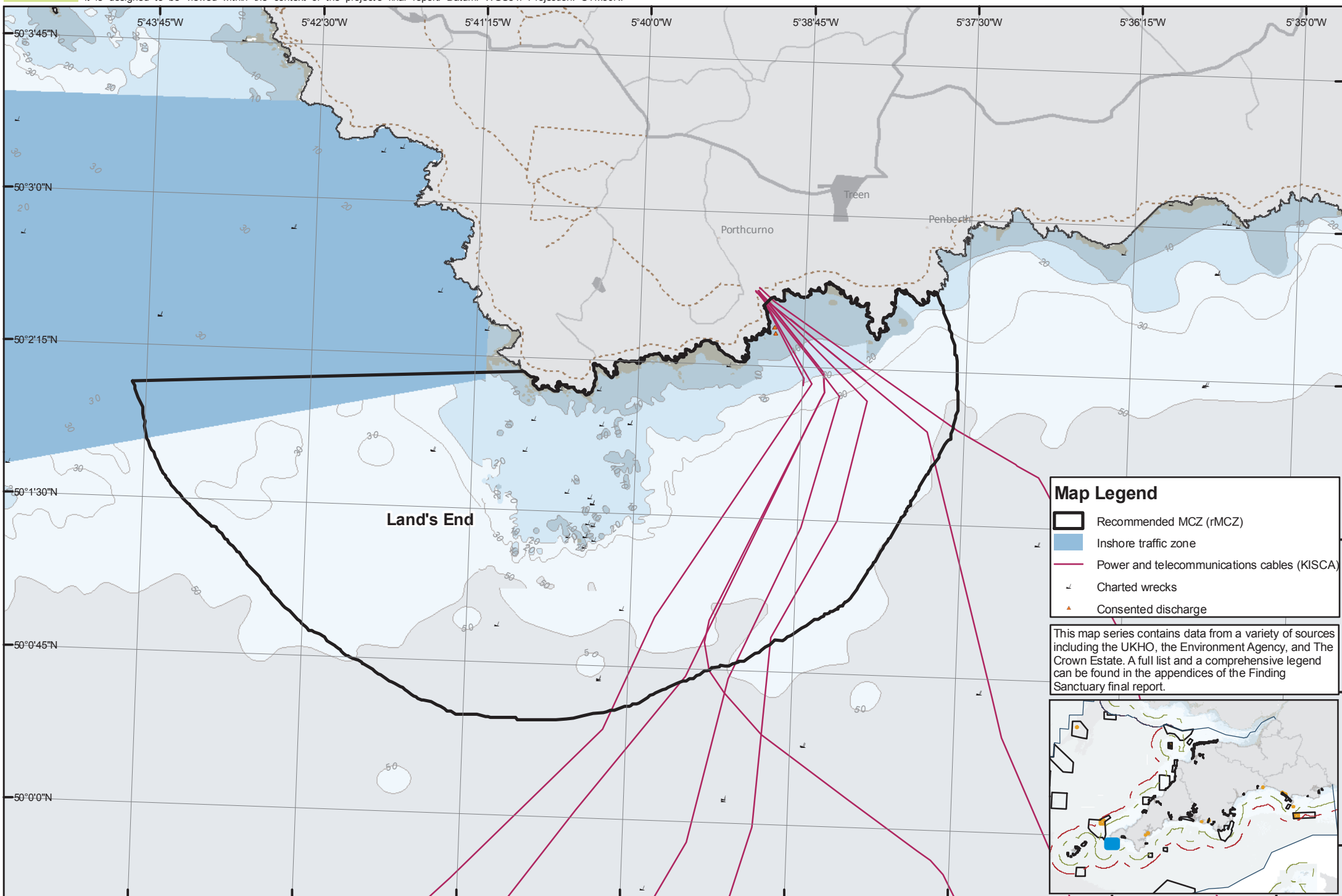
0 0.5 1 2 km



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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0 0.5 1 2 km



II.3.35 Isles of Scilly Sites rMCZ

Introduction to the Isles of Scilly Sites rMCZ site report

The Isles of Scilly sites were amongst the first sites to be included in the developing network recommendations (see first progress report). They were put forward by the Isles of Scilly Local Group. This site report should be read alongside the materials supplied directly by the Local Group, which are included with the additional materials listed in appendix 14.

The Isles of Scilly Sites rMCZ consists of 11 spatially separate areas. Two of the 11 areas (Smith Sound Tide Swept Channel and Tean) contain a suggested 'non-ground disturbance site', where the Local Group have suggested higher levels of restriction of human activities than in the remaining areas.

Whilst the Isles of Scilly Sites rMCZ is treated as a single rMCZ consisting of multiple areas, it differs from other multipart rMCZs (such as the Taw Torridge Estuary rMCZ, or the Upper Fowey and Pont Pill rMCZ) in that there are differences in the draft conservation objectives between the 11 areas, and differences in the working assumptions underpinning each area. For this reason, this site report is more complex than others. Some of the site report sub-headings contain 11 separate sections treating the areas as separate entities, while in other sub-headings, the Isles of Scilly Sites rMCZ is discussed as one whole.

Basic site information

Site centre location (datum used: ETRS89): The lat/lon points listed below are the centroids of each component area of the 11-part rMCZ.

Site Name	Decimal Degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
Bishop to Crim	49.8861	-6.4508	49° 53' 9" N	6° 27' 2" W
Bristows to the Stones	50.0136	-6.1709	50° 0' 49" N	6° 10' 15" W
Gilstone to Gorregan	49.8626	-6.3934	49° 51' 45" N	6° 23' 36" W
Hanjague to Deep Ledge	49.9656	-6.2552	49° 57' 56" N	6° 15' 18" W
Higher Town	49.9529	-6.2730	49° 57' 10" N	6° 16' 22" W
Lower Ridge to Innisvoul	49.9411	-6.2540	49° 56' 28" N	6° 15' 14" W
Men a Vaur to White Island	49.9785	-6.3032	49° 58' 42" N	6° 18' 11" W
Peninnis to Dry Ledge	49.9136	-6.2845	49° 54' 48" N	6° 17' 4" W
Plympton to Spanish Ledge	49.8889	-6.3269	49° 53' 19" N	6° 19' 36" W
Smith Sound Tide Swept Channel	49.8888	-6.3591	49° 53' 19" N	6° 21' 32" W
Tean	49.9634	-6.3121	49° 57' 48" N	6° 18' 43" W

Site surface area: This is presented for each of the 11 areas separately (calculated in ETRS89 – LAEA)

Site Name	km ²	Site Name	km ²
Bishop to Crim	7.07	Men a Vaur to White Island	3.33
Bristows to the Stones	22.80	Peninnis to Dry Ledge	2.81
Gilstone to Gorregan	1.75	Plympton to Spanish Ledge	2.54
Hanjague to Deep Ledge	3.12	Smith Sound Tide Swept Channel	1.44
Higher Town	2.03	Tean	1.49
Lower Ridge to Innisvoul	1.84		

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The boundaries of the sites were defined entirely by the Isles of Scilly Local Group, based on local knowledge and survey data. They mostly follow contour lines (generally the 50m depth contour) for ease of navigation. Straight lines for site boundaries (as requested in the ENG) were not deemed appropriate for these relatively small sites between the islands. Most of the boundaries come up to mean high water springs, except for a couple of bays which have explicitly been excluded due to high use.

Sites to which the site is related: The site overlaps with Western Rocks SSSI, St. Helen's SSSI, Annet SSSI, St Martin's Sedimentary Shore SSSI and Chapel Down (St. Martin's) SSSI. Ten of the eleven component areas lie completely within the Isles of Scilly Complex SAC, whereas one area (Bristows to the Stones) lies outside the SAC boundary.

Maps of the site are included at the end of this site report, with points along the site boundaries showing coordinates (in WGS84 UTM30N).

Features proposed for designation within the Isles of Scilly Sites rMCZ

Unlike other rMCZs that consist of more than one spatially separate area, the 11 areas that form this rMCZ each have their own specific list of draft conservation objectives. For all other rMCZs, draft conservation objectives were not written for features where the whole extent is already protected by an existing MPA. However, for the Isles of Scilly rMCZ, draft conservation objectives have been included for features that are already protected within the Isles of Scilly Complex SAC, because these features are the reason why sites have support from the Local Group.

Below, there is a subheading for each of the 11 areas. Under each subheading, there is a list of draft conservation objectives, showing features that are already protected in the SAC in red, followed by ENG-related statistics, reported from spatial data available in Finding Sanctuary's GIS datasets. The GIS datasets do not incorporate much of the detailed additional evidence provided by the Local Group, included in the additional materials listed in appendix 14). Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes). Habitat features protected in the Isles of Scilly SAC are sometimes listed twice, where part of the mapped feature falls outside the boundary of the SAC, so there is a 'protected' portion of the feature, and an 'unprotected' portion of the feature within the site (this happens along the shoreline, where the GIS boundary of the rMCZ does not always correspond with the GIS boundary of the SAC).

There are some minor discrepancies between features that are highlighted in red in the draft conservation objective tables in this site report, and the gap analysis table in appendix 11 (which lists the existing MPAs in the south-west planning region, including the species and habitats protected within them. The features highlighted in red are based on advice received from regional Natural England staff, with first-hand knowledge of the Isles of Scilly and the Isles of Scilly SAC.

In the network-level statistics (section II.2.8), any feature that has a draft conservation objective in one or more of the 11 areas is counted once, as a single replicate within the network.

Bishop to Crim

Table II.3.35a Draft conservation objectives for the **Bishop to Crim** part of the Isles of Scilly rMCZ. M = maintain in favourable condition, R = recover to favourable condition. Features in red are listed as protected in the existing SAC. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	High energy circalittoral rock		M
	High energy infralittoral rock		M
	Moderate energy circalittoral rock		M
	Moderate energy infralittoral rock		M
	Subtidal coarse sediment		M
FOCI habitats	Fragile sponge & anthozoan communities on subtidal rocky habitats ¹		M
FOCI species	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Palinurus elephas</i> ¹	Spiny lobster	R

¹There is No GIS data for this feature in this area, but the draft conservation objective has been included based on evidence provided by the Local Group (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.35b **Subtidal broad-scale habitats** recorded in the **Bishop to Crim** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	3.57	0.5%	1
Moderate energy infralittoral rock	0.19	<0.1%	1
High energy circalittoral rock	0.49	<0.1%	1
Moderate energy circalittoral rock	2.79	<0.1%	1
Subtidal coarse sediment	0.04	<0.1%	1, 2

Table II.3.35c **FOCI species** recorded in the **Bishop to Crim** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trewhella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Eunicella verrucosa</i>	1		5

Bristows to the Stones

Table II.3.35d Draft conservation objectives for the **Bristows to the Stones** part of the Isles of Scilly rMCZ. M = maintain in favourable condition, R = recover to favourable condition. Features in red are listed as protected in the existing SAC. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	High energy infralittoral rock ¹		R
	High energy circalittoral rock ¹		R
	Moderate energy circalittoral rock		R
	Moderate energy infralittoral rock		R
	Subtidal coarse sediment		M
	Subtidal mixed sediments		M
FOCI habitats	Fragile sponge & anthozoan communities on subtidal rocky habitats ¹		R
FOCI species	<i>Eunicella verrucosa</i> ¹	Pink sea-fan	R
	<i>Palinurus elephas</i> ¹	Spiny lobster	R

¹There is No GIS data for this feature in this area, but the draft conservation objective has been included based on evidence provided by the Local Group (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.35e **Subtidal broad-scale habitats** recorded in the **Bristows to the Stones** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy infralittoral rock	3.05	1.0%	1
Moderate energy circalittoral rock	18.12	<0.1%	1
Subtidal coarse sediment	1.60	<0.1%	1
Subtidal mixed sediments	0.03	<0.1%	1

Table II.3.35f **FOCI habitats** recorded in the **Bristows to the Stones** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	11.96			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Gilstone to Gorregan

Table II.3.35g Draft conservation objectives for the **Gilstone to Gorregan** part of the Isles of Scilly rMCZ. M = maintain in favourable condition, R = recover to favourable condition. Features in red are listed as protected in the existing SAC. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	High energy infralittoral rock		M
	High energy circalittoral rock ¹		M
	Moderate energy circalittoral rock		M
	Moderate energy infralittoral rock		M
	Subtidal coarse sediment		M
	High energy intertidal rock ¹		M
	Moderate energy intertidal rock ¹		M
FOCI habitats	Fragile sponge & anthozoan communities on subtidal rocky habitats		M
	Tide-swept channels		M
FOCI species	<i>Amphianthus dohrnii</i> ¹	Sea-fan anemone	M
	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Gobius cobitis</i>	Giant goby	M
	<i>Haliclystus auricula</i>	Stalked jellyfish	M
	<i>Palinurus elephas</i>	Spiny lobster	R
	<i>Paludinella littorina</i>	Sea snail	M

¹ There is No GIS data for this feature in this area, but the draft conservation objective has been included based on evidence provided by the Local Group (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.35h **Subtidal broad-scale habitats** recorded in the **Gilstone to Gorregan** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock ²	0.01	<0.1%	1
Moderate energy infralittoral rock	0.66	0.2%	1
High energy infralittoral rock ¹	0.13	<0.1%	1
Moderate energy circalittoral rock	0.87	<0.1%	1
Subtidal coarse sediment	0.08	<0.1%	1, 2

¹ This area of habitat falls within the boundary of the SAC

² This area of habitat falls outside the boundary of the SAC

Table II.3.35i **FOCI habitats** recorded in the **Gilstone to Gorregan** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Tide-swept channels		1		3
Fragile sponge & anthozoan communities on subtidal rocky habitats		3		3

Table II.3.35j **FOCI species** recorded in the **Gilstone to Gorregan** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trewhella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Gobius cobitis</i>	2	1	3
<i>Haliclystus auricula</i>	1	1	3
<i>Palinurus elephas</i>	1	1	3
<i>Paludinella littorina</i>	1		3
<i>Eunicella verrucosa</i>	7		1, 3, 5

Hanjague to Deep Ledge

Table II.3.35k Draft conservation objectives for the **Hanjague to Deep Ledge** part of the Isles of Scilly rMCZ. M = maintain in favourable condition, R = recover to favourable condition. Features in red are listed as protected in the existing SAC. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal mixed sediments		M
	Subtidal sand		M
	Low energy circalittoral rock		M
	Low energy infralittoral rock		M
	Moderate energy circalittoral rock		M
	Moderate energy infralittoral rock		M
	High energy infralittoral rock ¹		M
	High energy circalittoral rock ¹		M
	High energy intertidal rock		M
	Intertidal coarse sediment		M
	Moderate energy intertidal rock ¹		M
FOCI habitats	Fragile sponge & anthozoan communities on subtidal rocky habitats		M
	Intertidal under boulder communities ¹		M
FOCI species	<i>Amphianthus dohrnii</i>	Sea-fan anemone	M
	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Leptopsammia pruvoti</i> ¹	Sunset cup coral	M
	<i>Palinurus elephas</i>	Spiny lobster	R

¹There is No GIS data for this feature in this area, but the draft conservation objective has been included based on evidence provided by the Local Group (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.35l Subtidal broad-scale habitats recorded in the Hanjague to Deep Ledge part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy infralittoral rock	0.02	<0.1%	1
Low energy infralittoral rock	0.20	2.5%	1
Moderate energy infralittoral rock	2.01	0.6%	1
Low energy circalittoral rock	0.06	1.6%	1
Moderate energy circalittoral rock	0.17	<0.1%	1
Subtidal sand	0.12	<0.1%	1, 2
Subtidal mixed sediments	0.49	<0.1%	1, 2

Table II.3.35m Intertidal broad-scale habitats recorded in the Hanjague to Deep Ledge part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock	0.04	0.6%	4
Intertidal coarse sediments	0.01	<0.1%	4, 3

Table II.3.35n FOCI habitats recorded in this sub-site of the Isles of Scilly Sites rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Fragile sponge & anthozoan communities on subtidal rocky habitats		6		1, 3

Table II.3.35o FOCI species recorded in the Hanjague to Deep Ledge part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trewhealla Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Amphianthus dohrnii</i>	5		1, 3
<i>Palinurus elephas</i>	1		5
<i>Eunicella verrucosa</i>	27		1, 3, 5

This area also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.44 km² of seahorse area polygon (refer to appendix 8 for more information). This area intersects with the Eastern Isles Geological Conservation Review site.

Higher Town

Table II.3.35p Draft conservation objectives for the **Higher Town** part of the Isles of Scilly rMCZ. M = maintain in favourable condition, R = recover to favourable condition. Features in red are listed as protected in the existing SAC. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal macrophyte-dominated sediment		M
	Subtidal mixed sediments		M
	Subtidal sand		M
	Moderate energy infralittoral rock		M
	High energy infralittoral rock		M
	Intertidal coarse sediment		M
	Intertidal mud ¹		M
	Intertidal sand and muddy sand ¹		M
	Low energy intertidal rock		M
	Moderate energy intertidal rock ²		M
FOCI habitats	Intertidal under boulder communities		M
	Peat & clay exposures		M
	Seagrass beds		M
	Tide-swept channels ²		M
FOCI species	<i>Haliclystus auricula</i>	Stalked jellyfish	M
	<i>Lucernariopsis campanulata</i>	Stalked jellyfish	M

¹The accuracy of this information has been questioned. The GIS data for this habitat present in the Isles of Scilly is derived from the Environment Agency intertidal data (see appendix 8), where there is a known translation problem between two habitat classification systems which results in areas that are sand being labelled as mud. It may be necessary to substitute this conservation objective with one for intertidal sand.

²There is No GIS data for this feature in this area, but the draft conservation objective has been included based on evidence provided by the Local Group (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.35q **Subtidal broad-scale habitats** recorded in the **Higher Town** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock ²	0.06	<0.1%	1
Moderate energy infralittoral rock ²	<0.01	<0.1%	1
Subtidal mixed sediments ²	0.01	<0.1%	1, 2
Subtidal macrophyte-dominated sediment	0.09	0.4%	1, 2
High energy infralittoral rock ¹	0.34	<0.1%	1
Moderate energy infralittoral rock ¹	0.01	<0.1%	1
Subtidal macrophyte-dominated sediment	0.66	3.3%	1, 2
Subtidal sand	<0.01	<0.1%	2
Subtidal mixed sediments ¹	0.80	<0.1%	1, 2

¹ This area of habitat falls within the boundary of the SAC

² This area of habitat falls outside the boundary of the SAC

Table II.3.35r **Intertidal broad-scale habitats** recorded in the **Higher Town** part of the Isles of Scilly rMCZ Z, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Low energy intertidal rock ³	0.01	0.4%	4
Intertidal coarse sediments ³	0.01	<0.1%	4, 3
Intertidal mud ^{3,4}	0.02	<0.1%	3
Intertidal mixed sediments ^{1,3}	<0.01	<0.1%	4
Intertidal coarse sediments ²	<0.01	<0.1%	4
Intertidal mixed sediments ^{1,2}	<0.01	<0.1%	4
Intertidal mud ^{4,2}	0.01	<0.1%	3
Intertidal sand and muddy sand	<0.01	<0.1%	4
Low energy intertidal rock ²	<0.01	<0.1%	4

¹ No draft conservation objective is included for this feature, this may have been an oversight.

² This area of habitat falls within the boundary of the SAC

³ This area of habitat falls outside the boundary of the SAC

⁴ The accuracy of this information has been questioned. The GIS data for this habitat present in the Isles of Scilly is derived from the Environment Agency intertidal data (see appendix 8), where there is a known translation problem between two habitat classification systems which results in areas that are sand being labelled as mud.

Table I II.3.35s **FOCI habitats** recorded in the **Higher Town** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Peat and clay exposures		1		3
Tide-swept channels		1		3
Seagrass beds	0.75	15		1
Intertidal underboulder communities		1		1

Table II.3.35t **FOCI species** recorded in the **Higher Town** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Haliclystus auricula</i>	10		1, 3
<i>Lucernariopsis campanulata</i>	2		1

This area also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.44 km² of seahorse area polygon (refer to appendix 8 for more information).

This area intersects with the Eastern Isles Geological Conservation Review site.

Lower Ridge to Innisvoul

Table II.3.35u Draft conservation objectives for the **Lower Ridge to Innisvoul** part of the Isles of Scilly rMCZ. M = maintain in favourable condition, R = recover to favourable condition. Features in red are listed as protected in the existing SAC. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal macrophyte-dominated sediment		M
	Subtidal mixed sediments		M
	Subtidal sand		M
	High energy circalittoral rock		M
	High energy infralittoral rock		M
	Moderate energy circalittoral rock		M
	Moderate energy infralittoral rock		M
	Moderate energy intertidal rock ¹		M
FOCI habitats	Fragile sponge & anthozoan communities on subtidal rocky habitats		M
	Tide-swept channels ¹		M
	Seagrass beds ²		M
FOCI species	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Amphianthus dohrnii</i> ¹	Sea-fan anemone	M
	<i>Palinurus elephas</i> ¹	Spiny lobster	R
	<i>Leptopsammia pruvoti</i>	Sunset cup coral	M

¹There is No GIS data for this feature in this area, but the draft conservation objective has been included based on evidence provided by the Local Group (see appendix 8).

²The accuracy of this information has been questioned. There is only a very small area of this habitat mapped at this location.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.35v **Subtidal broad-scale habitats** recorded in the **Lower Ridge to Innisvoul** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock ²	0.01	<0.1%	1
Moderate energy infralittoral rock ²	0.07	<0.1%	1
High energy infralittoral rock ¹	0.01	<0.1%	1
Moderate energy infralittoral rock ¹	1.56	0.5%	1
Moderate energy circalittoral rock	<0.01	<0.1%	1
Subtidal sand	0.07	<0.1%	1, 2
Subtidal mixed sediments	0.12	<0.1%	1, 2
Subtidal macrophyte-dominated sediment	<0.01	<0.1%	1, 2

¹ This area of habitat falls within the boundary of the SAC

² This area of habitat falls outside the boundary of the SAC

Table II.3.35w **FOCI habitats** recorded in the **Lower Ridge to Innisvouls** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Seagrass beds	<0.01			1
Fragile sponge & anthozoan communities on subtidal rocky habitats		8		3

Table II.3.35x **FOCI species** recorded in the **Lower Ridge to Innisvouls** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Eunicella verrucosa</i>	12	1	1, 3, 5
<i>Leptopsammia pruvoti</i>	4		1, 5

This area intersects with the Eastern Isles Geological Conservation Review site.

Men a Vaur to White Island

Table II.3.35y Draft conservation objectives for the **Men a Vaur to White Island** part of the Isles of Scilly rMCZ. M = maintain in favourable condition, R = recover to favourable condition. Features in red are listed as protected in the existing SAC. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal sand		M
	Moderate energy circalittoral rock		M
	Moderate energy infralittoral rock		M
	High energy infralittoral rock		M
	High energy circalittoral rock ¹		M
	High energy intertidal rock		M
	Intertidal coarse sediment		M
	Intertidal mud		M
	Intertidal sand and muddy sand		M
	Moderate energy intertidal rock ¹		M
FOCI habitats	Fragile sponge & anthozoan communities on subtidal rocky habitats		M
	Intertidal under boulder communities		M
	Seagrass beds		M
	Tide-swept channels ¹		M
FOCI species	<i>Amphianthus dohrnii</i>	Sea-fan anemone	M
	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Halicystus auricula</i>	Stalked jellyfish	M
	<i>Lucernariopsis campanulata</i>	Stalked jellyfish	M
	<i>Palinurus elephas</i>	Spiny lobster	R

¹There is No GIS data for this feature in this area, but the draft conservation objective has been included based on evidence provided by the Local Group (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.35z **Subtidal broad-scale habitats** recorded in the **Men a Vaur to White Island** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock ²	0.12	<0.1%	1
Moderate energy infralittoral rock ²	0.13	<0.1%	1
Moderate energy circalittoral rock ²	<0.01	<0.1%	1
High energy infralittoral rock ¹	0.10	<0.1%	1
Moderate energy infralittoral rock ¹	1.85	0.6%	1
Moderate energy circalittoral rock ¹	0.46	<0.1%	1
Subtidal sand	0.51	<0.1%	1, 2

¹This area of habitat falls within the boundary of the SAC

²This area of habitat falls outside the boundary of the SAC

Table II.3.35za Intertidal broad-scale habitats recorded in the **Men a Vaur to White Island** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock ²	0.02	0.2%	4
Intertidal coarse sediments ²	0.08	0.4%	4, 3
Intertidal sand and muddy sand ²	0.02	0.2%	4
Intertidal mud	0.02	<0.1%	3
High energy intertidal rock ¹	<0.01	<0.1%	4
Intertidal coarse sediments ¹	<0.01	<0.1%	4
Intertidal sand and muddy sand ¹	<0.01	<0.1%	4

¹ This area of habitat falls within the boundary of the SAC

² This area of habitat falls outside the boundary of the SAC

Table II.3.35zb FOCI habitats recorded in the **Men a Vaur to White Island** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Fragile sponge & anthozoan communities on subtidal rocky habitats		2		1, 3
Intertidal underboulder communities		2		1

Table II.3.35zc FOCI species recorded in the **Men a Vaur to White Island** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trewella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Haliclystus auricula</i>	2	1	3
<i>Lucernariopsis campanulata</i>	1	1	1
<i>Palinurus elephas</i>	1		1
<i>Eunicella verrucosa</i>	8		1, 3, 5

This area intersects with the Tean Geological Conservation Review site.

Peninnis to Dry Ledge

Table II.3.35zd Draft conservation objectives for the **Peninnis to Dry Ledge** part of the Isles of Scilly rMCZ. M = maintain in favourable condition, R = recover to favourable condition. Features in red are listed as protected in the existing SAC. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal coarse sediment	M	
	Subtidal mixed sediments	M	
	Subtidal sand	M	
	Moderate energy circalittoral rock	M	
	Moderate energy infralittoral rock	M	
	High energy infralittoral rock	M	
	High energy circalittoral rock ¹	M	
	Intertidal coarse sediment	M	
	Intertidal mixed sediments	M	
	Intertidal mud ²	M	
	Intertidal sand and muddy sand ²	M	
	Low energy intertidal rock	M	
	Moderate energy intertidal rock	M	
FOCI habitats	Fragile sponge & anthozoan communities on subtidal rocky habitats	M	
	Intertidal under boulder communities	M	
FOCI species	<i>Amphianthus dohrnii</i>	Sea-fan anemone	M
	<i>Arctica islandica</i>	Ocean quahog	M
	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Gobius cobitis</i>	Giant goby	M
	<i>Haliclystus auricula</i>	Stalked jellyfish	M
	<i>Leptopsammia pruvoti</i>	Sunset cup coral	M
	<i>Lucernariopsis campanulata</i>	Stalked jellyfish	M
	<i>Palinurus elephas</i>	Spiny lobster	R
	<i>Paludinella littorina</i>	Sea snail	M

¹There is No GIS data for this feature in this area, but the draft conservation objective has been included based on evidence provided by the Local Group (see appendix 8).

²The accuracy of this information has been questioned.

Table II.3.35ze **Subtidal broad-scale habitats** recorded in the **Peninnis to Dry Ledge** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock ²	<0.01	<0.1%	1
Moderate energy infralittoral rock ²	0.03	<0.1%	1
High energy infralittoral rock ¹	0.24	<0.1%	1
Moderate energy infralittoral rock ¹	2.15	0.7%	1
Moderate energy circalittoral rock	0.04	<0.1%	1
Subtidal coarse sediment	0.04	<0.1%	1, 2
Subtidal sand	0.05	<0.1%	1, 2
Subtidal mixed sediments	<0.01	<0.1%	2

¹This area of habitat falls within the boundary of the SAC

²This area of habitat falls outside the boundary of the SAC

Table II.3.35zf **Intertidal broad-scale habitats** recorded in the **Peninnis to Dry Ledge** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy intertidal rock ²	0.11	2.3%	4
Intertidal coarse sediments ²	0.08	0.4%	4, 3
Intertidal sand and muddy sand ²	0.04	0.4%	4
Intertidal mud ²	<0.01	<0.1%	4
Intertidal mixed sediments ²	0.01	0.1%	4
Moderate energy intertidal rock ¹	0.01	0.1%	4
Intertidal coarse sediments ¹	<0.01	<0.1%	4
Intertidal sand and muddy sand ¹	<0.01	<0.1%	4
Intertidal mud ¹	<0.01	<0.1%	4
Intertidal mixed sediments ¹	<0.01	<0.1%	4

¹ This area of habitat falls within the boundary of the SAC

² This area of habitat falls outside the boundary of the SAC

Table II.3.35g **FOCI habitats** recorded in the **Peninnis to Dry Ledge** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Fragile sponge & anthozoan communities on subtidal rocky habitats		18		1, 3
Intertidal underboulder communities		2		3

Table II.3.35zh **FOCI species** recorded in the **Peninnis to Dry Ledge** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Amphianthus dohrnii</i>	2	1	1, 3
<i>Arctica islandica</i>	3		1, 3
<i>Gobius cobitis</i>	5	3	1, 3
<i>Haliclystus auricula</i>	1	1	3
<i>Lucernariopsis campanulata</i>	3	3	1, 3
<i>Palinurus elephas</i>	6	4	1, 3
<i>Paludinella littorina</i>	1		1
<i>Eunicella verrucosa</i>	50	15	1, 3, 5
<i>Leptopsammia pruvoti</i>	9		1, 3, 5

This area also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.44 km² of seahorse area polygon (refer to appendix 8 for more information).

Plympton to Spanish Ledge

Table II.3.35zi Draft conservation objectives for the **Plympton to Spanish Ledge** part of the Isles of Scilly rMCZ. M = maintain in favourable condition, R = recover to favourable condition. Features in red are listed as protected in the existing SAC. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal sand		M
	Moderate energy circalittoral rock		M
	Moderate energy infralittoral rock		M
	High energy circalittoral rock ¹		M
	High energy infralittoral rock		
	High energy intertidal rock		M
	Intertidal sand and muddy sand		M
	Moderate energy intertidal rock		M
FOCI habitats	Fragile sponge & anthozoan communities on subtidal rocky habitats		M
	Intertidal under boulder communities		M
FOCI species	<i>Amphianthus dohrnii</i>	Sea-fan anemone	M
	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Leptopsammia pruvoti</i>	Sunset cup coral	M
	<i>Palinurus elephas</i> ¹	Spiny lobster	R

¹There is No GIS data for this feature in this area, but the draft conservation objective has been included based on evidence provided by the Local Group (see appendix 8).

Table II.3.35zj **Subtidal broad-scale habitats** recorded in the **Plympton to Spanish Ledge** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock ²	<0.01	<0.1%	1
Moderate energy infralittoral rock ²	<0.01	<0.1%	1
High energy infralittoral rock ¹	0.46	<0.1%	1
Moderate energy infralittoral rock ¹	1.81	0.6%	1
Moderate energy circalittoral rock	0.17	<0.1%	1
Subtidal sand	<0.01	<0.1%	1, 2

¹ This area of habitat falls within the boundary of the SAC

² This area of habitat falls outside the boundary of the SAC

Table II.3.35zk **Intertidal broad-scale habitats** recorded in the **Plympton to Spanish Ledge** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock ²	0.04	0.6%	4
Moderate energy intertidal rock ²	0.02	0.3%	4
Intertidal coarse sediments	<0.01	<0.1%	3
Intertidal sand and muddy sand ²	0.03	0.2%	4
High energy intertidal rock ¹	<0.01	<0.1%	4
Moderate energy intertidal rock ¹	<0.01	<0.1%	4
Intertidal sand and muddy sand ¹	<0.01	<0.1%	4

¹ This area of habitat falls within the boundary of the SAC

² This area of habitat falls outside the boundary of the SAC

Table II.3.35zl **FOCI habitats** recorded in the **Plympton to Spanish Ledge** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Fragile sponge & anthozoan communities on subtidal rocky habitats		6		1, 3
Intertidal underboulder communities		1		3

Table II.3.35zm **FOCI species** recorded in the **Plympton to Spanish Ledge** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Amphianthus dohrnii</i>	3		1, 3
<i>Palinurus elephas</i>	1		5
<i>Eunicella verrucosa</i>	12	1	1, 3, 5
<i>Leptopsammia pruvoti</i>	3		1, 3

This area also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.44 km² of seahorse area polygon (refer to appendix 8 for more information).

Smith Sound Tide Swept Channel

Table II.3.35zn Draft conservation objectives for the **Smith Sound Tide Swept Channel** part of the Isles of Scilly rMCZ. M = maintain in favourable condition, R = recover to favourable condition. Features in red are listed as protected in the existing SAC. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal sand		M
	Moderate energy circalittoral rock ¹		M
	Moderate energy infralittoral rock		M
	High energy infralittoral rock		M
	High energy intertidal rock		M
	Moderate energy intertidal rock ¹		M
FOCI habitats	Tide-swept channels ¹		M
FOCI species	<i>Cruoria cruoriaeformis</i>	Red seaweed	M
	<i>Eunicella verrucosa</i> ¹	Pink sea-fan	M
	<i>Amphianthus dohrnii</i> ¹	Sea-fan anemone	M
	<i>Gobius cobitis</i>	Giant goby	M
	<i>Lucernariopsis cruxmelitensis</i>	Stalked jellyfish	M
	<i>Palinurus elephas</i> ¹	Spiny lobster	R

Smith Sound non-ground disturbance area

Broad-scale habitats	High energy infralittoral rock		M
	Moderate energy infralittoral rock		M
	Moderate energy intertidal rock ¹		M
FOCI habitats	Tide-swept channels ¹		M
FOCI species	<i>Eunicella verrucosa</i> ¹	Pink sea-fan	M
	<i>Amphianthus dohrnii</i> ¹	Sea-fan anemone	M
	<i>Palinurus elephas</i> ¹	Spiny lobster	R

¹There is No GIS data for this feature in this area, but the draft conservation objective has been included based on evidence provided by the Local Group (see appendix 8).

Table II.3.35zo **Subtidal broad-scale habitats** recorded in the **Smith Sound Tide Swept Channel** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock ²	0.03	<0.1%	1
High energy infralittoral rock ¹	1.28	0.2%	1
Moderate energy infralittoral rock	0.08	<0.1%	1
Subtidal sand	0.03	<0.1%	1, 2

¹ This area of habitat falls within the boundary of the SAC

² This area of habitat falls outside the boundary of the SAC

Table II.3.35zp **Intertidal broad-scale habitats** recorded in the **Smith Sound Tide Swept Channel** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock ²	0.02	0.3%	4
High energy intertidal rock ¹	<0.01	<0.1%	4

¹ This area of habitat falls within the boundary of the SAC

² This area of habitat falls outside the boundary of the SAC

Table II.3.35zq **FOCI habitats** recorded in the **Smith Sound Tide Swept Channel** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Tide-swept channels		4		3

Table II.3.35zr **FOCI species** recorded in the **Smith Sound Tide Swept Channel** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Cruoria cruoriaeformis</i>	2		1, 3
<i>Grateloupia montagnei</i>	2		1, 3
<i>Lucernariopsis cruxmelitensis</i>	1		3

This area also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.44 km² of seahorse area polygon (refer to appendix 8 for more information).

Teian

Table II.3.35zs Draft conservation objectives for the **Teian** part of the Isles of Scilly rMCZ. M = maintain in favourable condition, R = recover to favourable condition. Features in red are listed as protected in the existing SAC. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal macrophyte-dominated sediment	M
	Subtidal mixed sediments	M
	Subtidal sand	M
	Moderate energy infralittoral rock	M
	High energy infralittoral rock	M
	High energy intertidal rock	M
	Intertidal coarse sediment	M
	Intertidal mud ¹	M
	Intertidal sand and muddy sand	M
	Moderate energy intertidal rock ²	M
FOCI habitats	Fragile sponge & anthozoan communities on subtidal rocky habitats	M
	Intertidal under boulder communities	M
	Seagrass beds	M
	Tide-swept channels ²	M
FOCI species	Stalked jellyfish (2 species) ³	M

Teian non-ground disturbance area

Broad-scale habitats	Subtidal macrophyte-dominated sediment	M
	Subtidal mixed sediments	M
	Moderate energy infralittoral rock	M
	Intertidal coarse sediment	M
	Moderate energy intertidal rock ²	M
FOCI habitats	Fragile sponge & anthozoan communities on subtidal rocky habitats ²	M
	Intertidal under boulder communities ²	M
	Seagrass beds ²	M
	Tide-swept channels ²	M
FOCI species	Stalked jellyfish (2 species) to be confirmed by LG ³	M

¹The accuracy of this information has been questioned. The GIS data for this habitat present in the Isles of Scilly is derived from the Environment Agency intertidal data (see appendix 8), where there is a known translation problem between two habitat classification systems which results in areas that are sand being labelled as mud. It may be necessary to substitute this conservation objective with one for intertidal sand.

²There is No GIS data for this feature in this area, but the draft conservation objective has been included based on evidence provided by the Local Group (see appendix 8).

³Species to be confirmed by Local Group. There is No GIS data for this feature in this area, but the draft conservation objective has been included based on evidence provided by the Local Group (see appendix 8).

Table II.3.35zt Subtidal broad-scale habitats recorded in the **Teian** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy infralittoral rock ²	0.20	<0.1%	1
Subtidal mixed sediments ²	0.02	<0.1%	1, 2
High energy infralittoral rock	0.10	<0.1%	1
Moderate energy infralittoral rock ¹	0.79	0.3%	1
Subtidal sand	<0.01	<0.1%	1, 2
Subtidal mixed sediments ¹	0.18	<0.1%	1, 2
Subtidal macrophyte-dominated sediment	0.10	0.5%	1, 2

¹ This area of habitat falls within the boundary of the SAC

² This area of habitat falls outside the boundary of the SAC

Table II.3.35zu Intertidal broad-scale habitats recorded in the **Teian** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock	<0.01	<0.1%	4
Intertidal coarse sediments	0.08	0.4%	4, 3
Intertidal sand and muddy sand ²	<0.01	<0.1%	4
Intertidal mud ^{2,3}	<0.01	<0.1%	3
Intertidal sand and muddy sand ¹	<0.01	<0.1%	4
Intertidal mud ^{1,3}	<0.01	<0.1%	3

¹ This area of habitat falls within the boundary of the SAC

² This area of habitat falls outside the boundary of the SAC

³ The accuracy of this information has been questioned. The GIS data for this habitat present in the Isles of Scilly is derived from the Environment Agency intertidal data (see appendix 8), where there is a known translation problem between two habitat classification systems which results in areas that are sand being labelled as mud.

Table II.3.35zv FOCI habitats recorded in the **Teian** part of the Isles of Scilly rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Tide-swept channels		1		3
Seagrass beds ¹	0.10	4		1, 3

This area also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.44 km² of seahorse area polygon (refer to appendix 8 for more information).

This area intersects with the Teian Geological Conservation Review site.

Site summary

The areas within this rMCZ range in depth from sea level to approximately 70 metres. They largely cover high and moderate energy infralittoral rock, and moderate energy circalittoral rock. They also include some patches of subtidal coarse sediment and subtidal mixed sediments, and subtidal macrophyte-dominated sediment (which coincide with the FOCI habitat seagrass beds). A diverse range of intertidal habitats are also within these areas.

The primary reason including this multipart rMCZ is the large range and quality of FOCI that occur in the Isles of Scilly. The primary FOCI habitats are fragile sponge and anthozoan communities, and seagrass beds, but there are records of others including intertidal underboulder communities, and the only SW records of tide swept communities. These habitats support a large range of FOCI species including *Eunicella verrucosa*, *Leptopsammia pruvoti*, *Palinurus elephas*, *Gobius cobitis*, *Lucernariopsis campanulata*, and areas of importance for sea horses. The Isles of Scilly are an area of exceptionally high biodiversity (both species and habitat), and this is evident in the benthic biodiversity information supplied through MB102.

The Isles of Scilly sites rMCZ is unique, as it is well supported by local stakeholders, contributes to many ENG targets, and covers areas of reef habitat that are of exceptional quality.

Detailed site description

The Isles of Scilly have been well-studied for their intertidal and shallow sublittoral biota, and are considered to be exceptionally rich in biodiversity, as well as representative of exceptionally high quality examples of a range of habitats. Within the time available, it has not been possible to carry out an exhaustive review of the literature, but some of the research carried out in the Isles of Scilly is reported here. Readers are also referred to the detailed evidence supplied by the Isles of Scilly Local Group (see appendix 14).

The Isles of Scilly archipelago was selected as a Special Area of Conservation (SAC) in part due to the extensive subtidal and intertidal sandy sediments that occur between the islands. These sediment features form the Annex I Habitats “sandbanks which are slightly covered by sea water all the time” and “Mudflats and sandflats not covered by seawater at low tide”. In the Isles of Scilly these sandbanks are particularly important due to their extent and associated communities, which are very specific due in part to the combination of sheltered conditions, mild climate, constant salinity and low silt conditions. The latter are primarily a result of the oceanic nature of the surrounding seas which have a low suspended sediment concentration and the lack of any major riverine input. These factors provide ideal conditions for some of the most extensive and diverse beds of seagrass *Zostera marina* found in the UK (Jackson *et al.* 2011).

Extensive sediment areas occur in the Isles of Scilly and support rich intertidal communities, in addition to the extensive beds of seagrass *Zostera marina*. The Isles of Scilly also has a high diversity of seaweeds; probably about 40% of UK seaweed total (Brodie *et al.* 2007).

Hard bedrock reef, both infralittoral and circalittoral, in some cases extending well beyond 50m depth. Exposure levels vary at this site: some reefs are very exposed, others sheltered. The surrounding waters are full salinity and there is minimal coastal influence. The topographic complexity of the reefs is low. The south-westerly position of the islands leads to a range of warm water species being present, including sunset cup-coral *Leptopsammia pruvoti*, pink sea-fans *Eunicella verrucosa*, and Weymouth carpet-coral *Hoplania durotrix* (Natural England, 2010).

In 1997, Ambios Environmental Consultants, funded by English Nature, carried out a Marine Nature Conservation Review (MNCR) biotope survey in the Isles of Scilly, to inform the SAC designation process (Munro & Nunny, 1998). This mapped the extent of subtidal sediment habitats, from mean low water down to around the 50m depth contour, but with most effort concentrated around the shallower (<30m) sedimentary areas. Rostron (1983; 1989) surveyed the animal communities from sublittoral sediments in Isles of Scilly during July 1983.

Extensive littoral, sublittoral and rocky shore surveys of the Isles of Scilly have been carried out by Seasearch between 1983 and 1985 (Hiscock, 1984a; b; 1985) during which *Eunicella verrucosa* was recorded in the rMCZ. The Underwater Conservation Society completed a series of broadscale surveys of sublittoral habitats in the Isles of Scilly (Dipper, 1981) during which *Palinurus elephas* was recorded. Sublittoral sediment communities range from coarse sand and gravel to fine sand to muddy gravel. Seven sediment types and associated communities were identified by Rostron (1989). The density of the *Zostera marina* within five main beds (Old Grimsby Harbour, Tresco; Higher Town Bay, St. Martin's; Broad Ledge, Tresco; West Broad Ledge, St Martin's, and Little Arthur, Eastern Isles) have been recorded as part of an annual diving expedition for the past 12 years (Cook & Foden 2005). Densities at these sites range from 50 to over 200 shoots per m² (Foden & Brazier, 2007).

There have also been a number of previous attempts to map the extent of the *Zostera marina* beds. An aerial photo-mapping exercise was undertaken by Irving *et al.* (1998) in the summer of 1996 to map the distribution of *Zostera* and estimate densities of the beds. Between 1984 and 1988 the Nature Conservancy Council (NCC) monitored the density of seagrass in Scilly through diver survey work, and again in 1991 after a gap of two years which showed a deterioration of seagrass with the appearance of wasting disease, invasion by wireweed (*Sargassum muticum*) and extensive storm damage (Fowler & Pilley, 1992).

Since 1992, a volunteer diver based monitoring programme has run almost annually to look at the health of seagrass in Scilly (Jackson *et al.* 2011). This was initiated by the Coral Cay sub aqua club and funded by English Nature. Initially the research targeted sites of English Island East Higher Town Bay, St Martin's and Old Grimsby Harbour, and additional sites at West Broad Ledge, St Martin's and East Broad Ledge were added. In 1999 beds at Bar Point, St Marys and Rushy Bay were added (Cook, 2002, 2004a, b, Cook & Foden, 2005, Cook, 2006, Cook & Paver, 2007, Cook *et al.* 2008). *Zostera marina* is essentially a subtidal species, although in the Isles of Scilly very low spring tides expose seagrass at several sites (Hugh Town Harbour, Porth Cressa, Gimble Porth, the cove between St Agnes and Gugh and Porth Conger) (Lewis *et al.* 2008).

Jackson *et al.* (2011) mapped the extent of seagrass *Zostera marina* in the Isles of Scilly from image analysis which included an area within Men a Vaur just off Porth Morran on White Island and off Pernagie Point. Tim Allsop from Scilly Diving also reported two areas of seagrass near Great Merrick Ledge. The seagrass has also been annually surveyed in the area by Cook, 2002; 2004a; b; Cook & Foden, 2005; Cook, 2006; and Cook & Paver, 2007.

A total of 628 ground control points (GCPs) were visited during the summer 2009. Of these 97 were identified in situ as too deep for seagrass growth (greater than 10m) despite bathymetry map predictions. In addition to these positions a further 282 positions of seagrass were collated from past surveys (Munro & Nunny, 1998; Cook, 2002; 2004a; b; Cook & Foden, 2005; Cook, 2006; Cook & Paver, 2007) and maps form the Environmental Records centre for Cornwall and the Isles of Scilly. All ground truthing operations were undertaken by locally based company St. Martin's Diving Services. The Environmental Records Centre holds records of seagrass for Cornwall and the Isles of Scilly

(Hocking & Tompsett, 2002). A further survey of the Scilly Isles seagrass was carried out in August 2010 (Cook, in prep).

There are many reports in the scientific and survey literature of records of FOCI species and habitats within the Isles of Scilly:

- *Arctica islandica* was reported in the Isles of Scilly sublittoral sediment survey (Rostron, 1983).
- *Eunicella verrucosa*: 1980 NCC Isles of Scilly & south Cornwall sublittoral survey (Dipper, 1981); 1983 OPRU Isles of Scilly sublittoral survey (Hiscock, 1983); the Pink Sea Fan survey (Wood, 2008); and recent Seasearches.
- *Leptopsammia pruvoti*: 1985-86 Isles of Scilly sublittoral monitoring (Irving, 1987); 1983 OPRU Isles of Scilly sublittoral survey (Hiscock, 1983); 1991 Isles of Scilly marine monitoring (Fowler, 1992); 1983-1984 Lundy and Isles of Scilly sessile epifaunal survey (Fowler & Laffoley, 1993); and Seasearches.
- *Cruoria cruoriaeformis* was reported within the rMCZ during the 1983 OPRU Isles of Scilly sublittoral survey. *Lucernariopsis cruxmelitensis* was reported during the 2009 IOS Wildlife Trust Seasearch Surveys.
- *Palinurus elephas*: 2004 MCS Seasearch Survey of the Isles of Scilly.
- *Paludinella littorina*: Conchological society records (Light & Killeen, 2001).
- *Gobius couchii*: 1952-1983 British Coasts survey *Gobius cobitis* (Wheeler, 1993).
- Both species of seahorse (*Hippocampus hippocampus* and *Hippocampus guttulatus*) are found in the Isles of Scilly. The Spiny Seahorse is quite often found on the Eastern end of St. Martins and the Short Snouted is found around St. Marys; however the whole of the island complex are suitable for seahorses (the author has spent a great deal of time exploring the islands). There is a dried specimen of a Short Snouted Seahorse in the museum on St. Marys (Neil Garrick-Maidment, *pers. comm.*).
- Bowden *et al.* (2001) sampled one large and one small patch of *Zostera marina* within or close to Tean rMCZ for the associated macroinvertebrate fauna.
- Jackson *et al.* (2011) integrated aerial survey and GIS methods with historic information, contextual information, and ground-truthing to produce an up to date, accurate map showing the current extent of seagrass *Zostera marina* in the Isles of Scilly.
- Records of seagrass distribution include the Isles of Scilly seagrass annual survey data (Cook 2002, 2004a, b, Cook & Foden 2005, Cook 2006, Cook & Paver 2007; Cook *et al.* 2009); [National Biodiversity Network](http://data.nbn.org.uk)⁴⁴ data; Environmental Records Centre for Cornwall and the Isles of Scilly (Hocking & Tompsett 2002). Munro & Nunny (1998) took grab and video records of seagrass in the Tean rMCZ area as well as in other meadows at the Isles of Scilly.
- Seagrass beds surveyed during the 1983 OPRU Isles of Scilly sublittoral survey (Hiscock, 1984) and in 1997 by Ambios Environmental Consultants, funded by English Nature, carried out a Marine Nature Conservation Review (MNCR) biotope exercise in the Isles of Scilly, to inform the SAC designation process (Munro & Nunny, 1998).

The Bishop to Crim area contains tide-swept channels which were surveyed during the 2005-2009 Seasearch survey of Cornwall and Isles of Scilly and the 1983 OPRU Isles of Scilly sublittoral survey (Hiscock, 1984a; b). High energy circalittoral rock was also recorded during the 1983 OPRU Isles of Scilly sublittoral survey (Hiscock, 1984a; b).

Eunicella verrucosa has been recorded within the Gilstone to Gorregan area during the 1980 NCC Isles of Scilly & south Cornwall sublittoral survey (Dipper, 1981), during the Pink Sea Fan Survey (Wood, 2008) and 2005 MCS Seasearch Survey of the Isles of Scilly.

⁴⁴ <http://data.nbn.org.uk>

Amphianthus dohrnii was reported within the Hanjague to Deep Ledge area during the 2004, 2006 and 2007 MCS Seasearch survey Isles of Scilly. *Eunicella verrucosa* has been reported within the same area during the 1983 OPRU Isles of Scilly sublittoral survey; 2008 Seasearch Isles of Scilly (Maggs & Hiscock, 1979) and Pink Sea Fan Survey 2004-2006 (Wood, 2008).

Haliclystus auricula was recorded within the Higher Town area by (Hiscock, 1985) and (Irving, 1987). *Lucernariopsis campanulata* was recorded at Higher Town by (Hiscock, 1985). Bowden *et al.* (2001) sampled one large and one small patch of *Zostera marina* at Higher Town rMCZ for the associated macroinvertebrate fauna. Warwick *et al.* (2006) collected core samples in April 2001 on uniform clean coarse sand at extreme low water of spring tides on St Martin's Flats near or within the Higher Town area. A Shore Thing survey was carried out by the Isles of Scilly Wildlife Trust in September 2009 on the rocky shores of St Martins within the Higher Town area (see [here](#)⁴⁵). *Calliostoma zizphinum* (Painted topshell) was recorded as frequent.

Within or near the Lower Ridge to Innisvoulcs area, *Eunicella verrucosa* was reported during the sublittoral survey of the Scilly Isles and south Cornwall (Dipper, 1981) and during the Pink Sea Fan Survey 2004-2006 (Wood, 2008). *Leptopsammia pruvoti* was reported during the Seasearch of the Isles of Scilly Survey in May 2006 (Sharrock, 2006). *Palinurus elephas* was recorded during the 1977 Isles of Scilly underwater observation scheme.

Within or near the Men a Vaur to White Island area, *Eunicella verrucosa* was reported by (Wood, 2008), and during the 1983 OPRU Isles of Scilly sublittoral survey; 2005 MCS Seasearch Survey; and Marine Conservation Society Seasearch 2009. *Palinurus elephas* was recorded during the 1980 NCC Isles of Scilly & south Cornwall sublittoral survey (references for these surveys are included above).

Within or near the Peninnis to Dry Ledge area, there are records of *Arctica islandica* (Rostron, 1983), *Amphianthus dohrnii*, *Eunicella verrucosa* (Dipper, 1981; Hiscock, 1983), *Leptopsammia pruvoti* (Irving, 1987; Hiscock, 1983; Fowler, 1992; Fowler & Lafoley, 1993) and *Gobius couchii* (Wheeler, 1993). *Palinurus elephas* was recorded by the 2004 MCS Seasearch Survey of the Isles of Scilly. At St Mary's, *Paludinella littorina* has been recorded from the following places: Porth Cressa just outside of the Peninnis to Dry Ledge rMCZ, Old Town (SV 914 101), Porth Hellick (SV 927 107), and Toll's Island (SV 930 120) (Light & Killeen, 2001). A Shore Thing surveys were carried out by the Natural England Zostera Survey group during 2009 and 2010 on the rocky shores of St Marys within Peninnis to dry Ledge rMCZ (weblink is included above). *Asterina gibbosa* (Cushion star) and red coralline algae was recorded as frequent; with abundant Snakeslocks anemones (*Anemonia viridis*). *Eunicella verrucosa* was recorded within the area during the Pink Sea Fan Survey 2004-2006 (Wood, 2008).

Within or near the Plympton to Spanish Ledge area, *Amphianthus dohrnii* was recorded off St. Agnes during the 2008 Seasearch Isles of Scilly and 2008 Seasearch of Devon & Isles of Scilly. *Eunicella verrucosa* was recorded during the 2005; 2006; 2007; 2008 Seasearch Isles of Scilly; and the Pink Sea Fan Survey 2004-2006 (Wood, 2008). *Leptopsammia pruvoti* was recorded during the 2008 Seasearch Isles of Scilly and 2007 MCS Seasearch Isles of Scilly. *Paludinella littorina* has been recorded at St. Agnes at Porth Congor (North side of Bar) crevices in upper shore boulders and rock faces; on the South side of the Bar on granite boulders and cobble with chippings, interstitial sediment and detritus beneath; at Porth Coose (East end) within a bank of granite boulders and cobble with chippings, interstitial sediment and detritus beneath; and at Porth Killier (bank of granite boulders, some embedded with silt and detritus beneath) (Light & Killeen, 2001).

⁴⁵ http://www.marlin.ac.uk/shore_thing/

At Porth Coose on St. Agnes, just outside of Smith Sound Tide Swept Channel (SV 877 087), *Paludinella littorina* was recorded on a bank of granite boulders and cobble with chippings, interstitial sediment and detritus beneath (Light & Killeen, 2001). A Shore Thing surveys were carried out by Julia Nunn during 2010 on the rocky shores off Annet within Smith Sound Tide Swept Channel rMCZ (weblink is included above). *Asterina gibbosa* (Cushion star) was recorded as frequent; with abundant topshells (*Gibbula umbilicalis* and *Osilinus lineatus*). *Eunicella verrucosa* was recorded within the rMCZ during the Pink Sea Fan Survey 2004-2006 (Wood, 2008).

Within or near the Tean area, Bowden *et al.* (2001) sampled one large and one small patch of *Zostera marina* within or close to Tean rMCZ for the associated macroinvertebrate fauna. Jackson *et al.* (2011) integrated aerial survey and GIS methods with historic information, contextual information, and ground-truthing to produce an up to date, accurate map showing the current extent of seagrass *Zostera marina* in the Isles of Scilly. Records of seagrass distribution include the Isles of Scilly seagrass annual survey data (Cook 2002, 2004a, b, Cook & Foden 2005, Cook 2006, Cook & Paver 2007; Cook *et al.* 2009); National Biodiversity Network data (weblink above); Environmental Records Centre for Cornwall and the Isles of Scilly (Hocking & Tompsett 2002). Munro & Nunny (1998) took grab and video records of seagrass in the Tean rMCZ area as well as in other meadows at the Isles of Scilly. Seagrass beds surveyed during the 1983 OPRU Isles of Scilly sublittoral survey (Hiscock, 1984) and in 1997 by Ambios Environmental Consultants, funded by English Nature, carried out a Marine Nature Conservation Review (MNCR) biotope exercise in the Isles of Scilly, to inform the SAC designation process (Munro & Nunny, 1998).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved. This assumption applies to all activities.**

Assumptions and implications tables developed by the Local, Working and Steering Groups appear in each of the site reports for rMCZs in this document. However, along with their boundary recommendations, the Isles of Scilly Local Group (referred to by themselves as the Isles of Scilly MCZ Working Group) developed their own proposals for activity restrictions that might apply in the areas that make up the Isles of Scilly Sites rMCZ.

The blue text below is taken directly from their MCZ proposals, and has been slightly edited by the Finding Sanctuary project team to make it more clear outside of the context of their original report. The full report is included in the additional materials listed in appendix 14. Note that the Local Group report does not include any commentary on implications. The text refers to 'pMCZs', because at the time it was written, that was what the individual Isles of Scilly areas were being referred to as.

Isles of Scilly recommendations

It should be noted that the following 11 recommendations have 100% of support from all sectors in Scilly and many of them are ideas suggested by the local fishermen. Uniquely these eleven recommendations have, therefore, been agreed unanimously by the IoS MCZ WG and apply to all the proposed MCZ (pMCZ) sites for Scilly, except where stated.

1. **3 month commercial fishing closure - All IoS pMCZs:** No commercial fishing gear of any type in any Scilly pMCZ site for 3 months of each year (between mid December and mid March annually). Dates to be set every year through the IFCA.
2. **Mobile gear restrictions - All IoS pMCZs:** The Fisherman's Association have agreed to give up rights to all MOBILE gear (towed gear, trawling, dredging, etc) in all the Scilly pMCZ sites. Static gear will remain, only restricted by (1) above and (11) below.
3. **Diving for shellfish - All IoS pMCZs:** No removal of any shellfish by divers at any time of the year within any pMCZ. The three dive charters, professional and club divers on the Isles of Scilly have agreed not to collect any shellfish within the zones identified. They fully support the banning of shellfish collection by divers within the zones.
4. **Commercial sand eel fishery restriction - All IoS pMCZs:** No commercial sand eel fishing would be allowed within any pMCZ, particularly in the zones near Western Rocks (Gilstone to Gorregan and Bishop to Crim) and around St Martin's (Men-a-vaur to White Island, Tean, Higher Town and Lower Ridge to Innisvoul). This would ensure the protection of the food supply for birds and would not affect any existing fishing activity as sand eels are not currently caught at a commercial scale.
 - a. **IoS IFCA District Commercial Sand-eel Fishery Restriction:** An island-wide ban on a commercial sand-eel fishery could be of some benefit as an example of 'future-proofing' and also for protecting food supplies for Pollack and sea birds. This will be taken up by the new IFCA after April 2011.
5. **Voluntary V-notching of berried lobsters - All IoS pMCZs and IoS IFCA District:** Voluntary v-notching of berried lobsters in every pMCZ and throughout the IFCA district i.e. to 6nm.
 - a. **IoS SFC Byelaw – Lobster MLS:** Although the national Minimum Landing Size (MLS) for lobsters is 87mm, an Isles of Scilly Sea Fisheries Committee byelaw has made the MLS 90mm in common with Cornwall Sea Fisheries.
6. **Commercial Kelp Cutting Restrictions - IoS pMCZs Hanjague to Deep Ledge, Lower Ridge to Innisvoul, Peninnis to Dry Ledge and Plympton to Spanish Ledge:** The group would like to protect the pMCZs listed above from commercial kelp cutting as these are the most accessible areas for this to occur.
7. **Local Recording Zone - Within Plympton to Spanish Ledge pMCZ:** This is a proposal for a monitoring record sheet whereby fishermen, both commercial and hobby, would record the species taken and returned to the site. It was agreed that one of the roles of the IFCA would be to collect and record the data. The recording form (at the end of the IoS MCZ proposals report) was developed by a local fisherman who is not a member of the IoS MCZ WG. This demonstrates how the MCZ process is being welcomed in Scilly and taken on board wholeheartedly by all the local community.

- 8. Control Site - Reef Comparison Sites Trenemene (within Gilstone to Gorregan pMCZ) and Gugh (within Plympton to Spanish Ledge pMCZ):** This is a proposal for a comparison of 2 reef sites, one fished and one not fished (see IoS MCZ proposals report for further details). It should be noted that Prof Steve Hill (University of Plymouth) is currently putting in a bid for money to carry out extensive monitoring in Scilly and part of this work will include the monitoring of Trenemene and Gugh. Money for 5 data loggers has already been funded. There is full support from Council, AONB, fishermen and divers as a Scilly consortium to carry out this monitoring.
- 9. Seagrass Non-Ground Disturbance Site - Within Tean pMCZ:** This proposal is to fulfil a request to include a small area within the Tean pMCZ, which may be monitored as a non-ground disturbance control site (see IoS MCZ proposals report for further details).
- 10. Anchoring Restrictions (on vessels over 10m) (within pMCZs Hanjague to Deep Ledge, Higher Town, Lower Ridge to Innisvouls and Plympton to Spanish Ledge) and Control of Future Mooring Expansions (within pMCZs Higher Town and Lower Ridge to Innisvouls):** The proposal is to protect vulnerable habitats by placing restrictions on larger vessels (over 10m) anchoring. No anchoring of vessels over 10m within these 3 pMCZs. This has already been agreed for Hanjague to Deep Ledge. Control of future mooring expansions to be considered for Higher Town and Lower Ridge to Innisvouls only. These 2 proposals are to be confirmed at the next IoS Local Group meeting (April 2011).
- 11. IoS IFCA District Static Gear Limitation Byelaw Proposal:** At the IoS IFCA meeting on 27th January 2011 it was proposed (by one of the active commercial fishing representatives) that a pot and static net limit be considered as an IFCA byelaw. This is to be discussed at the Fishermen's Association Meeting on March 3rd 2011 and the outcome reported back to the IFCA (9th June 2011). This is another example of how conservation measures are being suggested from the heart of the local fishing industry in Scilly.

Site specific recommendations are included in the site specific pages in yellow text (*"yellow text" refers to the original report from the IoS which contains highlighted areas of text*) and key site specific recommendations are included in the table below:

pMCZ Name	Site Specific Key Recommendations
Bristows to the Stones	Static gear only
Men-a-vaur to White Island	
Hanjague to Deep Ledge	Commercial Kelp Cutting Restrictions Over 10m anchoring restrictions (agreed)
Tean	Seagrass Non-Ground Disturbance Site
Higher Town	Over 10m anchoring restrictions – TBC Control of Future Mooring Expansions - TBC
Lower Ridge to Innisvouls	Commercial Kelp Cutting Restrictions Over 10m anchoring restrictions – TBC Control of Future Mooring Expansions - TBC
Peninnis to Dry Ledge	Commercial Kelp Cutting Restrictions
Plympton to Spanish Ledge	Gugh Reef Local Recording Zone / Commercial Kelp Cutting Restrictions / Over 10m anchoring restrictions - TBC
Smith Sound Tide Swept Channel	
Gilstone to Gorregan	Trenemene Reef
Bishop to Crim	

Table II.3.35zw below shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2 for full details).

Table II.3.35zw VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing	<p>Management</p> <ul style="list-style-type: none"> - Prohibition of mobile bottom gear in all areas - Seasonal (3 month Dec-Feb) prohibition of all commercial fishing in all areas - V-notching of berried lobster in all areas - Prohibition of commercial sandeel fishing in all areas - No removal of <i>Palinurus elephas</i> from any areas - Prohibition of commercial kelp cutting at some areas (Hanjague to Deep Ledge, Higher Town, Lower Ridge to Innisvouls, Peninnis to Dry Ledge, Plympton to Spanish Ledge) - Prohibition of all commercial fishing in the non-ground disturbance areas of Smith Sound and Tean areas - Recording of all catch in a zone within Plympton to Spanish Ledge area <p>Measure</p> <ul style="list-style-type: none"> - Voluntary
Tourism & leisure	<p>Management</p> <ul style="list-style-type: none"> - No removal of shellfish by divers - Promotion of good dive practice for Men a Vaur to White Island area and Gilstone to Gorregan area - No anchoring of vessels over 10m in some areas (Hanjague to Deep Ledge, Higher Town, Lower Ridge to Innisvouls, Plympton to Spanish Ledge) - Control of future moorings expansion at Lower Ridge to Innisvouls <p>Measure</p> <ul style="list-style-type: none"> - Voluntary

Stakeholder narrative: Uncertainties and Additional Comments

- The Isles of Scilly Local Group have unanimously agreed that they would not like any reference areas in the Isles of Scilly. This is because they believe their marine environment is already well protected by other MPA designations and they feel they work as a community to manage their marine activities, including fishing, as sustainably as possible.
- The SAP has advised that they would like to see a reference area within the Isles of Scilly. The Working Groups considered the possibility of a reference area option within the Isles of Scilly, but decided that they would prefer the discussion to happen within the Local Group.
- In response, the Local Group proposed two non-ground disturbance areas (one in the Tean rMCZ and one in the Smith Sound Tide Swept Channel rMCZ) for greater protection and with more strict management suggested. As such, no reference areas are included in the network within the Isles of Scilly. The non-ground disturbance sites and comparative monitoring sites have been proposed in lieu of these.
- Renewables and cables representatives have made a general comment that they would be more supportive of rMCZ if an assumption was made that there would be **no** additional cost to cable installation, operation and maintenance within MCZs (as opposed to the current assumption that it would not be 'prohibitively expensive', without stating at what level cost would be deemed 'prohibitive').

Levels of support

The suggestions above for the potential management of the 11 sites proposed by the Isles of Scilly Local Group, and indeed the boundaries of the sites themselves, have been unanimously agreed by the group. The work by the Local Group was done in partnership between local stakeholders of wide-ranging commercial and recreational interests, and as such, the unified proposals were accepted by the Working Groups and wider Steering Group.

The Crown Estate highlighted that there are many active power/ telecommunications cables interconnecting the Isles of Scilly, and with the UK mainland. They are supportive with the assumption that MCZ designation would not restrict maintenance/repair of cables described. The feedback from The Crown Estate acknowledges the local support for these sites.

Supporting documentation

Sources of GIS data used for reporting the quantitative habitat and species figures in the tables above are listed in each table, for each feature. Refer to appendix 8 for details. Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

Full details on the conservation interest of these areas was provided by the Isles of Scilly Local Group, in the shape of photographs from a large number of locations within these rMCZs, showing a large range of the FOCI and additional biodiversity present. Much of the information on the photos is not included in the regional GIS datasets. Due to time and resource constraints, the Finding Sanctuary project team have been unable to convert these photographic records to GIS data, so this information is not accounted for in the GIS tables in this report. The photographic materials were, however, made available directly to the SAP, following the second progress report. They are also included in the additional materials listed in appendix 14.

Site map series

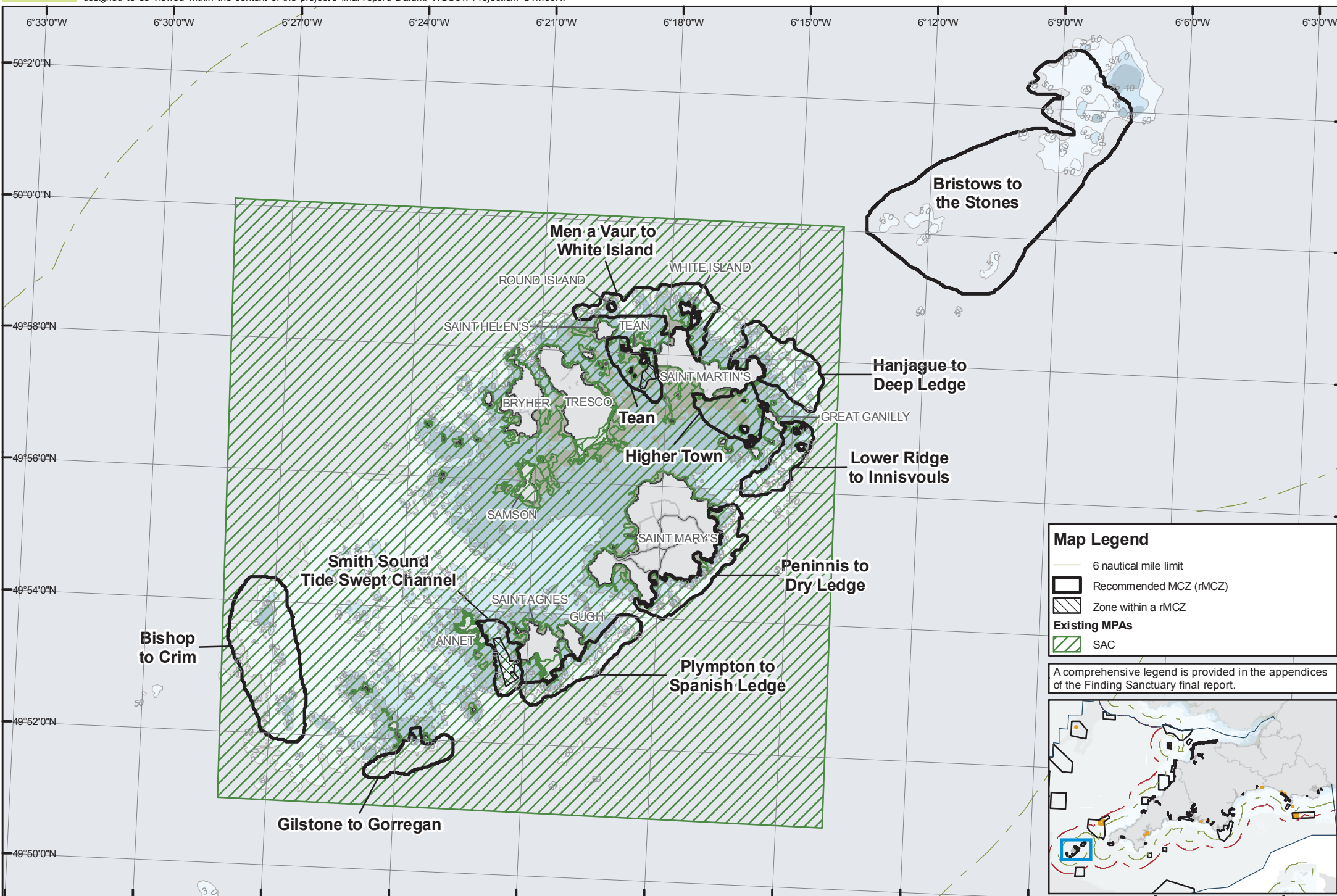
On the following pages there are sixteen maps of these sites.

- The first map (FR_047a) is an overview of all eleven sites in the rMCZ.
- The next eleven maps (FR_048a-f and FR_049a-e) are the main site maps showing each rMCZ boundary in turn. These include points with coordinates (in WGS84 UTM30N). The maps also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The next two maps (FR_048g and FR_049f) show the rMCZ boundaries over broad-scale habitats, and records of habitat and species FOCl. The data shown on these maps corresponds with the information in tables II.3.15b, II.3.15c, and II.3.15e, data sources are indicated in the tables.
- The last two maps (FR_048h and FR_049g) show socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ and reference area recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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Contains OS data © Crown copyright 2011.

0 1.5 3 6 km

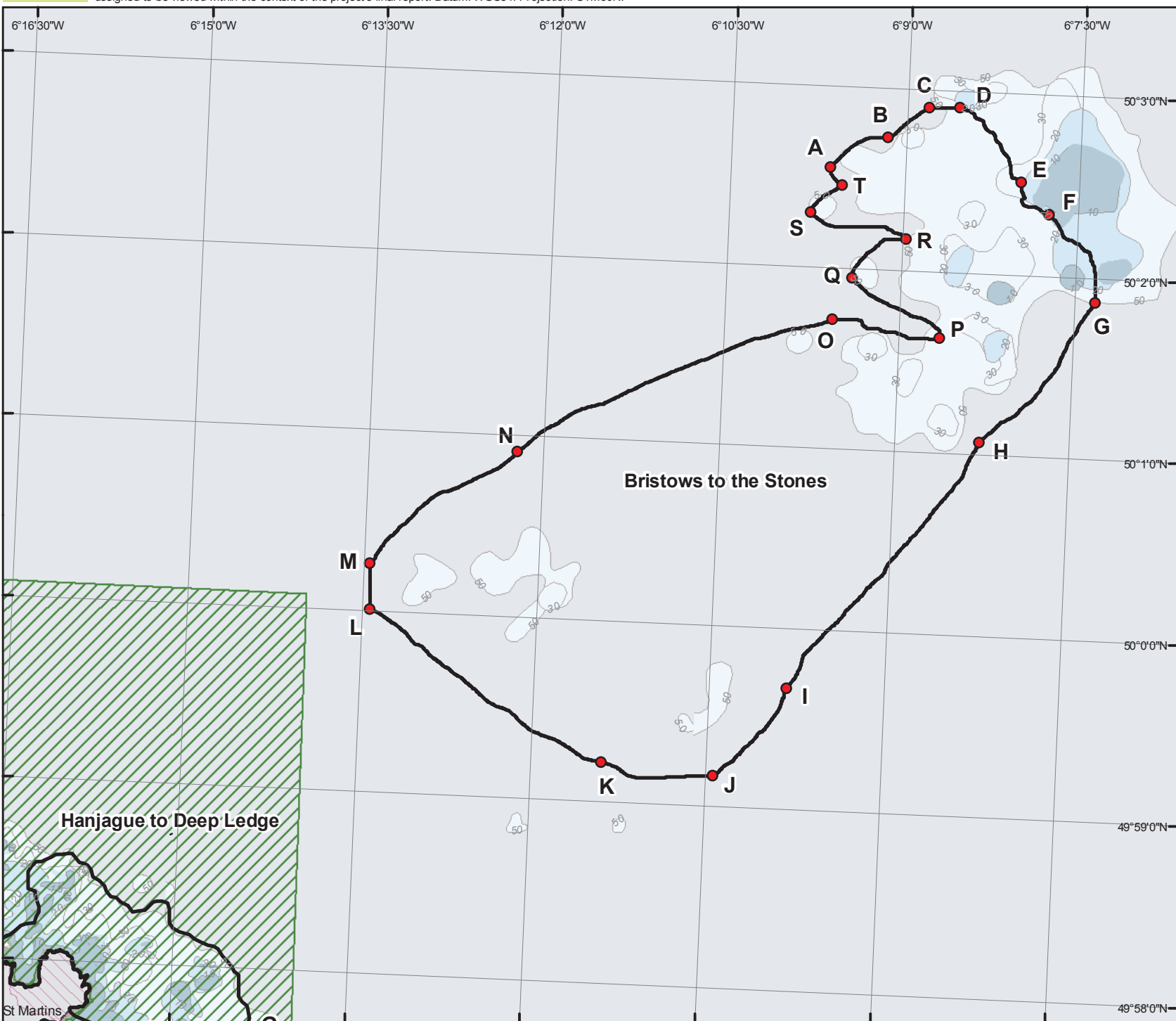


Isles of Scilly Sites rMCZ (Bristows to The Stones)

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 0.5 1 2 km



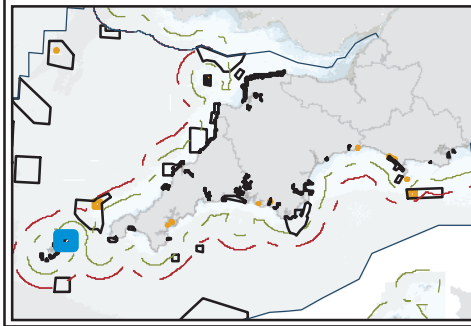
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.0425	-6.1607	50° 2' 33" N	6° 9' 38" W
B	50.0455	-6.1526	50° 2' 43" N	6° 9' 9" W
C	50.0484	-6.1470	50° 2' 54" N	6° 8' 49" W
D	50.0485	-6.1425	50° 2' 54" N	6° 8' 33" W
E	50.0419	-6.1333	50° 2' 30" N	6° 7' 59" W
F	50.0390	-6.1292	50° 2' 20" N	6° 7' 45" W
G	50.0311	-6.1221	50° 1' 51" N	6° 7' 19" W
H	50.0178	-6.1378	50° 1' 4" N	6° 8' 16" W
I	49.9944	-6.1638	49° 59' 39" N	6° 9' 49" W
J	49.9862	-6.1739	49° 59' 10" N	6° 10' 26" W
K	49.9869	-6.1899	49° 59' 12" N	6° 11' 23" W
L	50.0001	-6.2238	50° 0' 0" N	6° 13' 25" W
M	50.0043	-6.2240	50° 0' 15" N	6° 13' 26" W
N	50.0152	-6.2036	50° 0' 54" N	6° 12' 13" W
O	50.0286	-6.1595	50° 1' 42" N	6° 9' 34" W
P	50.0273	-6.1441	50° 1' 38" N	6° 8' 38" W
Q	50.0324	-6.1569	50° 1' 56" N	6° 9' 24" W
R	50.0362	-6.1495	50° 2' 10" N	6° 8' 58" W
S	50.0383	-6.1633	50° 2' 17" N	6° 9' 47" W
T	50.0410	-6.1590	50° 2' 27" N	6° 9' 32" W

Map Legend

- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

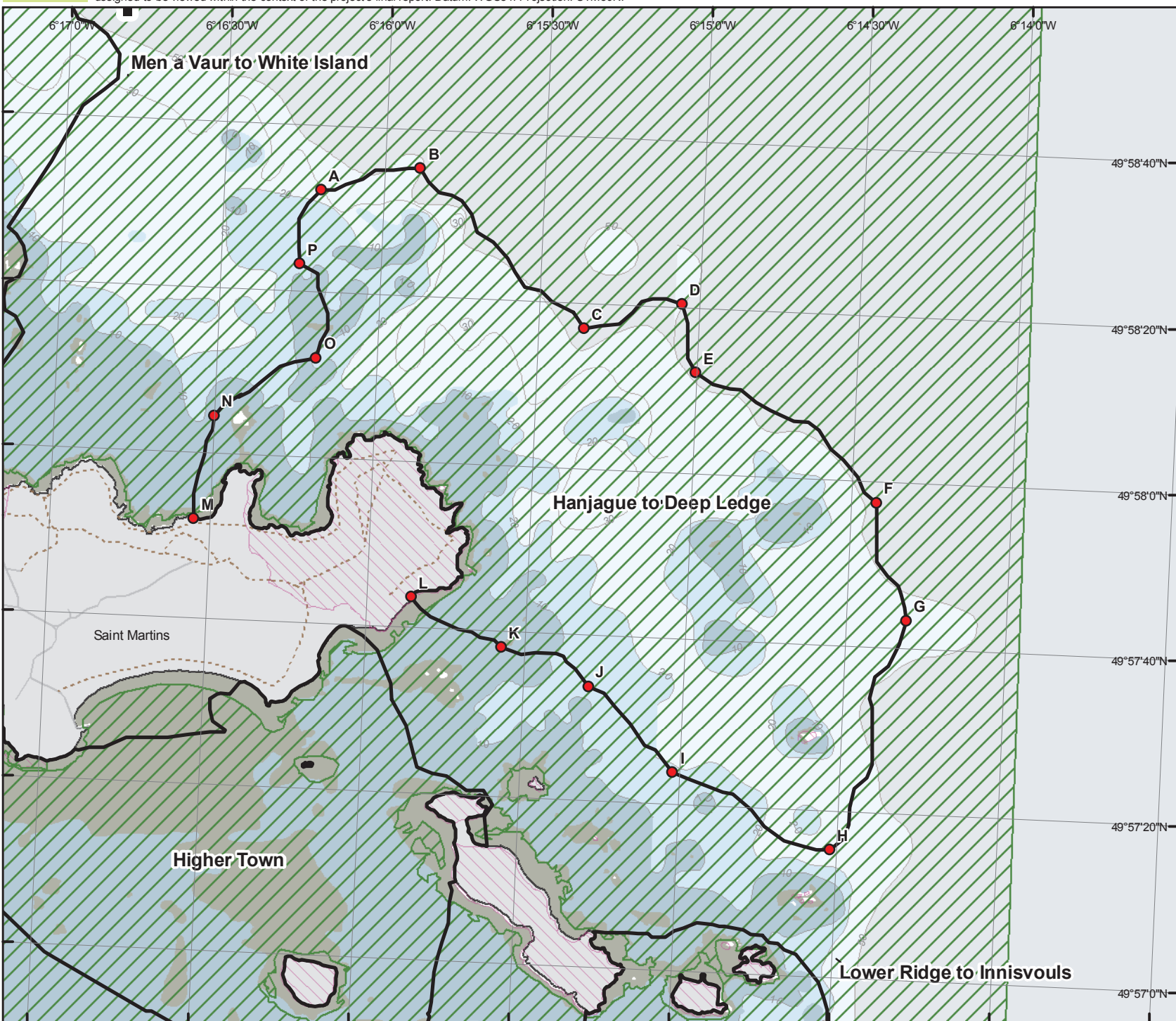


Isles of Scilly Sites rMCZ (Hanjague to Deep Ledge)

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 0.25 0.5 1 km



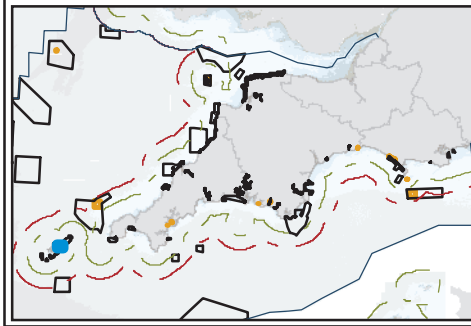
Lat/Long Co-ordinates (WGS84)

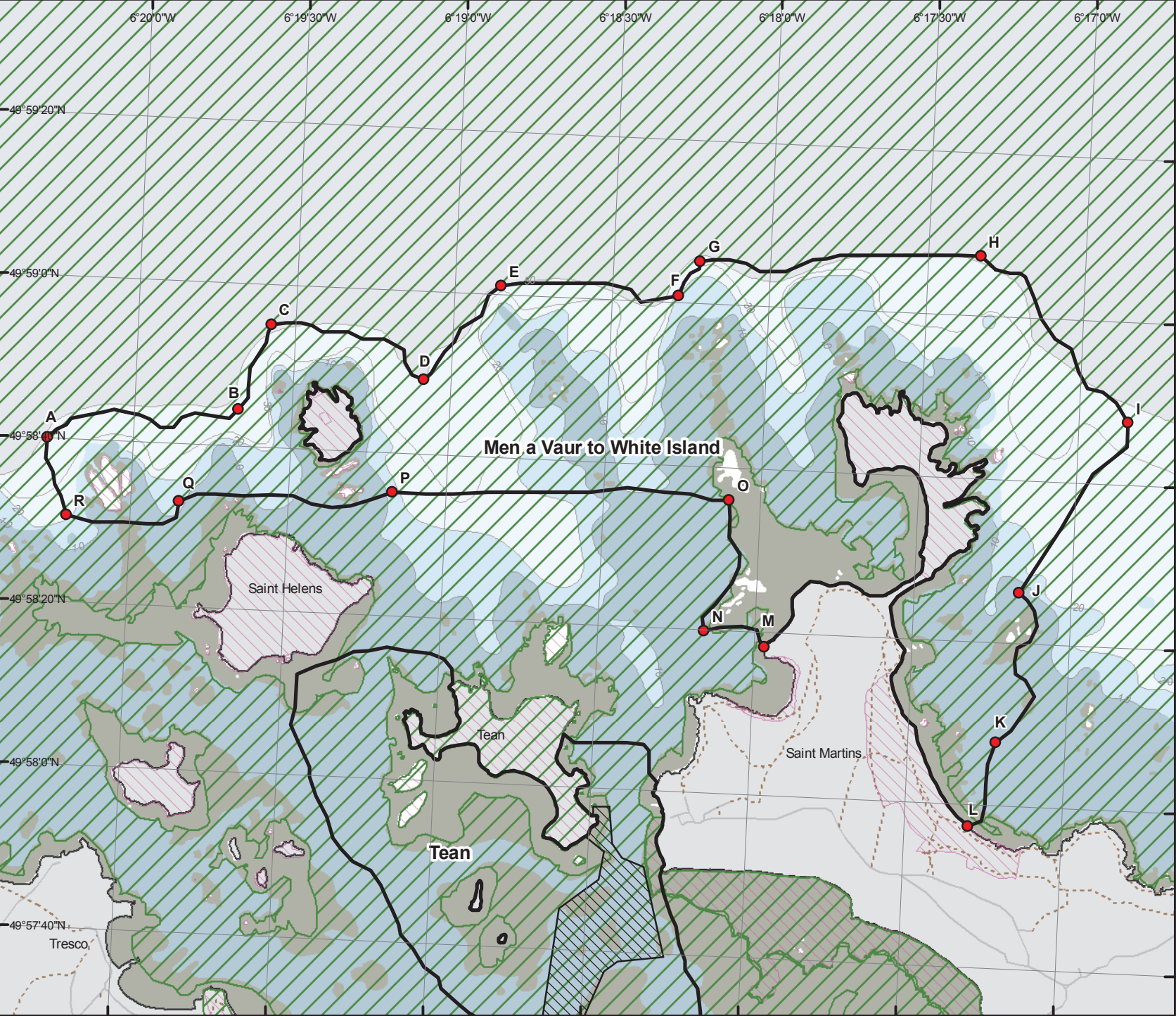
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	49.9756	-6.2698	49° 58' 32" N	6° 16' 11" W
B	49.9765	-6.2647	49° 58' 35" N	6° 15' 53" W
C	49.9714	-6.2559	49° 58' 16" N	6° 15' 21" W
D	49.9723	-6.2508	49° 58' 20" N	6° 15' 2" W
E	49.9701	-6.2500	49° 58' 12" N	6° 14' 59" W
F	49.9660	-6.2403	49° 57' 57" N	6° 14' 24" W
G	49.9621	-6.2385	49° 57' 43" N	6° 14' 18" W
H	49.9543	-6.2419	49° 57' 15" N	6° 14' 30" W
I	49.9566	-6.2503	49° 57' 23" N	6° 15' 0" W
J	49.9594	-6.2548	49° 57' 33" N	6° 15' 17" W
K	49.9606	-6.2595	49° 57' 38" N	6° 15' 34" W
L	49.9621	-6.2642	49° 57' 43" N	6° 15' 51" W
M	49.9644	-6.2757	49° 57' 51" N	6° 16' 32" W
N	49.9679	-6.2749	49° 58' 4" N	6° 16' 29" W
O	49.9700	-6.2697	49° 58' 12" N	6° 16' 11" W
P	49.9731	-6.2708	49° 58' 23" N	6° 16' 14" W

Map Legend

- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





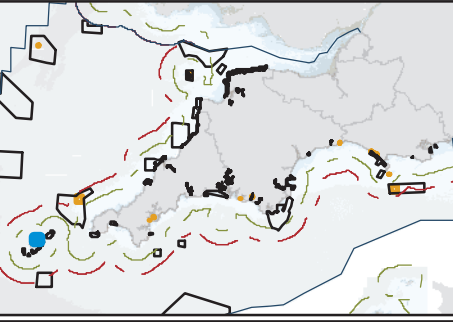
Lat/Long Co-ordinates (WGS84)

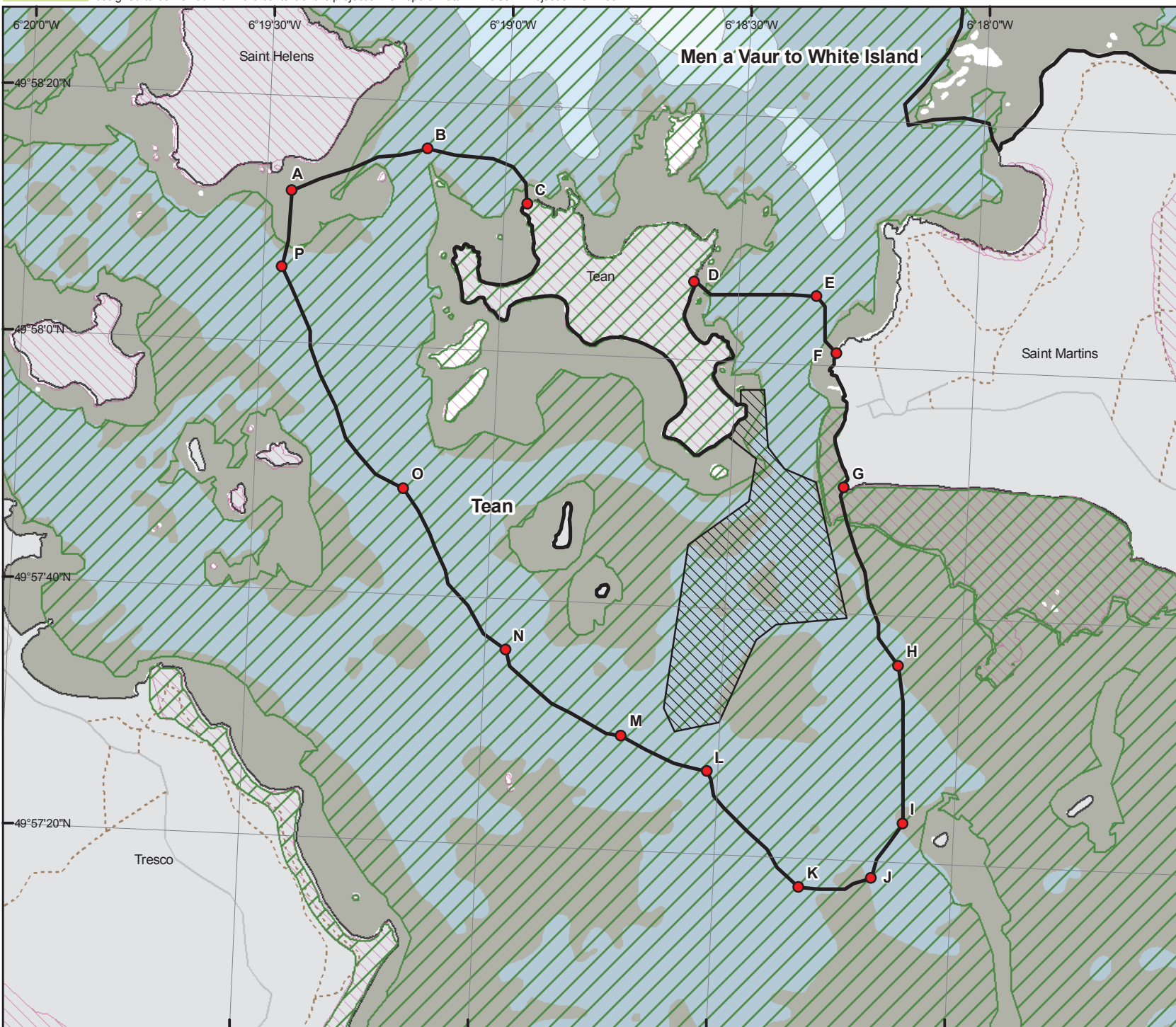
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A	49.9778	-6.3378	49° 58' 40" N	6° 20' 15" W
B	49.9790	-6.3278	49° 58' 44" N	6° 19' 39" W
C	49.9820	-6.3262	49° 58' 55" N	6° 19' 34" W
D	49.9803	-6.3180	49° 58' 49" N	6° 19' 4" W
E	49.9836	-6.3141	49° 59' 1" N	6° 18' 50" W
F	49.9836	-6.3047	49° 59' 0" N	6° 18' 17" W
G	49.9848	-6.3036	49° 59' 5" N	6° 18' 13" W
H	49.9854	-6.2888	49° 59' 7" N	6° 17' 19" W
I	49.9799	-6.2806	49° 58' 47" N	6° 16' 50" W
J	49.9739	-6.2860	49° 58' 26" N	6° 17' 9" W
K	49.9688	-6.2869	49° 58' 7" N	6° 17' 12" W
L	49.9659	-6.2882	49° 57' 57" N	6° 17' 17" W
M	49.9717	-6.2994	49° 58' 18" N	6° 17' 57" W
N	49.9722	-6.3026	49° 58' 19" N	6° 18' 9" W
O	49.9767	-6.3016	49° 58' 36" N	6° 18' 5" W
P	49.9764	-6.3194	49° 58' 35" N	6° 19' 9" W
Q	49.9758	-6.3307	49° 58' 32" N	6° 19' 50" W
R	49.9752	-6.3366	49° 58' 30" N	6° 20' 11" W

Map Legend

- Recommended MCZ (rMCZ)
- Zone within a rMCZ
- Existing MPAs
 - SAC
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





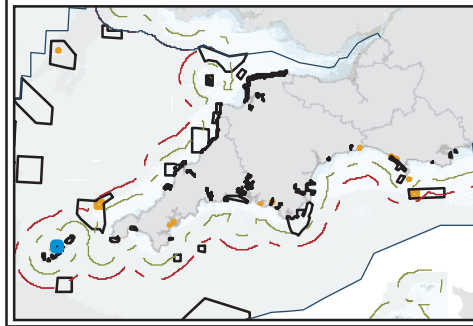
Lat/Long Co-ordinates (WGS84)

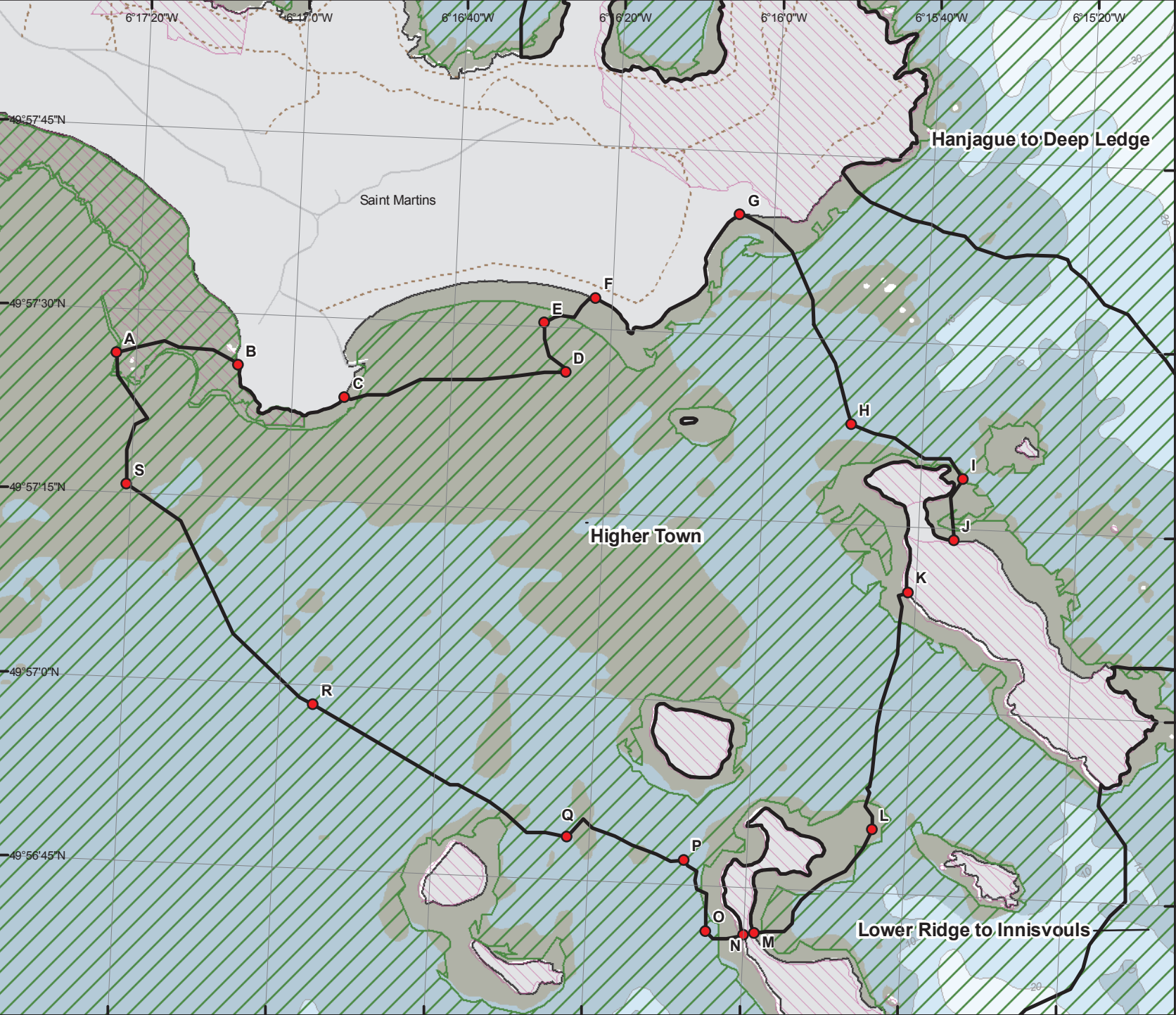
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
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B	49.9712	-6.3193	49° 58' 16" N	6° 19' 9" W
C	49.9700	-6.3157	49° 58' 12" N	6° 18' 56" W
D	49.9684	-6.3098	49° 58' 6" N	6° 18' 35" W
E	49.9682	-6.3055	49° 58' 5" N	6° 18' 19" W
F	49.9669	-6.3047	49° 58' 1" N	6° 18' 17" W
G	49.9639	-6.3043	49° 57' 50" N	6° 18' 15" W
H	49.9600	-6.3021	49° 57' 35" N	6° 18' 7" W
I	49.9564	-6.3017	49° 57' 23" N	6° 18' 6" W
J	49.9552	-6.3027	49° 57' 18" N	6° 18' 9" W
K	49.9549	-6.3052	49° 57' 17" N	6° 18' 18" W
L	49.9574	-6.3086	49° 57' 26" N	6° 18' 30" W
M	49.9581	-6.3117	49° 57' 29" N	6° 18' 41" W
N	49.9600	-6.3158	49° 57' 35" N	6° 18' 56" W
O	49.9635	-6.3196	49° 57' 48" N	6° 19' 10" W
P	49.9684	-6.3242	49° 58' 6" N	6° 19' 27" W

Map Legend

- Recommended MCZ (rMCZ)
- Zone within a rMCZ
- Existing MPAs**
 - SAC
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





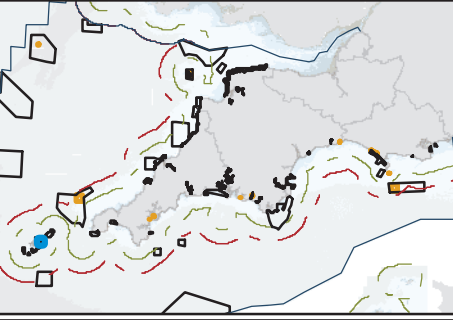
Lat/Long Co-ordinates (WGS84)

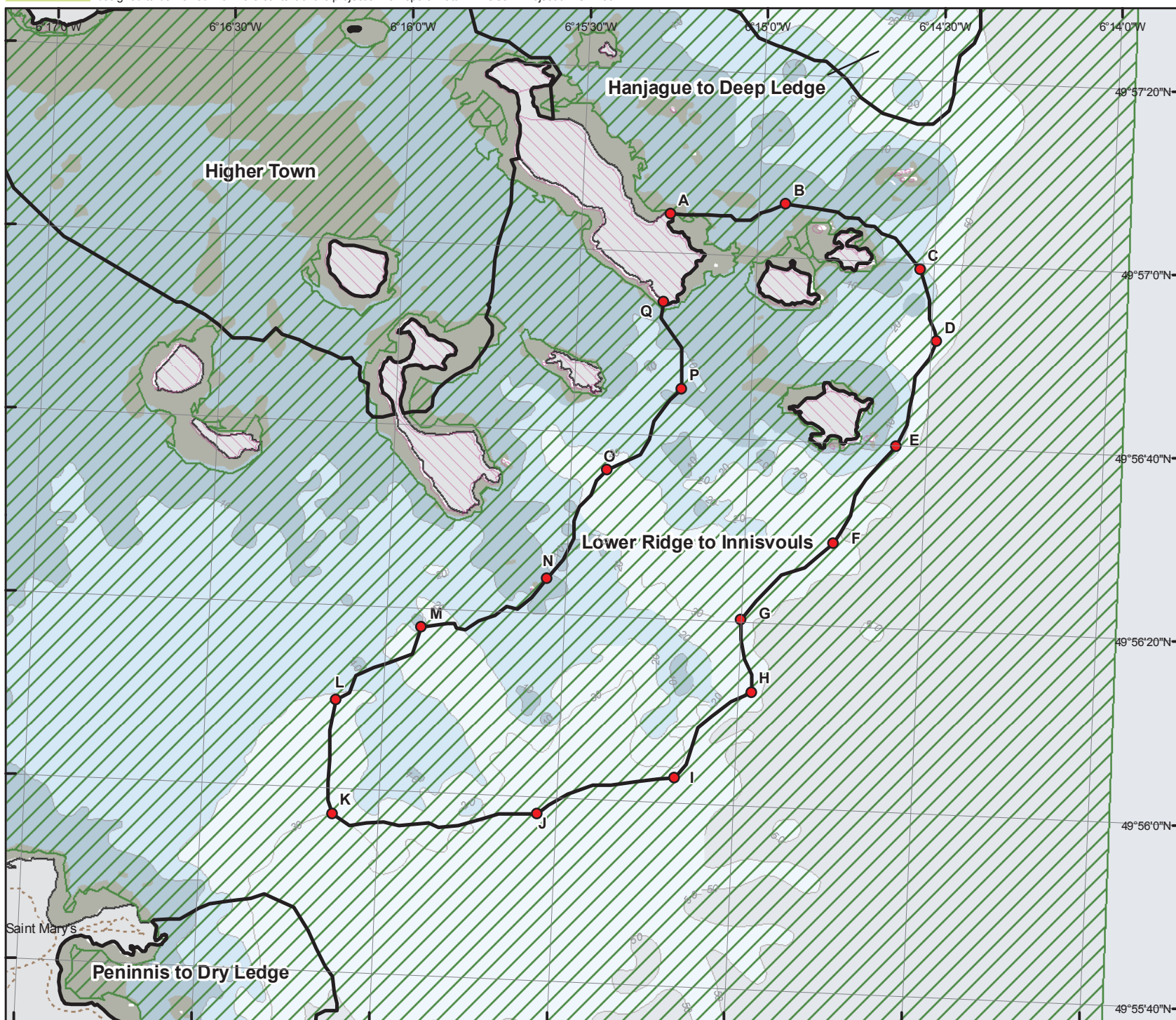
	Decimal degrees		Degrees Minutes Seconds	
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B	49.9572	-6.2852	49° 57' 25" N	6° 17' 6" W
C	49.9565	-6.2814	49° 57' 23" N	6° 16' 52" W
D	49.9573	-6.2736	49° 57' 26" N	6° 16' 25" W
E	49.9584	-6.2745	49° 57' 30" N	6° 16' 28" W
F	49.9590	-6.2727	49° 57' 32" N	6° 16' 21" W
G	49.9611	-6.2678	49° 57' 39" N	6° 16' 4" W
H	49.9564	-6.2635	49° 57' 23" N	6° 15' 48" W
I	49.9553	-6.2595	49° 57' 19" N	6° 15' 34" W
J	49.9539	-6.2598	49° 57' 14" N	6° 15' 35" W
K	49.9527	-6.2613	49° 57' 9" N	6° 15' 40" W
L	49.9473	-6.2622	49° 56' 50" N	6° 15' 43" W
M	49.9448	-6.2662	49° 56' 41" N	6° 15' 58" W
N	49.9447	-6.2665	49° 56' 41" N	6° 15' 59" W
O	49.9448	-6.2679	49° 56' 41" N	6° 16' 4" W
P	49.9464	-6.2687	49° 56' 47" N	6° 16' 7" W
Q	49.9468	-6.2729	49° 56' 48" N	6° 16' 22" W
R	49.9495	-6.2820	49° 56' 58" N	6° 16' 55" W
S	49.9544	-6.2889	49° 57' 15" N	6° 17' 20" W

Map Legend

- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





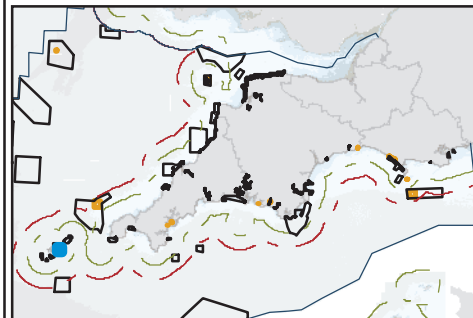
Lat/Long Co-ordinates (WGS84)

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A	49.9512	-6.2540	49° 57' 4" N	6° 15' 14" W
B	49.9516	-6.2487	49° 57' 5" N	6° 14' 55" W
C	49.9498	-6.2422	49° 56' 59" N	6° 14' 32" W
D	49.9477	-6.2413	49° 56' 51" N	6° 14' 28" W
E	49.9444	-6.2430	49° 56' 39" N	6° 14' 34" W
F	49.9414	-6.2457	49° 56' 29" N	6° 14' 44" W
G	49.9390	-6.2499	49° 56' 20" N	6° 14' 59" W
H	49.9368	-6.2493	49° 56' 12" N	6° 14' 57" W
I	49.9341	-6.2527	49° 56' 2" N	6° 15' 9" W
J	49.9328	-6.2591	49° 55' 58" N	6° 15' 32" W
K	49.9326	-6.2687	49° 55' 57" N	6° 16' 7" W
L	49.9360	-6.2688	49° 56' 9" N	6° 16' 7" W
M	49.9383	-6.2649	49° 56' 18" N	6° 15' 53" W
N	49.9400	-6.2591	49° 56' 23" N	6° 15' 32" W
O	49.9433	-6.2565	49° 56' 36" N	6° 15' 23" W
P	49.9459	-6.2532	49° 56' 45" N	6° 15' 11" W
Q	49.9485	-6.2542	49° 56' 54" N	6° 15' 15" W

Map Legend

- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

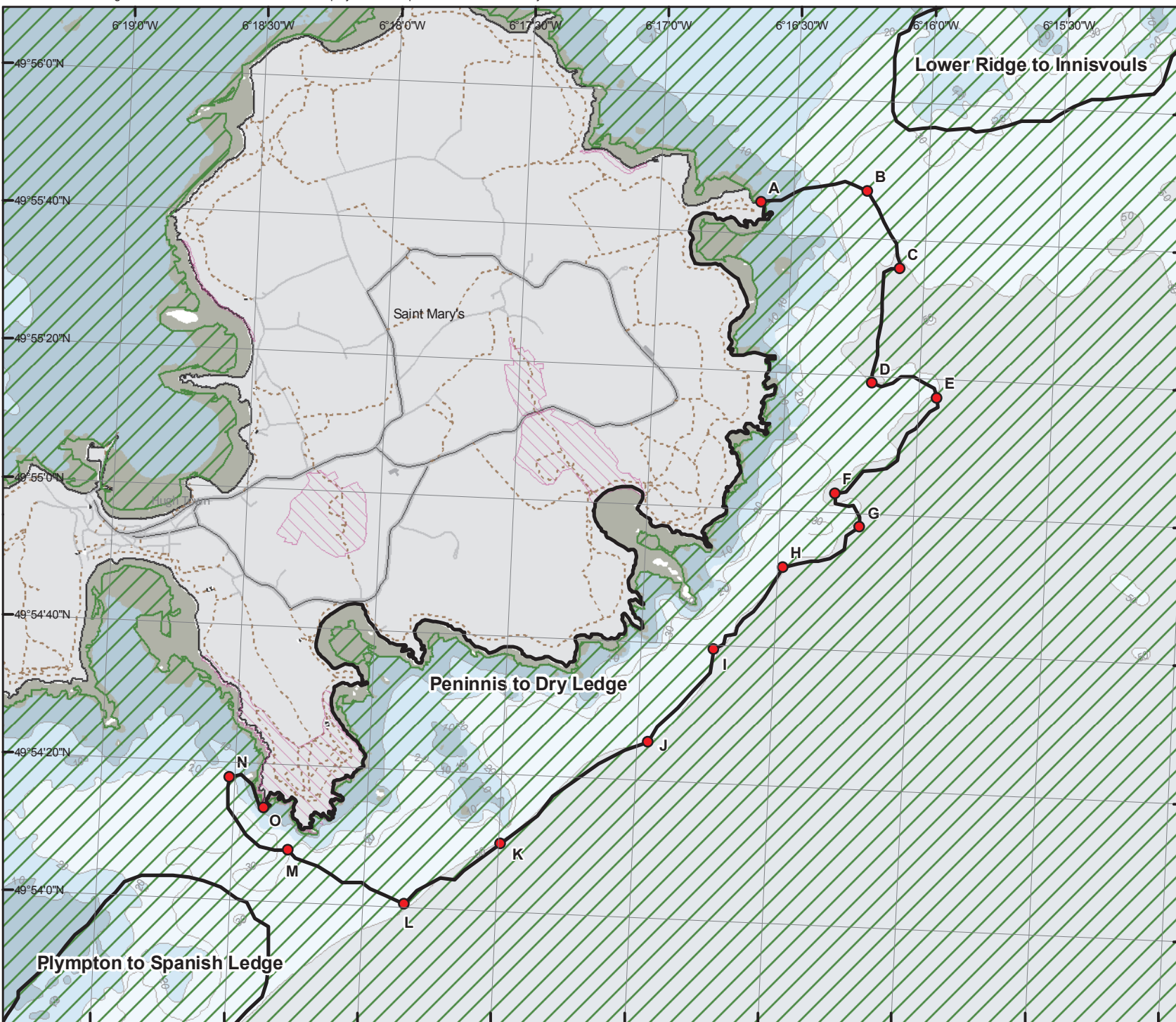


Isles of Scilly Sites rMCZ (Peninnis to Dry Ledge)

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 0.25 0.5 1 km



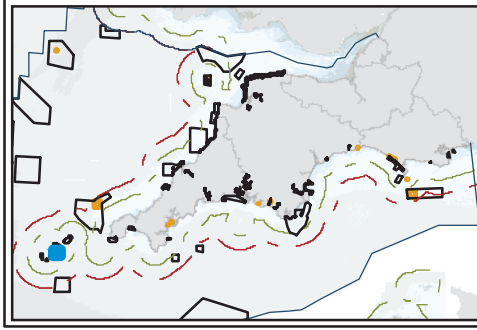
Lat/Long Co-ordinates (WGS84)

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A	49.9291	-6.2769	49° 55' 44" N	6° 16' 36" W
B	49.9297	-6.2703	49° 55' 46" N	6° 16' 13" W
C	49.9266	-6.2681	49° 55' 35" N	6° 16' 5" W
D	49.9220	-6.2695	49° 55' 19" N	6° 16' 10" W
E	49.9215	-6.2654	49° 55' 17" N	6° 15' 55" W
F	49.9175	-6.2715	49° 55' 2" N	6° 16' 17" W
G	49.9162	-6.2699	49° 54' 58" N	6° 16' 11" W
H	49.9144	-6.2746	49° 54' 51" N	6° 16' 28" W
I	49.9110	-6.2787	49° 54' 39" N	6° 16' 43" W
J	49.9071	-6.2825	49° 54' 25" N	6° 16' 57" W
K	49.9028	-6.2914	49° 54' 9" N	6° 17' 29" W
L	49.9002	-6.2973	49° 54' 0" N	6° 17' 50" W
M	49.9021	-6.3047	49° 54' 7" N	6° 18' 16" W
N	49.9050	-6.3085	49° 54' 17" N	6° 18' 30" W
O	49.9038	-6.3063	49° 54' 13" N	6° 18' 22" W

Map Legend

- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

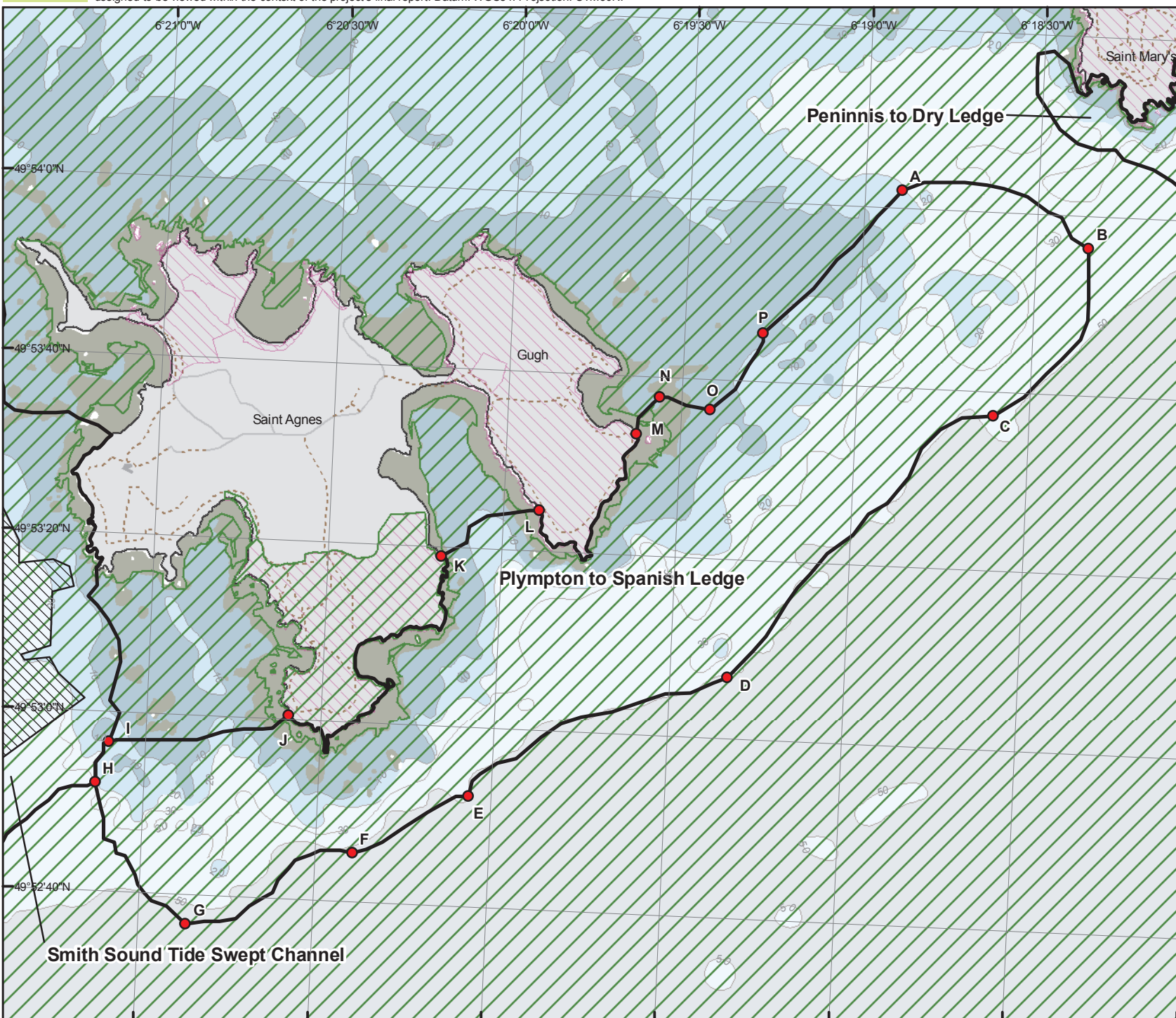


Isles of Scilly Sites rMCZ (Plympton to Spanish Ledge)

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 0.2 0.4 0.8 km



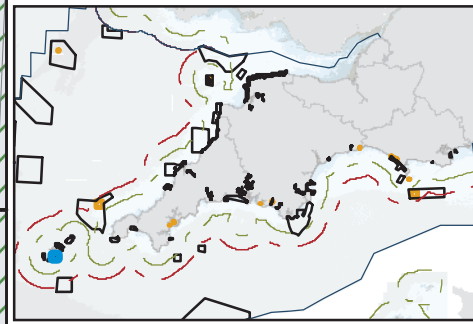
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	49.9006	-6.3148	49° 54' 2" N	6° 18' 53" W
B	49.8990	-6.3057	49° 53' 56" N	6° 18' 20" W
C	49.8937	-6.3099	49° 53' 37" N	6° 18' 35" W
D	49.8852	-6.3221	49° 53' 6" N	6° 19' 19" W
E	49.8812	-6.3343	49° 52' 52" N	6° 20' 3" W
F	49.8793	-6.3397	49° 52' 45" N	6° 20' 22" W
G	49.8769	-6.3476	49° 52' 36" N	6° 20' 51" W
H	49.8811	-6.3522	49° 52' 52" N	6° 21' 7" W
I	49.8824	-6.3516	49° 52' 56" N	6° 21' 5" W
J	49.8835	-6.3431	49° 53' 0" N	6° 20' 35" W
K	49.8886	-6.3361	49° 53' 18" N	6° 20' 9" W
L	49.8902	-6.3315	49° 53' 24" N	6° 19' 53" W
M	49.8927	-6.3270	49° 53' 33" N	6° 19' 37" W
N	49.8938	-6.3260	49° 53' 37" N	6° 19' 33" W
O	49.8935	-6.3235	49° 53' 36" N	6° 19' 24" W
P	49.8959	-6.3211	49° 53' 45" N	6° 19' 16" W

Map Legend

- Recommended MCZ (rMCZ)
- Zone within a rMCZ
- Existing MPAs**
 - SAC
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



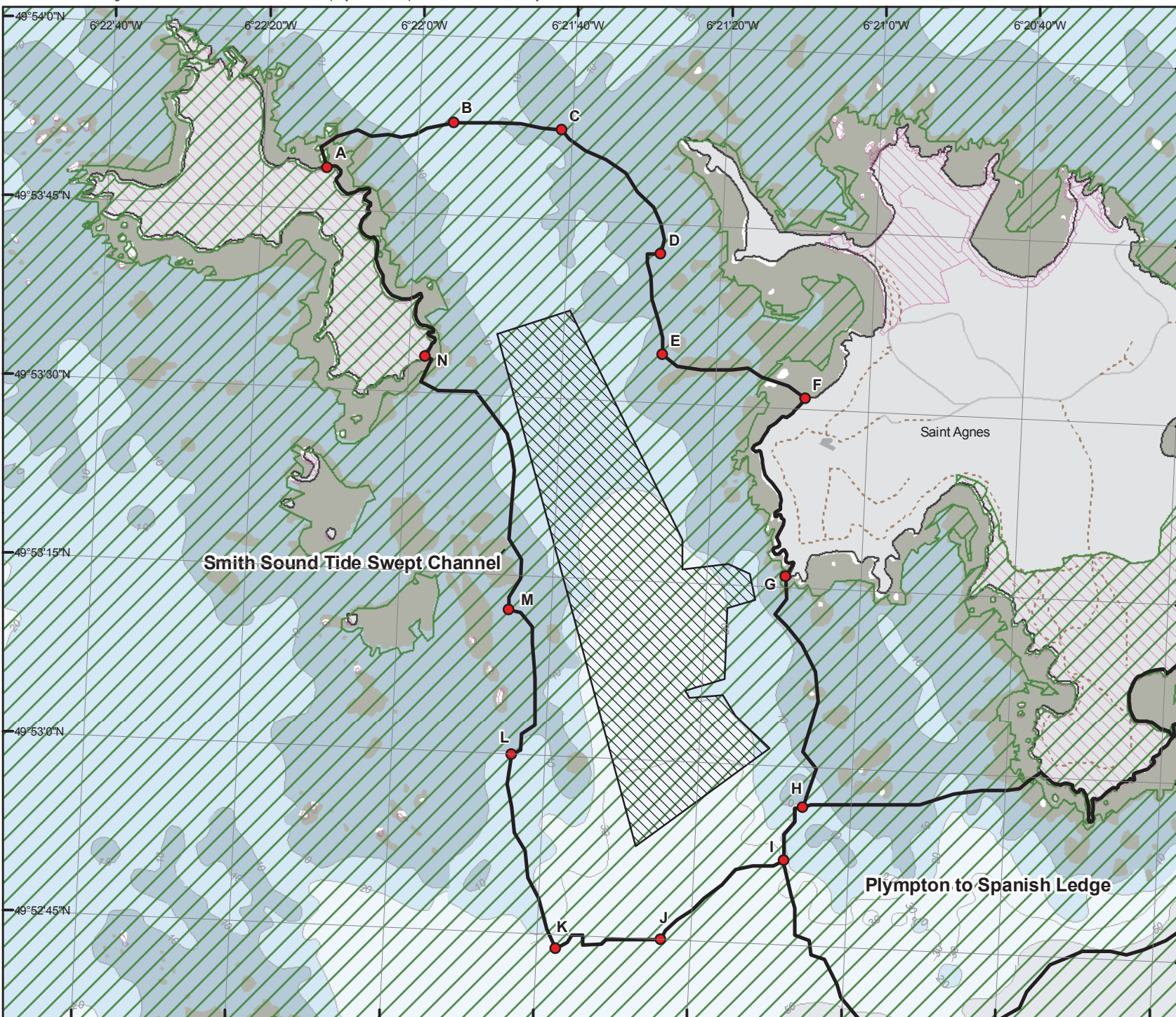
Isles of Scilly Sites rMCZ (Smith Sound Tide Swept Channel)

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 0.15 0.3 0.6 km

N



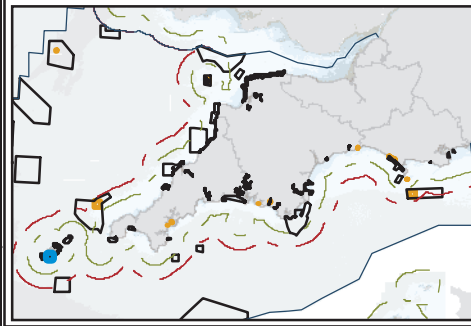
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	49.8968	-6.3698	49° 53' 48" N	6° 22' 11" W
B	49.8980	-6.3653	49° 53' 52" N	6° 21' 55" W
C	49.8979	-6.3614	49° 53' 52" N	6° 21' 41" W
D	49.8951	-6.3576	49° 53' 42" N	6° 21' 27" W
E	49.8928	-6.3574	49° 53' 34" N	6° 21' 26" W
F	49.8919	-6.3522	49° 53' 30" N	6° 21' 7" W
G	49.8877	-6.3526	49° 53' 15" N	6° 21' 9" W
H	49.8824	-6.3516	49° 52' 56" N	6° 21' 5" W
I	49.8811	-6.3522	49° 52' 52" N	6° 21' 7" W
J	49.8792	-6.3565	49° 52' 44" N	6° 21' 23" W
K	49.8788	-6.3603	49° 52' 43" N	6° 21' 37" W
L	49.8833	-6.3622	49° 52' 59" N	6° 21' 43" W
M	49.8867	-6.3625	49° 53' 12" N	6° 21' 45" W
N	49.8925	-6.3660	49° 53' 32" N	6° 21' 57" W

Map Legend

- Recommended MCZ (rMCZ)
- Zone within a rMCZ
- Existing MPAs**
- SAC
- SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

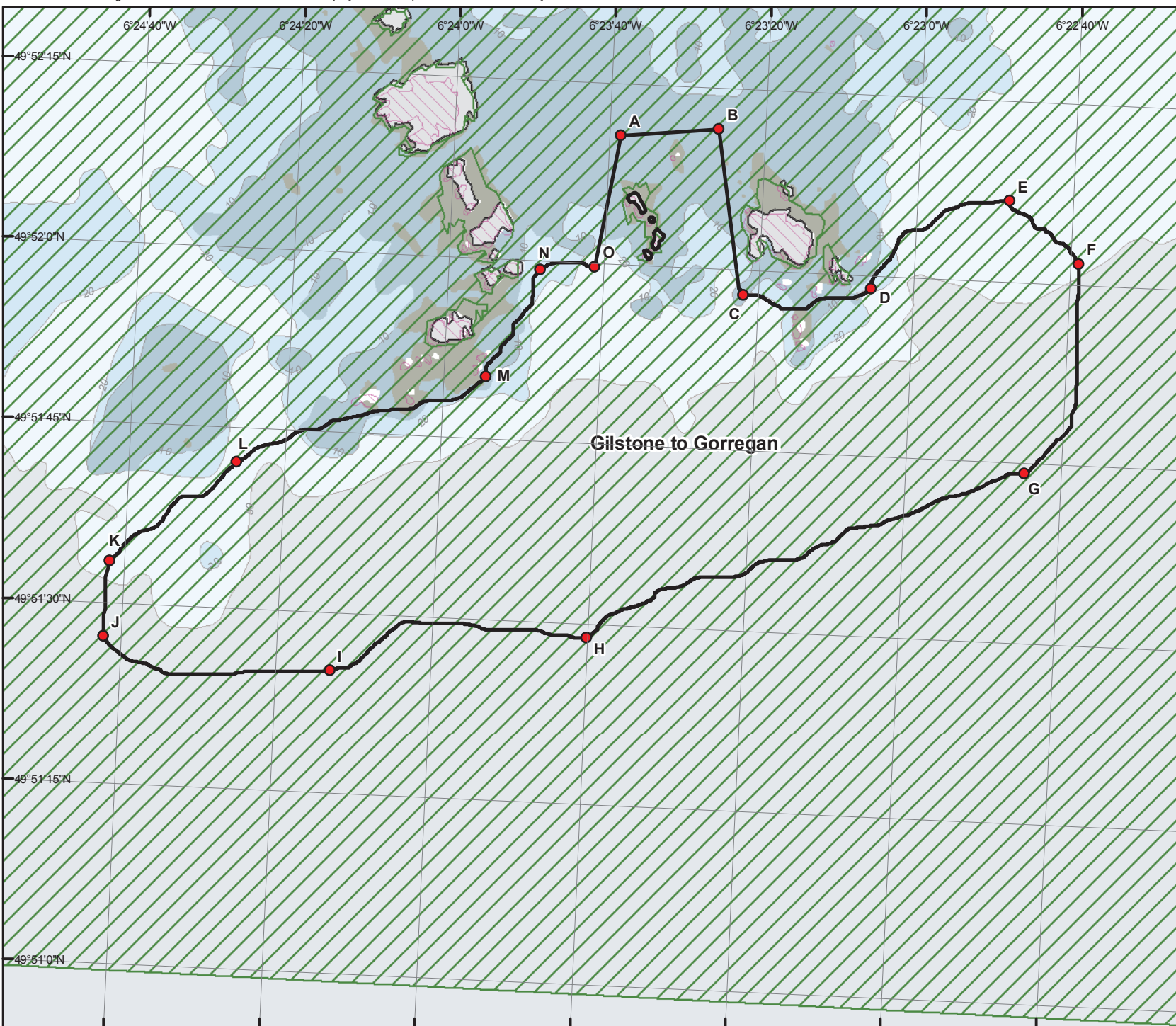


Isles of Scilly Sites rMCZ (Gilstone to Gorregan)

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 0.15 0.3 0.6 km



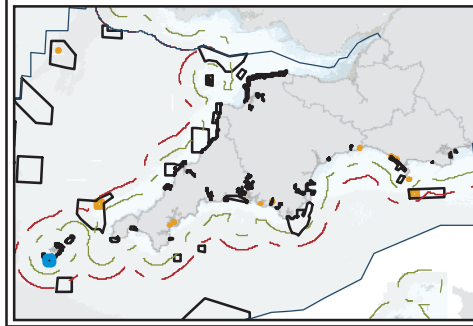
Lat/Long Co-ordinates (WGS84)

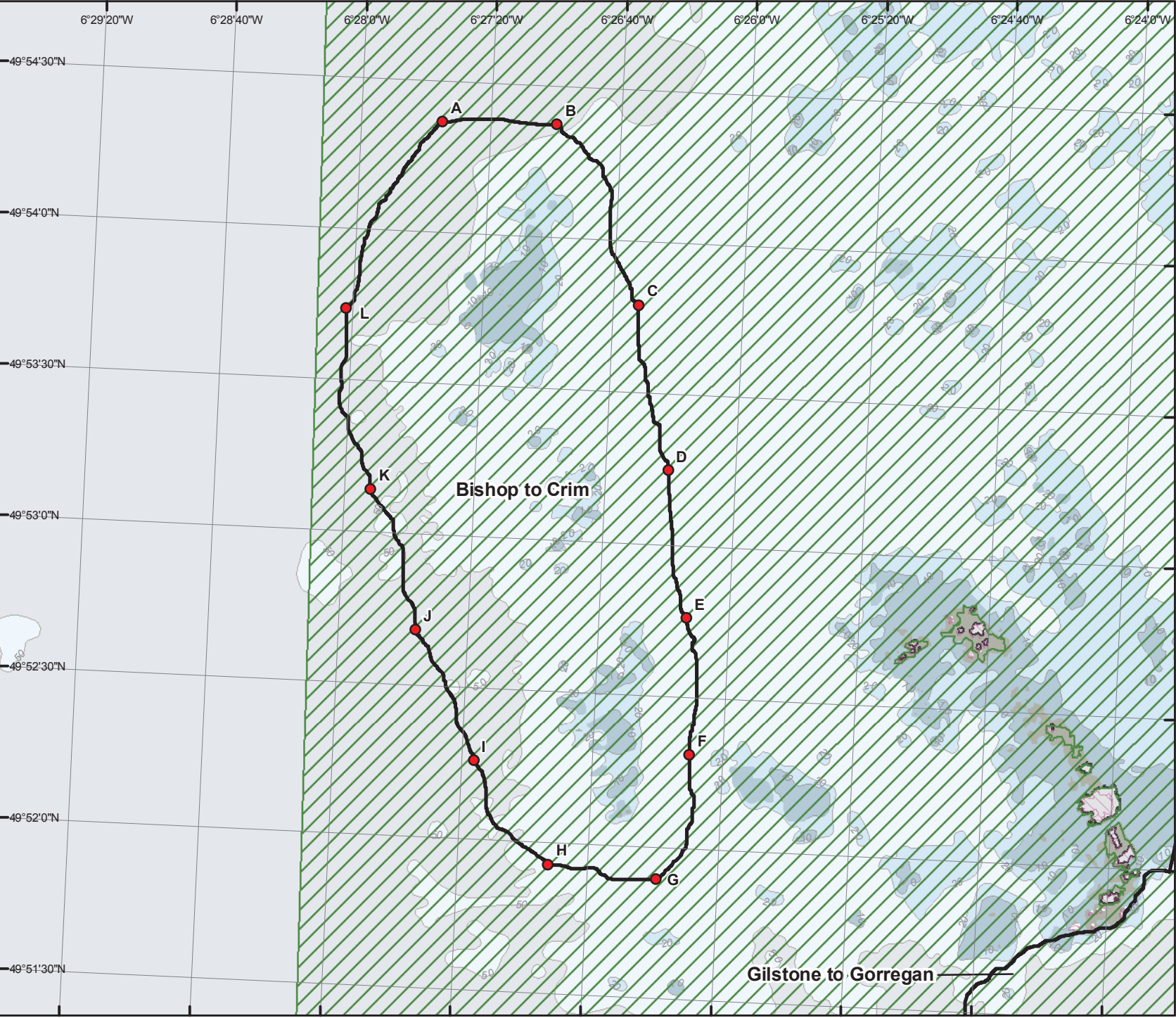
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	Lat	Long	Lat	Long
A	49.8696	-6.3939	49° 52' 10" N	6° 23' 38" W
B	49.8699	-6.3904	49° 52' 11" N	6° 23' 25" W
C	49.8661	-6.3893	49° 51' 57" N	6° 23' 21" W
D	49.8664	-6.3847	49° 51' 58" N	6° 23' 5" W
E	49.8685	-6.3799	49° 52' 6" N	6° 22' 47" W
F	49.8672	-6.3774	49° 52' 1" N	6° 22' 38" W
G	49.8623	-6.3790	49° 51' 44" N	6° 22' 44" W
H	49.8580	-6.3944	49° 51' 28" N	6° 23' 39" W
I	49.8570	-6.4035	49° 51' 25" N	6° 24' 12" W
J	49.8575	-6.4116	49° 51' 27" N	6° 24' 41" W
K	49.8593	-6.4115	49° 51' 33" N	6° 24' 41" W
L	49.8617	-6.4071	49° 51' 42" N	6° 24' 25" W
M	49.8639	-6.3984	49° 51' 50" N	6° 23' 54" W
N	49.8665	-6.3966	49° 51' 59" N	6° 23' 47" W
O	49.8666	-6.3947	49° 51' 59" N	6° 23' 40" W

Map Legend

- Recommended MCZ (rMCZ)
- Existing MPAs
- SAC
- SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





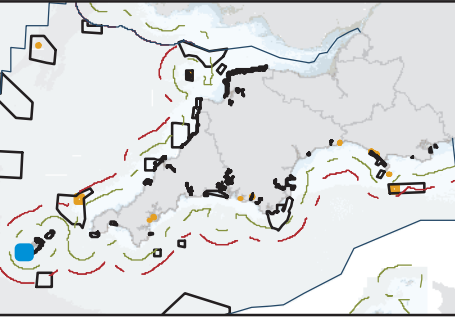
Lat/Long Co-ordinates (WGS84)

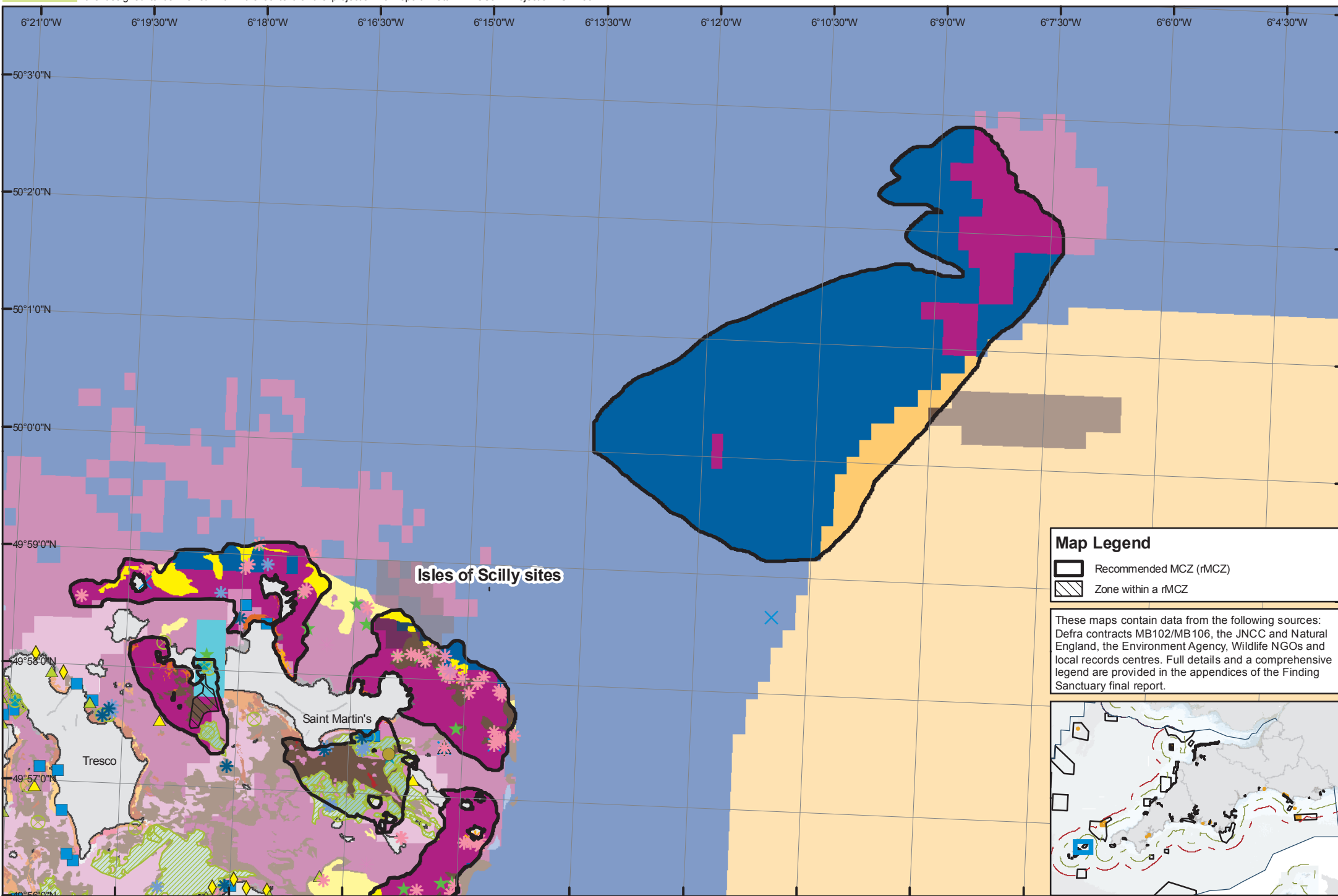
Decimal degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
A 49.9061	-6.4596	49° 54' 21" N	6° 27' 34" W
B 49.9062	-6.4498	49° 54' 22" N	6° 26' 59" W
C 49.8965	-6.4421	49° 53' 47" N	6° 26' 31" W
D 49.8874	-6.4390	49° 53' 14" N	6° 26' 20" W
E 49.8794	-6.4368	49° 52' 45" N	6° 26' 12" W
F 49.8718	-6.4361	49° 52' 18" N	6° 26' 9" W
G 49.8649	-6.4384	49° 51' 53" N	6° 26' 18" W
H 49.8654	-6.4477	49° 51' 55" N	6° 26' 51" W
I 49.8710	-6.4544	49° 52' 15" N	6° 27' 15" W
J 49.8780	-6.4599	49° 52' 40" N	6° 27' 35" W
K 49.8856	-6.4643	49° 53' 8" N	6° 27' 51" W

Map Legend

- Recommended MCZ (rMCZ)
- Existing MPAs
 - SAC
 - SSSI (not part of MPA network)

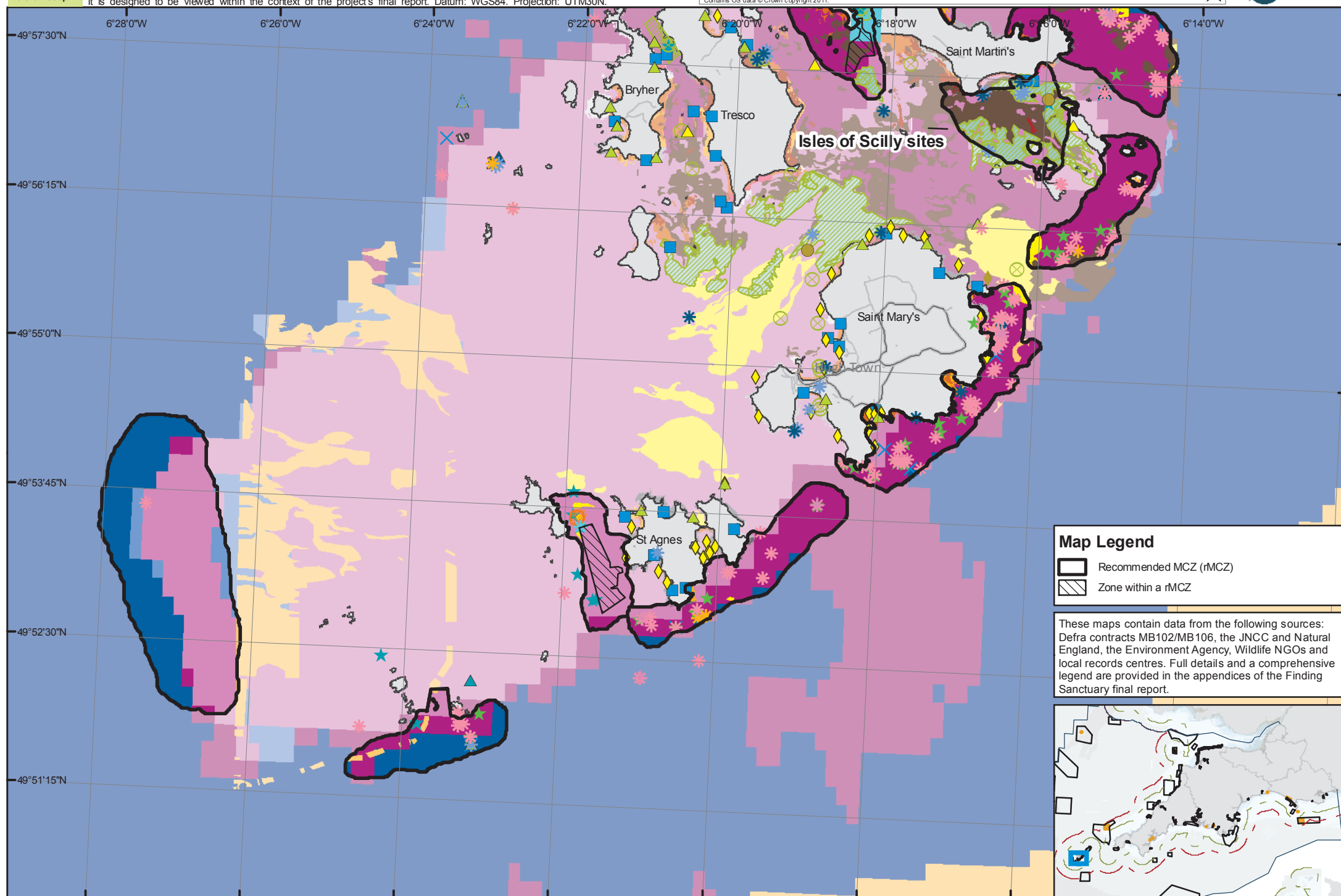
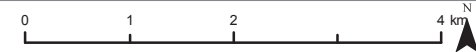
A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

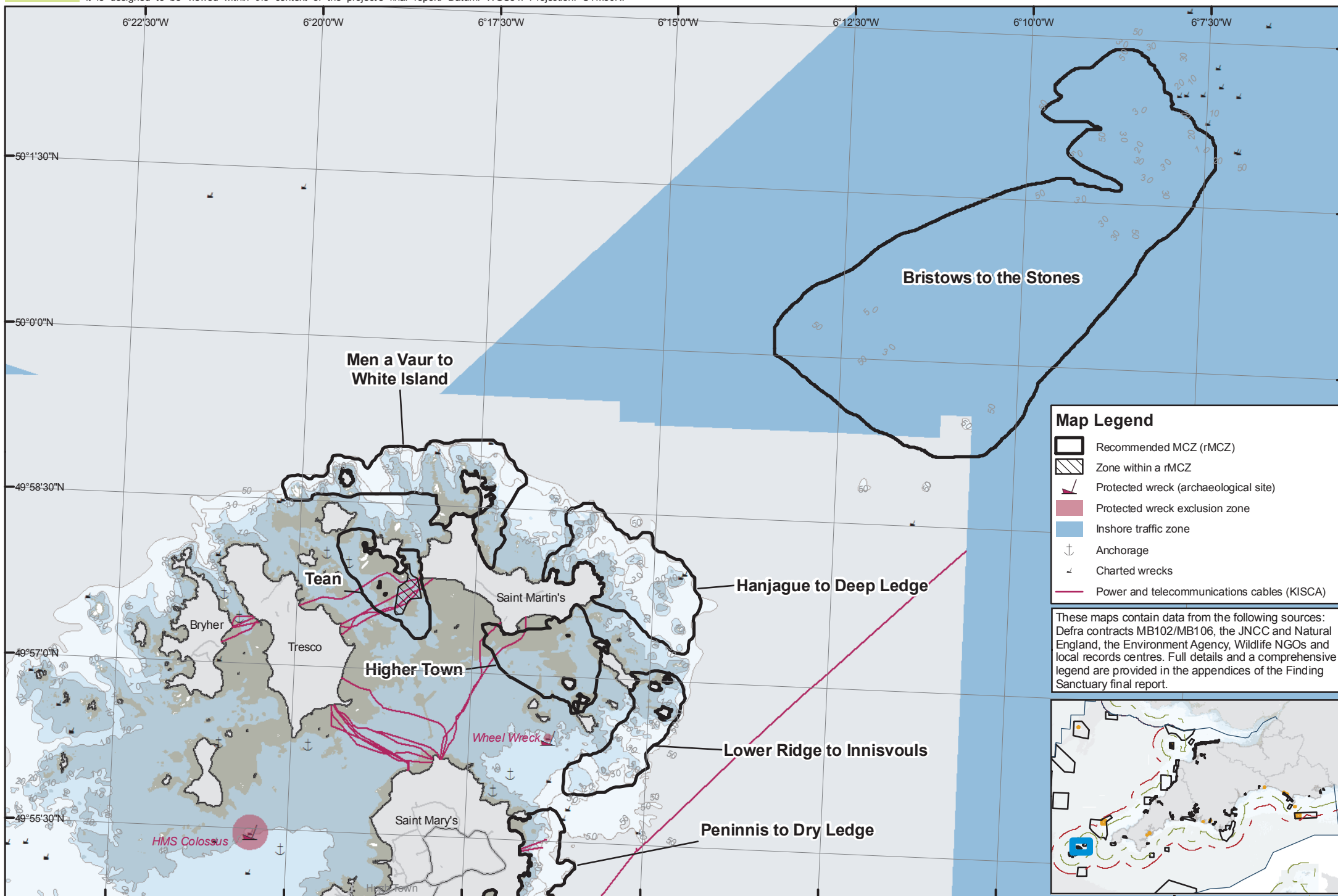


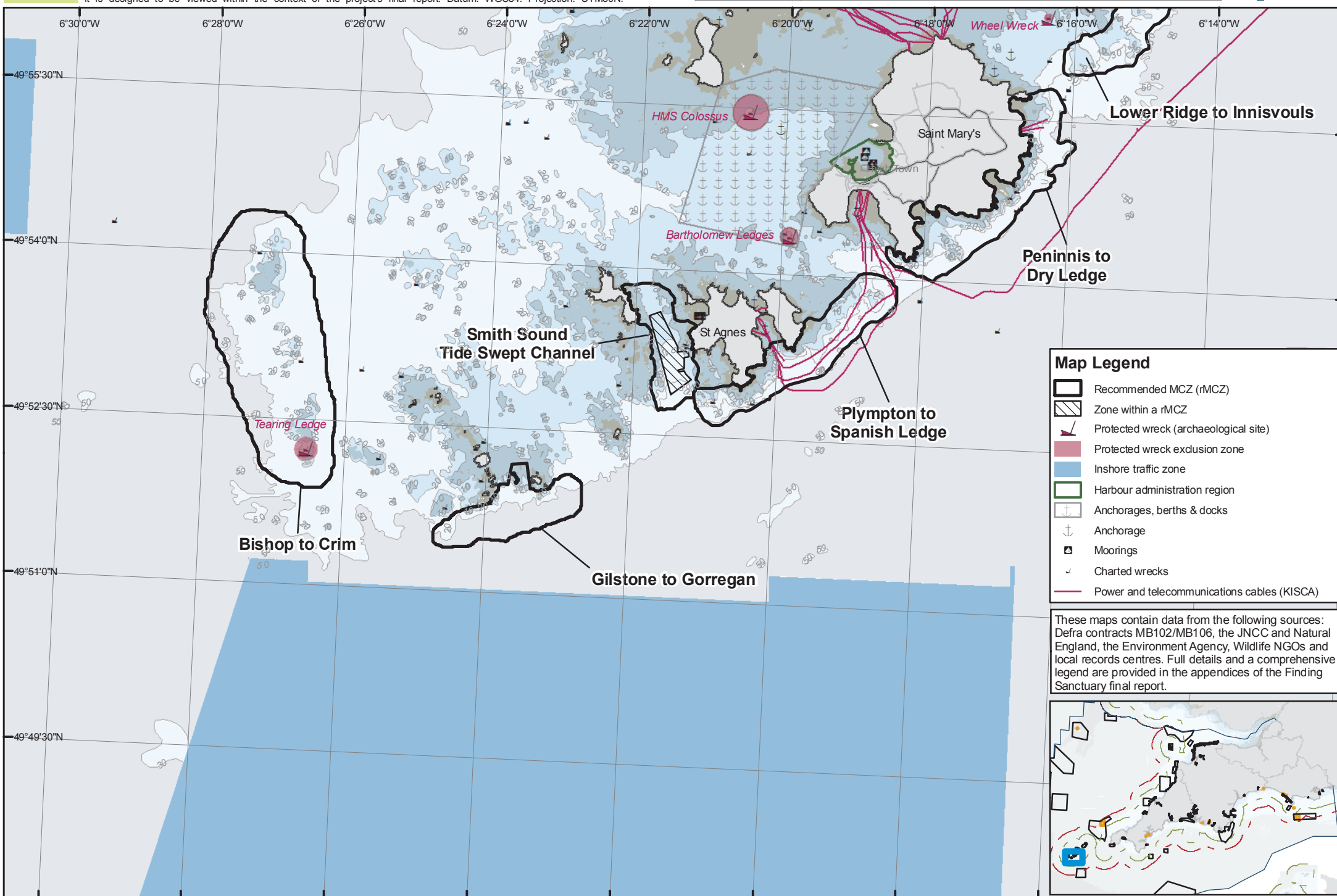


This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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Contains OS data © Crown copyright 2011.







II.3.36 Cape Bank rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.2173	-5.9216	50° 13' 2" N	5° 55' 17" W

Site surface area: 472.66 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: This site straddles the 6nm and 12nm limits. The eastern boundary follows the boundary of the Cape Bank section of the Land's End and Cape Bank cSAC. The western boundary extends beyond the 12nm limit, overlapping with a Traffic Separation Scheme (the overlap with the TSS was seen as a way to reduce potential impacts on fishing and future renewables development).

Sites to which the site is related: The site completely includes the Cape Bank section of the Land's End and Cape Bank cSAC. It also contains Cape Bank recommended reference area.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Cape Bank rMCZ

Table II.3.36a Draft conservation objectives for the Cape Bank rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.1. The full text of the draft conservation objectives can be found in appendix 15.

Broad-scale habitats	Moderate energy circalittoral rock		R
	Subtidal coarse sediment		R
Species FOCI	<i>Palinurus elephas</i>	Spiny lobster	R

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.36b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy circalittoral rock	19.50	0.1%	1
Subtidal coarse sediment	308.11	1.1%	1
High energy infralittoral rock ¹	9.47	1.3%	1
Moderate energy infralittoral rock ¹	6.84	2.2%	1
High energy circalittoral rock ¹	3.18	0.2%	1
Moderate energy circalittoral rock ¹	125.56	0.7%	1

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

Table II.3.36c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	115.47			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.36d **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Palinurus elephas</i>	2		1

Note that the FOCI habitat 'Fragile sponge and anthozoan communities on subtidal rocky habitats' is also present in the area, indicated in the gap analysis, and in recent survey information from Natural England (although there are no records present in the national datasets), but is already protected within the SAC boundary. The SAC selection assessment document⁴⁶ (Natural England, 2010) indicates that the identified reef biotopes most similar to this FOCI are mostly found within the Cape Bank area. These may also be present outside the cSAC boundary where there is additional rocky habitat, in which case the rMCZ would contribute additional protection.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The Cape Bank site lies to the west of the Land's End peninsula and extends to almost 25 km from the coast. The reefs are fully submarine, upstanding features which are almost entirely composed of granite. The site an offshore upstanding reef which extends in a broad, arching crescent roughly

⁴⁶ http://www.naturalengland.org.uk/Images/LECB-sad_tcm6-21669.pdf

aligned with the coastline. The crescent shaped system of offshore upstanding rocky reefs forms the major feature of conservation interest at the site. The site occupies a depth range of 30 – 75 metres. The reef is characterised by high biodiversity tide-swept communities such as sponges, faunal and algal turfs and crustose communities (Natural England, 2010). The rMCZ encompasses Cape Bank itself, as well as an area of subtidal coarse sediment to the west of it.

There is anecdotal evidence that the moderate energy circalittoral rock in the western portion of the site is not bedrock-reef, but cobbles (this has been stated by several Working Group members). Local Group feedback indicates that this area is an area of added ecological importance for the pelagic realm, with frontal activity, and used by summer foraging birds, including sea bird colonies on the Isles of Scilly such as kittiwake, puffin, guillemot and razorbill. Fin whales are present in the area in winter.

Detailed site description

The crescent shaped system of offshore upstanding rocky reefs forms the major feature of conservation interest at the Land's End and Cape Bank site. It measures about 35km along its central spine and 12km at its widest point. The outer part of Cape Bank is characterised by at least three sub-parallel, high linear rock ridges which extend for over 20 km in a slightly curving S-NNE trending arc. These ridges sit on a rock platform at a depth of 45 to 55 m and can reach up to 25 m high and be over a kilometre wide with steep slopes and cover over 100 km² in total area. The reef is characterised by high biodiversity tide-swept communities such as sponges, faunal and algal turfs and crustose communities. The offshore upstanding rocky reefs areas are the most biodiverse of all rocky reef habitats within the site. The most abundant biotope in this area is *Caryophyllia smithii* and sponges with *Pentapora foliacea*, *Porella compressa* and crustose communities on wave-exposed circalittoral rock. The site's south westerly position on the British coast means that the sub-littoral zone is exposed to the full force of the waves and oceanic swells coming in from the Atlantic, as well as experiencing full salinity, given the absence of any major source of fresh water run-off from the land (Natural England, 2010).

Two multidisciplinary (acoustic and sampling) surveys were conducted in 2007 by CEFAS (2008) as part of work to identify the site boundary for the candidate SAC. A total of 540 km of acoustic survey lines (sidescan sonar and multibeam bathymetry) were run at the which equated to a coverage of 215 km². Digital video and stills data were collected at 27 sites and 12 scallop dredge sites were sampled along with 13 Hamon grabs sites. An inshore survey was also conducted to collect only acoustic and optical data (i.e. sidescan sonar and visual data) on the upstanding shallow inshore reef areas.

Palinurus elephas was reported in the Cape Bank area during the 2007 Natural England Cape Bank Annex I habitat survey. Poulton *et al.* (2002) in Jones *et al.* (2004) have described the sediment of the Cape Bank area using models supported by ground truthing.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under**

current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved. This assumption applies to all activities. Table II.3.36e shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.36f shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.36e Specific assumptions and implications relating to Cape Bank rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging)</p> <p>This activity was discussed during the VA meetings, and it was determined that the activity would probably not need managing in the whole site, but it might need exclusion from some of the site, over specific BSH (see right hand column).</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity. o Note that this rMCZ has been placed in a Traffic Separation Scheme (TSS) area in an effort to reduce impacts to the fishing industry. This is based on an assumption that fishing activity is less intense within the TSS. If fishing activity is not less intensive in the TSS, then some fishing activity will be restricted/displaced.
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national

	<p>construction aggregate supply and coast defence.</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>The VA meetings stated that the removal of spiny lobster would not be permitted in this rMCZ.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback has suggested that mitigation measures against bycatch be put in place for netting, but seabirds and cetaceans are currently not part of the developing conservation objectives of the site. o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed o <i>Palinurus elephas</i> forms an important fishery in the area and therefore the fishing industry cannot support this site if the species is included as a FOCL.
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o There is currently no guidance on what renewable activities are compatible with various conservation objectives. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Attracting the funding (for development) may be harder in the first place as sites with MPA designations within them will be less attractive to potential investors. o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate

	<p>change targets.</p> <ul style="list-style-type: none"> o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Excellent wind and wave resource area outside the Traffic Separation Scheme in the North East section of the rMCZ.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
--	--

Activities assumed to be allowed to continue / occur within the site

Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for power renewable energy devices), and telecommunications cables.</p> <p>This activity was considered at the VA meetings, which determined that cable installation and operation would be permitted with no additional mitigation likely to be required as a result of the rMCZ.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and

	<p>Government in terms of loss of operational revenue, missing EU climate change targets etc.</p> <ul style="list-style-type: none"> o Possible cable route to renewables resources.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o This rMCZ is located within an area with active telecommunication cables linking the UK mainland and overseas. These activities need to remain unrestricted o Four active telecoms cables, one active power cable and ten inactive telecoms cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes</i></p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p>

<p><i>a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.</p>
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>

Table II.3.36f VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	Management: <ul style="list-style-type: none"> - Prohibition of fishing over specific BSH/FOCIs in the rMCZ. These are: high energy circalittoral rock, subtidal coarse sediment. Measure: <ul style="list-style-type: none"> - Common Fisheries Policy
Commercial Fishing	Management <ul style="list-style-type: none"> - Removal of <i>palinurus elephas</i> (crawfish) not permitted Measures <ul style="list-style-type: none"> - Option 1: Voluntary - Option 2: Byelaw

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *Seabirds and cetaceans*
 - Codes of practice may be a better way to achieve management of leisure boats (if necessary) than byelaws.
 - Current levels of human activity appear to be compatible with maintaining basking shark, bottlenose dolphin and harbour porpoise numbers in this site. There is the

potential for boat strike from pleasure craft which is a cause for concern. Monitoring of numbers and activities and impacts on these species, dissemination of codes of conduct for encounters, encouraging boat operators to become WiSE accredited and a 3 year review of baseline numbers (estimated from ERCCIS sightings data) would all help to maintain healthy populations of these mobile species. Healthy populations of bottlenose dolphins, harbour porpoises and basking sharks would suggest a healthy ecosystem within the site and would be an attraction for the general public and ecotourism. Mitigation measures would be required if there was a decline in species numbers due to activities within the rMCZ (e.g. disturbance from boat pleasure craft, boat strike, bycatch from fishing activity)

- *Netting and longlining*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site. For sites that still have draft conservation objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact on nursery habitats or juvenile FOCI.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Management measures*
 - Part of this rMCZ is inshore (within territorial waters), but it lies beyond the 6 nautical mile limit, and partly outside the 12nm limit. There may be non-UK vessels with historical fishing rights in the area. For sites beyond 6nm, stakeholder

representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'

- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.36f (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

This rMCZ is controversial with fishing representatives, despite the fact that a major boundary alteration was undertaken to this site early in 2011 as a result of a suggestion by fishermen, increasing the area of overlap with a shipping lane (Traffic Separation Scheme). The area is used by static gear in particular. French fisheries NCS have stated that they do not support the site. The renewables sector has concerns about the site's impacts on potential future renewables developments (the area is located in a high wave resource area), but they are more supportive of the site since the boundary was altered to increase the area of overlap with the Traffic Separation Scheme, within which renewables infrastructure would be restricted in any case.

The Crown Estate indicated that this is an area with active telecommunication cables interconnecting UK mainland overseas. They are supportive with the assumption that MCZ designation would not restrict maintenance / repair of cables described.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Dipper (1981), and Hiscock (1981). Multibeam seabed data exists for Cape Bank, details may be available from Natural England.

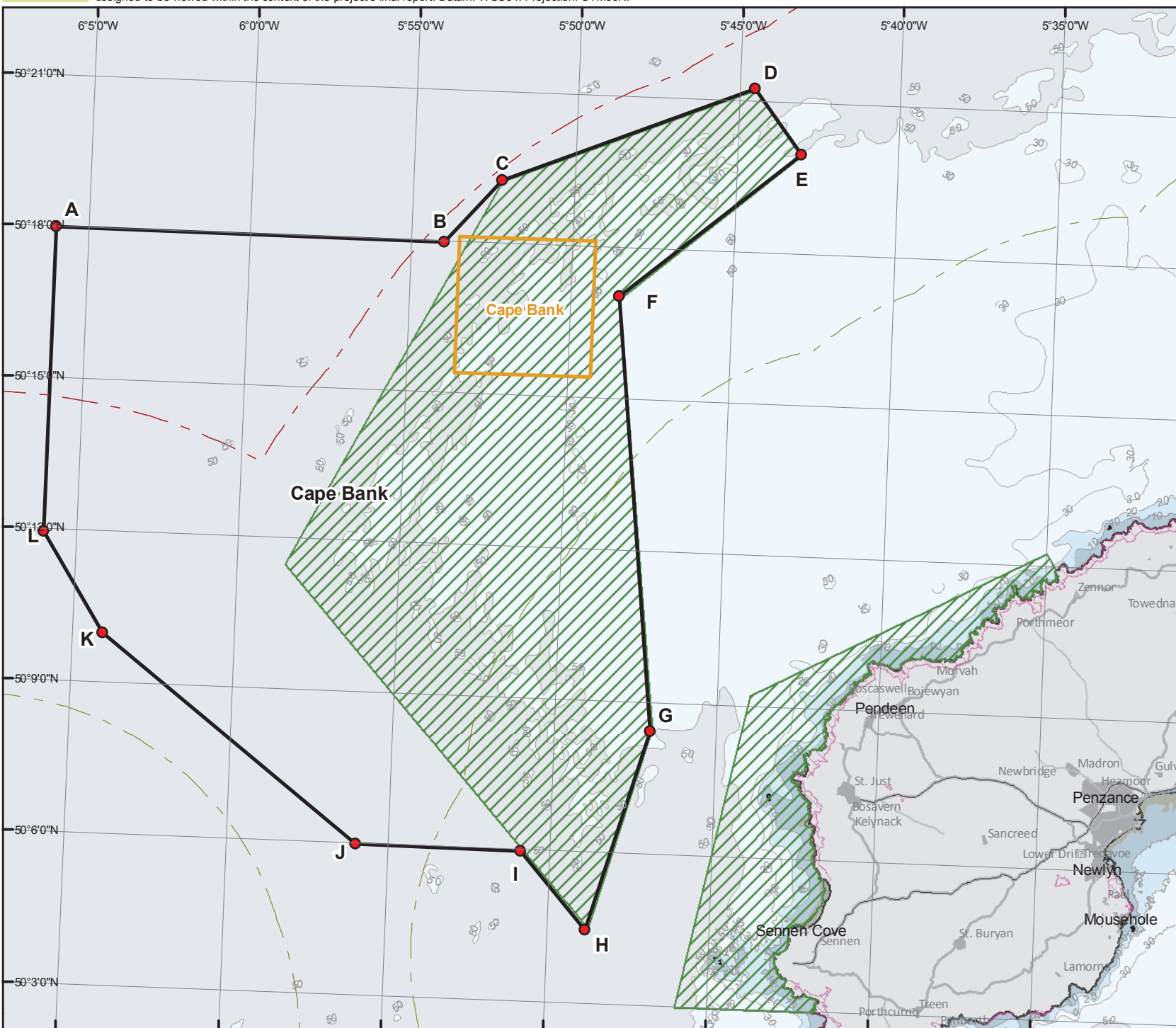
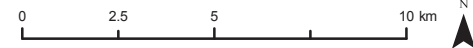
Site map series

On the following pages there are three maps of this site.

- The first map (FR_050a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_050b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.36b and II.3.36d, data sources are indicated in the tables.
- The third map (FR_050c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data License No. 062005.004. Land basemap part
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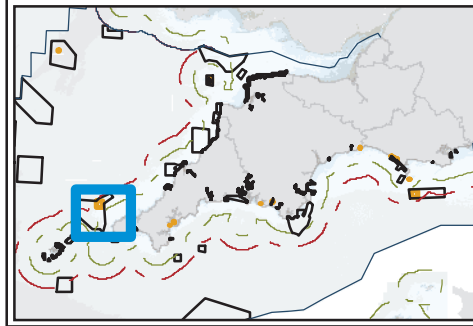
Lat/Long Co-ordinates (WGS84)

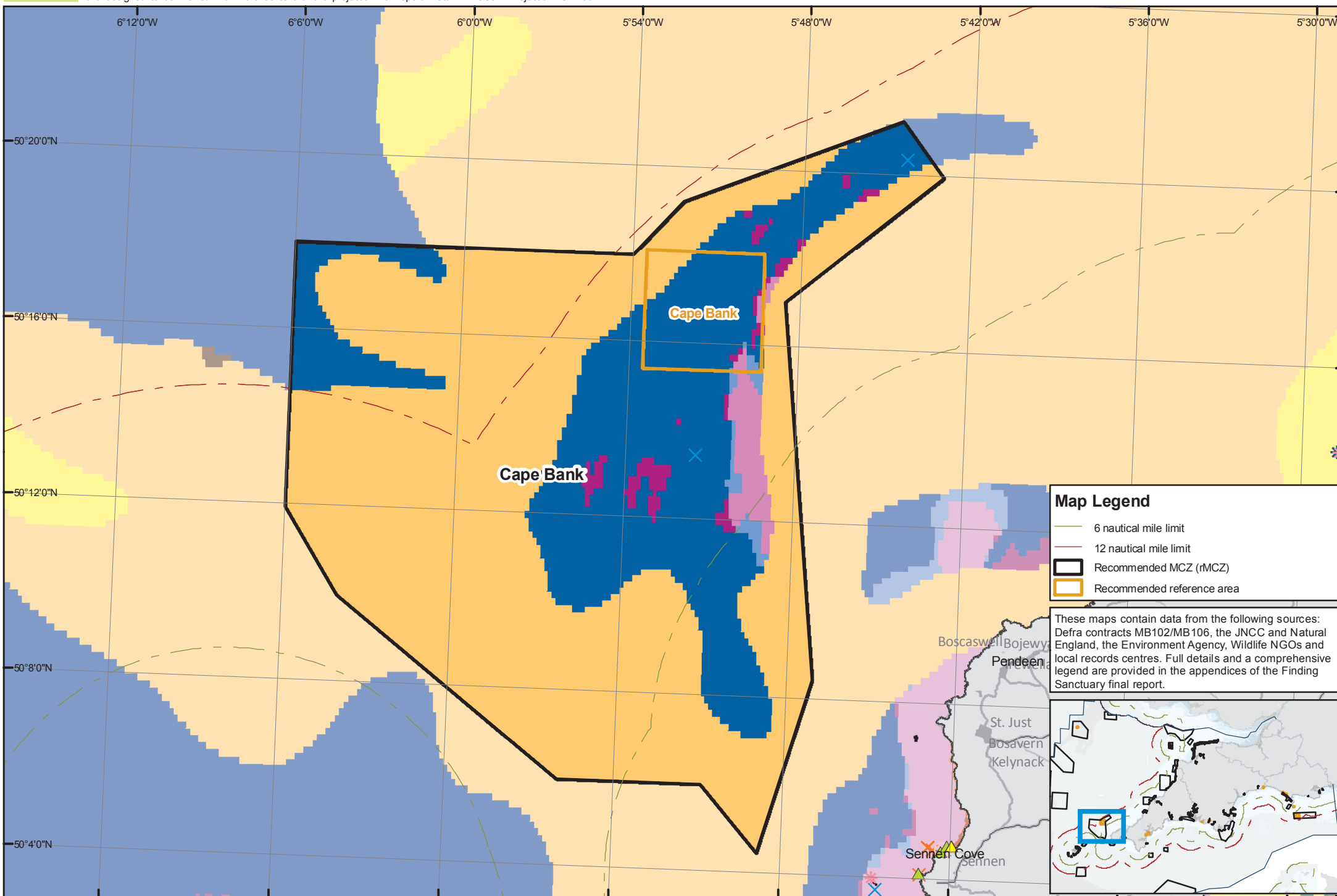
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.3000	-6.1000	50° 17' 59" N	6° 6' 0" W
B	50.3000	-5.8995	50° 18' 0" N	5° 53' 58" W
C	50.3210	-5.8708	50° 19' 15" N	5° 52' 15" W
D	50.3543	-5.7422	50° 21' 15" N	5° 44' 31" W
E	50.3333	-5.7172	50° 20' 0" N	5° 43' 1" W
F	50.2841	-5.8085	50° 17' 2" N	5° 48' 30" W
G	50.1409	-5.7842	50° 8' 27" N	5° 47' 3" W
H	50.0746	-5.8136	50° 4' 28" N	5° 48' 48" W
I	50.0999	-5.8481	50° 5' 59" N	5° 50' 53" W
J	50.0999	-5.9330	50° 5' 59" N	5° 55' 58" W
K	50.1664	-6.0673	50° 9' 59" N	6° 4' 2" W
L	50.1992	-6.0999	50° 11' 57" N	6° 5' 59" W

Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- Recommended MCZ (rMCZ)
- Recommended reference area
- Existing MPAs**
- cSAC
- SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

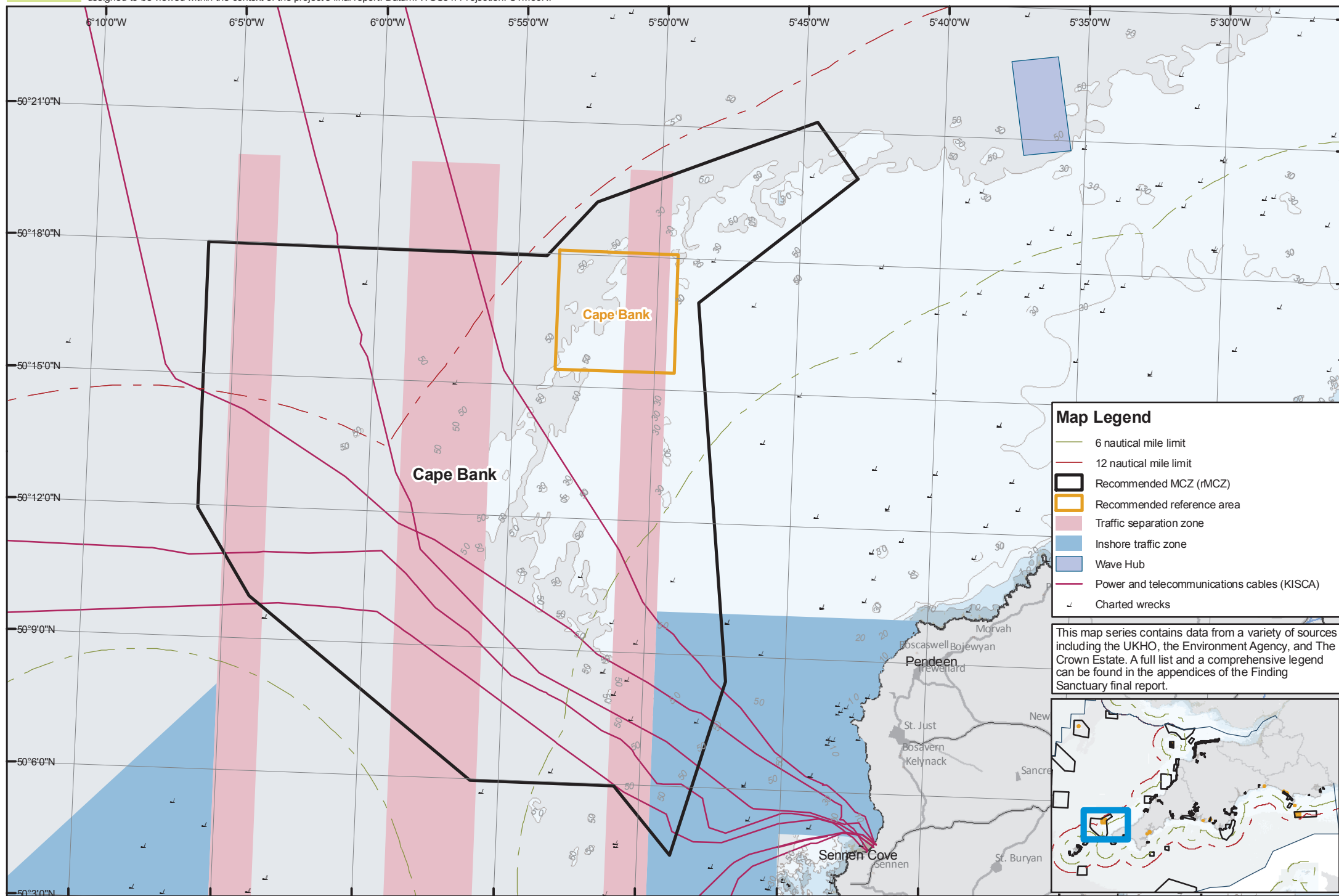




Cape Bank rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

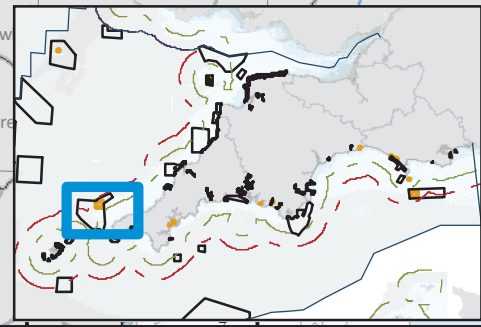
Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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Contains OS data © Crown copyright 2011.



Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- Recommended MCZ (rMCZ)
- Recommended reference area
- Traffic separation zone
- Inshore traffic zone
- Wave Hub
- Power and telecommunications cables (KISCA)
- Charted wrecks

This map series contains data from a variety of sources including the UKHO, the Environment Agency, and The Crown Estate. A full list and a comprehensive legend can be found in the appendices of the Finding Sanctuary final report.



II.3.37 Newquay and the Gannel rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.4194	-5.1066	50° 25' 9" N	5° 6' 23" W

Site surface area: 9.43km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The site boundary extends along the OS Boundary Line mean high water mark from Kelsey Head (west of Crantock Beach) to Trevelgue Head at Porth Beach. The site encompasses the Gannel Estuary as far as the tidal limit near the A3075 road bridge. The seaward boundary extends in an arc around the coastline at a distance of 1km. The site contains a distinct (but not spatially separate) zone, which is the Gannel Estuary. This has a draft conservation objective for European eel, unlike the remainder of the site.

Sites to which the site is related: There is a coastal SSSI at Kelsey Head.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation with the Newquay and the Gannel rMCZ

Table II.3.37a Draft conservation objectives for the Newquay and the Gannel rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal coarse sediment		M
	Subtidal mud		M
	Subtidal sand		M
	Coastal saltmarshes and saline reedbeds		M
	High energy intertidal rock		M
	Intertidal coarse sediment		M
	Intertidal mud ¹		M
	Intertidal sand and muddy sand		M
	Low energy intertidal rock		M
	Moderate energy intertidal rock		M
Species FOCI	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Gobius cobitis</i>	Giant Goby	M
	<i>Ostrea edulis</i>	Native oyster	M
	<i>Paludinella littorina</i>	Sea snail	M
	<i>Anguilla anguilla</i>	European eel	? M / R ²

¹ Some of the area mapped as intertidal mud on the wave-exposed beaches within this site is sand, not mud – this is down to a known translation issue between habitat classification systems, explained in appendix 8, which has led to some intertidal sand areas being mapped as intertidal mud. The intertidal habitat in the Gannel Estuary is genuinely muddy.

² The draft conservation objective for this species applies only in the estuarine zone of the rMCZ. At the time of the vulnerability assessment meetings, no decision was taken whether the conservation objective for this feature should be ‘maintain’ or ‘recover’. No quantitative information is included for this mobile FOCI species in the tables below, as the resolution of the GIS data available was too coarse to be meaningful. However, the species has been included in the draft conservation objectives on the basis of evidence provided to the project by the Environment Agency (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary’s GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.37b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary’s EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal coarse sediment	7.74	<0.1%	1
Subtidal sand	<0.01	<0.1%	1
Subtidal mud	<0.01	<0.1%	1

Table II.3.37c Intertidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock	0.03	0.4%	4
Moderate energy intertidal rock	<0.01	<0.1%	4
Low energy intertidal rock	0.05	1.7%	4
Intertidal coarse sediments	0.01	<0.1%	3
Intertidal sand and muddy sand	0.09	0.8%	4
Intertidal mud ¹	1.41	0.8%	4, 3
Coastal saltmarshes and saline reedbeds	0.02	0.8%	3

¹Some of the area mapped as intertidal mud on the wave-exposed beaches within this site is sand, not mud – this is due to a known translation issue between habitat classification systems, explained in appendix 8, which has led to some intertidal sand areas being mapped as intertidal mud. The intertidal habitat in the Gannel Estuary is genuinely muddy.

Table II.3.37d FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	6.21			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.37e FOCI species recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Eunicella verrucosa</i>	1		3
<i>Gobius cobitis</i>	1		1
<i>Ostrea edulis</i>	2	2	3
<i>Paludinella littorina</i>	1		3

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.64 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

Newquay was formerly an important port and fishing village, and is now north Cornwall's premier resort town (Davies, 1998). Buck (1993) described the Gannel as a small estuary lying between the two exposed headlands of Pentire Point East and Pentire Point West near Newquay, having a shallow inlet that has been rapidly silting up with sand in recent times. Water quality within the estuary has been classified as grade A. The largest area of subtidal habitat is at Vugga Cove at the mouth of the estuary, where the channel is at its deepest. Sheltered by the headlands is Crantock Beach, a broad, calcareous sandflat, which is backed by a small area of dunes. In the upper part of the estuary there is an extensive area of saltmarsh (Buck, 1993). Burd (ed.1989) also studied the Gannel estuary during the saltmarsh survey of Great Britain. The depth range of the rMCZ is from OS Boundary Line mean high water to 5m.

This site includes the Gannel Estuary. One of the reasons for the inclusion of this and other estuarine rMCZs in the network was in recognition of the added ecological importance of estuaries in terms of productivity, and their ecological function as nursery areas. The rMCZ also intersects with an area of higher than average benthic species diversity (mapped from MB102 data).

Detailed site description

Two surveys of the South West England estuaries were undertaken during the periods June-August 1981, and October 1982 by Craig & Moreton (1986). Sediment samples were collected at low water from intertidal sites within the Gannel. Pirrie *et al.* (2000a; 2000b) examined the mineralogy and geochemistry of the inter-tidal sediments in the Camel and Gannel estuaries on the north Cornwall coast.

Bryan & Hummerstone (1978; 1978b) collected *Scrobicularia* of different sizes and samples of surface sediment from the intertidal zone at low tide. Luoma & Bryan (1978) also collected sediment samples from the oxidized surface layer of intertidal sediments within the Gannel estuary. Sediments, *Fucus vesiculosus*, *Nereis (Hediste) diversicolor* and *Scrobicularia plana* were collected, with other common species where available, from a number of estuaries in England and Wales, including the Gannel estuary by Langston (1980) to examine arsenic concentrations. *Mytilus edulis* and *Mytilus galloprovincialis* and their hybrids were collected from 33 locations during 1996 and 1998 around the Southwest by Hilbish *et al.* (2002), which included from the mid-tidal zone at Newquay, to examine the distribution of species in the mussel population.

During the pink sea fan survey of 2001-2002, the distribution, abundance and condition of sea fans were surveyed in the Newquay area in by Wood (2003). 103 specimens were recorded between Land's End and Lamorna Cove. No sea fan anemones (*Amphianthus dornanii*) were recorded. 'The sea fans were generally in good condition with the exception of those at the deep Pells Reef, north of Newquay which were notably poor and fouled with silty hydroid/bryozoans turf' (Wood, 2003).

In 2011 Cornwall Wildlife Trust surveyed the Gannel and Pentire Point for seaweeds with Professor Juliet Brodie. Subtidal sites in this area were also surveyed by Seasearch divers with a particular focus on seaweeds and sponges. This included Medusa Reef, The Ridge, the Old Lifeboat Slip, The Goose, Bidgey Reef and Poltexas Reef (Angie Gall, *pers. comm.*). The subtidal reefs off the Gannel are exposed and scoured. There are many surge gullies with communities of encrusting sponges and seasquirts below the kelp. The deeper reefs such as Pol Texas and Medusa Reef are dominated by short bryozoan and hydroid turf with small branching sponges and pink sea fans on vertical surfaces (Angie Gall, *pers. comm.*).

The GIS data reported in table II.3.37c indicates a small area of saltmarsh present in the Gannel estuary. The Environment Agency has commented that a road development has led to loss of coastal saltmarsh in the area.

There have been a number of sightings of Short Snouted Seahorses in the Newquay region, the most recent of which occurred in 2010 and were spotted by divers (Neil Garrick-Maidment, *pers. comm.*).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.37f shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.37g shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.37f Specific assumptions and implications relating to Newquay and The Gannel rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Aggregate extraction will not be allowed Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: <ul style="list-style-type: none"> Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. Given this assumption, there are still the following concerns: <ul style="list-style-type: none"> If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.

<p>Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.

<p>Netting and longlining will not be allowed</p> <p><i>This assumption was recorded early on in the process, in order to protect nursery habitats and juveniles in all sites with draft conservation objectives for mobile FOCI. Stakeholder feedback has indicated that the assumption about longlining is inappropriate, as the activity does not happen inshore. An uncertainty remains around netting, where the activity may have an impact on nursery habitat - this uncertainty was not resolved through the VA</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for netters o Displacement of netters o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on netters where protected areas are close together <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o SAFFA fixed net restrictions apply. o A steering group member suggested that there should be no unlicensed netting activity within the estuary.
--	--

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p>	<p>Direct implications:</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with

<p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>cable repair activity restrictions</p> <ul style="list-style-type: none"> o Attracting the funding (for development) may be harder in the first place as sites with MPA designations within them will be less attractive to potential investors. o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Limited near-shore wave energy potential.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o A Steering Group member commented to say that the flood risk management policy in the site is managed retreat.
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Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>Pelagic trawls will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at

	<p>a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology.</p> <ul style="list-style-type: none"> o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Possible cable route to renewables resources.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (no heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.37g VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
n/a	n/a

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following is a set of additional uncertainties relevant to this site:

- The port has concerns regarding the inclusion of Newquay port within this rMCZ, in terms of its impact on the fishing industry.

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *Commercial fishing*
 - Commercial fishing raised concerns that estuaries are surplus to the requirement of the ENG.
- *Anchoring and aggregates*
 - This rMCZ was realigned to take account of anchoring and aggregate export.
- *Netting and longlining*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining

assumption is not appropriate for any site. For sites that still have draft conservation objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact on nursery habitats or juvenile FOCI. This particular rMCZ was added to the network in the final planning stages, after the detailed work on developing assumptions had already happened, but given that the site has a draft conservation objective for *Anguilla Anguilla*, European eel, the uncertainty around netting applies.

- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.37g (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Compared to other rMCZs, this site has generated few strong positive or negative statements from stakeholder representatives.

Supporting documentation

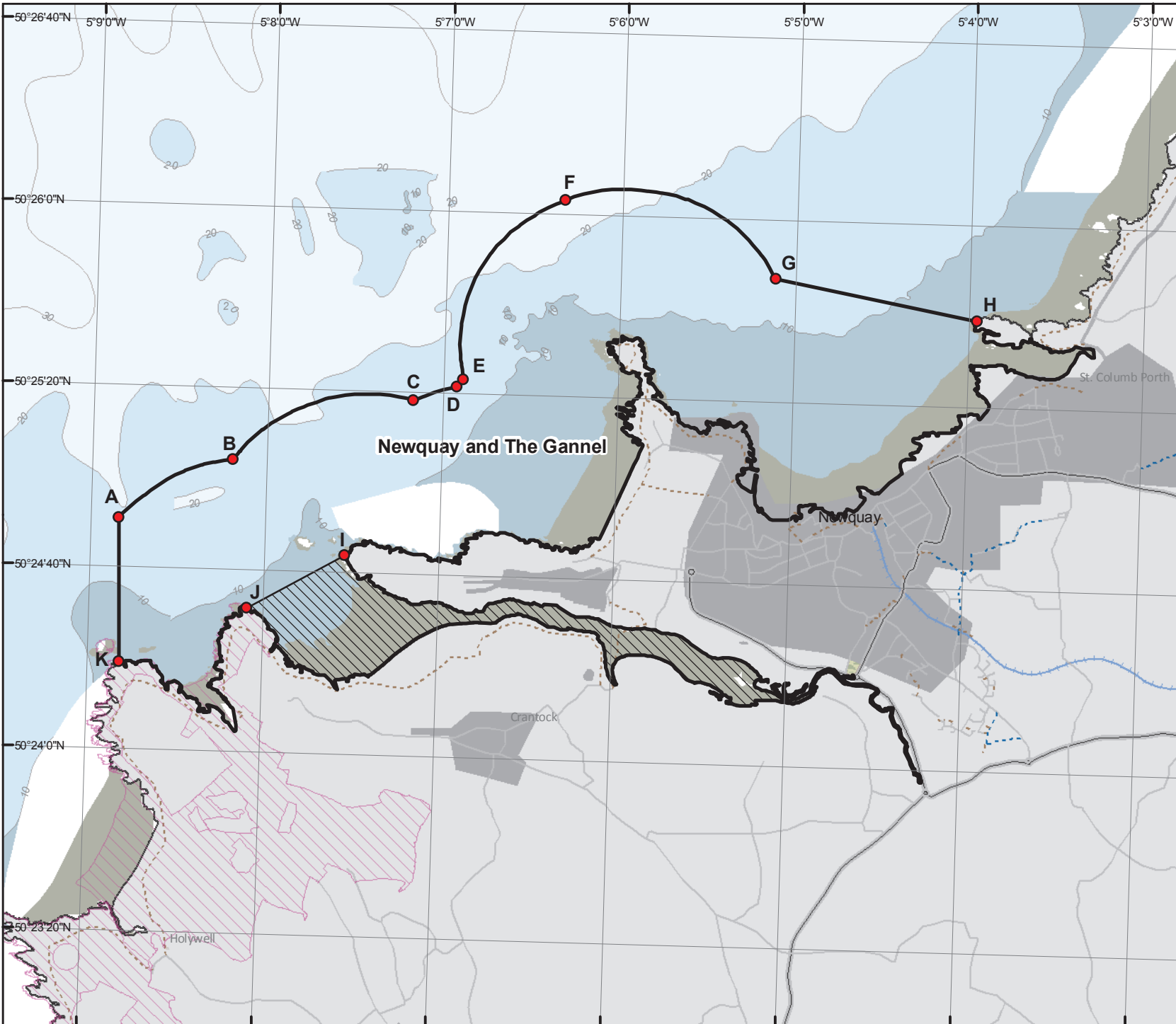
GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, Cornwall Wildlife Trust, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. Cornwall Wildlife Trust have carried out recent survey work along the north coast of Cornwall, including within the area of this rMCZ. Their latest survey records were not included in the GIS datasets used to generate the figures in this report, but new survey information is included in the additional materials (see appendix 14), and further information is available from Angie Gall at Cornwall Wildlife Trust.

Site map series

On the following pages there are three maps of this site.

- The first map (FR_051a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_051b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.37b, II.3.37c, and II.3.37e, data sources are indicated in the tables.
- The third map (FR_051c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



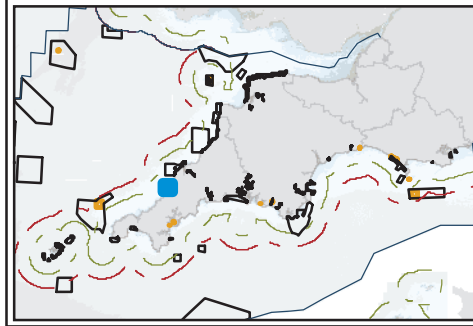
Lat/Long Co-ordinates (WGS84)

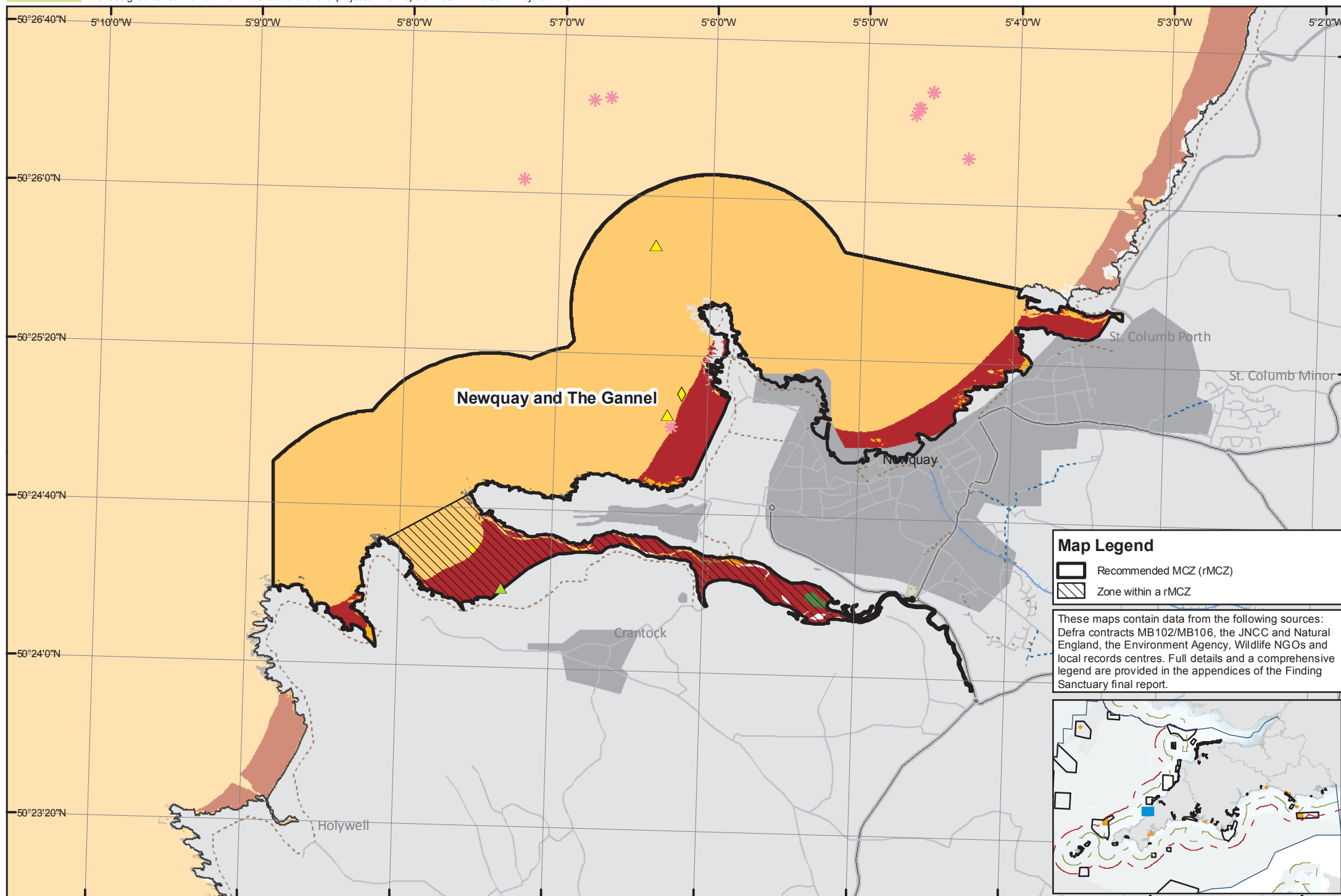
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.4141	-5.1473	50° 24' 50" N	5° 8' 50" W
B	50.4178	-5.1366	50° 25' 4" N	5° 8' 11" W
C	50.4217	-5.1195	50° 25' 18" N	5° 7' 10" W
D	50.4226	-5.1154	50° 25' 21" N	5° 6' 55" W
E	50.4231	-5.1148	50° 25' 22" N	5° 6' 53" W
F	50.4342	-5.1055	50° 26' 3" N	5° 6' 19" W
G	50.4297	-5.0852	50° 25' 47" N	5° 5' 6" W
H	50.4275	-5.0659	50° 25' 39" N	5° 3' 57" W
I	50.4121	-5.1257	50° 24' 43" N	5° 7' 32" W
J	50.4088	-5.1348	50° 24' 31" N	5° 8' 5" W
K	50.4053	-5.1469	50° 24' 18" N	5° 8' 48" W

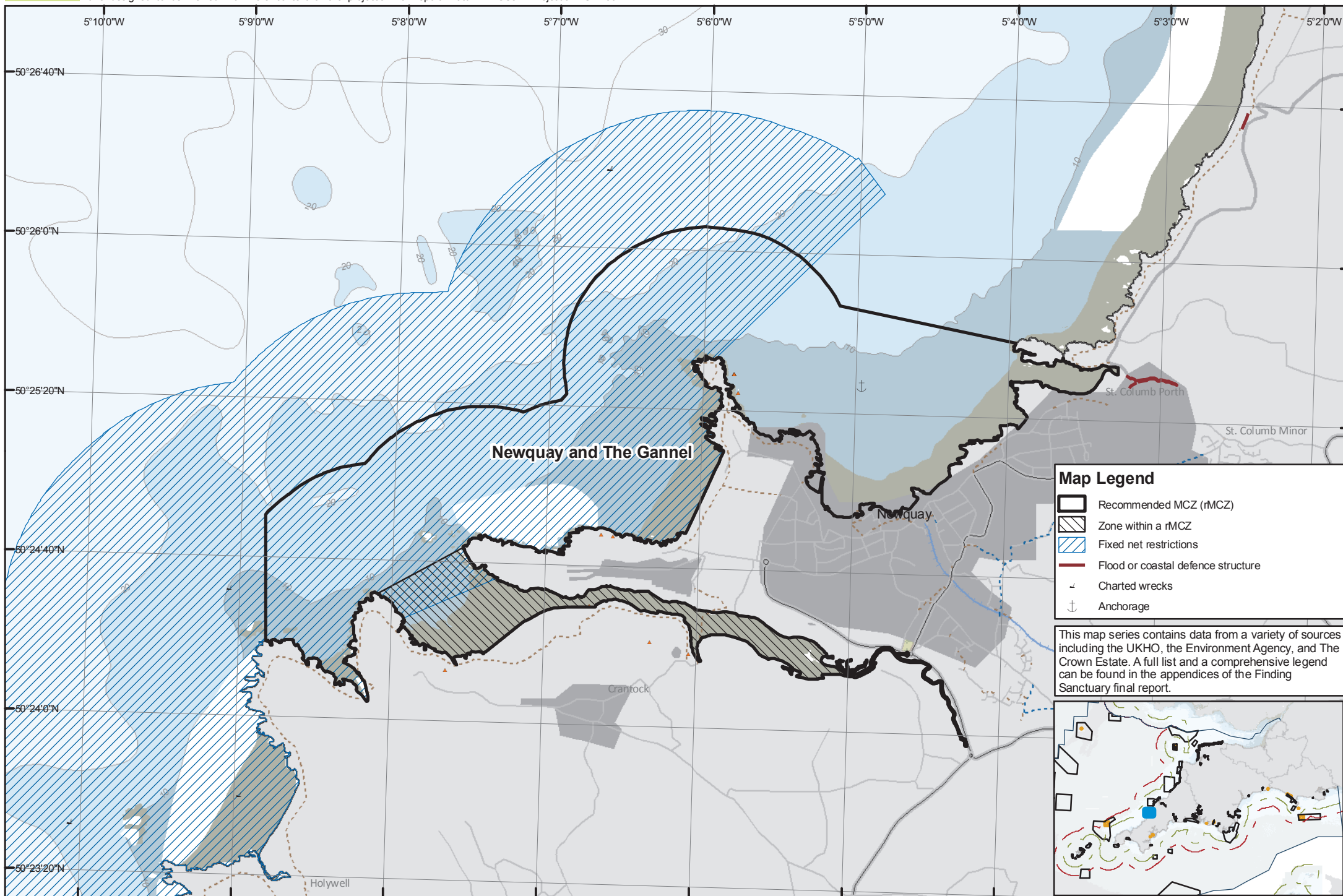
Map Legend

- Recommended MCZ (rMCZ)
- Zone within a rMCZ
- Existing MPAs**
- SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.







II.3.38 Padstow Bay and surrounds rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.5476	-5.0574	50° 32' 51" N	5° 3' 26" W

Site surface area: 91.87 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The boundary of this site runs along the OS Boundary Line mean high water mark from Park Head (to the north of Trenance) to Com Head (just east of Pentire Point and The Rumps). The seaward boundary runs about 6km west from Park Head, and then north for about 9.5km. It then runs in a straight line to Gulland Rock, and then in a straight line towards Pentire Point. The boundary arches around Pentire Point and The Rumps at a distance of 1km, forming a seaward extension of the Pentire Peninsula SSSI. The 1km buffer area around the Pentire Peninsula SSSI forms a zone that is distinct (but not spatially separated) from the rest of the site, as this area has added draft conservation objectives for seabirds and bottlenose dolphins.

Sites to which the site is related: The Pentire Peninsula SSSI is a coastal site protecting seabird colonies, and the rMCZ boundary arching around it is designed to afford protection to seabirds using the sea for feeding and loafing. There are SSSIs at Trevose Head and Constantine Bay, at Trevone, and at Bedruthan Steps and Park Head.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within the Padstow Bay and surrounds rMCZ

Table II.3.38a Draft conservation objectives for the Padstow Bay rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Broad-scale habitats	Subtidal coarse sediment		M
	Moderate energy circalittoral rock		M
	Moderate energy infralittoral rock		M
	High energy circalittoral rock		M
	High energy infralittoral rock		M
	High energy intertidal rock		M
	Intertidal coarse sediment		M
	Intertidal mud ¹		M
	Intertidal sand and muddy sand		M

	Moderate energy intertidal rock		M
Species FOCI	<i>Arctica islandica</i>	Ocean quahog	M
	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Haliclystus auricula</i>	Stalked jellyfish	M
	<i>Lucernariopsis cruxmelitensis</i>	Stalked jellyfish	R
	<i>Palinurus elephas</i>	Spiny lobster	M
Mobile species not listed in ENG ²	<i>Tursiops truncatus</i>	Bottlenose dolphin	M
	<i>Fulmarus glacialis</i>	Fulmar	M
	<i>Uria aalge</i>	Guillemot	M
	<i>Fratercula arctica</i>	Puffin	M
	<i>Alca torda</i>	Razorbill	M
	<i>Rissa tridactyla</i>	Kittiwake	M

¹Some of the area mapped as intertidal mud on the wave-exposed beaches within this site is sand, not mud – this is down to a known translation issue between habitat classification systems, explained in appendix 8, which has led to some intertidal sand areas being mapped as intertidal mud.

²The draft conservation objectives for these birds and for the bottlenose dolphin only apply within the zone around the Pentire Peninsula SSSI, marked with cross-hatching on the site maps at the end of this site report.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.38b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	44.45	6.1%	1
Moderate energy infralittoral rock	0.58	0.2%	1
High energy circalittoral rock	9.71	0.8%	1
Moderate energy circalittoral rock	12.18	<0.1%	1
Subtidal coarse sediment	23.59	<0.1%	1

Table II.3.38c **Intertidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock	0.48	6.6%	4
Moderate energy intertidal rock	<0.01	0.1%	4
Intertidal coarse sediments	0.07	0.4%	4, 3
Intertidal sand and muddy sand	0.12	1.0%	4
Intertidal mud ¹	0.65	0.4%	4, 3

¹Some of the area mapped as intertidal mud on the wave-exposed beaches within this site is sand, not mud – this is down to a known translation issue between habitat classification systems, explained in appendix 8, which has led to some intertidal sand areas being mapped as intertidal mud

Table II.3.38d **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	23.57			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.38e **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Arctica islandica</i>	1	1	3
<i>Eunicella verrucosa</i>	21	10	1, 3
<i>Haliclystus auricula</i>	1		3
<i>Lucernariopsis cruxmelitensis</i>	1		1
<i>Palinurus elephas</i>	1	1	1

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 1.05 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The site extends around a stretch of coastline that is characterised by exposed cliffs and sandy wave-exposed bays, including the entrance to the Camel Estuary (beyond the Doom Bar). The site extends

from the shore line to approximately 50m of depth. Rocky habitat is present within the subtidal portion of the site. The rMCZ intersects with an area of higher than average benthic species and habitat diversity (within the south-west context). Local Group feedback indicates that salt marsh, tide-swept biotopes, estuarine rocky habitats, and blue mussel beds are also present in this area, but we have no mapped records of these FOCI within the rMCZ boundary (some of these Local Group comments may have come from earlier discussions when the area under discussion included more of the Camel estuary, which is not included within the rMCZ boundary as it is now).

Detailed site description

Sublittoral habitats and communities from East Trevose Head to Port Isaac were studied during the SWBSS (Hiscock 1978a). Most of the coast consists of a flat sand plain or gentle slope extending into shallow water with rock outcrops and broken reefs; most rock surfaces have a covering of sediment. Off headlands, stable and often very broken bedrock extend into deeper water. Sand is important to the structure of sublittoral communities except at headlands (Davies, 1998). Communities at The Bull near Trevose Head were very distinctly different with dense populations of *Mytilus edulis*, *Dendrodoa grossularia* and *Maia squinado*, and the kelp forest expanding to about 11m (Hiscock, 1981).

At Trevone and Trebetherick, there are extensive rocky shores which were considered sites of primary marine biological importance (Powell *et al.* 1978); these sites are the most extensive rocky shores on the north Cornwall coast. Trevone was a special study site following the *Torrey Canyon* disaster in 1968 (Smith, 1968). Newtrain Bay, Trevone has a series of irregular rocky reefs which support rich littoral communities. Mid-shore habitats were mussel/barnacle/limpet-dominated, the limpet *Patella aspersa* (now *Patella ulyssiponensis*) was particularly abundant. An unusual feature of the site was a zone of the brown alga *Cystoseira tamariscifolia* at low water (Davies, 1998). A population of the Mediterranean hermit crab *Clibanarius erythropus* was present but has not been seen following the oil pollution from the *Torrey Canyon*. Trebetherick Point lies at the southern end of a series of rocky reefs and has a typical mussel/barnacle/limpet dominated mid-shore and algal-dominated low shore. In low-shore pools and gullies, the sublittoral alga *Desmarestia ligulata* and the rare sea-slug *Onchidella celtica* were present (Davies, 1998).

Rocks surveyed by Hiscock (1981) in the Padstow area are dominated by algae to about 13m but kelp is restricted to shallow water (gen. <3m). Circalittoral communities included several southern species but a low variety of species was generally present. Characteristic species included *Pentapora foliacea*, *Stolonica socialis*, *Alcyonidium gelatinosum*, *Eunicella verrucosa* and *Marthasterias glacialis*.

Eunicella verrucosa has been reported during recent Seasearches in the Padstow area and during the 1977 South-West Britain Sublittoral Survey of Padstow (Hiscock, 1978).

Palinurus elephas was also recorded during the 1977 South-West Britain Sublittoral Survey of Padstow (Hiscock, 1978).

There have been a number of seahorses found just outside of Padstow Harbour; the harbour entrance is not really suitable for seahorses but offshore provides an ideal habitat (Neil Garrick-Maidment, *pers. comm*).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.38f shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.38g shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.38f Specific assumptions and implications relating to Padstow Bay and surrounds rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Aggregate extraction will not be allowed <i>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</i>	Direct implications: <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. Given this assumption, there are still the following concerns: <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.

<p>Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o No restriction on activity has been suggested as there is currently little/no bottom-towed trawling activity thought to be here. If this activity was to start/increase, it would affect the slow-growing, long-lived reef species found here. o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>This activity was discussed at the VA meeting, and it is not yet known whether disposal of material at the nearby disposal site would be permitted to continue with no additional mitigation as a result of the rMCZ.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o There is currently an open disposal site which partially overlaps the rMCZ at the northern boundary of the site. Disposal within the area of overlap would not be compatible with the rMCZ. The overlapping area covers 145,667m², measuring approximately 770m at the longest point and 275m at the widest. o Natural England have advised that disposal may be restricted within the overlapping part of the disposal site and rMCZ. The port have expressed that this is manageable so long as they can continue unrestricted in the adjacent part of the disposal site. If there is any uncertainty regarding this statement then serious consideration should be given to the continued existence of this rMCZ. o A concern also remains relating to a scenario in the future where the port seek to renew their dredging license and they are no longer allowed to dispose of dredged material in the current active disposal site. In this event a new disposal site would have to be secured and the cost of this would be for the port to cover. Furthermore should a site be secured the travel to and from a new site may render dredging unviable, leading to the eventual closure of the port. If this proves a possible scenario the inclusion of this rMCZ within the network should be reconsidered for economic reasons. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Inability to dredge navigational channels, complete

	<p>maintenance dredging and disposal of sediment from harbour would have a significant economic impact on the port. (The Port of Padstow has a significant role in serving the local, regional and national economy and is of strategic significance to the County of Cornwall. The Port facilitates a diverse range of activities with marine-based industry generating significant socio-economic value for the local Cornish economy. It is a key source of employment for the region currently estimated as over 500 jobs directly by marine related activities and in the tourism industry. Estimated annual input of port and associated marine activity into economy - both directly and by supporting tourism in the area is in the region of £20 million.)</p> <p>o A thorough environmental analysis of this site is required to assess the reality of a disposal site and MCZ coexisting. Furthermore, an Economic Impact Assessment is outstanding and essential in order to assess the immediate and future economic impact of this rMCZ on the port. A serious question should be raised about the viability of an active port and this rMCZ in such close proximity and in this case the economic significance of the port should take priority.</p>
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o There are small port and harbour facilities in the area, and a wider concern has been raised about whether they would be impacted by an MCZ designation.</p> <p>Given this assumption, there are still the following concerns:</p> <p>o A Steering Group member commented to as what is the definition of a 'large vessel' and 'small vessel' e.g. a large vessel in Padstow could be a small vessel in a port like Plymouth.</p> <p>o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.</p>

<p>Netting and longlining will not be allowed</p> <p><i>This assumption was recorded early on in the process, in order to protect nursery habitats and juveniles in all sites with draft conservation objectives for mobile FOCI.</i></p> <p><i>Stakeholder feedback has indicated that the assumption about longlining is inappropriate, as the activity does not happen inshore. An uncertainty remains around netting, where the activity may have an impact on nursery habitat - this uncertainty was not resolved through the VA</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for netters o Displacement of netters o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on netters where protected areas are close together <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o SAFFA fixed net restrictions apply.
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Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Tourism and recreational activities will be permitted.</p> <p>Following JWG5, the Wildlife Trust have advised a voluntary code of conduct to avoid disturbance / collisions with cetaceans.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local economy will suffer significantly if activities constrained. <p>Benefits:</p> <ul style="list-style-type: none"> o By publicising Codes of Conduct you increase the public awareness of species of interest within an area and this encourages increased tourism with benefits to the local economy.

<p>Static fishing gear (except netting and longlining in the combined water column and seafloor protection zone) will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>The VA meeting concluded that removal of spiny lobster would not be permitted in the site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed o A Steering Group member commented to state that longlining in this area is small scale only from small vessels and for tagged Bass scheme.
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Attracting the funding (for development) may be harder in the first place as sites with MPA designations within them will be less attractive to potential investors. o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor

	<p>confidence in renewables activities.</p> <ul style="list-style-type: none"> o Increased competition for sea space with other sea users. o This rMCZ is located in an area of long term near-shore wave energy potential.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Waste water outfalls are currently located in this area, these would be impacted if there were any changes to the current way of managing them.
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o A Steering Group member commented to state that, since the area appears to be outside the estuary, there may not be crab tiling undertaken.
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o If replenishment not permitted the local economy may suffer. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There are current coastal protection works in the area, and there has been concern around whether there would be any impacts on them arising from an MCZ designation. o A Steering Group member commented to state that the material used for replenishment should be allowed to be dredged from within the area. o The shoreline management policy is to hold the line at various locations within the estuary (which empties into the rMCZ but is not currently part of the rMCZ).

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Padstow Port will be involved in developing management measures for the rMCZ.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o It is vital that Padstow Port is consulted on all management measures proposed.
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs if mitigation or monitoring needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>Pelagic trawls will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at

	<p>a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology.</p> <ul style="list-style-type: none"> o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Possible cable route to renewables resources.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>This activity was discussed at the VA meeting, and it is expected that disposal of material would be permitted.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Note that the boundary of this rMCZ was modified to not include the estuary, to help counteract serious concerns about the impacts that an MCZ designation might have on navigational dredging. o There are small port and harbour facilities in the area, and a wider concern has been raised about whether they would be impacted by an MCZ designation. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If assumption turns out to be wrong the Port will suffer catastrophically as it will silt/sand up and restrict vessel access. o Inability to dredge navigational channels, complete maintenance dredging and dispose of sediment from harbour.

<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There are small port and harbour facilities in the area, and a wider concern has been raised about whether they would be impacted by an MCZ designation. o A Steering Group member stated that it is imperative that 'small vessel' is defined and definition is universally accepted and clear of ambiguity – consultation should take place on the meaning/ definition. This comment was recorded on a sheet that related to this specific rMCZ but would presumably apply to all rMCZs where this assumption about small vessels anchoring has been made. o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There are small port and harbour facilities in the area, and a wider concern has been raised about whether they would be impacted by an MCZ designation.
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.38g VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing	<p>Management</p> <ul style="list-style-type: none"> - Removal of <i>palinurus elephas</i> (crawfish) not permitted <p>Measures</p> <ul style="list-style-type: none"> - Option 1: Voluntary - Option 2: Byelaw
Disposal at Sea	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application for disposal of material at the Padstow disposal site. It is not yet known whether additional mitigation is likely to be required in order to dispose of material at the site <p>Measure :</p> <ul style="list-style-type: none"> - Marine Licence
Tourism & Leisure	<p>Management</p> <ul style="list-style-type: none"> - Education and awareness of conduct for encounters with harbour porpoise and other cetaceans in the rMCZ <p>Measure</p> <ul style="list-style-type: none"> - Voluntary code of conduct - Voluntary 'Wise accreditation'
Navigational Dredging	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application or by the Harbour Authority. It is expected that disposal of material at the site would be permitted with no additional mitigation likely to be required as a result of the rMCZ <p>Measure :</p> <ul style="list-style-type: none"> - Marine Licence or Harbour Acts and Orders

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following additional uncertainty was recorded for this site:

- No working assumptions have been recorded with respect to hard engineering structures e.g. slipways. A Steering Group representative was concerned that they should be permitted, and pointed out that there is an RNLI slipway at Trevoze Head in the area of this rMCZ.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
 - The local group proposed an extension to this site which was not agreed because the fishing industry stated there were significant trawls that occur in this area. It was requested that it be noted that this was a high area of biodiversity and there would have been extra ecological value had this extension been added (see the report from the fifth JWG meeting).
- *Ports*
 - Possible restriction on laying/moving moorings.
 - Restrictions on anchoring.
 - Possible restriction of construction works.
 - Possible restrictions on aquaculture operations.
 - Possible economic effects for the harbour, boat repair and construction businesses if boat moorings impacted.
 - Safety concerns for commercial fishing vessels seeking refuge from storms.
 - Loss of income from tourism, recreational sector and commercial fishing.
 - The Camel Estuary has not been included in the rMCZ due to concerns raised by fishermen and the ports and harbours sector over whether MCZ status would affect dredging by Padstow harbour. There is a separate rMCZ in the upper reaches of the Camel, but this does not include the areas most heavily used, or the area of the Doom Bar which needs dredging regularly in order to keep access open to Padstow harbour.
- *Anchoring and aggregates*
 - This rMCZ was realigned to take account of anchoring and aggregate export.

- *Netting and longlining*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site. For sites that still have draft conservation objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact on nursery habitats or juvenile FOCI. This particular rMCZ was added to the network in the final planning stages, after the detailed work on developing assumptions had already happened, but given that the site has a draft conservation objective for *Anguilla anguilla*, European eel, the uncertainty around netting applies.
- *Environment Agency*
 - The Environment Agency provided evidence/data to demonstrate the important fish nursery area function of the Camel estuary and their supporting FOCI habitats of mudflats and saltmarsh which currently have limited protection. They suggested re-consideration of the inclusion of the estuary based this evidence, and look at solutions to concerns (mainly to do with dredging of the Doom Bar to enable shipping access to Padstow harbour), rather than the solution being exclusion. This input led to the inclusion of the upper Camel estuary as a separate rMCZ.
- *Seabirds and cetaceans*
 - Codes of practice may be a better way to achieve management of leisure boats (if necessary) than byelaws.
 - The resident pod of bottlenose dolphins has shown a significant decline in numbers over the last 20 years. There is the potential for boat strike from pleasure craft which is a cause for concern. Monitoring of numbers and activities and impacts on these species, dissemination of codes of conduct for encounters, encouraging boat operators to become WiSE accredited and a 3 year review of baseline numbers (estimated from ERCCIS sightings data) would all help to maintain healthy populations of these mobile species. Healthy populations of harbour porpoises and basking sharks would suggest a healthy ecosystem within the site and would be an attraction for the general public and ecotourism. Mitigation measures would be required if there was a decline in species numbers due to activities within the rMCZ (e.g. disturbance from pleasure craft, boat strike, bycatch from fishing activity)
 - The conservation sector has proposed that, for the protection of summer foraging birds, monitoring of disturbance and any by-catch issues and annual productivity monitoring would be necessary to determine that no deterioration in/loss of conservation status of the species making up the assemblage using the site (Fulmar, Razorbill, Guillemot, Puffin, Kittiwake) due to death, injury or disturbance. Mitigation measures would be required if there was a decline in species numbers due to activities within the rMCZ (e.g. disturbance from recreational disturbance, bycatch from fishing activity, built developments, pollution). Healthy populations of

these species would suggest a healthy ecosystem within the site and would be an attraction for the general public and ecotourism.

- Local Group feedback suggested either a 1 or 2 km extension around the current SSSI at Pentire Point, in order to protect the areas of sea used by seabird colonies, and wintering divers (red throated divers). Another Local Group suggestion was to include the Moul's, Gulland Rock and Newland Rock seabird colonies (present April-July). Currently, the boundary of the zone that includes seabird protection encompasses The Moul's island, but not Newlands (which lies just beyond the rMCZ boundary), nor Gulland Rock (which is located further in the estuary, currently not part of the rMCZ).
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.38g (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The Crown Estate indicated that this rMCZ is in an area with waste water outfalls, coastal protection works and small port/harbour facilities, and highlighted the disposal site that overlaps this rMCZ. They are supportive with the assumption that MCZ designation would not restrict ongoing activities described.

Padstow harbour authority have concerns over the fact that the site overlaps with a disposal area in the north, and are concerned that this might affect future renewal of the licence to use the disposal area. Despite this concern, they are more supportive of the final rMCZ than they were of a precursor site which included the Camel estuary and the Doom Bar, where regular dredging takes place which is vital to enable access to the port of Padstow.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, Cornwall Wildlife Trust, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. Information and data on seabirds from the area of the rMCZ can be obtained from the RSPB.

Site map series

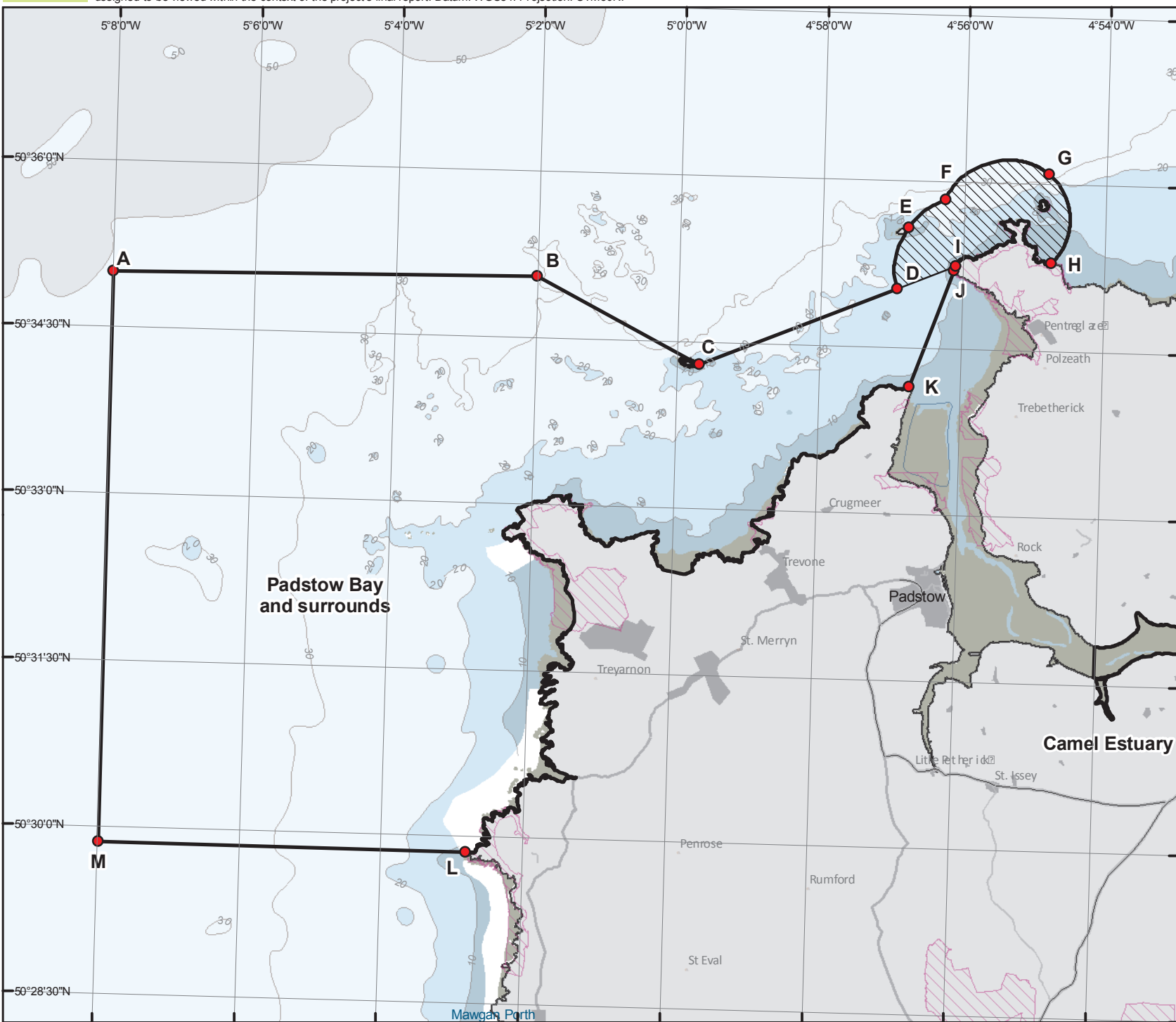
On the following pages there are three maps of this site.

- The first map (FR_052a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_052b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.38b, II.3.38c and II.3.38e, data sources are indicated in the tables.
- The third map (FR_052c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 1 2 4 km



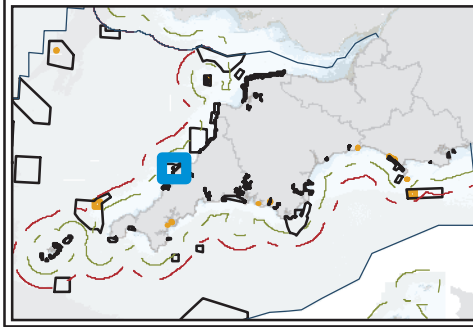
Lat/Long Co-ordinates (WGS84)

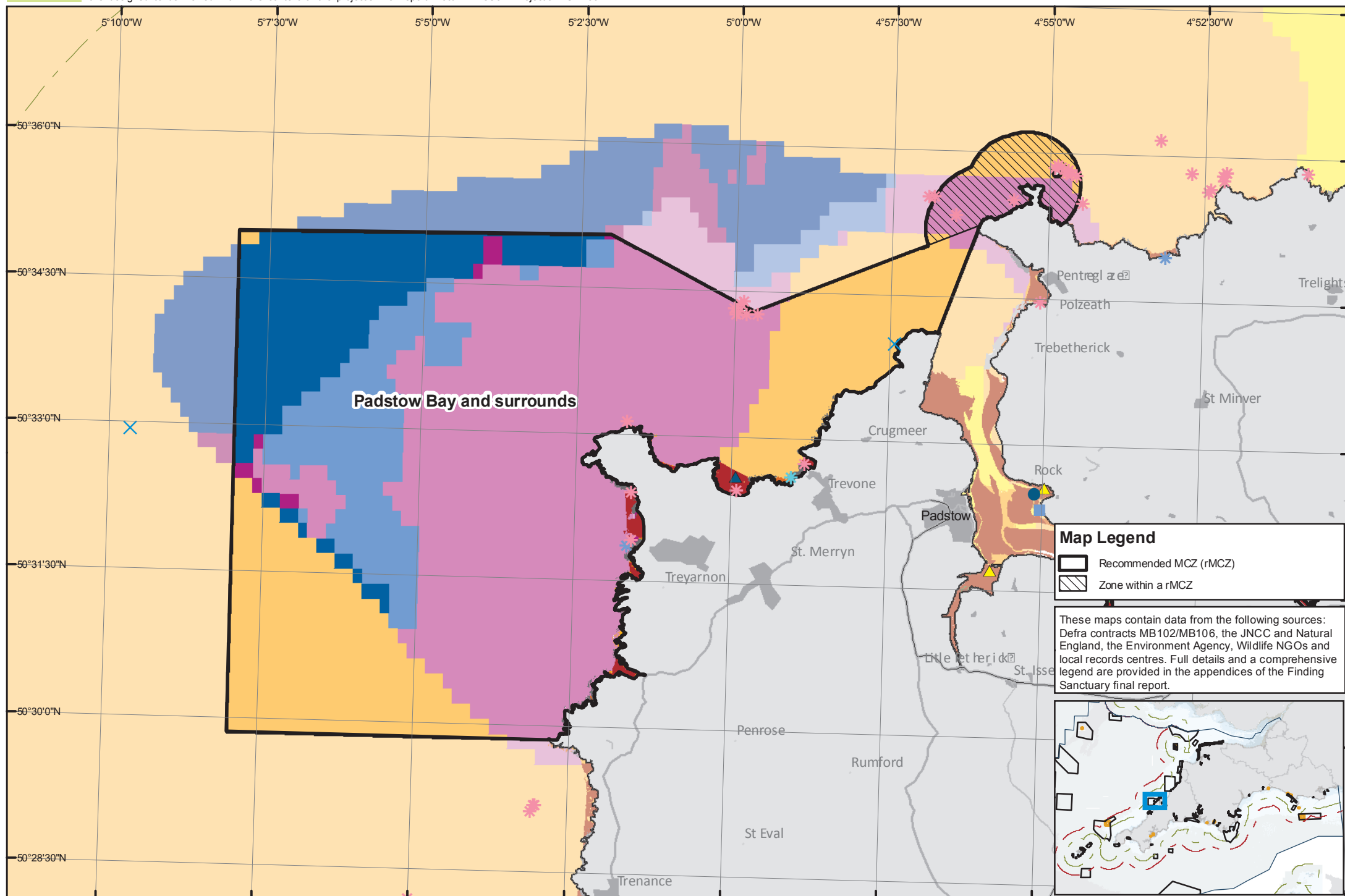
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.5833	-5.1333	50° 34' 59" N	5° 7' 59" W
B	50.5843	-5.0335	50° 35' 3" N	5° 2' 0" W
C	50.5717	-4.9948	50° 34' 18" N	4° 59' 41" W
D	50.5838	-4.9486	50° 35' 1" N	4° 56' 55" W
E	50.5930	-4.9463	50° 35' 34" N	4° 56' 46" W
F	50.5974	-4.9378	50° 35' 50" N	4° 56' 16" W
G	50.6016	-4.9135	50° 36' 5" N	4° 54' 48" W
H	50.5882	-4.9125	50° 35' 17" N	4° 54' 45" W
I	50.5874	-4.9350	50° 35' 14" N	4° 56' 6" W
J	50.5867	-4.9354	50° 35' 12" N	4° 56' 7" W
K	50.5692	-4.9453	50° 34' 9" N	4° 56' 42" W
L	50.4977	-5.0467	50° 29' 51" N	5° 2' 48" W
M	50.4977	-5.1330	50° 29' 51" N	5° 7' 58" W

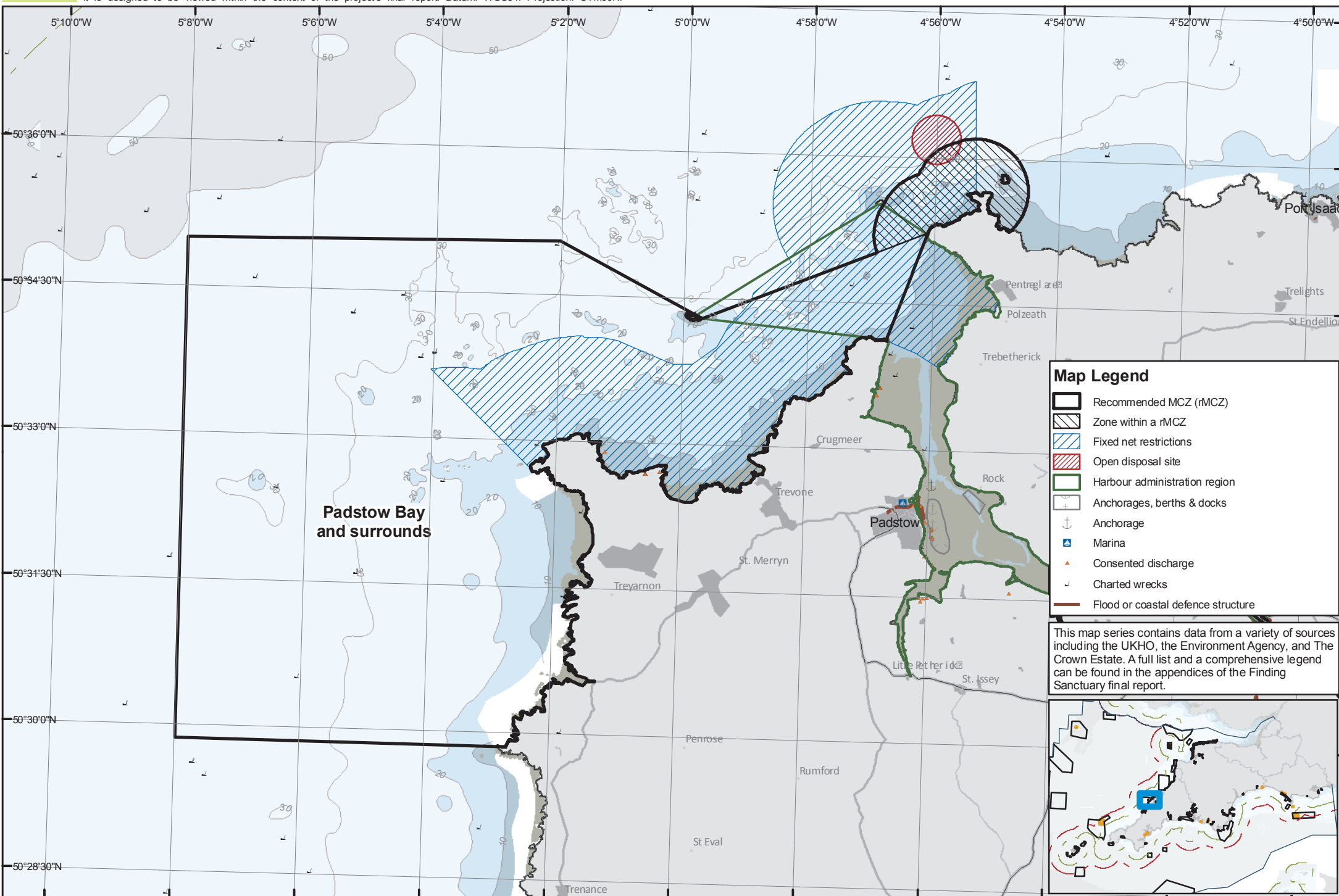
Map Legend

- Recommended MCZ (rMCZ)
- Zone within a rMCZ
- Named Sea Feature (The Doom Bar)
- Existing MPAs**
- SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.







II.3.39 Camel Estuary rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.5294	-4.8698	50° 31' 45" N	4° 52' 11" W

Due to the shape of this site the centroid falls outside the rMCZ boundary.

Site surface area: 2.2 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The site encompasses the upper reaches of the Camel Estuary, following the OS Boundary Line mean high water mark inland as far as the normal tidal limit near Polbrock Bridge, over 3km upstream of Wadebridge. The lower boundary of the site is a straight line across the estuary from the western shore of Pinkson Creek (a small tributary to the Camel, located just over 2.5km upstream of Padstow), to Cant Hill on the opposite shore of the Camel.

Sites to which the site is related: The upstream portion of this rMCZ overlaps with the River Camel Valley and Tributaries SSSI. Amble Marshes SSSI is located adjacent to the rMCZ.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Camel Estuary rMCZ

Table II.3.39a Draft conservation objectives for the Camel Estuary rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Coastal saltmarshes and saline reedbeds Intertidal coarse sediment Intertidal mud Low energy intertidal rock		M M ? M / R ¹ M
Habitat FOCI	Estuarine rocky habitats		M
Species FOCI	<i>Anguilla anguilla</i>	European eel	? M / R ²

¹At the time of the vulnerability assessment meetings, no decision was taken whether the conservation objective for this feature should be 'maintain' or 'recover'. Since then, advice from regional Natural England advisers has been to assume a 'maintain' objective.

²At the time of the vulnerability assessment meetings, no decision was taken whether the conservation objective for this feature should be 'maintain' or 'recover'. No quantitative information is included for the mobile FOCI species *A. anguilla* in the tables below, as the GIS data available was too coarse resolution to be meaningful. However, the species has been included in the draft conservation objectives on the basis of evidence provided to the project by the Environment Agency (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.39b Intertidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Low energy intertidal rock	<0.01	0.3%	4, 2
Intertidal coarse sediments	0.04	0.2%	3
Intertidal mud	1.77	1.0%	4, 3
Coastal saltmarshes and saline reedbeds	0.15	4.8%	3

Table II.3.39c FOCI habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Estuarine rocky habitats		2		1

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The Camel estuary is the largest and most sheltered marine inlet on the north Cornwall coast (Buck, 1993; Davies 1998). It is predominantly shallow and sandy, deepening at the mouth, with a narrow channel at low water that meanders from one side of the estuary to the other. Water quality has been classified as grade A (Buck, 1993). One of the reasons for the inclusion of this and other estuarine rMCZs in the network was in recognition of the added ecological importance of estuaries in terms of productivity, and their ecological function as nursery areas.

Detailed site description

The Camel has a large range of estuarine communities, e.g. a variable salinity rock community, with considerable local nature conservation importance (Davies, 1998). It is an AONB and there are five SSSIs and a bird sanctuary within the estuary (Davies, 1998). Much of the literature reviewed here describes the estuary as a whole, including the lower estuary, which are not within the rMCZ boundary. Some of the description of the areas at the mouth of the estuary may be relevant to the Padstow Bay and surrounds rMCZ, which includes the area outside the mouth of the estuary.

At Trebetherick (beyond the rMCZ boundary), there is an extensive area of rocky intertidal shore with mussel beds. At low water, a large area of the estuary is extensive intertidal flats. The outer flats are sandy and very mobile, and the innermost flats are muddy and more sheltered, but subject

to tidal scour. Small patches of saltmarsh occur in the small bays and inlets, and are more extensive in the upper parts (Buck, 1993). Burd (1989) also surveyed the Camel during the Saltmarsh survey of Great Britain.

At the entrance to the estuary (not part of the rMCZ), there are moderately exposed rocky shores with extensive rockpools on the low shore on the eastern side of the estuary. Extremely sheltered bedrock and boulder shores are dominated by the fucoid *Ascophyllum nodosum*. Such sheltered communities are rarely encountered within the marine inlets of north Cornwall and north Devon (Davies, 1991). Predominantly sandy sediments have rich populations of polychaetes and there are dense beds of the edible cockle *Cerastoderma edule*. Muddier sediments are also dominated by polychaete worms (ragworm most abundant). Bivalve *Schrobicularia plana* and oligochaete worms are locally abundant (Davies, 1991).

Gill & Mercer (1989) surveyed substratum types, tidal streams, intertidal habitats and communities in the Camel. Sublittoral rock habitats at the mouth were subject to strong tidal streams. Dense growths of sponges, sea squirts, hydroids and anemones were found on steep bedrock and on gully walls. Notable species recorded included the small sea squirt *Pycnoclavella aurilucens* which nears its northern limit within the estuary, and four species of the nationally important genus of red algae *Pterosiphonia* (Gill & Mercer, 1989).

Pirrie *et al.* (2000a) examined the mineralogy and geochemistry of the inter-tidal sediments in the Camel and Gannel estuaries. Reynolds *et al.* (2003) sampled the low water pools in the upper estuary *Spartina* marsh and high water at Trewornan Dam and creek for Bass.

Smith (1981) sampled populations of *Littorina saxatilis* at some 30 coastal and offshore stations, most of them in Cornwall (including the Isles of Scilly), and at 35 stations along the banks of the estuaries of the Rivers Camel, Tamar and Fal. The authors described the Camel as 'open at its entrance to a long Atlantic wave-fetch for some 5 km along its eastern bank, a very exposed estuary flanked by cliffs and intertidal reefs of predominantly blue-black slates which alternate with extensive embayments of mobile, wind-blown sand'.

During 2007-2008, the Environment Agency conducted Sea Area Saltmarsh Surveys in the Camel area. Bryan & Hummerstone (1978; 1978b) collected *Schrobicularia* of different sizes and samples of surface sediment from the intertidal zone at low tide. Luoma & Bryan (1978) also collected sediment samples from the oxidized surface layer of intertidal sediments.

There is only anecdotal evidence to support Seahorses in the outer reaches of the estuary and it is more than likely to be Short Snouted Seahorses (Neil Garrick-Maidment, *pers. comm*).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities.

Table II.3.39d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process. This site was a relatively late addition to the network (it was added after the third progress report). Most of the detailed work on recording assumptions and implications for the sites within the developing network configuration had already taken place before this site was added. Therefore, some of the content of table II.3.39d is based on what had previously been recorded for other sites in the network, based on assumptions that were implicit in the discussions over whether the site should be added to the network or not. Many of the assumptions and implications highlighted for this site are generic, and will apply to other rMCZs in the network as well. Site-specific comments from the later planning meetings (when the site was within the network) have also been added to the table.

Following that, table II.3.39e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.39d Specific assumptions and implications relating to Camel Estuary rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Aggregate extraction will not be allowed <i>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</i>	Direct implications: <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. Given this assumption, there are still the following concerns: <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging) <i>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not</i>	Direct implications: <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen (<i>may not be relevant in this area.</i>) o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where

considered during the VA meetings	<p>protected areas are close together</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Netting and longlining will not be allowed</p> <p><i>This assumption was recorded early on in the process, in order to protect nursery habitats and juveniles in all sites with draft conservation objectives for mobile FOCI. Stakeholder feedback has indicated that the assumption about longlining is inappropriate, as the activity does not happen inshore. An uncertainty remains around netting, where the activity may have an impact on nursery habitat - this uncertainty was not resolved through the VA</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for netters o Displacement of netters o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on netters where protected areas are close together <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o SAFFA fixed net restrictions apply.

considered during the VA meetings.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor

	<p>confidence in renewables activities.</p> <ul style="list-style-type: none"> o Increased competition for sea space with other sea users. o Tidal range potential has historically been identified.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Following VA meetings, a potential need for managing aquaculture activities in this site has been identified.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o A steering group member stated that this activity does take place within this site. o The Duchy of Cornwall have highlighted that there is a licence for crab tiles in the estuary, and that this activity would in all likelihood continue even if the license was revoked.
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Shoreline management Policy for this area is hold the line at various locations within the estuary. o A Steering Group member commented on the importance of taking into account shoreline management plan policies and planned activities.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>Pelagic trawls will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.39e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Aquaculture	<p>Management</p> <ul style="list-style-type: none"> - Reduce risk of introduction of non-indigenous species from relaying of mussel seed. Most likely mechanism to achieve this to be determined. <p>Measure</p> <ul style="list-style-type: none"> - To be determined

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Commercial fishing*
 - Commercial fishing raised concerns that estuaries are surplus to the requirement of the ENG.
- *Environment Agency*
 - Suggest using existing estuarine partnership agreements already in place as basis for protection measures.
 - The Environment Agency has provided detailed evidence/data to demonstrate the important fish nursery area function of the Camel estuary and their supporting FOCI habitats of mudflats and saltmarsh which currently have limited protection.
- *The Wildlife Trusts*
 - Excluding lower estuary areas from MCZ limits ecological value.
- *Aggregate and maintenance dredging*
 - It was highlighted that there is unmonitored maintenance dredging within the sand of the estuary, which is then sold. It was noted that if sand and muddy sands is the feature to be protected then an rMCZ in the estuary would definitely affect these activities.
 - Padstow Harbour needs a navigational channel.
 - The port authorities requested that sediment dredging can continue in the mouth of the estuary if this becomes a rMCZ.
 - The proposal for this rMCZ was adopted assuming the channel for fast boats is maintained.
- *Netting and longlining*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site. For sites that still have draft conservation

objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact on nursery habitats or juvenile FOCI. This particular rMCZ was added to the network in the final planning stages, after the detailed work on developing assumptions had already happened, but given that the site has a draft conservation objective for *Anguilla anguilla*, European eel, the uncertainty around netting applies.

- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.39e (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Padstow harbour authority are concerned about ensuring that the high speed channel into Wadebridge can remain open. Because of the length of the estuary, and the fact that boats can only navigate to and from Wadebridge on a high tide, any speed restrictions would hamper boat access. They have been assured by Natural England that this will not be affected.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: MESH, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

Site map series

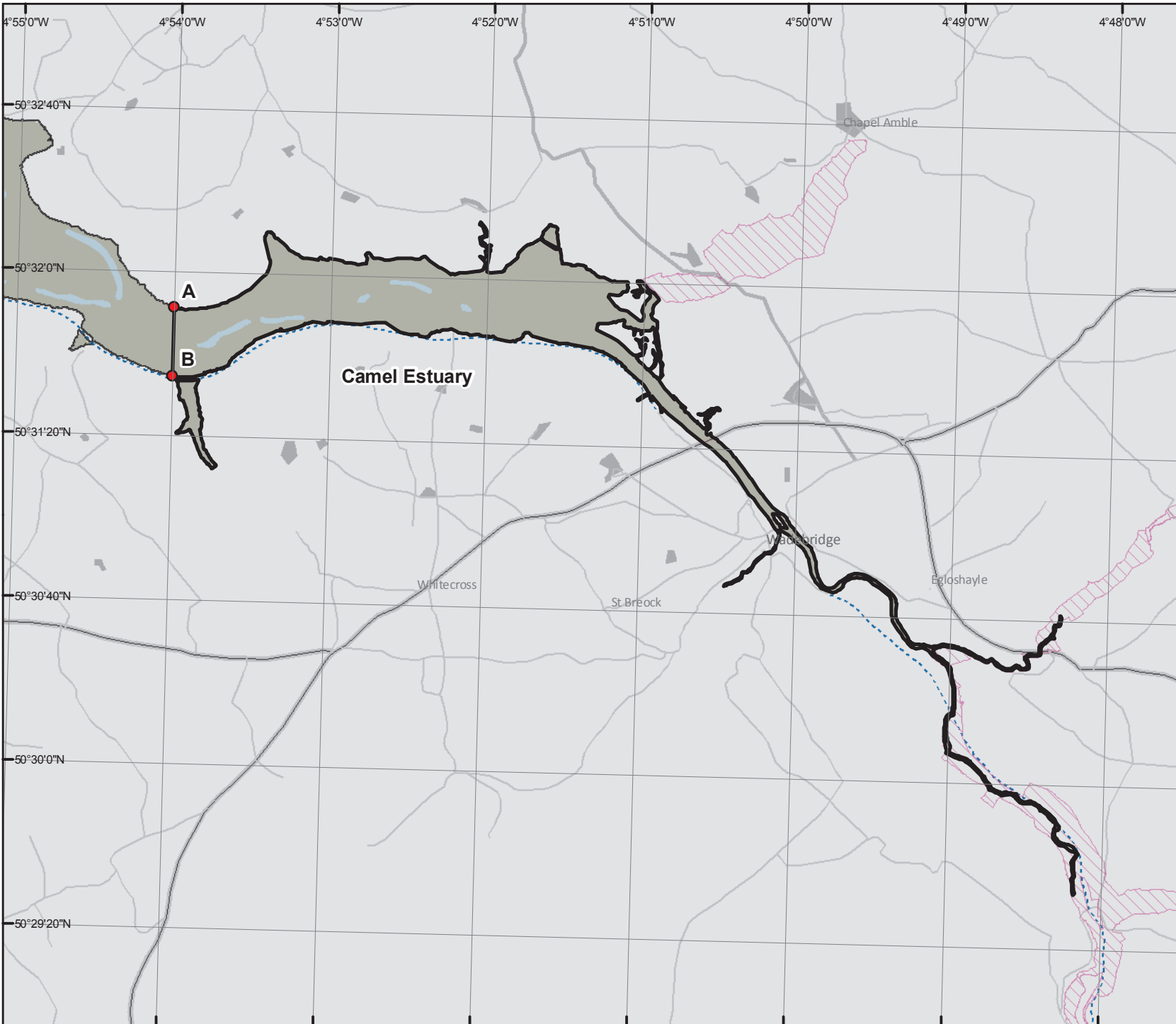
On the following pages there are two maps of this site.

- The first map (FR_053a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_053b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.39b and II.3.39c, data sources are indicated in the tables.
- Most rMCZ site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data License No. 002005.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 0.5 1 2 km



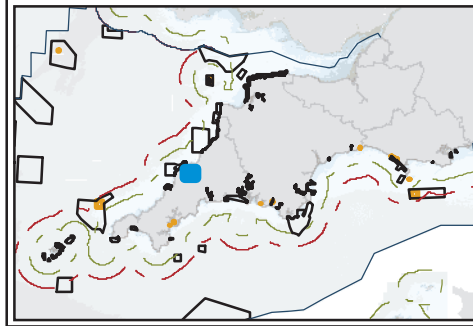
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.5310	-4.9000	50° 31' 51" N	4° 54' 0" W
B	50.5263	-4.9000	50° 31' 34" N	4° 53' 59" W

Map Legend

- Recommended MCZ (rMCZ)
- Existing MPAs**
- SSSI (not part of MPA network)

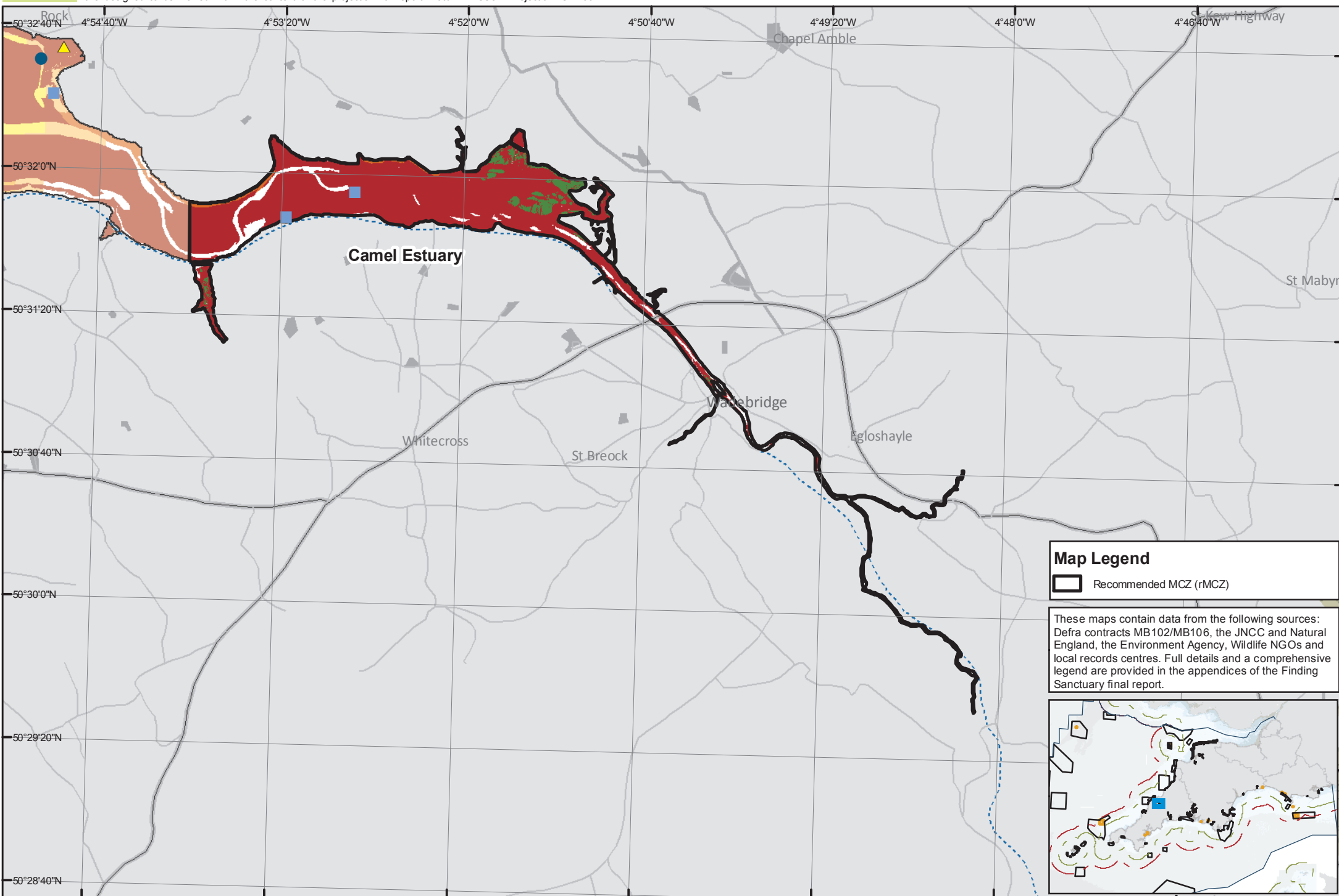
A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



Camel Estuary rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

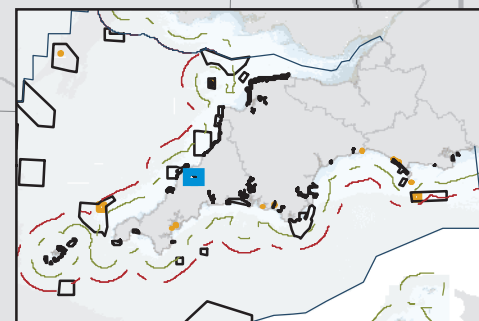
Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data License No. 062006.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
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Map Legend

Recommended MCZ (rMCZ)

These maps contain data from the following sources: Defra contracts MB102/MB106, the JNCC and Natural England, the Environment Agency, Wildlife NGOs and local records centres. Full details and a comprehensive legend are provided in the appendices of the Finding Sanctuary final report.



II.3.40 Hartland Point to Tintagel rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.7965	-4.7094	50° 47' 47" N	4° 42' 33" W

Site surface area: 303.8 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The site boundary follows the coastline along the OS Boundary Line mean high water mark from Tintagel Head to Hartland Point. The seaward boundary is made up of three distinct areas. The first is a rectangular area to the north of Tintagel Head, which intersects with the 6nm limit: From Tintagel, the seaward boundary extends in a rectangular shape, approximately 5.4 km west, 18.6km north, 13km east, and 11km south to just off Cambeak. The second is a relatively narrow stretch along the coast (of 500m to 1km in width) extending as far as Lower Sharpnose Point, north of Bude. The third section is a double rectangular shape to the west of Hartland Point. The first part extends about 3.5 km west off Lower Sharpnose Point and extends 8.5km north, and then the boundary runs eastwards to about 2.5km off South Hole (north of Welcombe). The second rectangular shape runs north and eastwards at Hartland Point. The double rectangular area that forms the northern part of the site is marked on site map FR_054a (at the end of this site report) as a distinct, but not spatially separate, zone. This area had been discussed within the Working Groups as an area where draft conservation objectives might be added for cetaceans, but ultimately, that did not happen.

Sites to which the site is related: Virtually the entire stretch of coastline along this rMCZ is designated as a SSSI, for the most part including the intertidal area and therefore intersecting with the rMCZ. The only coastal stretch not designated as a SSSI is between Bude and Widemouth. The SSSIs along this stretch of coast are: Tintagel Cliffs, Boscastle to Widemouth, Bude Coast, Duckpool to Furzey Cove, Steeple Point to Marsland Mouth, and Marsland to Clovelly Coast.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Hartland Point to Tintagel rMCZ

Table II.3.40a Draft conservation objectives for the Hartland Point to Tintagel rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Broad-scale habitats	Subtidal coarse sediment		M
	Subtidal sand		M
	High energy infralittoral rock		M

	Coastal saltmarshes and saline reedbeds ¹		M
	High energy intertidal rock		M
	Intertidal coarse sediment		M
	Intertidal mixed sediment		M
	Intertidal mud ²		M
	Intertidal sand and muddy sand		M
	Moderate energy intertidal rock		M
Habitat FOCI	Fragile sponge & anthozoan communities on subtidal rocky habitats <i>Sabellaria alveolata</i> reefs ³	Honeycomb worm reefs	M
Species FOCI	<i>Eunicella verrucosa</i> <i>Padina pavonica</i>	Pink sea-fan Peacock's tail seaweed	? M / R (tbc) M

¹ There is only a very small area of this habitat present within the site, at the river estuary at Bude.

² This is unlikely to be present along this stretch of wave exposed coastline. What is mapped as intertidal mud in this area is probably sand – there is a known problem in translating between habitat classification systems which has led to an overestimate of the intertidal mud area within the region (see appendix 8).

³ There are no records in our dataset, but there is pers. comm. from the Steering Group science representative, a member of the SAP, and members of the MBA of recent records of this FOCI habitat at Duckpool near Bude, surveyed as part of the MarClim project.

The northern zone of this site was discussed within the Working Groups as an area where draft conservation objectives should be added for cetaceans. Local Group feedback indicates that breeding seabird colonies use the area between April and July, and suggested a standard 1km extension around seabird colonies to protect the areas used by the birds during this time period. However, when the Wildlife Trusts were tasked with providing specific suggestions for draft conservation objectives for non-ENG listed mobile species, they did not include any for this site, because upon reviewing evidence they had access to (survey work & sightings databases), the area contained fewer sightings than the other rMCZs that have draft conservation objectives for cetaceans.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.40b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	1.43	0.2%	1
Subtidal coarse sediment	155.64	0.5%	1
Subtidal sand	141.07	0.4%	1

Table II.3.40c **Intertidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock	1.76	24.2%	4
Moderate energy intertidal rock	<0.01	0.1%	4
Intertidal coarse sediments	1.56	8.1%	4, 3
Intertidal sand and muddy sand	0.22	1.9%	4
Intertidal mud ¹	1.40	0.8%	4, 3
Intertidal mixed sediments	0.79	17.4%	4
Coastal saltmarshes and saline reedbeds ²	<0.01	<0.1%	3

¹ This is unlikely to be present along this stretch of wave exposed coastline. What is mapped as intertidal mud in this area is probably sand – there is a known problem in translating between habitat classification systems which has led to an overestimate of the intertidal mud area within the region (see appendix 8).

² There is only a very small area of this habitat present within the site, at the river estuary at Bude.

Table II.3.40d **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Fragile sponge & anthozoan communities on subtidal rocky habitats		1	1	1
Subtidal sands and gravels ¹	224.75			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.40e **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Eunicella verrucosa</i>	5	4	1, 3, 5
<i>Padina pavonica</i>	1	1	1

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 1.42 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The stretch of coastline between the landmarks of Tintagel Head and Hartland Point is exposed to high levels of wave energy, and is characterised by steep rocky cliffs, sea caves, and stretches of sandy surf beaches. Compared to most of England's coastline, the area can be described as remote, especially around Hartland Point. The site extends from the shore line to depths of approximately 50 metres. The rMCZ intersects with an area of higher than average benthic species diversity, and the Bude and Boscastle sections intersect with areas of higher than average benthic habitat diversity. Local Group feedback has commented on the importance of this area for connectivity, also pointing out the different nature of the sediment habitats found in this area compared to other parts of the region, i.e. a broad-scale habitat mapped along this stretch of coast is likely to differ in the biota it supports, compared to the same broad-scale habitat along the south coast, because of the different exposure regime. The northern stretch of this rMCZ (marked as a separate 'zone'), was highlighted as potentially important for cetaceans, and the Local Group indicated it may be important for porbeagle sharks.

Detailed site description

Sublittoral habitats and communities between Hartland Point and Tintagel were studied during the South West Britain Sublittoral Survey (Maggs & Hiscock, 1979). Nearshore sublittoral regions were composed of gently sloping bedrock, occasionally very broken, with boulders at some sites; rock surfaces had an even covering of sand. These habitats were dominated by algae although at some sites a kelp forest was absent (Davies, 1998). Burd (1989) describes the coastal saltmarshes within the area from The Saltmarsh Survey of Great Britain.

Infralittoral algal communities covered a very wide depth range (to 26 m below chart datum at Boscastle). Infralittoral communities were dominated by foliose red algae *Dictyota dichotoma*, and *Dictyopteris membranacea* were abundant (Davies, 1998). A number of notable species of algae were recorded, for example, the Mediterranean species *Choristocarpus tenellus*. Vertical and upward facing rock was dominated by bryozoans, sea squirts and sponges; erect sponges such as *Raspailia hispida* were common (Davies, 1998).

Although none of the feature is mapped within the GIS datasets available to Finding Sanctuary, Local Group feedback highlighted the presence of *Sabellaria* reef in the area relatively early on. The species is not specified in the Local Group report, but it is likely that they were referring to *Sabellaria alveolata* reef, as there has since been feedback from several scientists at the Marine Biological Association that this FOCI habitat is present at Duckpool (north of Bude), and this is confirmed in the scientific literature. Duckpool is a small sheltered sandy bay near the border between Devon and Cornwall, which was considered to be a site of primary marine biological importance by Powell *et al.* (1978). Lower shore habitats have exceptionally fine colonies of the reef-building tubeworm *Sabellaria alveolata* (considered to be the finest in Britain by Cunningham *et al.* 1984). Long-term studies on the formation and duration of these reefs at Duckpool were reported by Wilson (1971; 1974; 1976).

In 1985 Bude Bay on the north Cornish coast was chosen for long-term surveillance by Gibbs *et al.* (1999). The bay faces west and is fully exposed to the Atlantic; north of Bude the shoreline is a long sandy beach interrupted by high rock outcrops, some extending to the level of low water neap tides, whilst to the south of Bude the mid-low intertidal zone is a rock platform of east-west orientated reefs except for a long stretch of sand at Widemouth. Mussel (*Mytilus edulis*) beds are extensive in the northern half of the bay, but colonies are scarce in the south.

Eunicella verrucosa was reported in the rMCZ area during the 1979 South West Britain Sublittoral Survey (Tintagel Head to the Devon border - Maggs & Hiscock, 1979). During Seasearch dives, Sharrock (2008) describes results from two trips to attempt to survey the area around Hartland Point. Only one dive was achieved and that in very poor underwater visibility, but large frequent clumps of potato crisp bryozoan together with frequent branching sponges indicated a probable fragile sponge and anthozoan community.

Although there have only been a few sightings of the Short Snouted Seahorse in this region, there is no reason to suspect that there is not a reasonable population living here. For breeding purposes, there needs to be an existing population and divers have spotted them for a number of years. Most of the sightings have been anecdotal but there is no reason to doubt them (Neil Garrick-Maidment, *pers. comm.*).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.40f shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.40g shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.40f Specific assumptions and implications relating to Hartland Point to Tintagel rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Aggregate extraction will not be allowed	Direct implications: o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource,
Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not	

considered during the VA meetings	<p>then this will have significant impact on national construction aggregate supply and coast defence.</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging)</p> <p>The VA discussed this activity and stated that the site might be partially closed to bottom-towed fishing gear, in order to protect the more sensitive habitats & species.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen o Will affect day boats in particular, which are less able to travel far for alternative grounds than larger boats would be o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity. <p>Benefits:</p> <ul style="list-style-type: none"> o MCZ boundaries already changed to reduce impacts on mobile fishing gear o Unanimous support from Local Group for exclusion of mobile fishing gear
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.

<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
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Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback indicates that this is an important area for potting, and restricting potting could have negative impacts on North Devon fishermen. o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>Pelagic trawls will be permitted, but in the water column and seafloor protection zone will require mitigation against bycatch of cetaceans</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for

<p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>licensing mitigation and monitoring</p> <ul style="list-style-type: none"> - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions <ul style="list-style-type: none"> o Attracting the funding (for development) may be harder in the first place as sites with MPA designations within them will be less attractive to potential investors. o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Good Wind resource, but landscape buffer requirements make deployment less likely. o Limited near-shore wave energy potential. o Overlaps one of the few headland tidal resources.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There are current coastal protection works in the area, and there has been concern around whether there would be any impacts on them arising from an MCZ designation.

<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o A Steering Group member commented to state that it is not clear where this occurs on the site, so there may not be implications from this assumption
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There are current coastal protection works in the area, and there has been concern around whether there would be any impacts on them arising from an MCZ designation.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs if mitigation measures/monitoring needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase

<p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>due to activity restrictions on cable repair.</p> <ul style="list-style-type: none"> o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o One proposed power cable in site.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o There are active telecommunication cables interconnecting the UK mainland from Bude overseas. There would be implications for telecommunications if these cables were not able to stay operational, including access for maintenance purposes. Six active telecoms cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There are small port and harbour facilities in the area, and a wider concern has been raised about whether they would be impacted by an MCZ designation.
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There are small port and harbour facilities in the area, and a wider concern has been raised about whether they would be impacted by an MCZ designation. o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There are small port and harbour facilities in the area, and a wider concern has been raised about whether they would be impacted by an MCZ designation.

<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>
<p>Wildfowling would be permitted</p> <p><i>This was not an agreed assumption from the Working Group, but was been highlighted in feedback as an activity that currently is ongoing in the area, prior to the February 2011 Steering Group meeting</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>

Table II.3.40g VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	<p>Management:</p> <ul style="list-style-type: none"> - Option 1: Prohibition of fishing over specific BSH/FOCIs in the rMCZ. These are: fragile sponge & anthozoan communities on subtidal rocky habitats, <i>Eunicella verrucosa</i>, <i>Padina pavonica</i>. - Option 2: no management <p>Measure:</p> <ul style="list-style-type: none"> - Option 1: voluntary - Option 2: byelaw

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Feedback from a fishing representative indicated that some trawling takes place in the area that looks like it has been ‘cut out’ from this site, where the site boundary runs in a narrow strip along the shoreline. The stakeholder group was expecting better co-ordinates to be provided for a trawling area to be cut out, but this did not happen – as a result, the shape of this rMCZ is more irregular than that of others in the network.
- *Renewables*
 - The Crown Estate requested slight movement to secure tidal resource but this was rejected by working group.

- By making a large area of coastline a rMCZ it could have large implications for the renewables sector if cabling is restricted in rMCZs, as it might block potential cable routes across the coastline to areas further offshore
- It was noted that the high biodiversity found in the area of Hartland Point is only present because of the tidal stream which is a resource that the renewables sector would like to be able to exploit
- *Generic implications for ports (applicable to all rMCZs where port jurisdictions and activities overlap with the site, or are adjacent to the site)*
 - Harbour Revision Orders, General Directions, Pilotage Directions etc.
 - Ports and harbours are limited to their jurisdiction.
 - Ability of port to comply with legal responsibilities e.g. Oil Spill Response Planning etc.
 - Administration, resource on and off the water, legal and technical specialists requirements associated with additional management and legal responsibilities should co-location be pursued.
 - Additional time and cost triggered by all of the above both to the port
 - Implications on other industries using the port or who wish to use the port in the future.
 - Existing management practices on and off water e.g vessel and activity management, speed, timing restrictions etc.
 - Existing emergency response – weather, pollution, security.
 - Dredging to ensure maintenance of safe navigable depths.
 - Berthing, mooring & anchoring of small & large vessels.
 - Ship building, maintenance, refurbishment & repair.
 - Maintenance, refurbishment & repair of port and harbour infrastructure.
 - New port and harbour infrastructure.
 - Access & egress to and from harbour.
 - Recreational activities within harbour.
 - Ship access and egress to and from berths.
 - Significance of timescales, delays and cost to management practices.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.

- *Management measures*
 - Part of this rMCZ lies beyond the 6 nautical mile limit. There may be non-UK vessels with historical fishing rights in the area. For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.40g (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

There is support for this site from local stakeholders on the North Devon Biosphere Reserve Marine Working Group (www.northdevonbiosphere.org.uk) who worked on sites in North Devon on behalf of the Devon Local Group. The northern boundary of this site represents the outcome of a negotiation between conservation interests (who wanted the site boundary to extend further east around Hartland Point, to capture an area of high benthic biodiversity), and renewables interests (who wanted the site boundary drawn further south of Hartland Point, as they were concerned about future obstacles to exploiting the high tidal resource present in the area).

The Crown Estate indicated that there are active telecommunication cables interconnecting the UK mainland and overseas running from Bude. They also highlighted that licensed wildfowling, recreation boat moorings, port activities, coastal protection works, and waste water outfalls are

located in the area. They are supportive with the assumption that MCZ designation would not restrict maintenance / repair of cables, or the other activities described.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, Cornwall Wildlife Trust, Seasearch 2009, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. Dr Nova Mieszkowska from the Marine Biological Association may be able to provide more recent information on *Sabellaria alveolata* reefs at Duckpool.

The North Devon Biosphere Reserve Marine Working Group has supplied additional information that is relevant to this site. This information includes a detailed description of the site, details of the species and habitats present, and recommendations for the management of the site if designated as an MCZ. These recommendations have been included in their entirety in the additional materials supplied with this final report.

Site map series

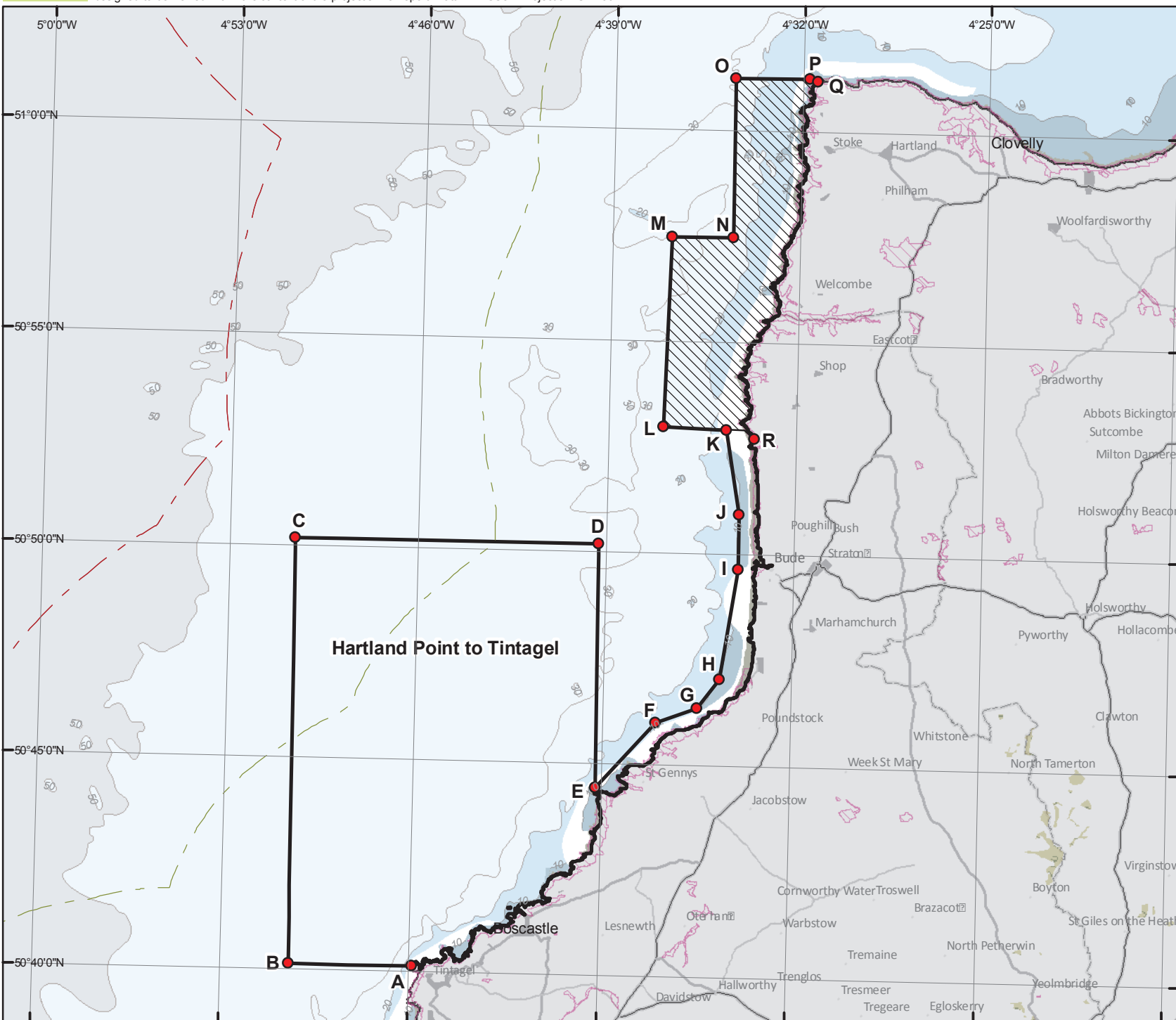
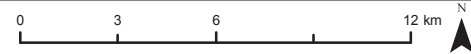
On the following pages there are three maps of this site.

- The first map (FR_054a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_054b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.40b to II.3.40e, data sources are indicated in the tables.
- The third map (FR_054c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

Hartland Point to Tintagel rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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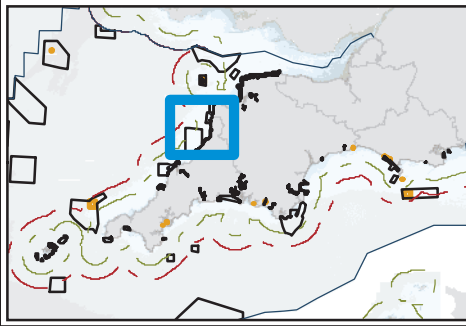
Lat/Long Co-ordinates (WGS84)

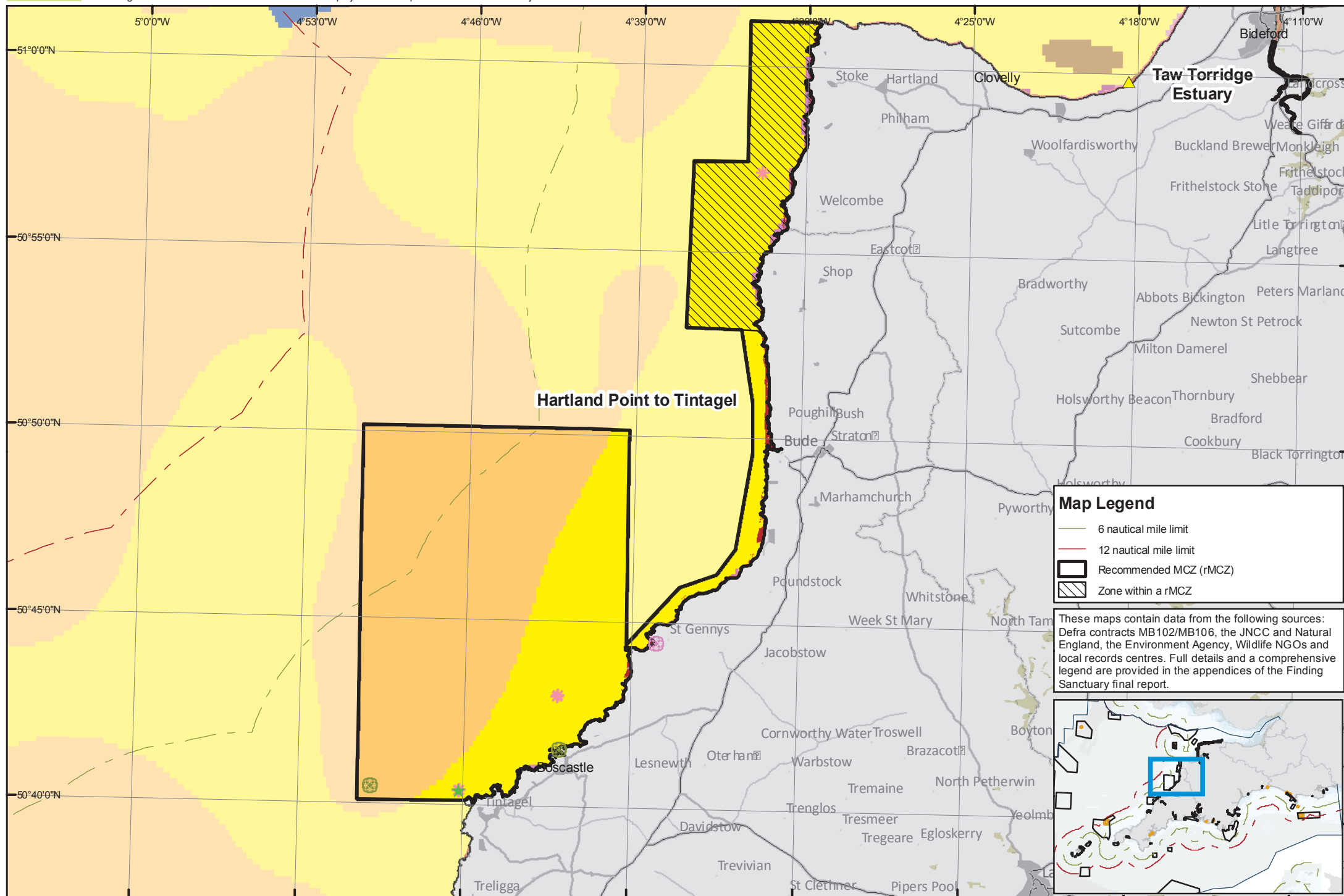
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.6693	-4.7647	50° 40' 9" N	4° 45' 52" W
B	50.6690	-4.8411	50° 40' 8" N	4° 50' 28" W
C	50.8368	-4.8429	50° 50' 12" N	4° 50' 34" W
D	50.8371	-4.6544	50° 50' 13" N	4° 39' 15" W
E	50.7410	-4.6537	50° 44' 27" N	4° 39' 13" W
F	50.7669	-4.6172	50° 46' 0" N	4° 37' 2" W
G	50.7730	-4.5913	50° 46' 22" N	4° 35' 28" W
H	50.7846	-4.5778	50° 47' 4" N	4° 34' 40" W
I	50.8280	-4.5674	50° 49' 40" N	4° 34' 2" W
J	50.8497	-4.5677	50° 50' 58" N	4° 34' 3" W
K	50.8829	-4.5769	50° 52' 58" N	4° 34' 36" W
L	50.8835	-4.6160	50° 53' 0" N	4° 36' 57" W
M	50.9583	-4.6130	50° 57' 29" N	4° 36' 46" W
N	50.9585	-4.5750	50° 57' 30" N	4° 34' 30" W
O	51.0214	-4.5750	51° 1' 16" N	4° 34' 30" W
P	51.0215	-4.5290	51° 1' 17" N	4° 31' 44" W
Q	51.0205	-4.5244	51° 1' 13" N	4° 31' 27" W
R	50.8827	-4.5656	50° 52' 57" N	4° 33' 56" W

Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- Recommended MCZ (rMCZ)
- Zone within a rMCZ
- Existing MPAs**
- SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

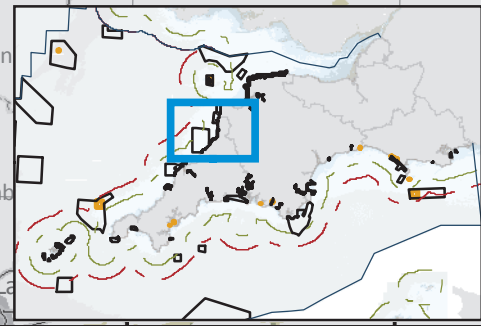




Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- ▭ Recommended MCZ (rMCZ)
- ▨ Zone within a rMCZ

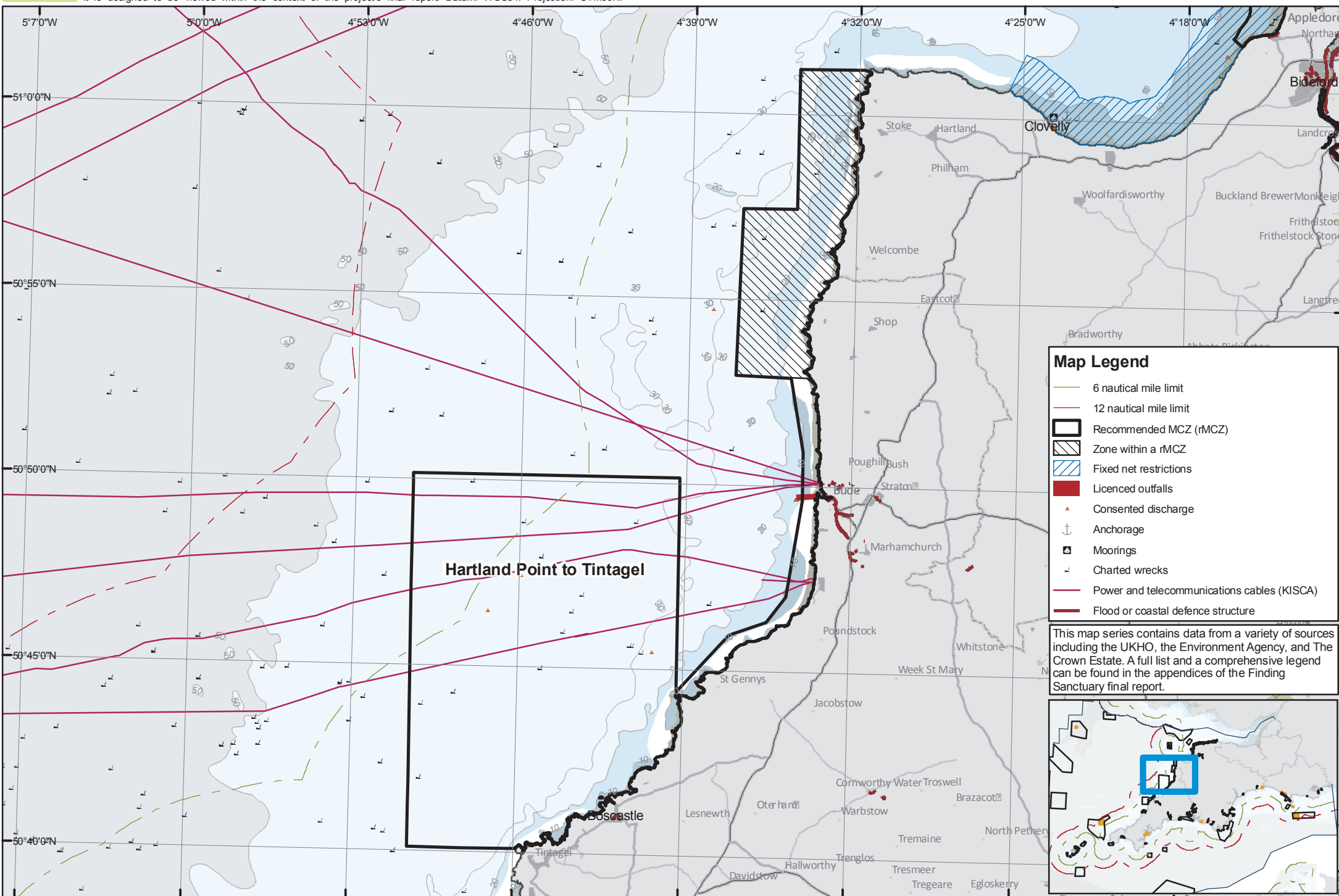
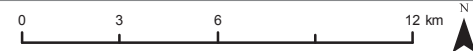
These maps contain data from the following sources: Defra contracts MB102/MB106, the JNCC and Natural England, the Environment Agency, Wildlife NGOs and local records centres. Full details and a comprehensive legend are provided in the appendices of the Finding Sanctuary final report.



Hartland Point to Tintagel rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

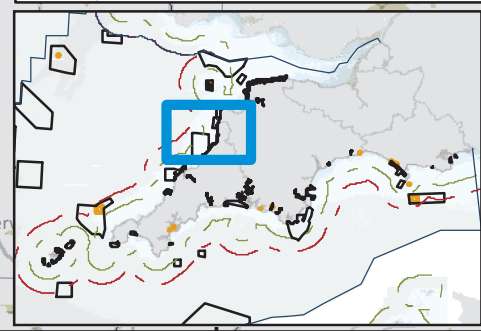
Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- ▭ Recommended MCZ (rMCZ)
- ▨ Zone within a rMCZ
- ▧ Fixed net restrictions
- Licenced outfalls
- ▲ Consented discharge
- ⚓ Anchorage
- Moorings
- Charted wrecks
- Power and telecommunications cables (KISCA)
- Flood or coastal defence structure

This map series contains data from a variety of sources including the UKHO, the Environment Agency, and The Crown Estate. A full list and a comprehensive legend can be found in the appendices of the Finding Sanctuary final report.



II.3.41 Lundy MCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
51.1841	-4.6685	51° 11' 2" N	4° 40' 6" W

This MCZ encircles Lundy Island. The centroid falls on the centre of the island, which is outside the site boundary.

Site surface area: 30.69 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The MCZ boundary is a rectangle centred on Lundy Island, of approximately 7.3 x 4.6 km.

Sites to which the site is related: The MCZ boundary is identical to the boundary of Lundy SAC. It contains the Lundy recommended reference area, which has the same boundary as the existing Lundy no-take zone. Most of Lundy Island itself is designated as a SSSI. Lundy is within the North Devon Biosphere Reserve region.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation with the Lundy MCZ

Finding Sanctuary has been tasked with developing conservation objectives for the Lundy MCZ, the only MCZ that has already been designated in our region at the time of writing this report. The boundary of the MCZ coincides with the boundary of the Lundy SAC, which already protects a long list of features present within the site (all of the broad-scale habitats and most of the FOCI mapped within the boundary of Lundy MCZ). The features contained within and to be protected within Lundy MCZ have not been explicitly discussed within the Working Groups, as the work has focussed on developing new rMCZs.

Table II.3.41a Draft conservation objectives for the Lundy MCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Species FOCI	<i>Palinurus elephas</i>	Spiny lobster	R
Habitat FOCI	Mud habitats in deep water		M
Mobile species not listed in ENG	<i>Puffinus puffinus</i>	Manx shearwater	M
	<i>Uria aalge</i>	Guillemot	M
	<i>Alca torda</i>	Razorbill	M
	<i>Fratercula arctica</i>	Puffin	M

The validity of the records of the ‘mud habitats in deep water’ FOCI habitat at Lundy has been strongly questioned by a member of the Science Advisory Panel, who has in-depth personal knowledge of the area and has stated that the habitat is not present at Lundy (K. Hiscock, *pers. comm.*). In this report, given the records in MB102, the habitat is included on the draft conservation objectives list for Lundy, and Lundy has been counted as a replicate for the habitat in the network statistics in section II.2.8. However, the key rMCZ for this FOCI habitat within the network is the Celtic Deep rMCZ, not Lundy.

The Joint Working Group discussed at length whether to add a wider ‘buffer’ zone around the current MCZ boundary, and recommend conservation objectives for seabirds within that buffer area, given Lundy’s importance to the listed range of seabird species. The suggestion to do this had come from the Local Group, who indicated that speed restrictions on boats might be put in place to avoid disturbance to birds. The decision was taken not to add the buffer zone, because the group considered there to be no known activities causing significant levels of disturbance to the birds beyond the current site boundaries (refer to the Joint Working Group meeting report series for further details of this discussion).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary’s GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.41b Subtidal broad-scale habitats recorded in this MCZ, based on an analysis of Finding Sanctuary’s EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within MCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock ¹	2.58	0.4%	1
Moderate energy infralittoral rock ¹	3.89	1.2%	1
High energy circalittoral rock ¹	3.39	0.3%	1
Moderate energy circalittoral rock ¹	3.75	<0.1%	1
Subtidal coarse sediment ¹	2.78	<0.1%	1
Subtidal sand ¹	14.14	<0.1%	1, 2

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

Table II.3.41c **FOCI habitats** recorded in this MCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Mud habitats in deep water		14	14	1
Fragile sponge & anthozoan communities on subtidal rocky habitats ¹		6	6	1
Subtidal sands and gravels ²	27.78			1

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

² Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.41d **FOCI species** recorded in this MCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Amphianthus dohrnii</i> ¹	1		1
<i>Eunicella verrucosa</i> ¹	76	37	1, 5
<i>Leptopsammia pruvoti</i> ¹	12	1	1, 5
<i>Palinurus elephas</i>	8	2	1
<i>Phymatolithon calcareum</i> ²	5	5	1

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

² There are a small number of records of this species of maërl present within the boundaries of this site, all of which are older than 30 years. This was discussed during the vulnerability assessment, and given the wider environmental characteristics of the site, it was considered a likely erroneous record, or a small fragment of maërl washed in from elsewhere. The species was therefore not included on the list of draft conservation objectives for the site.

This MCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 5.77 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

Lundy is the only MCZ in the region that is already designated. It contains an existing no-take zone, which has been recommended separately as a reference area. Lundy MCZ intersects with an area of higher than average benthic species and habitat diversity (within the south-west context). Lundy is not just a hotspot of benthic diversity; it is also of added importance for seabirds, as a foraging and

loafing area, particularly for Manx shearwaters, puffins, razorbills and guillemots. The MCZ extends from the shoreline to depths of approximately 40 metres.

Detailed site description

Lundy is made of a granite and slate reef system, exposed to a wide range of wave action and tidal stream strength. Combined with significant topographical variation, this has resulted in a diverse complex of biological communities. The full salinity reefs are both infralittoral and circalittoral (>50 m depth), and are highly influenced by coastal processes. Several communities at their northern limit of distribution occur here. Fragile long-lived species, such as the soft coral *Parerythropodium coralloides*, sea-fans *Eunicella verrucosa* and erect branching sponges, are present, as are all five British species of cup-coral (English Nature, 2000).

The communities of benthic fauna around Lundy are unusually rich with many rare and delicate slow-growing species (McDouall, 2006). A number of nationally rare and scarce species have been recorded from coarse sediments around Lundy, including the sea squirt *Molgula oculata* and the brown seaweed *Choristocarpus tenellus*. The red band fish *Cepola rubescens* occurs in subtidal mud around Lundy (McDouall, 2006). Warwick & Davies (1977) surveyed the sublittoral sediments and macrofauna in the Bristol Channel and around Lundy.

There are a particularly rich diversity of seaweeds - 316 species have been recorded (this is getting on for 50% of the UK total). This is partly a reflection of the study it has received by phycologists over 60 years but it is genuinely very rich. It is the most northerly site for *Laminaria ochroleuca* in the UK. The biggest change found in 2008 was the presence of alien species of seaweed that had not been reported in earlier studies (Brodie *et al.* 2007).

Hall-Spencer *et al.* (2007) and Munn *et al.* (2008) examined bacterial cultures from two cold coral *Eunicella verrucosa* specimens (which were described as necrotic) from Lundy to compare differences in the activity levels of bacterial enzymes.

The Local Group noted the presence of HeloMsim and MedLumVen biotopes (as defined in Connor *et al.* 2004), as well as subtidal sand and gravel, tide swept channels, submerged or partially submerged sea caves, maërl, pink sea fan, sea fan anemone (N. Lundy), spiny lobster (W & E Lundy), and grey seal *Halichoerus grypus*.

Lundy is of recognised importance for a range of seabirds. Small populations of Manx shearwater, guillemot, razorbill and puffin breed on Lundy, the puffins nesting in disused rabbit burrows in cliff grassland. While the numbers of guillemot and razorbill seemed to be stable, puffins were described as being in serious decline by McDouall (2006) predation by rats being a contributory factor. Gannets bred on Lundy, the last nesting site in south west England, up until the early 1900s. Persistent nest robbing and disturbance were the likely reasons for the demise of this colony (McDouall, 2006).

The Seabird Recovery project put together a rat eradication project on Lundy Island which took place between January 2003 and March 2006. Lock (2006) summarized the restoration of breeding populations of seabirds on Lundy Island. Manx Shearwaters have increased from 308 to 1120 pairs on Lundy since rats were eradicated (RSPB unpubl. data from Ratcliffe *et al.* 2009). Observations of juvenile Manx Shearwater in 2004, 2005, and 2006 proved successful breeding and led to a more detailed study in 2007. In a study by Booker *et al.* (2008), young birds emerging from burrows prior to fledging were captured and ringed (Booker *et al.* 2008; Booker & Price, 2008).

Changes in the populations of seabirds breeding on Lundy, which holds the largest colonies in the Bristol Channel, have been summarised by Davis & Jones (2007). Aside from Lesser Black-backed and Herring Gulls, small numbers of Great Black-backed Gulls and Kittiwakes (*Rissa tridactyla*) also breed on Lundy. Numbers of Kittiwakes fell from an estimated 3000 pairs in 1939 (Perry, 1940) to 148 in 2004. The Guillemot (*Uria aalge*) population also fell from an estimated 19,000 pairs in 1939 (Perry, 1940) to 1647 individuals in 1969 and the Razorbill (*Alca torda*) population from 10,500 pairs in 1939 to 761 individuals in 1986. Numbers of these species in 2004 were 2321 and 841 individuals respectively. A population of 3500 pairs of Puffins (*Fratercula arctica*) in 1939 was reduced to a low of just nine pairs in 2003 (Burton *et al.* 2010). Estimates of the numbers of Manx Shearwaters (*Puffinus puffinus*) breeding on Lundy have varied greatly, from 100 to 1000 pairs (Dymond, 1980) to 1000 to 10,000 pairs (Thomas, 1981). A more comprehensive study using tape playback suggested a population of 166 pairs in 2001 (Price & Booker, 2001). In addition to these species, Fulmars (*Fulmarus glacialis*), Shags (*Phalacrocorax aristotelis*) and possibly Storm Petrels (*Hydrobates pelagicus*) also breed in small numbers. Seabirds on Lundy were formerly subject to heavy human persecution, though the declines of most species in the latter half of the 20th century have been particularly associated with predation by both Brown Rats (*Rattus norvegicus*) and Black Rats (*R. rattus*) (Burton *et al.* 2010). A Seabird Recovery Programme instigated by English Nature (now Natural England) in 2001 led to the island being declared rat-free in 2006, helping both Manx Shearwaters and Puffins to nest successfully (Appleton *et al.*, 2006; Lock, 2006; Davis & Jones, 2007). Guilford *et al.* (2008) conducted GPS tracking of the foraging movements of Manx Shearwaters (*Puffinus puffinus*) breeding on Skomer Island, Wales.

Lundy is home to Short Snouted Seahorses and even though the actual sightings have been low in number, the habitat is perfect to support a reasonable population in this area (Neil Garrick-Maidment, *pers. comm.*).

Stakeholder narrative: Assumptions and Implications

Assumptions and implications have not explicitly been discussed for Lundy within the Working Groups, as the work has focussed on developing new rMCZs. The project team prepared some working assumptions and implications for the Steering Group meeting, based primarily on the network-level assumptions for seafloor protection areas. Steering Group members had an opportunity to comment, and the comments are integrated into the table below.

The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved. This assumption applies to all activities. The table below specifies in more detail what this is likely to mean within this particular MCZ.

Following that, table II.3.40f shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.41e Specific assumptions and implications relating to Lundy MCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments

on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging)</p> <p><i>The last bullet point under 'implications' may not be a problem if there is a limit on the amount of static gear used.</i></p> <p>Commercial fishing was discussed at the VA meetings, and the only activity that was identified that needed excluding from the site was the removal of spiny lobster. Assume other activities can continue at current levels.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Some English Heritage boats are 'large' (over 24m) so this activity should be noted as occurring and not be prevented (see assumption below on anchoring in order to access heritage wrecks) o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.

<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
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Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Commercial fishing was discussed at the VA meetings, and the only activity that was identified that needed excluding from the site was the removal of spiny lobster. Assume other activities can continue at current levels.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed o Local Group feedback states that this is a major potting area and restriction to potting activity would be financially restricting to a large part of the fishing population in the North Devon area.
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions. o Attracting the funding (for development) may be harder in the first place as sites with MPA designations within them will be less attractive to potential investors. o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications

	<p>in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets.</p> <ul style="list-style-type: none"> o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Good wind resource, landscape buffer requirements making deployment less likely. o Medium term wave resource present. o Tidal resource present at north and south headlands.
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>The existing no-take zone will be kept in place unchanged.</p> <p>This was acknowledged at the VA meetings.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair.

<p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>o There is no definition of what ‘prohibitively expensive’ means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements).</p> <p>If the assumption turns out to be wrong:</p> <p>o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology.</p> <p>o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements.</p> <p>o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.</p> <p>o Possible cable route to renewable resources.</p>
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>

<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Some English Heritage boats are 'large' (over 24m) so this activity should be noted as occurring in this site and not be prevented. o There are two heritage wrecks within Lundy MCZ: Gull Rock Wreck (within the no-take zone, which is also a recommended reference area), and Iona II (about 160m east of the no-take zone).
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Seaweed harvesting will be permitted	Direct implications: o
Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	

Table II.3.41f VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing	Management - Removal of <i>Palinurus elephas</i> (crawfish) not permitted from the MCZ Measures - Option 1: Voluntary - Option 2: Byelaw

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - o Seasonal closures are an inappropriate measure for benthic conservation.

- *Renewables*
 - Existing SAC, possibly limiting tidal stream deployment. Tidal resource extends beyond SAC.
- *Seabirds and cetaceans*
 - Codes of practice may be a better way to achieve management of leisure boats (if necessary) than byelaws.
 - The conservation sector had proposed an extension to this MCZ for loafing birds assuming a restriction to fast moving vessels. The RSPB values these sites for breeding bird populations. It was agreed not to extend the existing MCZ but recognise this as an important sea bird colony and to suggest if future monitoring shows a threat and there is a known problem at this location then this needs to be addressed in any review. Monitoring of disturbance and any by-catch issues and annual productivity monitoring to determine that no deterioration in/ loss of conservation status of the species making up the assemblage using the site (Manx Shearwater, Guillemot, Razorbill, Puffin) due to death, injury or disturbance. Mitigation measures would be required if there was a decline in species numbers due to activities within the MCZ (e.g. disturbance from recreational activities, bycatch from fishing activity, built developments, pollution). Healthy populations of these species would suggest a healthy ecosystem within the site and would be an attraction for the general public and ecotourism.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.41f (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-

towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.

- The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

This site is already designated. It was not planned through the stakeholder process. The narrative above gives an indication of the concerns / support that stakeholders have voiced about the site.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MESH, MB102, and Seasearch 2009. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site. Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](#)⁴⁷.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this MCZ in Dalrymple (2008), Hiscock *et al.* (1973), and Wheatley & Saunders (2010). Multibeam survey of the seabed around Lundy has been carried out, details may be available from Natural England. Information and data on seabirds from the area of the rMCZ can be obtained from the RSPB.

The North Devon Biosphere Reserve Marine Working Group has supplied additional information that is relevant to this site. This information includes a detailed description of the site, details of the species and habitats present, and recommendations for the management of the site. These recommendations have been included in their entirety in the additional materials supplied with this final report.

Site map series

On the following pages there are four maps of this site.

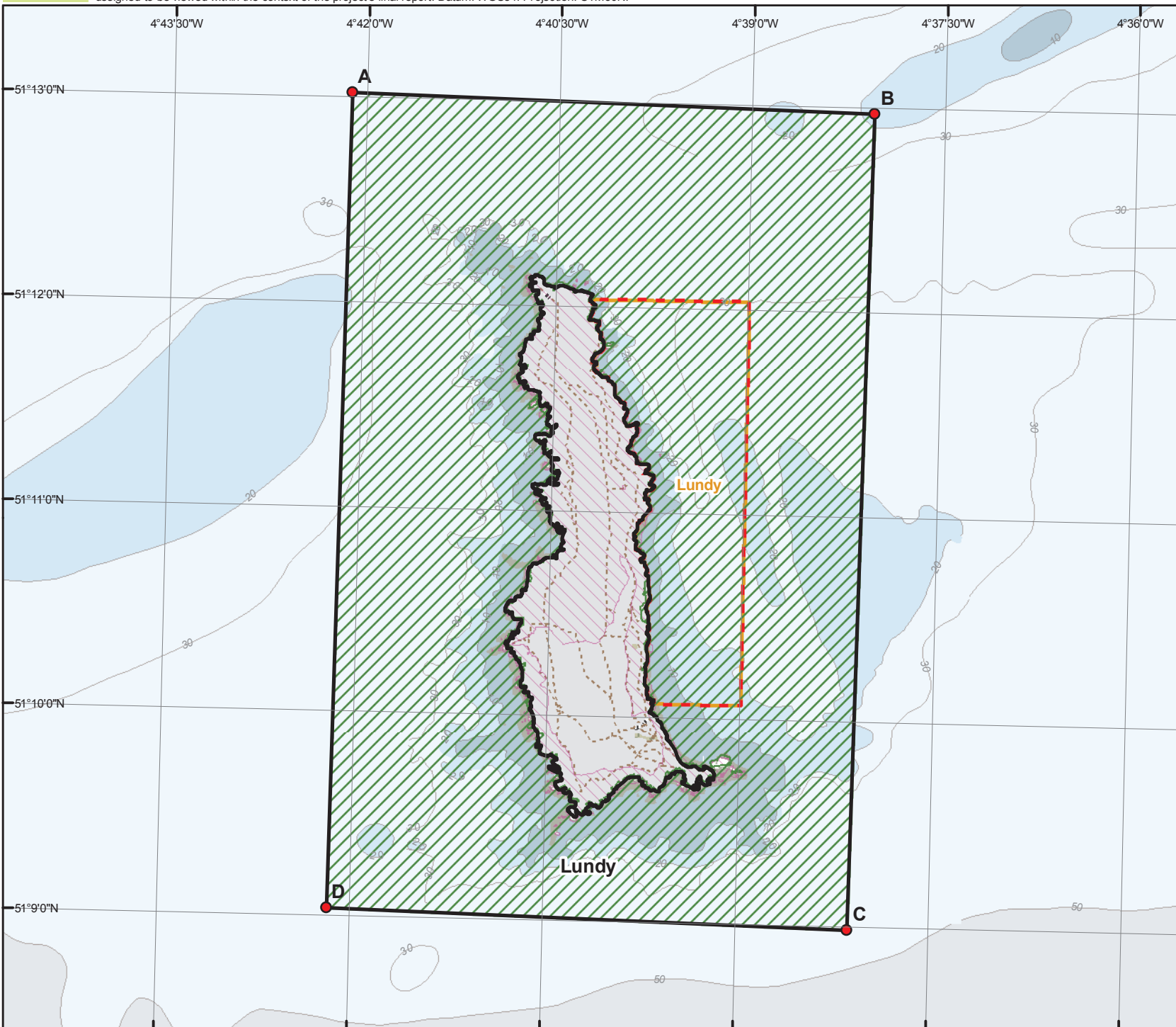
- The first map (FR_055a) is the main site map showing the MCZ boundary and includes lat/lon points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_055b) shows the MCZ boundary over broad-scale habitats. The data shown on this map corresponds with the information in table II.3.41b, data sources are indicated in the table.
- The third map (FR_055c) shows records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.41b, II.3.41c and II.3.41d, data sources

⁴⁷ <http://jncc.defra.gov.uk/page-4>

are indicated in the tables. In most site reports, broad-scale habitats and FOCI are shown on the same map, but because of the large number of FOCI records at Lundy, they have been separated in for this site.

- The fourth map (FR_55d) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.



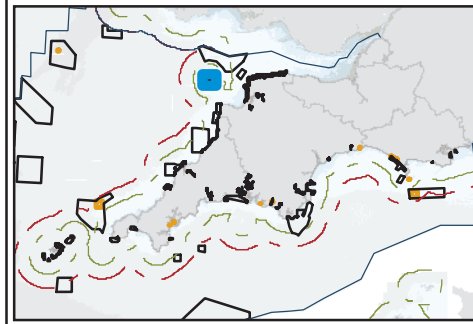
Lat/Long Co-ordinates (WGS84)

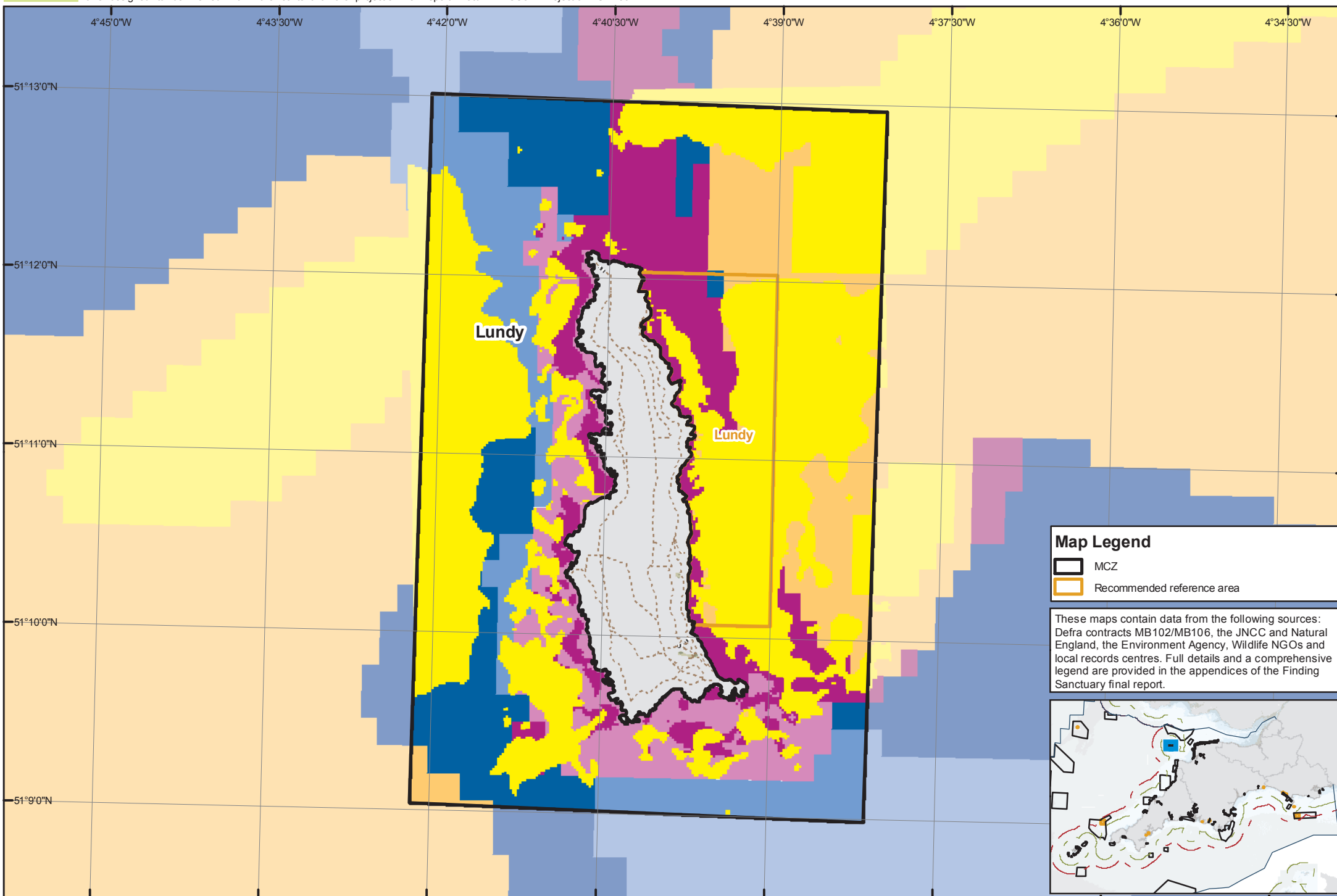
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	51.2170	-4.7020	51° 13' 1" N	4° 42' 7" W
B	51.2162	-4.6342	51° 12' 58" N	4° 38' 3" W
C	51.1497	-4.6355	51° 8' 58" N	4° 38' 7" W
D	51.1506	-4.7029	51° 9' 2" N	4° 42' 10" W

Map Legend

- MCZ
- Recommended reference area
- Existing MPAs**
 - SAC
 - Lundy NTZ
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

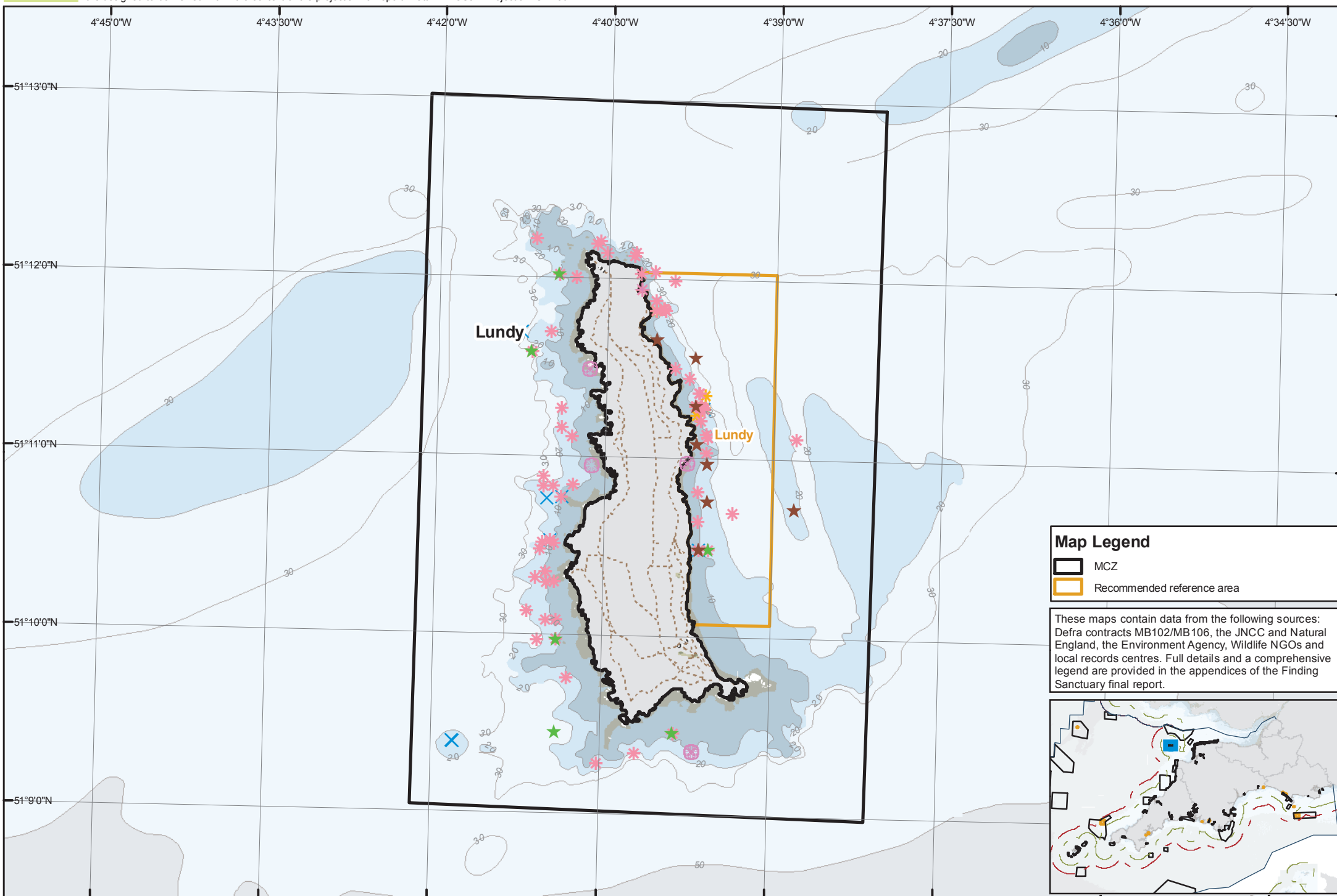




This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with FOCI information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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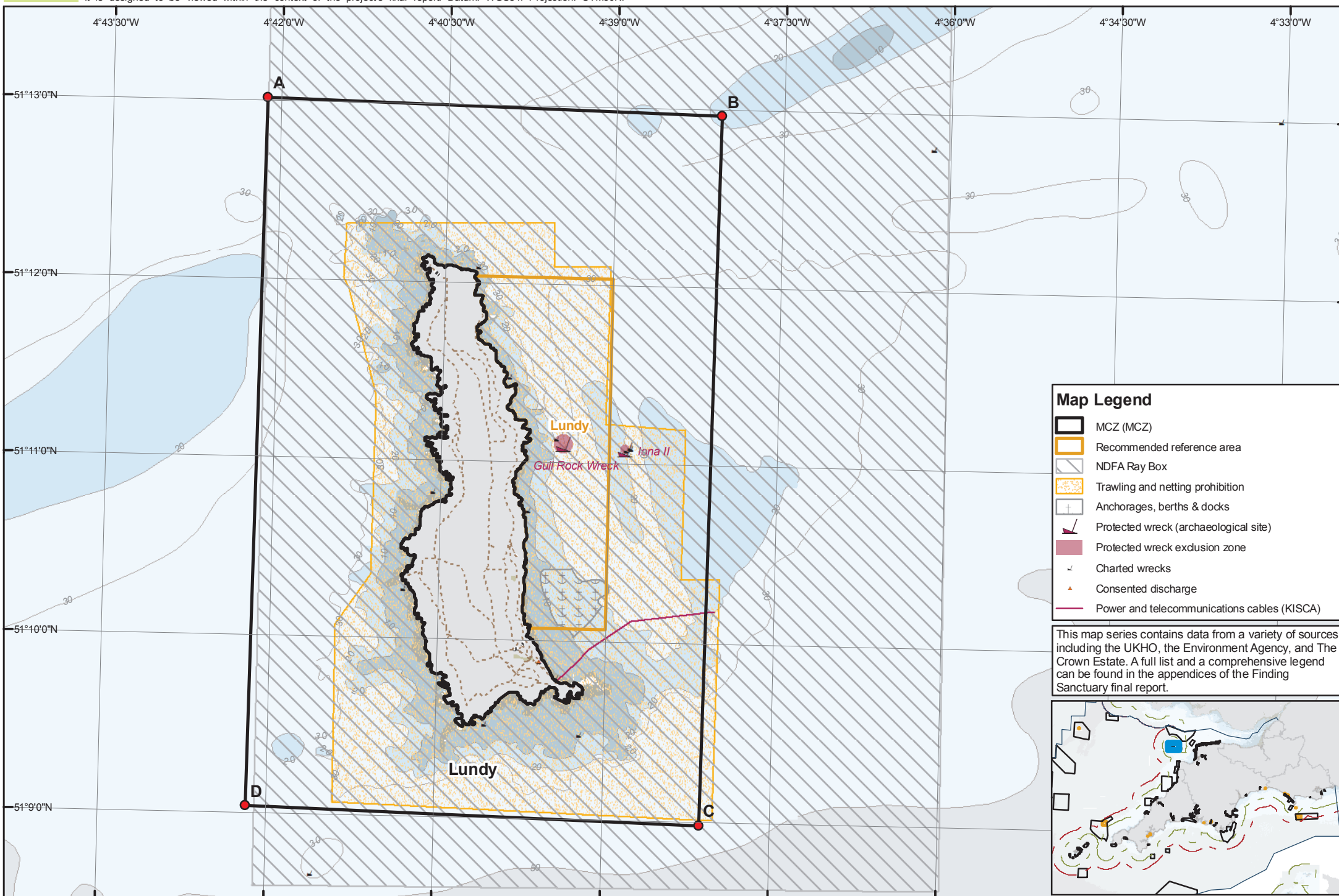
0 0.5 1 2 km



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 0.5 1 2 km



II.3.42 Taw Torridge Estuary rMCZ

Basic site information

This site consists of two component parts. The centroid lat/long is a centroid calculated for a two-part site polygon.

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
51.0722	-4.1188	51° 4' 19" N	4° 7' 7" W

This rMCZ occupies two distinct sites; the site centroid therefore falls outside the rMCZ boundary.

Site surface area: 5 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The site consists of two spatially separate parts, the upper Taw Estuary and the upper Torridge Estuary. In the Torridge, the rMCZ boundary follows the OS Boundary Line mean high water mark as far inland as the normal tidal limit at Weare Giffard, and the lower boundary is drawn across the estuary at the old bridge (Bideford Long Bridge) at Bideford. The upper Taw Estuary is included up to mean high water and the normal tidal limit at Tawstock, upstream of Barnstaple. The lower boundary is drawn across the estuary at Allen's Rock (Fremington) and Chivenor, downstream of Barnstaple.

Sites to which site is related: In the Taw, the site overlaps with the Taw Torridge Estuary SSSI, in the Torridge, the rMCZ boundary starts where the SSSI ends (at the old bridge).

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Taw Torridge Estuary

Table II.3.42a Draft conservation objectives for the Taw Torridge Estuary rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Subtidal mud		M
	Subtidal sand		M
	Coastal saltmarshes and saline reedbeds		M
	Intertidal coarse sediment		M
	Intertidal sand and muddy sand		M
	Low energy intertidal rock		M
Species FOCI	<i>Anguilla anguilla</i>	European eel	? M / R¹

¹At the time of the vulnerability assessment meetings, no decision was taken whether the conservation objective for this feature should be 'maintain' or 'recover'. No quantitative information is included for this mobile FOCI species in the tables below, as the GIS data available was too coarse resolution to be meaningful. However, the species has been included in the draft conservation objectives on the basis of evidence provided to the project by the Environment Agency (see appendix 8).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes). The figures are presented for the site as a whole, not the two areas separately. Any feature present in both parts is counted as a single replicate for the network-level statistics in section II.2.8.

Table II.3.42b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Subtidal sand	<0.01	<0.1%	1
Subtidal mud	0.68	<0.1%	1
Subtidal mud ¹	<0.01	<0.1%	1

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

Table II.3.42c **Intertidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Low energy intertidal rock	0.02	0.5%	4
Intertidal coarse sediments	<0.01	<0.1%	3
Intertidal sand and muddy sand	0.14	1.2%	4
Coastal saltmarshes and saline reedbeds	0.08	2.6%	3
Intertidal mud ¹	3.08	1.8%	4, 3
Coastal saltmarshes and saline reedbeds ¹	0.17	5.4%	3
Intertidal mud ²	0.42	0.2%	4, 3

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

² This habitat was not discussed at the vulnerability assessment meetings for this rMCZ, which may have been an oversight – the habitat is protected within the Taw Torridge SSSI, but the SSSI does not cover the whole rMCZ. As a general rule, all broad-scale habitats within rMCZs have a draft conservation objective, unless the whole area of habitat within the site is already protected. Therefore, this feature ought to be added to the conservation objective list. The full extent of this habitat within the rMCZ boundaries has been included in the overall network statistics in part II.2.8.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The Taw Estuary drains an area of 1211 km² (Environment Agency, 2000) and forms, together with the Torridge Estuary, a twin estuarine system that discharges into the Bristol Channel. The Taw Estuary is 23 km in length, extending from its tidal limit at Newbridge to its mouth. The estuary is macro-tidal (tidal range >4 m) with a tidal range at the mouth during spring tides of ca. 7 m and 6.5 m during neaps. Further up the estuary, at Barnstaple, the tidal range is ca. 4m during springs and can be <1 m during neaps (Maier *et al.*, 2009). The estuaries of the Taw and Torridge rivers together with the sand dune systems at Braunton Burrows and Northam Burrows, and the grazing marshes at Braunton are all key habitats in the area supporting many key species. One of the reasons for the inclusion of this and other estuarine rMCZs in the network was in recognition of the added ecological importance of estuaries in terms of productivity, and their ecological function as nursery areas.

Detailed site description

The Taw and Torridge Estuaries were surveyed by the FSC during the survey of Harbours, Rias and Estuaries in Southern Britain (Little, 1989). Shores in the lower estuary were considered very good examples of moderately exposed broken rocky shores colonised by a wide variety of algae and animals, particularly in the rockpools (Davies, 1998). Areas of sublittoral seabed were restricted to narrow current-swept channels with some extensive hard substrata including bedrock, cobbles and shell or pebbles in gravel colonised especially by hydroids, sponges, sea anemones, erect bryozoans, barnacles and mussels. Sublittoral sediments had a restricted fauna of species characteristic of

disturbed conditions, including the worms *Nephtys cirrosa* and *Lanice conchilega* and the amphipods *Haustorius arenarius* and *Bathyporeia sarsi* (Davies, 1998). The brackish water amphipod *Gammarus chevreuxi* has been noted from sediments and saltmarsh in the Taw-Torridge Estuary (McDouall, 2006). Burd (1989) also surveyed the Taw and Torridge during the Saltmarsh survey of Great Britain.

The estuaries 'support a variety of soft and hard substrate-based aquatic estuarine communities, which includes rocky outcrops and sea-walls with algal growths and mussel beds, and a reef of *Sabellaria alveolata*' (Buck, 1993). A large proportion of the estuary is intertidal flats and gravel beds, and sandy with areas of shingle towards the mouth at the foreshore. In the narrow Torridge the intertidal flats are predominantly mud-and-sand, while in the Taw there are extensive mudflats and sandbanks which support many marine worms and other invertebrates (Buck, 1993). Well mixed, the sands contain modern skeletal debris of consistent composition, which persists up to 18 km landward from the mouth of the Taw estuary. Although primarily a molluscan sand, remains of barnacles, bryozoans, echinoids, foraminifera, sponge spicules, decapods and coralline algae are common (Merefield, 1982).

The main freshwater inflow to the estuary is from the River Taw (Maier *et al.*, 2009). There are also large areas of saltmarsh around Yelland and Penhill which show typical zonation of saltmarsh vegetation. Braunton Burrows at the north of the estuary is one of the largest dune systems on Britain, reaching 30 m in places (Buck, 1993). Williams & Newman (2006) assessed eutrophication in the River Taw catchment.

The Taw and Torridge estuaries are important nursery areas for sea Bass. Reynolds *et al.* (2003) sampled the low water pools in upper estuary *Spartina* marsh and at high water at Trewornan Dam and creek sampling for Bass. Luoma & Bryan (1978) also collected sediment samples from the oxidized surface layer of intertidal sediments.

Although there have only been a few sightings of the Short Snouted Seahorse in this region, there is no reason to suspect that there is not a reasonable population living here. For breeding purposes, there needs to be an existing population and divers have spotted them for a number of years. Most of the sightings have been anecdotal but there is no reason to doubt them (Neil Garrick-Maidment, *pers. comm.*).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities.

Table II.3.42d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process. This site was a relatively late addition to the network (it was added after the third progress report). Most of the detailed work on recording assumptions and implications for the sites within the developing network configuration had already taken place before this site was added. Therefore, some of the content of table II.3.42d is based on what had previously been recorded for other sites in the network, based on assumptions that were implicit in

the discussions over whether the site should be added to the network or not. Many of the assumptions and implications highlighted for this site are generic, and will apply to other rMCZs in the network as well. Site-specific comments from the later planning meetings (when the site was within the network) have also been added to the table.

Following that, table II.3.42e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.42d Specific assumptions and implications relating to Taw Torridge Estuary rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
<p>Aggregate extraction will not be allowed</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
<p>Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen (<i>may not be relevant in this area.</i>) o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that

	<p>the comment is unrealistic.)</p> <ul style="list-style-type: none"> o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Netting and longlining will not be allowed</p> <p><i>This assumption was recorded early on in the process, in order to protect nursery habitats and juveniles in all sites with draft conservation objectives for mobile FOCI. Stakeholder feedback has indicated that the assumption about longlining is inappropriate, as the activity does not happen inshore. An uncertainty remains around netting, where the activity may have an impact on nursery habitat - this uncertainty was not resolved through the VA</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for netters o Displacement of netters o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on netters where protected areas are close together <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o SAFFA fixed net restrictions apply.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site: none highlighted during the VA meetings.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users.

	<ul style="list-style-type: none"> o The rMCZ is located upstream of Appledore and Yelland which could be important to renewables development/operation.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o A steering group member stated that this activity does take place within this site. o A steering group member suggested that there should be bait digging and crab tiling restrictions on the intertidal habitats of this site.
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o A Steering Group member commented on the importance of taking into account shoreline management plan policies and planned activities.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>Pelagic trawls will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc.

<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o Four active power cables, three active unknown cables.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.

considered during the VA meetings	
Passage of ships will be permitted Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o
Seaweed harvesting will be permitted Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Direct implications: o

Table II.3.42e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
n/a	n/a

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

The following is a set of additional uncertainties relevant to this site:

- There may be issues surrounding capital dredging especially for the Atlantic Array development.

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site; others were more generic comments which the project team consider to be relevant to this site.

- *Commercial fishing*
 - Commercial fishing raised concerns that estuaries are surplus to the requirement of the ENG.
- *Commercial dredging*
 - Possible issues were highlighted around the capital dredging that happens in the estuary and it was agreed to propose a zone in the rMCZ where the already planned capital dredging can occur. As the rMCZ is above Yelland and Appledore where renewables developments are planned, and early in the process a network level assumption was made that maintenance dredging is allowed to continue, the requirement for a zone was not needed. This proposal was agreed to by the renewables sector as long as the area for planned development is avoided.
- *Environment Agency*
 - Suggest using existing estuarine partnership agreements (if already in place) as basis for protection measures.
 - The Environment Agency has provided data on the fish nursery function of the Taw/Torridge estuary and the importance of the supporting FOCI habitat of mudflat and saltmarsh.
 - Suggest no unlicensed netting activities & some protection from excessive crab tiling/bait digging causing disturbance of intertidal habitat. Again, we would suggest using the existing estuarine partnership agreements.
 - Taw/Torridge Estuary is a surveillance water body for Water Framework Directive.
- *English Heritage*
 - Taw Torridge Estuary rMCZ: Over time, pottery is exposed within the estuary and English Heritage undertakes the excavation of these pieces.
- *The Wildlife Trusts*
 - Excluding lower estuary areas from MCZ limits ecological value.
- *Netting and longlining*
 - When the detailed assumptions were drafted for rMCZs in the network during the third planning iteration, all sites with 'water column protection' had an assumption that 'netting and longlining will not be allowed'. This applied to all sites considered for the protection of seabirds, cetaceans, or any of the three mobile FOCI listed in the ENG – smelt, undulate ray and European eel. Longlining does not occur in inshore sites in the region, and feedback from stakeholders was that the longlining assumption is not appropriate for any site. For sites that still have draft conservation objectives for seabirds or cetaceans in the final recommendations, the netting / longlining assumption has been superseded by the fact that the stakeholder group agreed on a different set of assumptions for these features (largely around the need for monitoring, and some possible voluntary codes of conduct, but no fishing restrictions). However, for sites that have draft conservation objectives for mobile FOCI, an uncertainty remains with respect to netting, where it may have an impact

on nursery habitats or juvenile FOCI. This particular rMCZ was added to the network in the final planning stages, after the detailed work on developing assumptions had already happened, but given that the site has a draft conservation objective for *Anguilla anguilla*, European eel, the uncertainty around netting applies.

- *Generic implications for ports (applicable to all rMCZs where port jurisdictions and activities overlap with the site, or are adjacent to the site)*
 - Harbour Revision Orders, General Directions, Pilotage Directions etc.
 - Ports and harbours are limited to their jurisdiction.
 - Ability of port to comply with legal responsibilities e.g. Oil Spill Response Planning etc.
 - Administration, resource on and off the water, legal and technical specialists. requirements associated with additional management and legal responsibilities should co-location be pursued.
 - Additional time and cost triggered by all of the above both to the port.
 - Implications on other industries using the port or who wish to use the port in the future.
 - Existing management practices on and off water e.g. vessel and activity management, speed, timing restrictions etc.
 - Existing emergency response – weather, pollution, security.
 - Dredging to ensure maintenance of safe navigable depths.
 - Berthing, mooring & anchoring of small & large vessels.
 - Ship building, maintenance, refurbishment & repair
 - Maintenance, refurbishment & repair of port and harbour infrastructure.
 - New port and harbour infrastructure.
 - Access & egress to and from harbour.
 - Recreational activities within harbour.
 - Ship access and egress to and from berths.
 - Significance of timescales, delays and cost to management practices.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.

- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.42e (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs (including this one) for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.1.2.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

There is a great deal of support for this site from local stakeholders on the North Devon Biosphere Reserve Marine Working Group (www.northdevonbiosphere.org.uk) who worked on sites in North Devon on behalf of the Devon Local Group.

The Environment Agency are in support of this site, as they are of other estuarine rMCZs. The MOD highlighted that amphibious vehicles are landed within the estuary, and are supportive as long as that activity can continue.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

The North Devon Biosphere Reserve Marine Working Group has supplied additional information that is relevant to this site. This information includes a detailed description of the site, details of the species and habitats present, and recommendations for the management of the site if designated as an MCZ. These recommendations have been included in their entirety in the additional materials supplied with this final report.

Site map series

On the following pages there are three maps of this site.

- The first map (FR_056a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_056b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.42b and II.3.42c, data sources are indicated in the tables.
- The third map (FR_056c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

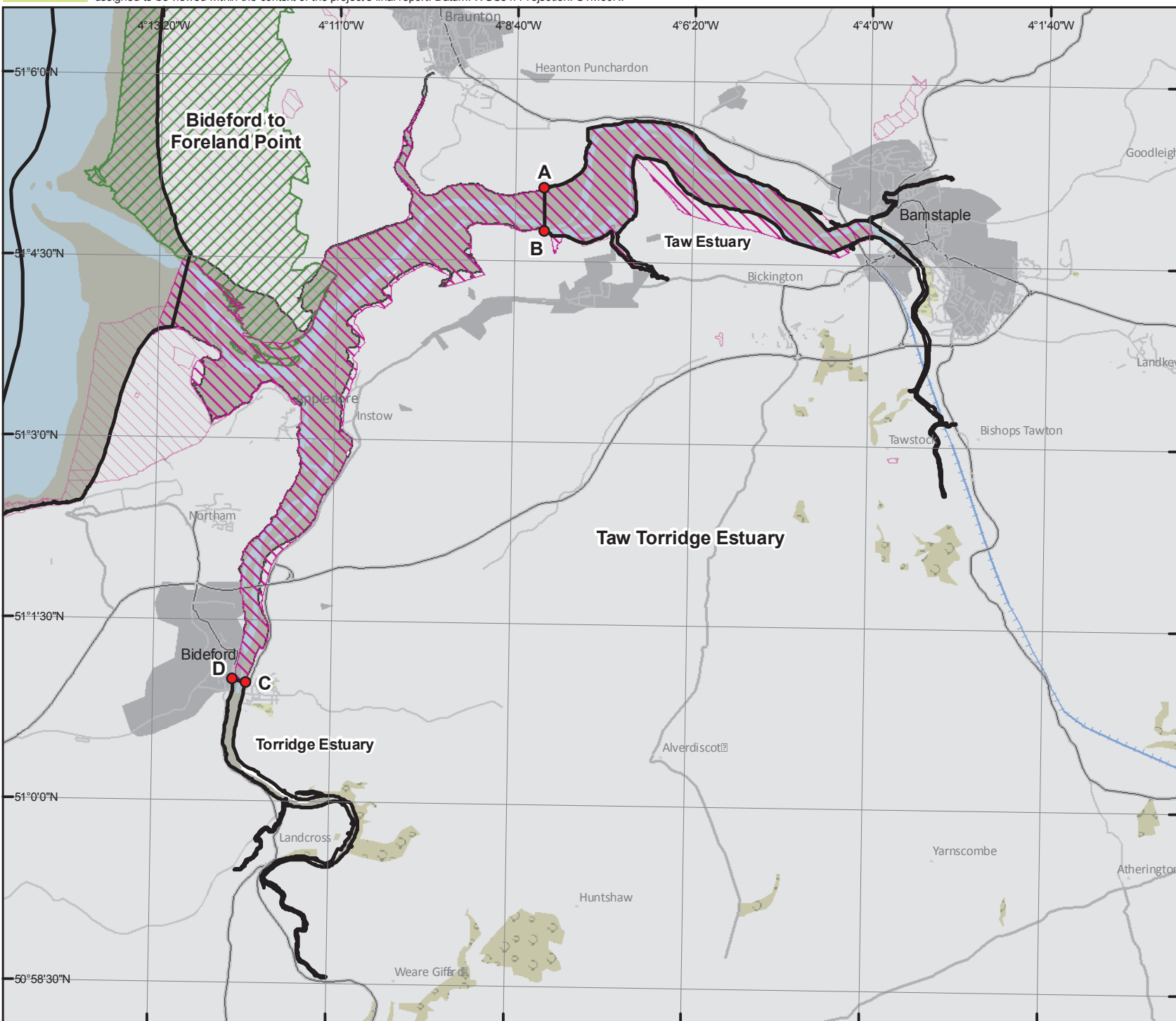
Taw Torridge Estuary rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062008.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
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0 1 2 4 km

N



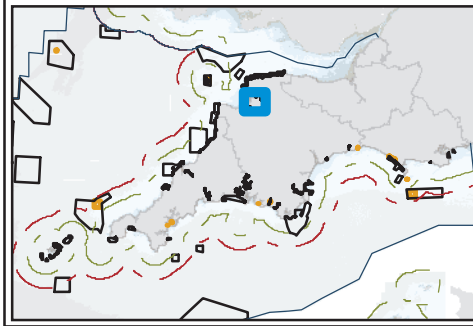
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	51.0851	-4.1380	51° 5' 6" N	4° 8' 16" W
B	51.0792	-4.1381	51° 4' 45" N	4° 8' 16" W
C	51.0163	-4.2019	51° 0' 58" N	4° 12' 6" W
D	51.0168	-4.2046	51° 1' 0" N	4° 12' 16" W

Map Legend

- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - SSSI (part of MPA network)
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.

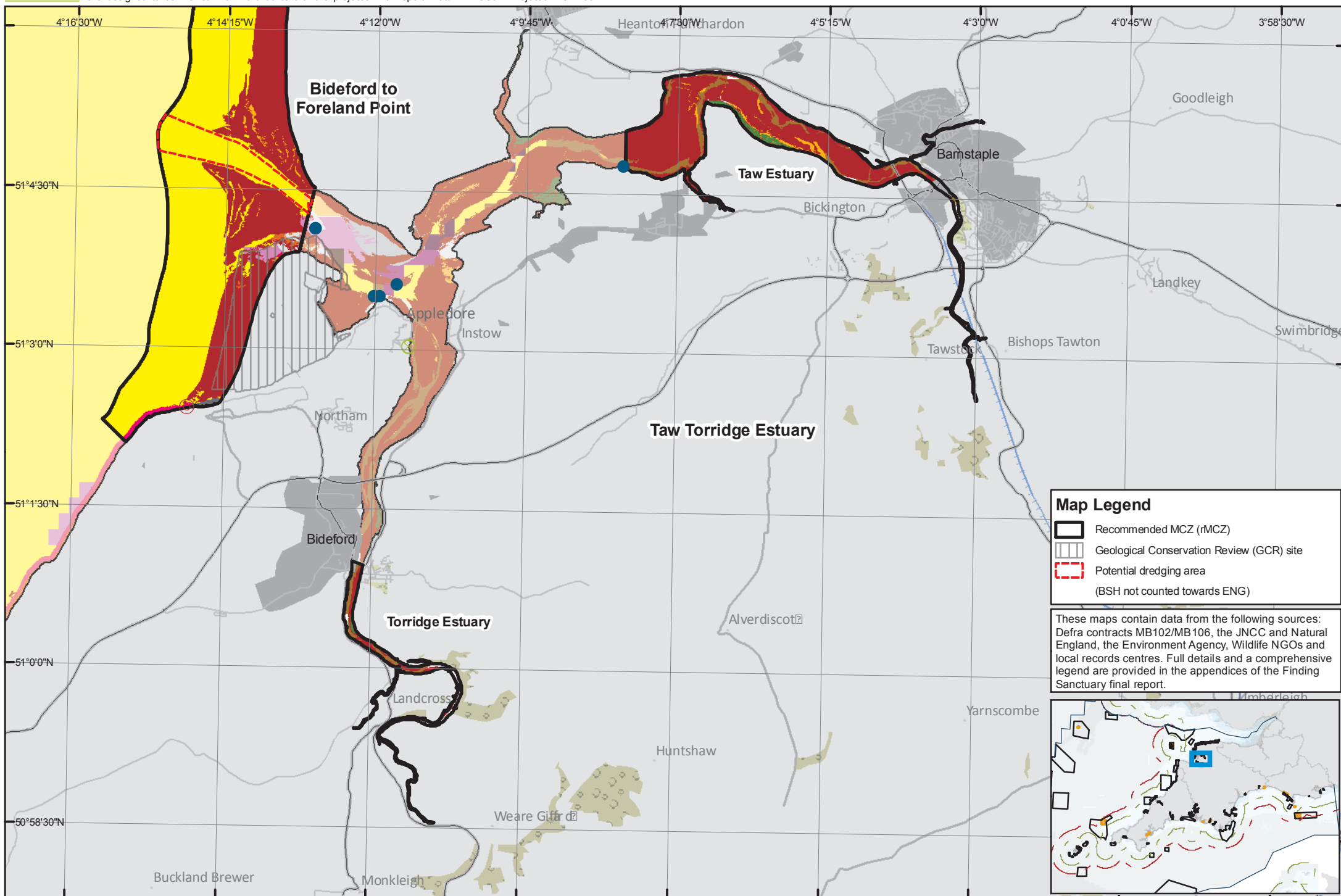


This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 1 2 4 km

N

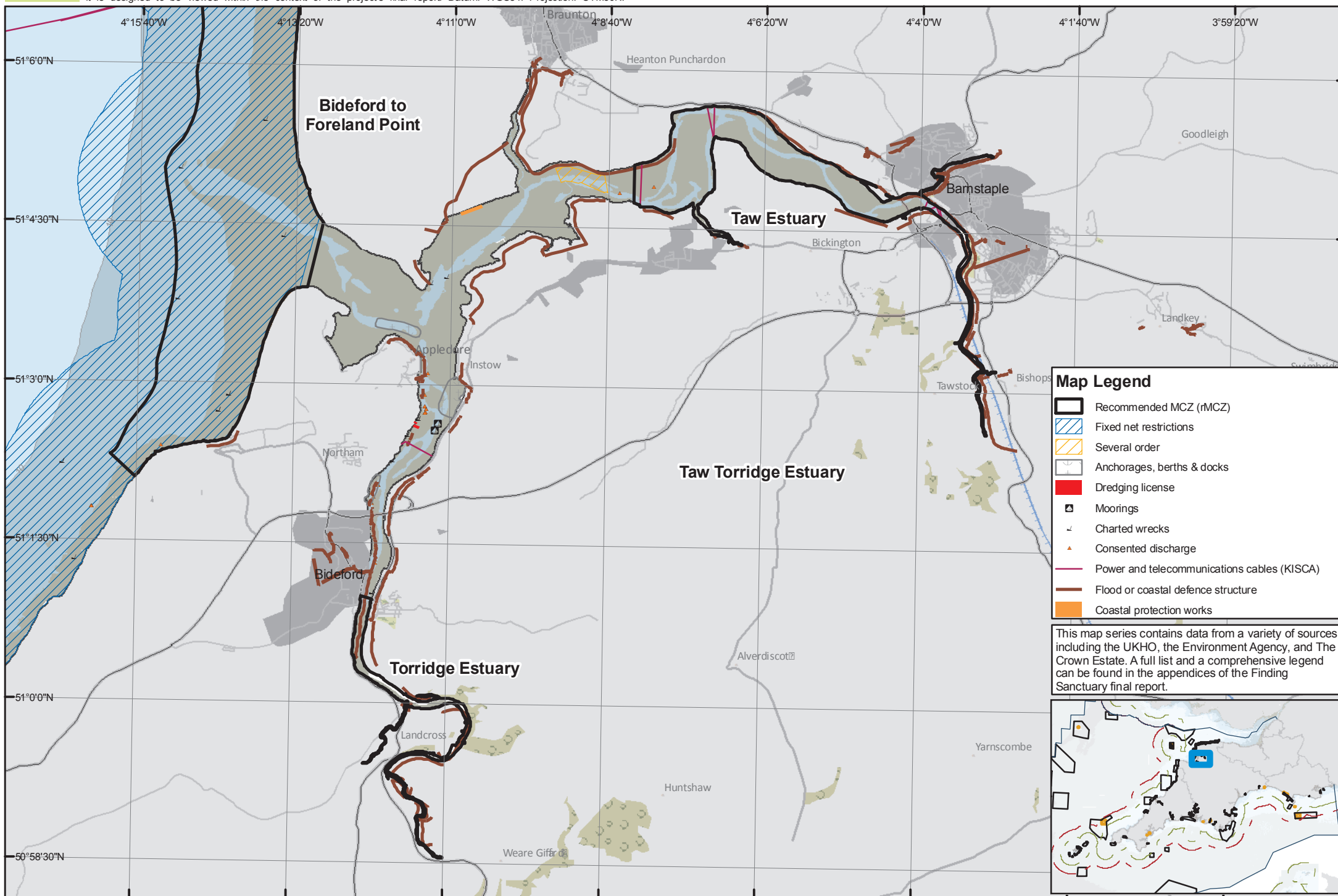


Taw Torridge Estuary rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 1 2 4 km



II.3.43 Bideford to Foreland Point rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
51.1906	-4.0842	51° 11' 26" N	4° 5' 3" W

Due to the long, narrow shape of this rMCZ the centroid falls outside of the site boundary.

Site surface area: 101 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The site boundary follows the coastline along the OS Boundary Line mean high water mark from Mermaid's Pool at Westward Ho! to Foreland Point, east of Lynton and Lynmouth on the Exmoor coast. Between Croyde and Foreland Point, the site runs in a strip of about 1.8km (1 nautical mile) width along the coastline, except for a short narrower stretch at Morte Point. Between Croyde and Westward Ho!, the width varies between ½ km and 2½ km. The site stretches across the mouth of the Taw Torridge estuary.

Sites to which the site is related: The site overlaps with Braunton Burrows SAC and SSSI, and Northam Burrows SSSI, which include the intertidal areas either side of the mouth of the Taw Torridge estuary. At the estuary mouth, there is a small area of overlap with the Taw Torridge Estuary SSSI. There are a number of coastal SSSIs along the stretch of coastline covered by the rMCZ, many of which include intertidal areas and therefore overlap with the rMCZ: Mermaid's Pool to Rowden Gut, Westward Ho! Cliffs, Saunton to Baggy Point Coast, Barricane Beach, Morte Point, Hele, Samson's and Combe Martin Bays, Exmoor Coastal Heaths, and West Exmoor Coast & Woods. The area is within the North Devon Biosphere Reserve region. The coastline between Combe Martin and Croyde is a voluntary marine conservation zone. Exmoor is a national park.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Bideford to Foreland Point rMCZ

Table II.3.43a Draft conservation objectives for Bideford to Foreland Point rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Broad-scale habitats	Subtidal coarse sediment		M
	Subtidal sand		M
	Moderate energy infralittoral rock		M
	High energy circalittoral rock		R

	High energy infralittoral rock		M
	High energy intertidal rock		M
	Intertidal coarse sediment		M
	Intertidal mixed sediments		M
	Intertidal mud		M
	Intertidal sand and muddy sand		M
	Low energy intertidal rock		M
	Moderate energy intertidal rock		M
Habitat FOCI	<i>Sabellaria alveolata</i> reefs		M
Species FOCI	<i>Eunicella verrucosa</i>	Pink sea-fan	M
	<i>Paludinella littorina</i>	Sea snail	M
Mobile species not listed in ENG	<i>Phocoena phocoena</i>	Harbour porpoise	M
	<i>Halichoerus grypus</i>	Grey Seals	M
	<i>Uria aalge</i>	Guillemot	M
	<i>Alca torda</i>	Razorbill	M

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes). The site stretches across the mouth of the Taw Torridge estuary, which is dredged for maintenance of access to the harbours in the estuary system. The area that is dredged (see map FR_057b) is not included in the statistics presented in the tables below, nor does it count towards the network statistics in section II.2.8.

Table II.3.43b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	8.60	1.2%	1
Moderate energy infralittoral rock	3.99	1.3%	1
High energy circalittoral rock	1.42	0.1%	1
Subtidal coarse sediment	54.20	0.2%	1, 2
Subtidal sand	20.99	<0.1%	1, 2

Table II.3.43c **Intertidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy intertidal rock	0.89	12.3%	4
Moderate energy intertidal rock	0.40	8.0%	4
Low energy intertidal rock	0.12	3.7%	4
Intertidal coarse sediments	0.76	3.9%	4, 3
Intertidal sand and muddy sand	0.33	2.9%	4
Intertidal mud	7.71	4.5%	4, 3
Intertidal mixed sediments	0.43	9.5%	4
Intertidal mud ¹	0.06	<0.1%	3

¹ Features / areas already protected within an overlapping MPA. See appendix 11 for details.

Table II.3.43d **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Honeycomb worm (<i>Sabellaria alveolata</i>) reefs		1		1
Subtidal sands and gravels ¹	64.14			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.3.43e **FOCI species** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Eunicella verrucosa</i>	3	1	1
<i>Paludinella littorina</i>	1		1
<i>Hippocampus hippocampus</i> ¹	1		1
<i>Phymatolithon calcareum</i> ²	1		1

¹ This species was not included in the draft conservation objectives because during the vulnerability assessment meetings a query was raised over the veracity of the single record within the site boundaries.

² There is a single record of this species of maërl present within the boundaries of this site. This was discussed during the vulnerability assessment, and given the wider environmental characteristics of the site, it was considered a likely erroneous record, or a small fragment of maërl washed in from elsewhere. The species was therefore not included on the list of draft conservation objectives for the site.

This rMCZ also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 2.99 km² of seahorse area polygon (refer to appendix 8 for more information).

This rMCZ intersects with Northam Burrows Geological Conservation Review site.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The stretch of coastline between Westward Ho! and Foreland Point is characterised by cliffs and rocky shores, with small sandy bays and inlets. The exception is Bideford Bay, an expanse of sandy shoreline backed by extensive sand dunes at the mouth of the Taw Torridge estuary system. The area intersects with an area of higher than average benthic species and habitat diversity (within the south-west context). The site's maximum depth is 36 metres. This stretch of coastline was suggested as an MCZ early on in the process, by the North Devon Biosphere Marine Working Group through the Devon Local Group.

Detailed site description

A long swept area of cliffs is broken by the extensive sand dunes and broad sandy beaches of Bideford Bay (Davies, 1998). Braunton Burrows at the north of the estuary is one of the largest dune systems in Britain, reaching 30 m in places (Buck, 1993).

Areas of sublittoral seabed are restricted to narrow current-swept channels with some extensive hard substrata including bedrock, cobbles and shell or pebbles in gravel colonised especially by hydroids, sponges, sea anemones, erect bryozoans, barnacles and mussels. Sublittoral sediments have a restricted fauna of species characteristic of disturbed conditions, including the worms *Nephtys cirrosa* and *Lanice conchilega* and the amphipods *Haustorius arenarius* and *Bathyporeia sarsi* (Davies, 1998).

The beaches at Woolacombe are known to include rocky shore communities adjacent to sand characterised by solitary and small colonies of the honeycomb worm *Sabellaria alveolata* and by the barnacle *Balanus perforatus*. The coarse sandy beaches are colonised by species characteristic of mobile sand including the isopod *Eurydice pulchra* and cirratulid polychaetes (K. Hiscock, unpublished). Sublittoral habitats from Morte Point to Lynmouth were surveyed during the South-West Britain sublittoral survey (Hiscock, 1981).

Eunicella verrucosa was surveyed during the 1978-79 North Devon Survey (Hiscock, 1981) and in 2002 and 2003 Seasearch surveys. Light & Killeen (2001) report records of *Paludinella littorina* in Woody Bay (Light, 1991) and Woolacombe (Conchological Society Records). Warwick & Davies (1977) surveyed sublittoral sediments and macrofauna in Bristol Channel in 155 sublittoral stations which included areas within the Bideford to Foreland Point rMCZ.

Powell et al (1978) considered the rocky shores at Croyde a site of marine biological importance. Hiscock (1981) considered the sublittoral communities present to have a 'strong regional characteristic with sparse algal communities and rocks in many areas dominated by mussels'.

There is a rich littoral fauna off Ilfracombe, where many species occur under overhangs on the lower shore (K. Hiscock, unpublished) where shaded, damp conditions and the turbid North Devon waters lead to the presence of many circalittoral species in the intertidal. Hiscock & Maggs (1984)

described the distribution of some uncommon algae encountered during the SWBSS in north Devon at Smallmouth; for example the red alga *Pterosiphonia pennata*.

The fauna of the hard bottom community dominated by reefs of the tube-building polychaete worm *Sabellaria spinulosa* a few kilometres north of Ilfracombe was studied in detail by George & Warwick (1985). *Sabellaria spinulosa* occurred in densities of over 3,000 individuals per m² and was accompanied by a wide variety of other species associated with hard bottoms. Ninety-four species were recorded (Davies, 1998).

One site within Coombe Martin Bay, Wild Pear beach, the midshore habitats are dominated by barnacles and limpets with sparse algal cover. The bladder-less form of bladder wrack *Fucus vesiculosus* var. *evesciculosus* is present on more exposed shores. Pools and overhangs are covered with encrusting sponges, mainly the breadcrumb sponge *Halichondria panacea* and the orange sponge *Hymeniacidon perleve* (Davies, 1998). Two species of interest are the uncommon strawberry anemone *Actinia fragacea* and the honeycomb worm *Sabellaria alveolata* (Davies, 1998). Crothers (1985) describes many of the shores of North Devon which was included in an extensive study on local populations of the dogwhelk *Nucella lapillus*.

The coastline from Combe Martin to beyond the Devon–Somerset border forms the seaward boundary of the Exmoor National Park. Holme & Nichols (1976) described the rocky shore habitats and communities within the National Park. The Exmoor coastline is predominantly boulder shores with occasional rocky reefs and some stretches of sand. Moderate to severe wave action reduces boulder stability which in turn reduces species richness within littoral communities (Davies, 1998).

It is felt within the Local Group that the SSSI does not offer enough protection for marshes outside of the system, nor protection for peeler crab exploitation. The Local Group highlighted a long list of interest features within this area: tide swept channels near the mouth of the Taw Torridge, fragile sponge and anthozoan communities on subtidal rocky habitats, intertidal underboulder communities, sheltered muddy gravels, *Sabellaria spinulosa* Ross worm, *Anguilla anguilla* European eel, *Padina pavonica* Peacock's tail, *Palinurus elephas* Spiny Lobster, *Lophius piscatorius* Anglerfish, common maërl, *Onchidella celtica*, *Asterina phylactica*, *Anthopleura thalia*, Leopard Spotted Goby, Allis Shad and *Ostrea edulis* Common Mussel. These features are not reflected in the tables above, as we lack GIS data to map them. Additional rare, scarce and sensitive species indicated as present by the Local Group are *Balanophyllia regia* scarlet & gold star coral, *Hoplania durotrix* Weymouth carpet coral, *Mesacmaea mitchelli* policeman anemone, *Caryophyllia smithii* Devonshire cup coral, *Halicystus auricula* Stalked jellyfish, *Hippocampus hippocampus* Short-snouted seahorse and *Solea solea* Sole.

The Local Group also highlighted the importance of this area for seabirds, particularly guillemot and razorbills, and cetaceans *Halichoerus grypus* (Atlantic grey seals) and *Phocoena phocoena* (Harbour porpoise). The Local Group highlighted that Sea Bass, Grey Plover, Golden Plover, Sea Lavender and Atlantic Salmon present. The Local Group highlighted that the area is also a spawning, nursery and juvenile area for bass and salmon.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.43f shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.34g shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.43f Specific assumptions and implications relating to Bideford to Foreland Point rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Aggregate extraction will not be allowed <i>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings.</i>	Direct implications: <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence. Given this assumption, there are still the following concerns: <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.
Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging) <i>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings.</i>	Direct implications: <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was

	<p>recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.)</p> <ul style="list-style-type: none"> o Potential safety implications derived from displacement from sheltered areas. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o MCZ boundaries already changed to reduce impacts on mobile fishing gear
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to the anchoring of large vessels). <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o General comment from SNCBs: a set distance is likely to be required from the edge of MCZ area where this activity is likely to impact on the MCZ features. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The Crown Estate have highlighted that there is a closed disposal site (Morte Bay) within 500m of the boundary of the rMCZ.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.	
Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o The area is already a fixed netting restricted area. <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed o Local Group feedback states that this is a major potting area and restriction to potting activity would be financially restricting to a large part of the fishing population in the North Devon area.
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Attracting the funding (for development) may be harder in the first place as sites with MPA designations within them will be less attractive to potential investors. o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed,

	<p>increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities.</p> <ul style="list-style-type: none"> o Increased competition for sea space with other sea users. o Tidal resource potential. Possible location for early demonstration sites. Two potential projects overlap with the rMCZ. o Good wind resource but landscape buffer requirements making deployment less likely. Access for wind farm infrastructure.
<p>Tourism and recreational activities will be permitted.</p> <p>Feedback from the WT following JWG5 has highlighted the need for measures to avoid disturbance and collisions with cetaceans, this is not known to be a great problem currently, so the WT suggestions is for this to be done through codes of conduct and education. This was not discussed at the VA meetings.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Benefits:</p> <ul style="list-style-type: none"> o By publicising Codes of Conduct you increase the public awareness of species of interest within an area and this encourages increased tourism with benefits the local economy.
<p>Coastal development and defence. Managed re-alignment will be taken account of within the site.</p> <p>This was discussed at the VA meetings, and the outcome was that it is uncertain whether additional mitigation might be needed for coastal development and defence as a result of this rMCZ.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The group would like this wording clarified to explain what kind of activities are meant by coastal development and defence. o There are current plans for the expansion of the harbour at Ilfracombe.
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The Crown Estate have highlighted that the rMCZ is located near an area with waste water outfalls which need to be able to continue.

<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The Local Group would like to see a reduction/status quo on crab tiling.
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o A Steering Group member stated that Flood and Erosion Risk Management activities needed to be permitted in the site, including managed realignment sites.

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity

<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Cable route to tidal resources in the Bristol Channel.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There are active cables bordering the offshore limit of the area which need to be maintained. Two active telecoms cables.

<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>This activity was discussed during the VA meetings, and it was acknowledged that the rMCZ recommendation is contingent on being able to maintain a navigational channel at the estuary mouth. This maintenance dredging can continue, but would need to consider impacts on rMCZ features outside the dredged channel.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to maintenance dredging in ports).
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to the anchoring of small vessels). o The Local Group are only able to support this area if anchoring is allowed, particularly of small vessels. Anglers use the area seasonally (due to weather and species), go out 2-4nm and anchor. o No clear working group definition exists of what counts as a 'small' vessel - 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.

<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Possible effects on ports and harbours (this is a general concern, not just relating to the passage of ships).
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Military exercises – landings at Saunton Sands would continue to be permitted</p> <p><i>Note, this is an new assumption added as a comment during the February 2011 Steering Group meeting</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If this is wrong then the MOD could not support this rMCZ as Saunton Sands is an important landing area as it leads directly to a training area behind. Assumptions landings on Saunton Sands will have no impact on the specific items to be protected.

Table II.3.43g VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to section II.2.1. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Coastal Defence & Development	<p>Management:</p> <ul style="list-style-type: none"> - Impacts on the rMCZ conservation objectives would need to be considered in any licence application. It is not yet known whether any additional mitigation would be likely as a result of the rMCZ <p>Measure :</p> <ul style="list-style-type: none"> - Marine Licence

Tourism & Leisure	<p>Management</p> <ul style="list-style-type: none"> - Education and awareness of conduct for encounters with harbour porpoise and cetaceans in the rMCZ <p>Measure</p> <ul style="list-style-type: none"> - Voluntary code of conduct
Navigation Dredging	<p>Management</p> <ul style="list-style-type: none"> - A zone in the rMCZ explicitly permits dredging of the navigational channel at the estuary mouth. Impacts on the rMCZ conservation objectives outside this zone would need to be considered in any licence application or by the Harbour Authority. It is expected that maintenance dredging would be permitted with no additional mitigation likely to be required as a result of the rMCZ <p>Measure</p> <ul style="list-style-type: none"> - Marine Licence or Harbour Acts and Orders

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site, others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
- *Renewables*
 - There were concerns regarding access through the rMCZ to the port of Appledore and Yelland for the Atlantic Array development. Splitting the rMCZ was to be avoided by the boundary remaining but with a channel area that does not contribute to the ENG targets of the network and the Conservation Objectives recognise that this area may need to be developed in the future for renewables.
 - Capital development and dredging can continue for the development around Appledore.

- *English Heritage*
 - Westward Ho! has submerged forests and prehistoric footprints which may be needed to be excavated sometime in the future.
- *MOD*
 - There is military activity at Saunton Downs which will affect the efficacy of the rMCZ as there are landings of amphibious craft which heavily impact the benthos.
- *Seabirds and cetaceans*
 - Codes of practice may be a better way to achieve management of leisure boats (if necessary) than byelaws.
 - Current levels of human activity appear to be compatible with maintaining harbour porpoise numbers in this site. There is the potential for boat strike from pleasure craft which is a cause for concern. Monitoring of numbers and activities and impacts on this species, dissemination of codes of conduct for encounters, encouraging boat operators to become WiSE accredited and a 3 year review of baseline numbers (estimated from ERCCIS sightings data) would all help to maintain healthy populations of this mobile species. Healthy populations of harbour porpoises would suggest a healthy ecosystem within the site and would be an attraction for the general public and ecotourism. Mitigation measures would be required if there was a decline in species numbers due to activities within the rMCZ (e.g. disturbance from boat pleasure craft, boat strike, bycatch from fishing activity)
 - The conservation sector had proposed an extension to this MCZ for loafing birds assuming a restriction to fast moving vessels. The RSPB values these sites for breeding bird populations. It was agreed not to extend the existing MCZ but recognise this as an important sea bird colony and to suggest if future monitoring shows a threat and there is a known problem at this location then this needs to be addressed in any review. Monitoring of disturbance and any by-catch issues and annual productivity monitoring to determine that no deterioration in/loss of conservation status of the species making up the assemblage using the site (Guillemot, Razorbill) due to death, injury or disturbance. Mitigation measures would be required if there was a decline in species numbers due to activities within the rMCZ (e.g. disturbance from recreational disturbance, bycatch from fishing activity, built developments, pollution). Healthy populations of these species would suggest a healthy ecosystem within the site and would be an attraction for the general public and ecotourism.
- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over
 - Improvements for the local economy
 - Education opportunities
 - Benefits to science
 - Focus for voluntary groups
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc)
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit

- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.43g (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Compared to other sites, this rMCZ is relatively less contentious. A boundary modification was carried out to exclude the area of Ilfracombe Harbour, reducing concerns about possible impacts on port activities and expansion. The site is put forward on the condition that maintenance dredging can take place in Bideford Bay, for shipping access to the ports and renewables infrastructure facilities (for the Atlantic Array wind farm) located in the Taw-Torridge area.

The site was originally suggested by the North Devon Biosphere Reserve Marine Working Group (www.northdevonbiosphere.org.uk) who worked on sites in North Devon on behalf of the Devon Local Group. This site was agreed in their cross-sector stakeholder meeting, which included renewable industry representatives and fishing representatives amongst many others. The North Devon Biosphere Reserve Marine Working Group are also supportive of the draft conservation objectives for seabirds and cetaceans in this rMCZ.

The Crown Estate are supportive of this rMCZ based on the assumptions that the potential deployment and maintenance of power cables is acceptable from Zone 8 Atlantic Array and does not require any additional mitigation; and on the assumption that the cables, port/harbour facilities, and water outfalls within the area would not be affected.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MESH, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Devon Biodiversity Records Centre (DBRC) data is included in the Devon Wildlife Trust (DWT) Sea Watch (seaquest) Database. This has over 1100 records of harbour porpoise for North Devon, dating from 1997, though most of the records are from 2006-2011. The data comes from effort-related survey and casual watches. Data can be obtained from Ellie Knott at the Devon Wildlife Trust.

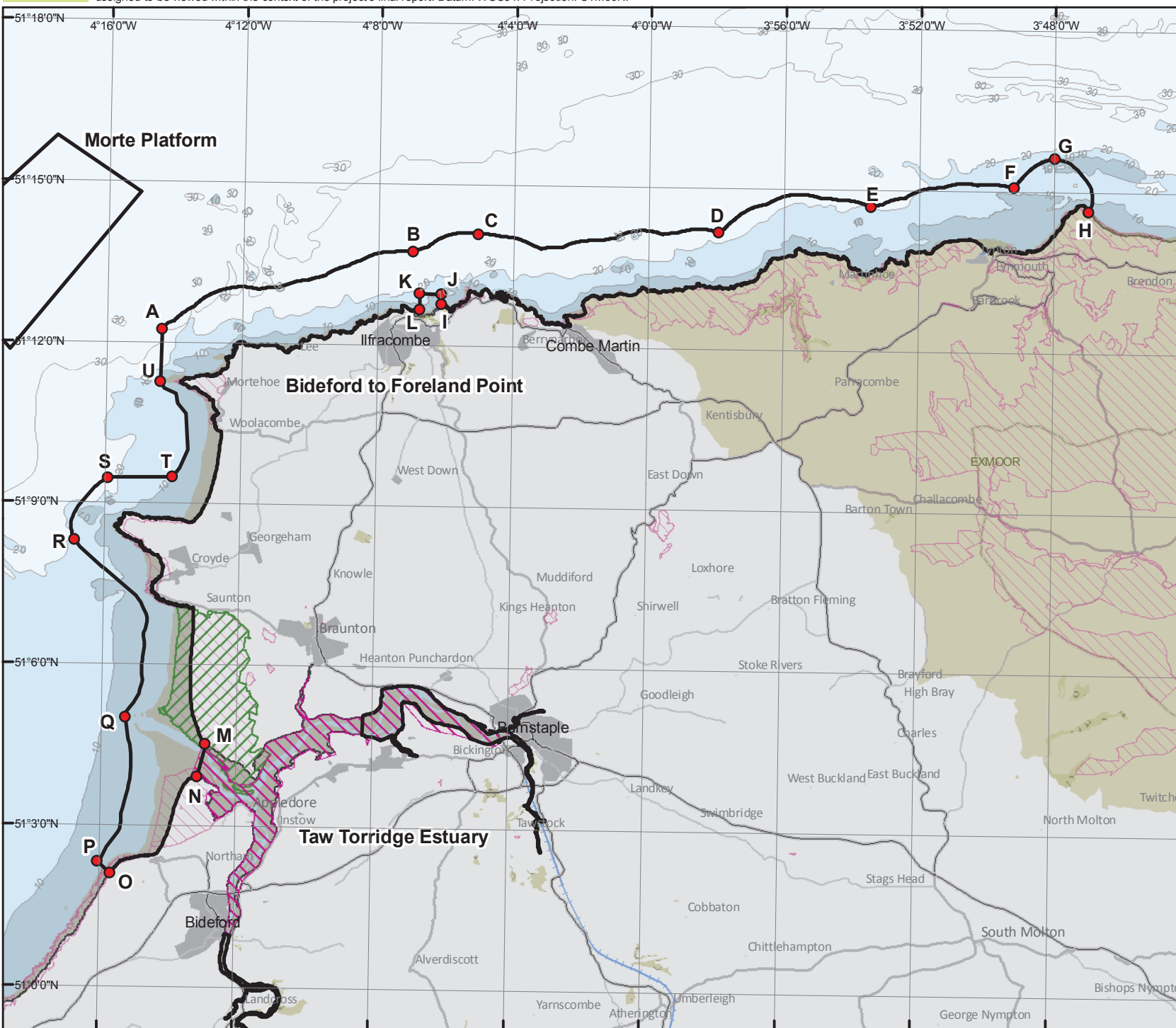
Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. Members of the North Devon Biosphere Marine Working Group have in-depth knowledge of the area, and further information may be available from them. Information and data on seabirds from the area of the rMCZ can be obtained from the RSPB.

The North Devon Biosphere Reserve Marine Working Group has supplied additional information that is relevant to this site. This information includes a detailed description of the site, details of the species and habitats present, and recommendations for the management of the site if designated as an MCZ. These recommendations have been included in their entirety in the additional materials supplied with this final report.

Site map series

On the following pages there are three maps of this site.

- The first map (FR_057a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_057b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.3.43b to II.3.43e, data sources are indicated in the tables.
- The third map (FR_057c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



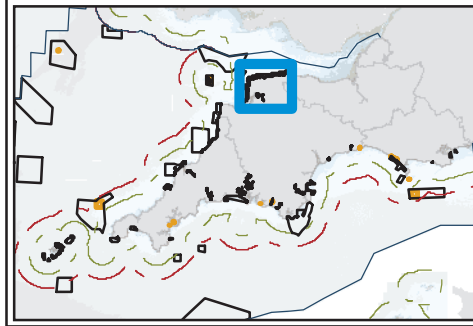
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	51.2042	-4.2397	51° 12' 15" N	4° 14' 23" W
B	51.2293	-4.1165	51° 13' 45" N	4° 6' 59" W
C	51.2351	-4.0842	51° 14' 6" N	4° 5' 3" W
D	51.2367	-3.9653	51° 14' 11" N	3° 57' 55" W
E	51.2450	-3.8904	51° 14' 41" N	3° 53' 25" W
F	51.2514	-3.8196	51° 15' 5" N	3° 49' 10" W
G	51.2605	-3.7996	51° 15' 37" N	3° 47' 58" W
H	51.2442	-3.7828	51° 14' 39" N	3° 46' 58" W
I	51.2132	-4.1021	51° 12' 47" N	4° 6' 7" W
J	51.2163	-4.1021	51° 12' 58" N	4° 6' 7" W
K	51.2164	-4.1129	51° 12' 58" N	4° 6' 46" W
L	51.2114	-4.1129	51° 12' 41" N	4° 6' 46" W
M	51.0754	-4.2154	51° 4' 31" N	4° 12' 55" W
N	51.0652	-4.2191	51° 3' 54" N	4° 13' 8" W
O	51.0350	-4.2615	51° 2' 6" N	4° 15' 41" W
P	51.0385	-4.2675	51° 2' 18" N	4° 16' 3" W
Q	51.0836	-4.2550	51° 5' 1" N	4° 15' 18" W
R	51.1383	-4.2814	51° 8' 18" N	4° 16' 53" W
S	51.1576	-4.2653	51° 9' 27" N	4° 15' 55" W
T	51.1583	-4.2336	51° 9' 29" N	4° 14' 0" W
U	51.1879	-4.2404	51° 11' 16" N	4° 14' 25" W

Map Legend

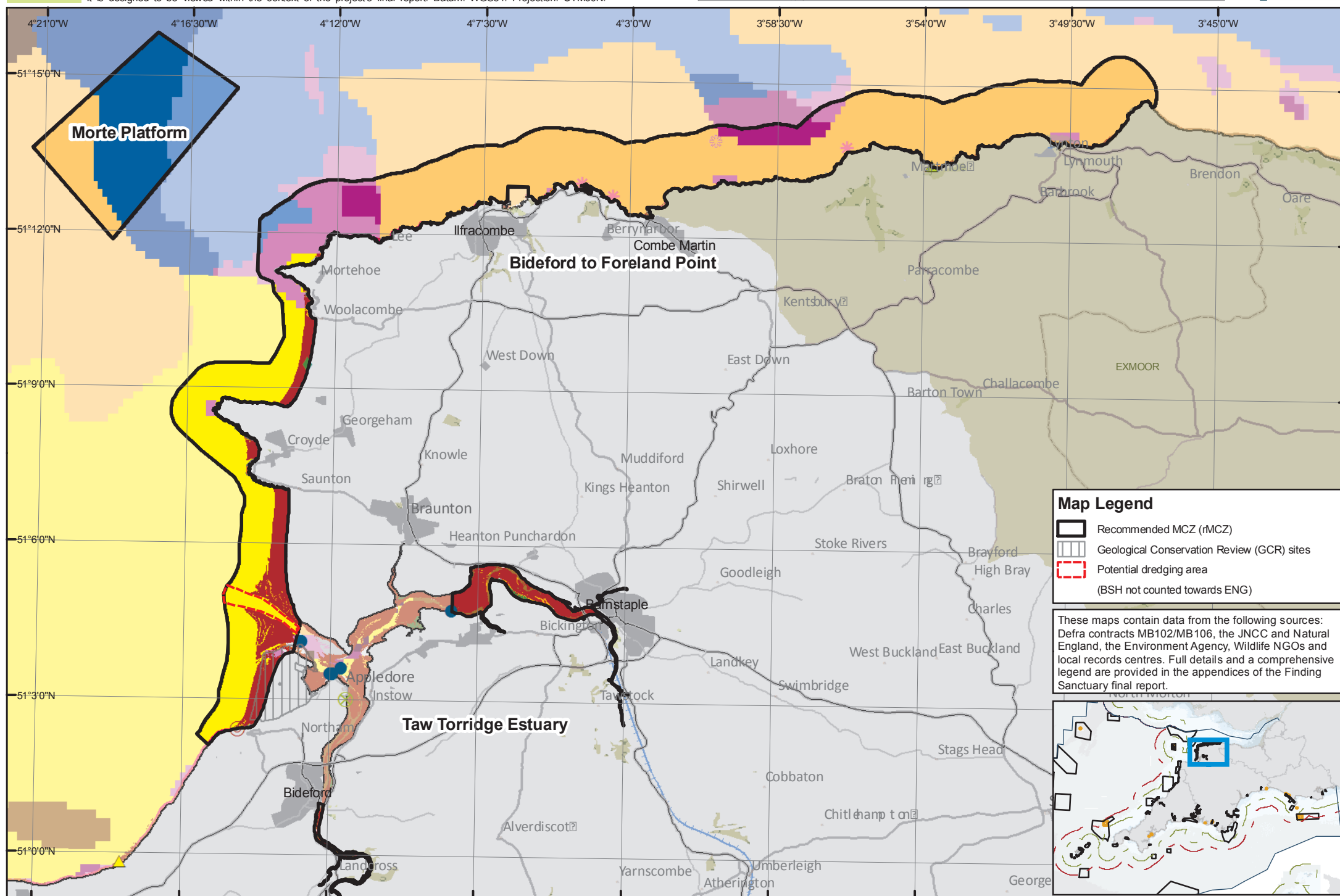
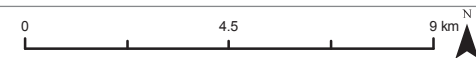
- Recommended MCZ (rMCZ)
- Existing MPAs
- SAC
- SSSI (part of MPA network)
- SSSI (not part of MPA network)

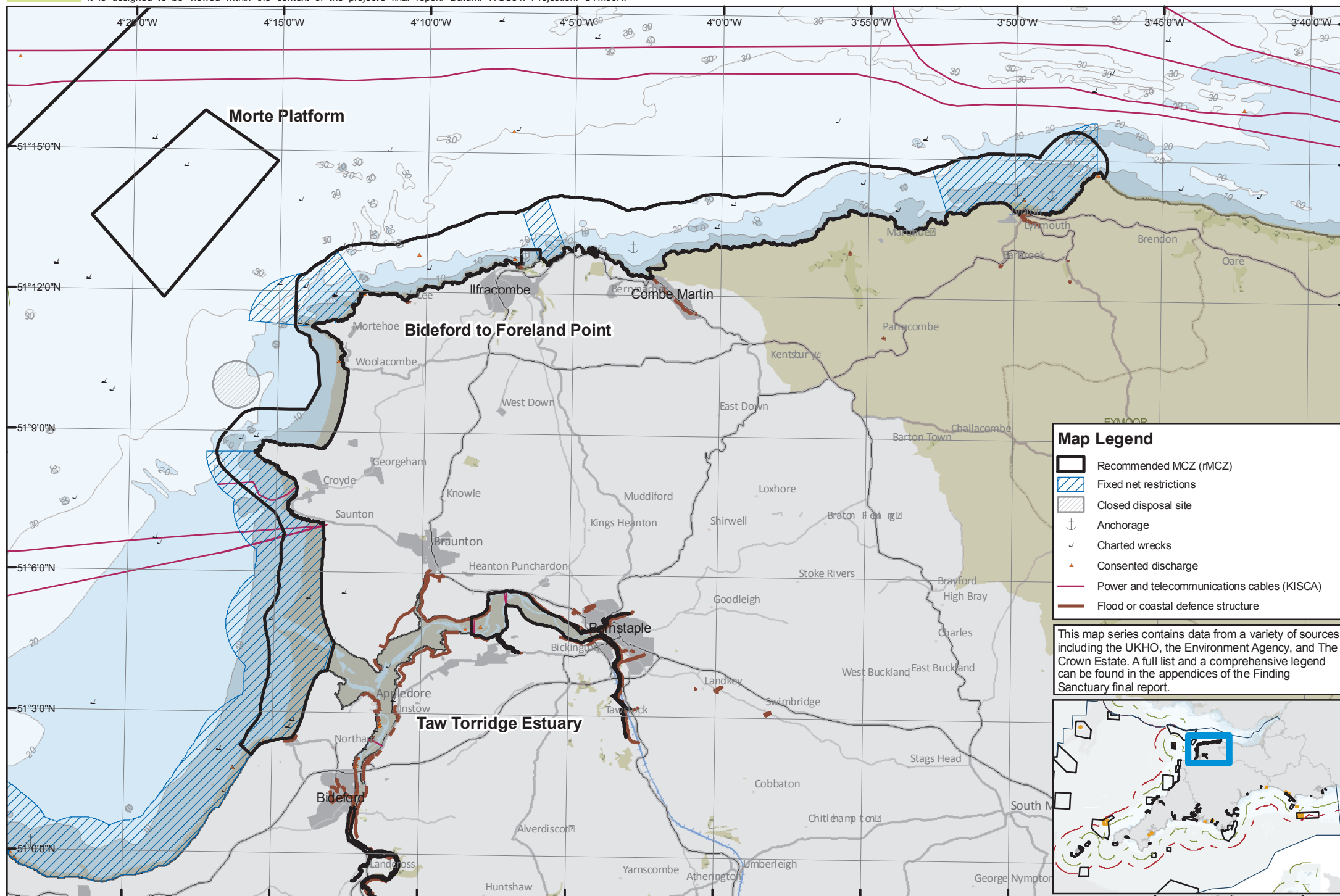
A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062006.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.





II.3.44 Morte Platform rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
51.2326	-4.3046	51° 13' 57" N	4° 18' 16" W

Site surface area: 25.45 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The site is a trapezoid shape located on the Morte Platform, approximately 5km off Baggy Point on the North Devon Coast.

Sites to which the site is related: The site falls within the region of the North Devon Biosphere Reserve.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within the Morte Platform rMCZ

Table II.3.44a Draft conservation objectives for Morte Platform rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. The full text of the draft conservation objectives can be found in appendix 15.

Broad-scale habitats	High energy circalittoral rock		M
	Moderate energy circalittoral rock		M
	Subtidal coarse sediment		M

Table II.3.44b Subtidal broad-scale habitats recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
High energy circalittoral rock	4.86	0.4%	1
Moderate energy circalittoral rock	14.50	<0.1%	1
Subtidal coarse sediment	6.11	<0.1%	1

Table II.3.44c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	19.29			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The Morte Platform is an area of rocky outcrops with patches of sediment, approximately 5km off Baggy Point. The depth of the area ranges between 35 and 40 metres below chart datum. The rMCZ intersects with an area of higher than average benthic species diversity (within the south-west context). The area was initially put forward by the North Devon Biosphere Reserve Marine Working Group through the Devon Local Group, who highlighted the biodiversity of the seabed and the presence of a range of features, such as *Sabellaria spinulosa* reefs, sublittoral biogenic reef, polychaete rich communities and tide swept channels in this area. The Local Group input highlighted the rugose and varied nature of the seabed as a reason for the high benthic species and biotope diversity in the area: The seabed consists of an assemblage of coarse sediments, stones, sand ridges and mud troughs. The mix of biotopes represented here is rarely represented anywhere else in the UK according to the National Biodiversity Network database. The Local Group also noted the presence of sand and mud mix/matrix and FluHyd, PoVen and SspiMx biotopes (as defined in Connor *et al.*, 2004), which are not well represented in the UK.

Detailed site description

The Outer Bristol Channel Marine Habitat study ran five research cruises between 2003 and 2005, and the area studied overlaps with this rMCZ. Eleven 30–40 km x 1 km wide corridors, covering 15% of the outer Bristol Channel, were examined by Mackie *et al.* (2006a; 2006b) using multibeam, sidescan and sub-bottom profiling. These were ground-truthed with the analysis of macrofauna from 137 grab and 13 trawl locations, sediments from 141 stations, and images from 20 video and camera tows. Sea bed samples were collected using a modified Van Veen grab. Three samples were taken from each site, two sieved for macrofauna with the third used for particle size analysis. The macrofaunal assemblages corresponded to eight infaunal and three epifaunal biotopes, with the latter occurring as overlays on the former. They produced a two-volume scientific research report detailing the sea bed habitats and associated animal life (Mackie *et al.* 2006b). Warwick & Davies (1977) surveyed sublittoral sediments and macrofauna in the Bristol Channel, describing the macrofaunal communities, which included the Morte Platform area.

Mackie *et al.* (2006a; 2006b) found coarse sediment; gravelly sand, sandy gravel and gravel with some sand patches, ribbons and waves. Well-bedded extensive Devonian rocks were exposed at the sea bed on the Morte Platform (Mackie *et al.* 2006b).

The Morte Platform is dominated by well-bedded rock outcrop exposed at the sea bed in water depths of 20 to less than 40 m in the centre of the Channel (Mackie *et al.* 2006b). The rock outcrops have formed a very frequent, dense series of small scarps and troughs up to a metre or two high; the majority are <0.5 m high. The rocks have been subject to ancient tectonic movement and the bedding exposed on the sea bed can be linear and sinuous, and disrupted by faults and folds. Sediment is commonly restricted to the troughs and can include gravel and sand (Mackie *et al.* 2006b). There are a few small isolated sand waves as well as occasional sand ribbons and sand patches. Horseshoe Rocks (Figure 2.3) is a dolerite intrusion > 1 km long, which forms a prominent shoal rising over 15 m above the surrounding sea bed to the north of Morte Point (Mackie *et al.* 2006b).

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.44d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.44e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.44d Specific assumptions and implications relating to Morte Platform rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Aggregate extraction will not be allowed	Direct implications: <ul style="list-style-type: none"> o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence.
Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings	Given this assumption, there are still the following concerns:

	<p>o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence.</p>
<p>Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging)</p> <p>This activity was discussed in the VA meetings for this site, and it was determined that there would need to be a prohibition of benthic mobile fishing gears over specific FOCI in the rMCZ (see right hand column), not necessarily over the whole site.</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.
<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o General comment from SNCBs: a set distance is likely to be required from the edge of MCZ area where this activity is likely to impact on the MCZ features.

Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings.

<p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Several stakeholder representatives have since stated that the comment is unrealistic.)</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Static gear fishermen might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed o Local Group feedback states that this is a major potting area and restriction to potting activity would be financially restricting to a large part of the fishing population in the North Devon area.
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p><i>Based on SAP feedback the assumption cannot apply to all sites in the network, although it can apply to any given site on its own.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions o Attracting the funding (for development) may be harder in the first place as sites with MPA designations within them will be less attractive to potential investors. o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets. o Enforced co-location with MCZs would dramatically restrict deployment. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities. o Increased competition for sea space with other sea users. o Long term Tidal Resource present on the eastern side of the rMCZ

<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted. Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures, should they be needed o There would be costs if monitoring is needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity

<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity restrictions on cable repair. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). o Possible impact on Atlantic Array cables. <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements. o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Possible cable route to renewables resources - wind and tidal stream. Round 3 Atlantic Array cable route through this site.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The renewables industry has concerns about this site, as they fear that the presence of biogenic reef may prevent cabling to occur. The site lies in the path of the cable route for the planned Atlantic Array wind farm. They suggest the following explicit assumption to be included for this site: 'The installation and maintenance of cables for renewable energy devices will be permitted and will not carry additional consenting and costs burden.'
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)
<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.44e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	Management: <ul style="list-style-type: none"> - Prohibition of fishing over specific BSH/FOCIs in the rMCZ. These are: high energy circalittoral rock, moderate energy circalittoral rock. Measure: <ul style="list-style-type: none"> - Option 1: voluntary - Option 2: byelaw

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site; others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
 - It is important that whatever is agreed outside the 6nm limit is ratified by Europe so that there are no unfair penalties on English vessels.
 - The area that was originally suggested for protection was moved slightly, towards an area of relatively lower towed fishing gear use intensity.
- *Renewables*
 - Until the cabling routes for the Atlantic Array are made public, the caveat remains that renewables stakeholders will not be able to support this site if cabling is restricted.

- The planned route for power cables from the Atlantic Array windfarm intersects this rMCZ. RWE npower (the developers of the Atlantic Array wind farm) contacted the North Devon Biosphere Reserve Marine Working Group (a subgroup of the Devon Local Group), to highlight their concern that this area might impact on the laying, operation and maintenance of power cables from the Atlantic Array. Based on the working assumption that cabling would not be impacted by the rMCZ, they are not entirely supportive of this rMCZ being included in the recommendations, because they do not have sufficient confidence that the assumption will hold true. They suggested excluding a 500m wide channel through the rMCZ to allow for the cable route, which would cut the site in two parts. More recently (Feb 2011) they indicated that they have to take into account certain species (including *Sabellaria spinulosa*) when planning cabling routes. This could mean that cable routes may not be further affected by an MCZ designation.
- RWE npower, the developers of the Atlantic Array windfarm, have made the following statement with respect to this site and the North of Lundy (Atlantic Array area) rMCZ [note that iQ6 and iR1 refer to MCZ building block codes used early in the process for the pre-cursors to the rMCZs referred to]: 'RWE is developing the Atlantic Array offshore wind farm within the outer Bristol Channel under an Agreement for Lease with The Crown Estate. Both the Atlantic Array project area (iR1) and the Morte Platform (iQ6), which lies across an export cable route from the wind farm, have been put forward by Finding Sanctuary as potential Marine Conservation Zones. The purpose of this statement is to provide our assessment of the compatibility of an MCZ in these areas with an offshore wind farm. We have been engaged with Natural England since September 2010 in addressing the inherent uncertainties presented by co-located MCZs. We were concerned that co-location would present higher consenting and monitoring hurdles than would otherwise be the case and that engineering solutions would potentially be constrained. This was undesirable in a site that is technically very challenging with a combination of deep water and significant tidal range. We have also engaged with the North Devon Biosphere Group, which has promoted MCZs within the Bristol Channel including the Morte Platform. RWE supports the view that the MCZ network should be developed efficiently to secure the maximum ecological gain at the least socio-economic cost. We understand that co-location of an MCZ with the proposed Atlantic Array will reduce the area which will be closed to other sea users, particularly fishermen. The non-co-location networks included within the 3rd Progress report submitted to the SAP on 28 February 2011, included additions to areas in the Western Deep, we note that the Finding Sanctuary project team has since put forward an alternative MCZ to the west of the Atlantic Array in a non-co-location scenario, to be considered by the Joint Working Group on the 6 April 2011. We understand that this new proposal, and/or areas within Western Deep will only be present in a non-co-location network, and that fishing activity in these areas is likely to be restricted through management measures. Co-location in our view will therefore minimise areas that will be closed to other human users of the sea – particularly fishermen, provided that the network is adjusted to correspond to remove those areas which are only proposed within a non co-location scenario. Should the outcome of the Joint Working Group (060411) put forward a non co-location network significantly different to those described we may wish to review the decision we have reached today. For these reasons we support a co-located MCZ at the Atlantic Array and at the Morte Platform. In due course we would very much

welcome the opportunity of providing input to the choice of management measures for the relevant MCZ.'

- *General benefits of MCZs*
 - Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.
- *Monitoring*
 - There are two main types of monitoring which will need to take place within rMCZs:
 - Monitoring the activities within a site and the various levels at which they are occurring.
 - Monitoring the ENG features for changes in condition.
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.44e (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

The site was originally suggested by the North Devon Biosphere Reserve Marine Working Group (www.northdevonbiosphere.org.uk) who worked on sites in North Devon on behalf of the Devon Local Group. This site was agreed in their cross-sector stakeholder meeting, which included renewable industry representatives and fishing representatives amongst many others. The Devon Local Group supports the site on the basis that it will have no negative impact on the Atlantic Array construction and operation as a result of an MCZ designation.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. Data also exists from a multibeam trial conducted by the Maritime & Coastguard Agency (MCA) in 2002 over an area of 50 km² between Lundy and Morte Point.

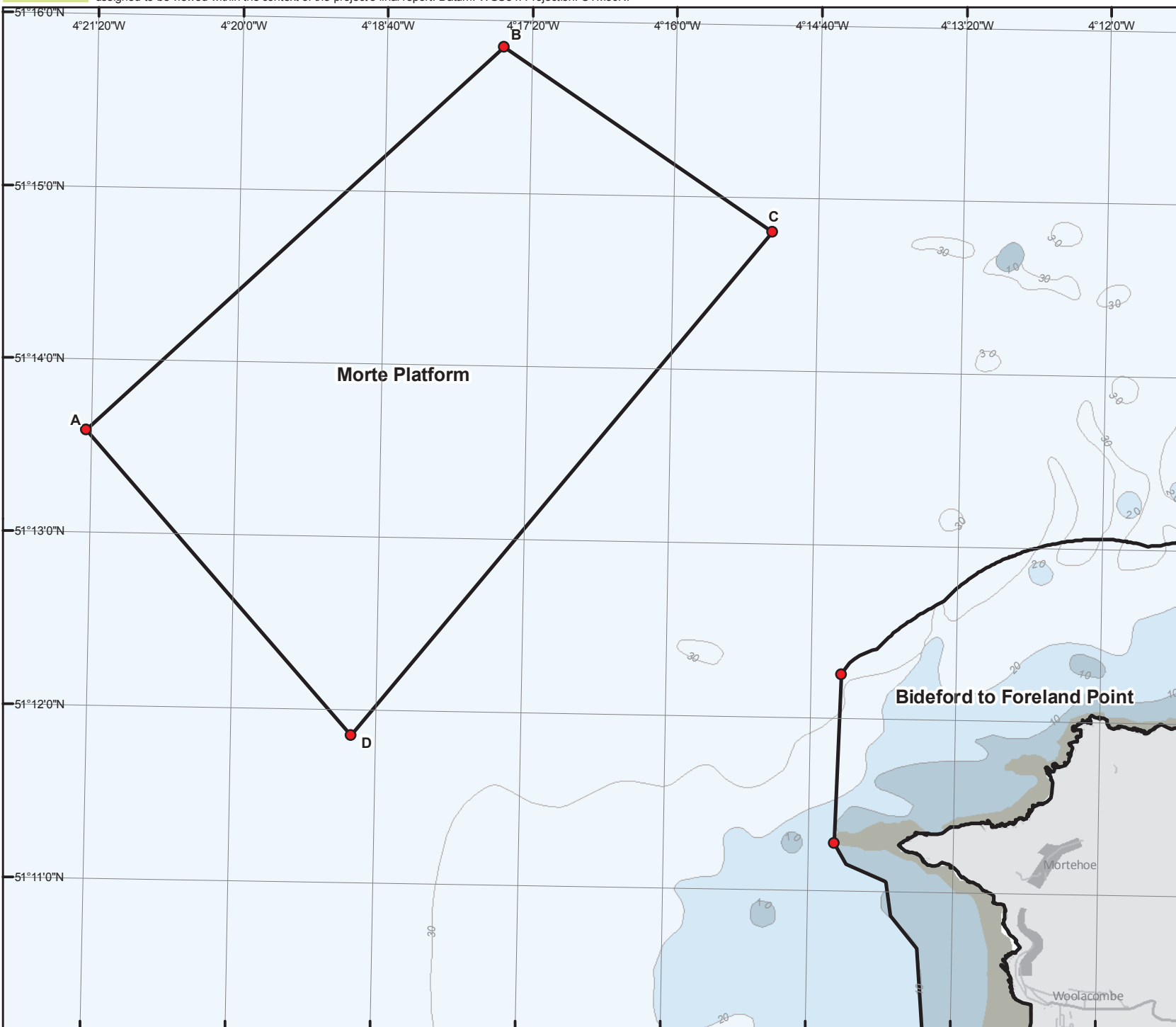
The North Devon Biosphere Reserve Marine Working Group has supplied additional information that is relevant to this site. This information includes a detailed description of the site, details of the species and habitats present, and recommendations for the management of the site if designated as an MCZ. These recommendations have been included in their entirety in the additional materials supplied with this final report.

Site map series

On the following pages there are two maps of this site.

- The first map (FR_058a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_058b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.44b, data sources are indicated in the table.
- Most rMCZ site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site (we do not have GIS data for the planned Atlantic Array cable route referred to above, but are aware that it runs through the centre of the site). For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.



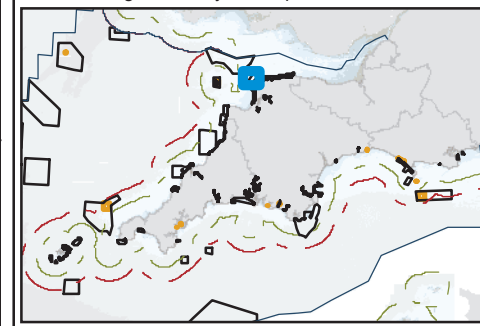
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	51.2265	-4.3564	51° 13' 35" N	4° 21' 23" W
B	51.2642	-4.2932	51° 15' 51" N	4° 17' 35" W
C	51.2467	-4.2515	51° 14' 48" N	4° 15' 5" W
D	51.1975	-4.3149	51° 11' 51" N	4° 18' 53" W

Map Legend

Recommended MCZ (rMCZ)

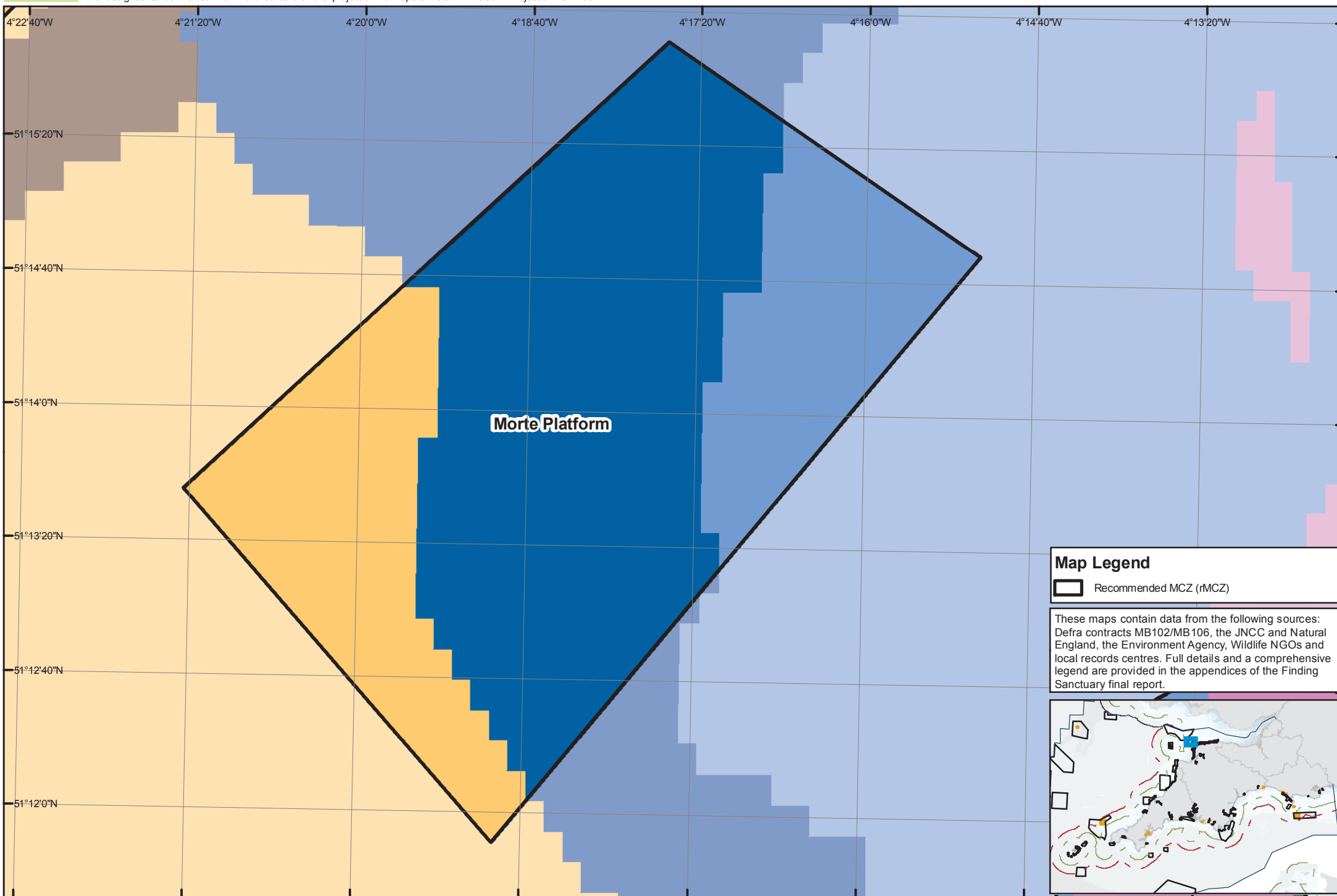
A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062008.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 0.5 1 2 km



II.3.45 North of Lundy (Atlantic Array area) rMCZ

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
51.3386	-4.5225	51° 20' 18" N	4° 31' 21" W

Site surface area: 348.24 km² (calculated in ETRS89 – LAEA)

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Waters

Site boundary: The site boundary follows the RWE npower Atlantic Array windfarm planned development area, except for the portion that lies north of the median line with Wales and therefore falls outside our study region.

Sites to which the site is related: The site does not intersect or sit alongside any existing protected areas.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation with the North of Lundy rMCZ

Table II.3.45a Draft conservation objectives for the North of Lundy rMCZ. M = maintain in favourable condition, R = recover to favourable condition. This is an extract of the conservation objective summary tables in section II.2.6. **The full text of the draft conservation objectives can be found in appendix 15.**

Broad-scale habitats	Moderate energy circalittoral rock ¹		M
	Subtidal coarse sediment		M
	Subtidal mixed sediments		M
	Subtidal sand		M

¹In the north-west portion of the site, this is probably coarse sediment and cobbles, not bedrock.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.3.45b **Subtidal broad-scale habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within rMCZ (km ²)	% of total in study area	Source(s)
Moderate energy circalittoral rock	27.93	0.1%	1
Subtidal coarse sediment	294.06	1.0%	1
Subtidal sand	24.86	<0.1%	1, 2
Subtidal mixed sediments	0.64	<0.1%	1

Table II.3.45c **FOCI habitats** recorded in this rMCZ, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	203.09			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to environmental data layers, including areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal sea surface temperature fronts, please refer to the interactive PDF maps presented alongside this report.

Site summary

The seabed within this rMCZ consists of sand and coarse sediments, with some areas mapped as rock (although based on the findings of Mackie *et al.* 2006a; 2006b that might be areas of cobbles rather than solid bedrock). The area intersects with an area of higher than average benthic species diversity (within the south-west context). The depth of the site is between 55 and 35 metres below chart datum, and the nearest land is about 14km away (Morte Point in North Devon).

Detailed site description

The Outer Bristol Channel Marine Habitat study ran five research cruises between 2003 and 2005, and the area studied overlaps with this rMCZ. Eleven 30–40 km x 1 km wide corridors, covering 15% of the outer Bristol Channel, were examined by Mackie *et al.* (2006a; 2006b) using multibeam, sidescan and sub-bottom profiling. These were ground-truthed with the analysis of macrofauna from 137 grab and 13 trawl locations, sediments from 141 stations, and images from 20 video and camera tows. Sea bed samples were collected using a modified Van Veen grab. Three samples were taken from each site, two sieved for macrofauna with the third used for particle size analysis. The macrofaunal assemblages corresponded to eight infaunal and three epifaunal biotopes, with the latter occurring as overlays on the former. They produced a two-volume scientific research report detailing the sea bed habitats and associated animal life (Mackie *et al.* 2006b).

Mackie *et al.* (2006a; 2006b) found bifurcating, high frequency sand waves; sand patches; some muddy sand; coarse sediment - gravelly sand, sandy gravel and gravel. The area was characterised by numerous isolated sand waves on a dominantly coarse substrate of gravelly sands and gravels.

During April and May 1993, and in February and May 1994, samples of the benthic macrofauna were collected by Rees *et al.* (1999) from MAFF research vessels. At each location, five sediment samples for macrofauna analysis were collected using a 0.1 m² day grab from the central point of a 500 m grid of 9 stations, the latter being sampled for contaminant analyses only.

Rogers *et al.* (2008) investigated offshore mud sediments in the Celtic Deep and North-western Irish Sea. Two sites on sand sediments in the Bristol Channel and Outer Carmarthen Bay (North of Lundy) were studied during July 2004 and 2005, respectively. At the centre station of each site, replicate sampling was undertaken for benthic fauna and demersal fish. Warwick & Davies (1977) surveyed sublittoral sediments and macrofauna in the Bristol Channel which included the area of North of Lundy Atlantic Array Area.

Macro-epibenthic invertebrate and demersal fish assemblages are described by Ellis *et al.* (2000) from 101 beam trawl stations in the Irish Sea, St George's Channel and Bristol Channel including within the area of the North of Lundy Atlantic Array Area.

Stakeholder narrative: Assumptions and Implications

As explained in part I, the stakeholder narrative is a vital underpinning of the site recommendations. Working assumptions and implications are presented here, and additional comments are presented in the following section.

The following fundamental assumption was recorded to apply to all activities in all sites: **The fundamental assumption about human activities within MCZs is that activities can continue (under current licensing regimes where applicable), as long as they do not prevent the conservation objectives from being achieved.** This assumption applies to all activities. Table II.3.45d shows more specific working assumptions and implications that were recorded for this site over the course of the planning process.

Following that, table II.3.45e shows the vulnerability assessment (VA) snapshot for this site. The VA meetings took place at the end of the project, and they did not involve the Steering Group. They started to discuss site management, but did not reach any firm conclusions. The VA snapshot table reflects the point that the VA discussions had reached at the time of the last Joint Working Group meeting in May 2011. Many Steering Group members expressed concerns about the VA process and its outcomes (see section II.2.1 for full details).

Table II.3.45d Specific assumptions and implications relating to North of Lundy (Atlantic Array area) rMCZ. Black text reflects the working assumptions and implications recorded throughout the planning discussions. The development of the narrative recorded in black can be traced back through the Working Group and Steering Group meeting reports from 2009 to 2011. Red and green text in the first column comments on how the snapshot of the vulnerability assessment (VA) relates to each of the working assumptions that had been made as planning took place (refer to part I for a full explanation of the VA snapshot).

Activities assumed to not be allowed within the site	
Assumptions	Implications
Aggregate extraction will not be allowed	Direct implications: o Aggregate dredging can only occur where the mineral resources are geologically located – in highly localised and discrete areas. If aggregate operations are not allowed in MCZs (subject to appropriate monitoring, mitigation and
Activity not taking place / not taking place at high enough levels to cause	

<p>a problem in this site, so this was not considered during the VA meetings</p>	<p>management), and MCZs coincide with aggregate resource, then this will have significant impact on national construction aggregate supply and coast defence.</p> <ul style="list-style-type: none"> o This area overlaps an aggregate resource area with a value of £13million per km². Project team comment: this resource would presumably not be exploitable in any case, once a windfarm is built – in which case any MCZ designation would not lead to added loss to the aggregate industry <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o If aggregate operations (subject to appropriate monitoring, mitigation and management) are restricted in areas adjacent to an MCZ, then this will have significant impact on national construction aggregate supply and coast defence. o Crown Estate comment - High value aggregates interest worth £13,025,000. The rMCZ is 1.6 km south of Western Bristol Channel dredging option area. Tenants Tarmac Marine Dredging Ltd, Hanson Aggregates Marine Ltd, CEMEX UK Marine Ltd
<p>Bottom-towed fishing gear will not be allowed (includes benthic trawling and hydraulic dredging)</p> <p>This activity was discussed during the VA meeting, and the assumption was made that there would need to be a prohibition of benthic mobile fishing gear over the parts of the site containing moderate energy circalittoral rock (but not over the whole site, given current levels of activity and gears used).</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o Loss of ground for bottom-towed gear fishermen, both UK and non-UK o Displacement of bottom-towed gear o Increased competition for fishing grounds o Reduced diversity and flexibility of fishing o Cumulative impact on bottom-towed gear fleet where protected areas are close together o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers. (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) o Area is an important fishing ground for the North Devon fishing industry for ray and Dover sole. o Potential environmental implications derived from concentrating effort in alternative grounds or due to new fishing ground searching activity.
<p>Anchoring of large vessels will not be allowed (except in emergencies)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o There is a general right of anchoring as a consequence of, and incidental to, the Public Right of Navigation.

<p>Dumping and disposal will not be allowed. That includes dumping of fish waste, munitions, or dumping of waste from dredging</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
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Activities assumed to possibly need restricting (limiting or mitigating) within the site or parts of the site.

Assumptions	Implications
<p>Static fishing gear will be permitted, but there may need to be a limit on the amount of static gear used in the area.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o No tow zones will be inundated with pots and static gear and cause difficulties for sea anglers (This comment was recorded during one of the early planning meetings. Several stakeholder representatives have since stated that the comment is unrealistic.) <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback indicates that this is an important potting ground for North Devon fishermen. o Static gear fishermen might face possible additional costs for mitigation measures and costs due to monitoring needed
<p>The installation, operation and maintenance of renewable energy devices will be permitted</p> <p>Specifically, the Atlantic Array windfarm can be co-located with this rMCZ</p> <p><i>Please also refer to the statement made by the Atlantic Array developers (rwe-npower) with respect to this site, included in the final report.</i></p> <p>Activity not taking place / not taking / not planned to take place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o The MCZ designation may mean that additional management requirements are defined for renewable energy developments. This could result in: <ul style="list-style-type: none"> - additional costs to the renewables industry, e.g. for licensing mitigation and monitoring - delays to renewables development - delays, lost revenue and additional costs associated with cable repair activity restrictions. o Attracting the funding (for development) may be harder in the first place as sites with MPA designations within them will be less attractive to potential investors. o Costs and delays associated with co-location of renewables in MCZs, could result in long term implications in terms of renewables deployment which could have serious implications for industry and Government in terms of loss of operational revenue and missing EU climate change targets.

	<p>o Enforced co-location with MCZs would dramatically restrict deployment.</p> <p>If the assumption turns out to be wrong:</p> <p>o If co-location assumptions are not correct the impacts would/could be: site locations that can't be developed, increased costs (the implications could be re-routing of cables around a feature could cost an additional £600,000 - £1.3m/km depending on cable type, size and seabed geology), construction delays, failure to meet renewables targets, impacts on acidification, additional monitoring requirements, increased uncertainty and declining investor confidence in renewables activities.</p> <p>o Increased competition for sea space with other sea users.</p> <p>o Atlantic Array (zone 8) windfarm site. This site would not be supported by several stakeholder representatives if the assumption turned out to be wrong, and the windfarm plans were affected by designation - however, this is unlikely, given work carried out between Natural England and the developers with respect to the possible implications of co-location (please refer to the statement made by RWE npower with respect to this site, included in the additional comments below).</p>
<p>Sewerage disposal, industrial and agricultural liquid discharges will be permitted with management / mitigation</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>
<p>Aquaculture of fin fish and shell fish will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>
<p>Crab tiling / bait digging will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <p>o</p>

<p>Beach replenishment will be permitted with mitigation / management</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
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Activities assumed to be allowed to continue / occur within the site	
Assumptions	Implications
<p>Handlining (recreational angling and commercial handlining) will be permitted</p> <p>Handlining includes sea angling and trolling.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Handliners might face possible additional costs for mitigation measures and costs due to monitoring needed <p>Benefits:</p> <ul style="list-style-type: none"> o Potential for increased and enhanced leisure and recreational activity
<p>The installation and maintenance of cables will be permitted and will not be made prohibitively expensive within the site. This applies to power cables (including cables for renewable energy devices), and telecommunications cables.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Cable installation cost increases and delay o Cable repair cost, delays and lost revenue could increase due to activity. o There is no definition of what 'prohibitively expensive' means; the cables representative would like assurance that no additional cost will result from MCZ designation (beyond costs associated with existing management and mitigation requirements). o Within the Local Group, particular concern was voiced over possible impacts on cabling across Bideford Bay to the landfall at Westward Ho! <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o For renewables/power cables, re-routing of cables around a feature or site might mean longer cable routes, at a cost of £600,000 - £1.3 million/km depending on cable type, size and seabed geology. o There may be other costs, e.g. costs associated with licensing, mitigation measures and monitoring requirements.

	<ul style="list-style-type: none"> o Increased licensing requirements and costs of cabling may have serious implications for industry and Government in terms of loss of operational revenue, missing EU climate change targets etc. o Possible cable route to renewables resources. o One proposed power cable.
<p>The operation of cables (power and telecommunications) & pipelines will be permitted (i.e. any existing cables will be allowed to stay operational)</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>If the assumption turns out to be wrong:</p> <ul style="list-style-type: none"> o There are two active and six inactive telecoms cables within this site.
<p>Tourism and recreational activities will be permitted.</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Maintenance dredging in ports (to enable access to ports) will be permitted</p> <p><i>The project team have advised that this would mean that the dredged areas of seafloor could not be counted towards ENG targets.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o
<p>Anchoring for maintenance and access for licensed visitors to heritage wrecks will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o (No heritage wrecks currently present in the site)

<p>Anchoring of small vessels will be permitted</p> <p><i>There isn't a clear, agreed Working Group definition for what constitutes a 'small vessel'.</i></p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o No clear working group definition exists of what counts as a 'small' vessel. 24m was proposed some time ago by the RYA, but no decision was reached as to whether we would adopt that size in MCZ planning.
<p>Passage of ships will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o <p>Given this assumption, there are still the following concerns:</p> <ul style="list-style-type: none"> o Local Group feedback indicates that there are concerns locally about whether any MCZ designation would impact on commercial shipping routes or recreational boat access, as agreed / appropriate with the Atlantic Array proposals.
<p>Seaweed harvesting will be permitted</p> <p>Activity not taking place / not taking place at high enough levels to cause a problem in this site, so this was not considered during the VA meetings</p>	<p>Direct implications:</p> <ul style="list-style-type: none"> o

Table II.3.45e VA Snapshot table: This table records the point which the vulnerability assessment discussions had reached regarding site management, at the time of the final Joint Working Group meeting in May 2011. The outcome is not definitive, and the VA did not carry out an exhaustive review of all the working assumptions recorded in the longer table above. The Steering Group were not directly involved in the VA discussions, and at their final meeting, expressed considerable reservations about the VA outcome (see section II.2.1). The reason this VA snapshot table is included here is so that readers have a record of what the VA snapshot was showing at the time the final stakeholder comments were recorded for this site. For a full explanation of the VA snapshot, please refer to part I. The maps in appendix 13 show a visual representation of the information in all the VA snapshot tables in the rMCZ site reports.

Sector	Potential Management
Commercial Fishing – all mobile bottom gears	<p>Management:</p> <ul style="list-style-type: none"> - Prohibition of fishing over specific BSH/FOCIs in the rMCZ. These are: moderate energy circalittoral rock. <p>Measure:</p> <ul style="list-style-type: none"> - Common Fisheries Policy

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

The most significant uncertainty faced by the project was the lack of knowledge on management of MCZs, and this uncertainty still applies to all rMCZs in the network. There was uncertainty over what activities will be affected by MCZ designations: what activities will be permitted to continue within (or near) MCZs, what activities will not be permitted, and what activities will require mitigation or some form of restriction other than a complete ban. There was also uncertainty over what measures will be taken to ensure any activity restrictions are put in place (e.g. byelaws, voluntary measures).

Additional comments

The following is a set of additional comments made by stakeholder representatives over the course of the planning work. Some of these comments were made specifically about this site; others were more generic comments which the project team consider to be relevant to this site.

- *Mobile bottom gear*
 - Seasonal closures are an inappropriate measure for benthic conservation.
 - It is important that whatever is agreed outside the 6nm limit is ratified by Europe so that there are no unfair penalties on English vessels.
- *Renewables*
 - Co- location support for site following discussion with SNCBs. SNCBs and specific advice paper to be used in recommendations
 - There is an uncertainty about how the density of shipping lanes will change once the Atlantic Array windfarm is in place.
 - In response to the VA - The representative for regional development and economy stated that co-location was agreed to ease pressures elsewhere for the fishing industry and if the suggested management stays as it is (i.e. that fishing with mobile gears can continue in many of the rMCZs) then co-location may not have been agreed to by the windfarm developers.
 - RWE npower, the developers of the Atlantic Array windfarm, have made the following statement with respect to this site and the Morte Platform rMCZ [note that iQ6 and iR1 refer to MCZ building block codes used early in the process for the precursors to the rMCZs referred to]: 'RWE is developing the Atlantic Array offshore wind farm within the outer Bristol Channel under an Agreement for Lease with The Crown Estate. Both the Atlantic Array project area (iR1) and the Morte Platform (iQ6), which lies across an export cable route from the wind farm, have been put forward by Finding Sanctuary as potential Marine Conservation Zones. The purpose of this statement is to provide our assessment of the compatibility of an MCZ in these areas with an offshore wind farm. We have been engaged with Natural England since September 2010 in addressing the inherent uncertainties presented by co-located MCZs. We were concerned that co-location would present higher consenting and monitoring hurdles than would otherwise be the case and that engineering solutions would potentially be constrained. This was undesirable in a site that is technically very challenging with a combination of deep water and significant tidal range. We have also engaged with the North Devon Biosphere Group, which has promoted MCZs within the Bristol Channel including the Morte

Platform. RWE supports the view that the MCZ network should be developed efficiently to secure the maximum ecological gain at the least socio-economic cost. We understand that co-location of an MCZ with the proposed Atlantic Array will reduce the area which will be closed to other sea users, particularly fishermen. The non-co-location networks included within the 3rd Progress report submitted to the SAP on 28 February 2011, included additions to areas in the Western Deeps, we note that the Finding Sanctuary project team has since put forward an alternative MCZ to the west of the Atlantic Array in a non-co-location scenario, to be considered by the Joint Working Group on the 6 April 2011. We understand that this new proposal, and/or areas within Western Deep will only be present in a non-co-location network, and that fishing activity in these areas is likely to be restricted through management measures. Co-location in our view will therefore minimise areas that will be closed to other human users of the sea – particularly fishermen, provided that the network is adjusted to correspond to remove those areas which are only proposed within a no co-location scenario. Should the outcome of the Joint Working Group (060411) put forward a non co-location network significantly different to those described we may wish to review the decision we have reached today. For these reasons we support a co-located MCZ at the Atlantic Array and at the Morte Platform. In due course we would very much welcome the opportunity of providing input to the choice of management measures for the relevant MCZ.'

- *Seabirds*

- Codes of practice may be a better way to achieve management of leisure boats (if necessary) than byelaws.
- The conservation sector has proposed for the protection of summer foraging birds that monitoring of disturbance and any by-catch issues and annual productivity monitoring would be necessary to determine that no deterioration in/loss of conservation status of the species making up the assemblage using the site (Manx Shearwater, Razorbill, Guillemot, Puffin, Gannet, Lesser Black-backed Gull) due to death, injury or disturbance. Mitigation measures would be required if there was a decline in species numbers due to activities within the rMCZ (e.g. disturbance from recreational disturbance, bycatch from fishing activity, built developments, pollution). Healthy populations of these species would suggest a healthy ecosystem within the site and would be an attraction for the general public and ecotourism.

- *General benefits of MCZs*

- Some stakeholder representatives would like the following recorded and for these to be considered during the impact assessment:
 - Fisheries spill-over.
 - Improvements for the local economy.
 - Education opportunities.
 - Benefits to science.
 - Focus for voluntary groups.
 - Potential increase in the amount and quality of recreational activities (diving, sea angling, environmental tourism, etc).
 - The designation as an MCZ will be a selling point and will undoubtedly be used as an identifier to the area to highlight it as somewhere to visit.

- *Monitoring*

- There are two main types of monitoring which will need to take place within rMCZs:

- Monitoring the activities within a site and the various levels at which they are occurring.
- Monitoring the ENG features for changes in condition.

Management measures

- This rMCZ lies beyond the 6 nautical mile limit, and partly outside the 12nm limit. There may be non-UK vessels with historical fishing rights in the area. For sites beyond 6nm, stakeholder representatives repeatedly voiced concern over how the activity of non-UK fishing vessels might be managed, and stated opposition to any unilateral measures that would apply to UK vessels only. At the time of the third progress report, we had received the following statement from the SNCBs and Defra: 'When considering the impacts of fishing restrictions on non UK vessels, it is the Government's intention that fishing restrictions will not be imposed unilaterally on UK vessels before they can be applied to equivalent EU vessels operating within the relevant areas. In the case of those EU fishing vessels with historic fishing rights in UK waters between 6 and 12 nm, Defra will negotiate with the relevant Member States and the European Commission before introducing byelaws, or orders that are applicable to all EU vessels, or seeking Common Fisheries Policy (CFP) regulation measures. Once introduced, these would apply to all EU vessels (including UK vessels) equally and at the same time.'
- *Reaction to the vulnerability assessment process and outcomes*
 - At the sixth Joint Working Group meeting in June 2011, the results from the regional vulnerability assessment (VA) discussions were presented to the group, as shown in table II.3.45e (the VA process is described in part I). This generated concern within the JWG, for two reasons. Firstly, several members of the group had serious misgivings over the outcome of the management discussions, especially with respect to those inshore rMCZs for which no management of bottom-towed mobile fishing gear was highlighted as necessary. Secondly, the group had serious misgivings about the process itself, from which they felt disenfranchised.
 - The Steering Group made a statement at their final meeting, articulating those concerns in more detail. They recommended that there should be a process that allows them to review potential management measures for MCZs, before public consultation. The full statement made by the Steering Group is in section II.2.1.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

This site has been highlighted as a possible 'win-win', on the basis that the safety restrictions within a windfarm would in themselves protect seafloor habitat. The developers of the Atlantic Array windfarm, RWE, have made a statement to say that they are supportive of this site, on the basis of their discussions with Natural England that it would not pose obstacles or added costs for the development of the windfarm.

Local Group feedback indicates that they would expect a windfarm to act as a good nursery and breeding ground. However, some Local Group members voiced a fear that the reasons for selecting

the site were based on 'convenience', rather than for ecological reasons. Some were concerned about the construction of the windfarm altering the habitat present.

Although the commercial fishing industry supports co-location with renewable energy developments in principle, north Devon fishermen are not supportive of this rMCZ, due to ongoing negotiations with the developers around displacement compensation. It is currently the north Devon fishermen's representative's understanding that if the area was designated an MCZ, and that MCZ would lead to restrictions on fishing, the developers would not be required to pay fishermen compensation for lost grounds due to safety restrictions on fishing within the windfarm.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MESH, and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

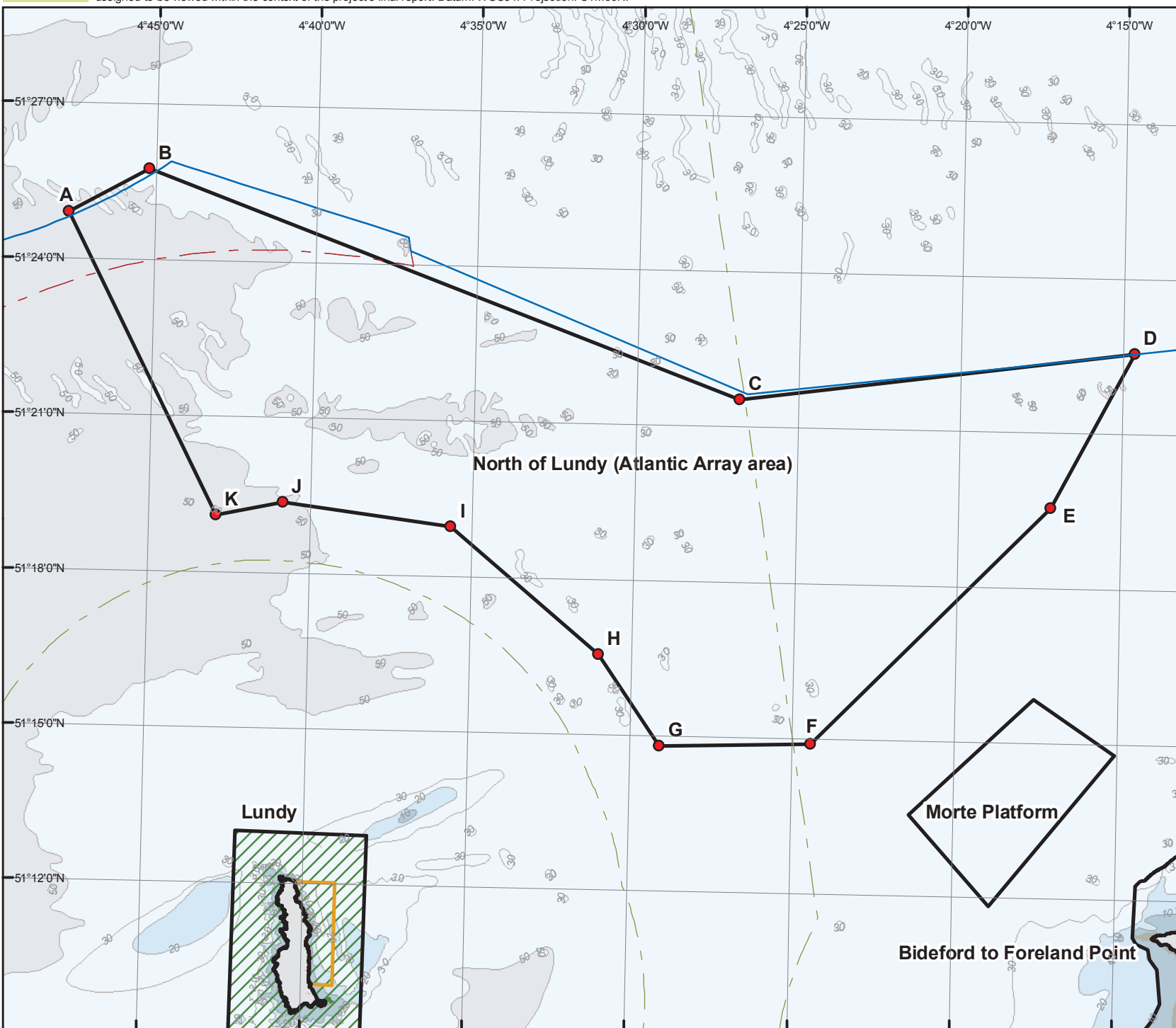
Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Mortimer *et al.* (2007).

Although this site does not fall within the boundary of the North Devon Biosphere Reserve, the North Devon Biosphere Reserve Marine Working Group has supplied additional information that is relevant to this site. This information includes a detailed description of the site and details of the species and habitats present. These recommendations have been included in their entirety in the additional materials supplied with this final report.

Site map series

On the following pages there are three maps of this site.

- The first map (FR_059a) is the main site map showing the rMCZ boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_059b) shows the rMCZ boundary over broad-scale habitats, and records of habitat and species FOI. The data shown on this map corresponds with the information in table II.3.45b, data sources are indicated in the table.
- The third map (FR_059c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

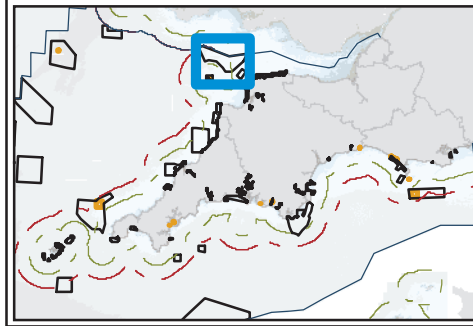
**Lat/Long Co-ordinates (WGS84)**

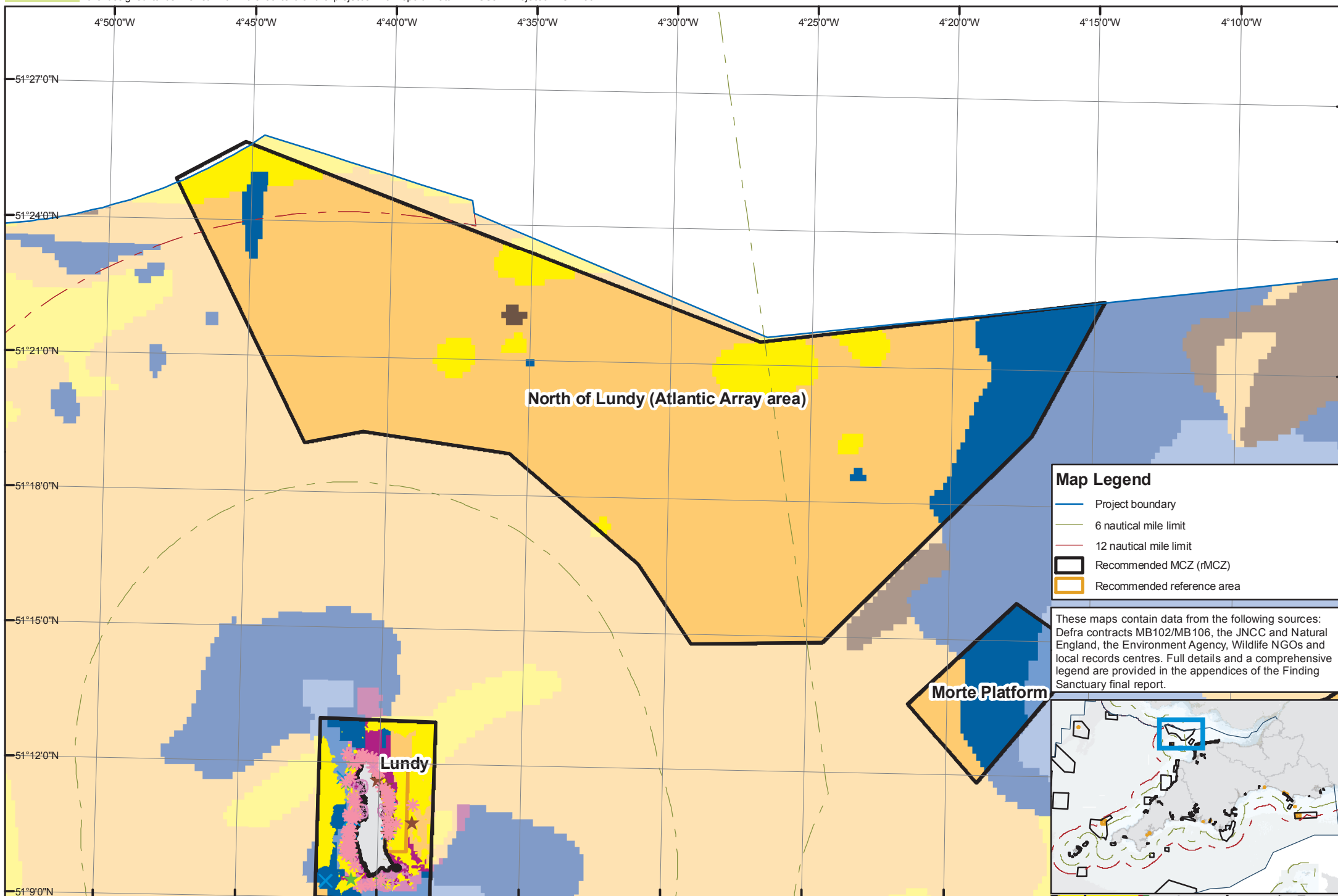
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	51.4152	-4.7946	51° 24' 54" N	4° 47' 40" W
B	51.4293	-4.7537	51° 25' 45" N	4° 45' 13" W
C	51.3592	-4.4469	51° 21' 33" N	4° 26' 48" W
D	51.3762	-4.2441	51° 22' 34" N	4° 14' 38" W
E	51.3261	-4.2860	51° 19' 34" N	4° 17' 9" W
F	51.2487	-4.4072	51° 14' 55" N	4° 24' 25" W
G	51.2471	-4.4849	51° 14' 49" N	4° 29' 5" W
H	51.2761	-4.5170	51° 16' 33" N	4° 31' 1" W
I	51.3162	-4.5943	51° 18' 58" N	4° 35' 39" W
J	51.3230	-4.6809	51° 19' 22" N	4° 40' 51" W
K	51.3184	-4.7153	51° 19' 6" N	4° 42' 55" W

Map Legend

- Project boundary
- 6 nautical mile limit
- 12 nautical mile limit
- Recommended MCZ (rMCZ)
- Recommended reference area
- Existing MPAs
- SAC

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



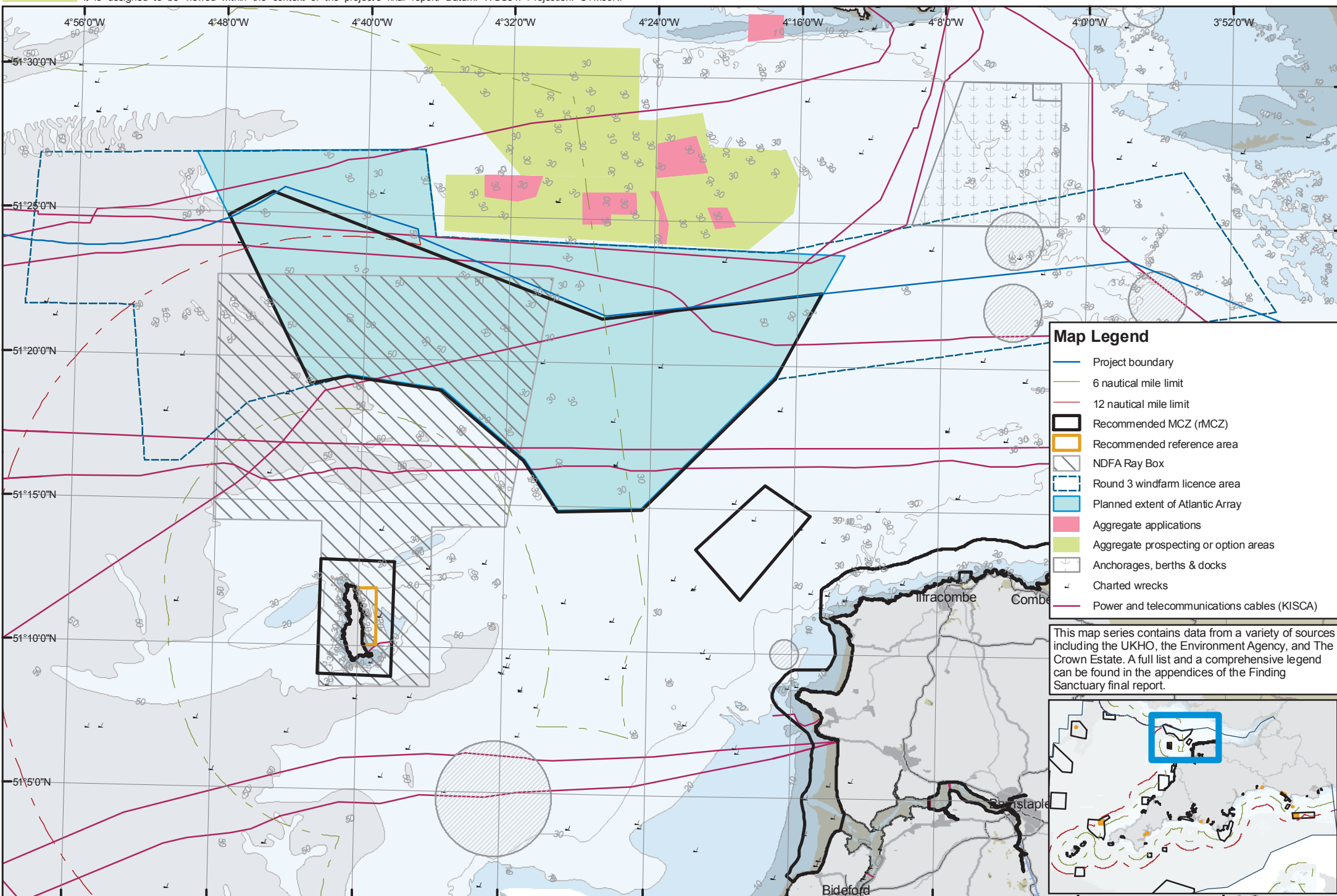


North of Lundy (Atlantic Array area) rMCZ

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062006.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 3.5 7 14 km



II.4 Site reports for recommended reference areas

II.4.1 The Canyons recommended reference area

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
48.4701	-9.6315	48° 28' 12" N	9° 37' 53" W

Site surface area: 34.55 km²

Biogeographic region:

JNCC regional sea: Atlantic South West Approaches and Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Seas

Site boundary: The northern boundary of The Canyons recommended reference area abuts the boundary of The Canyons rMCZ and the UK Continental Shelf Limit. The boundaries have been drawn to ensure that the known patch of Cold Water Coral Reefs are situated in the centre of the site, and angled to capture a steep section of continental shelf slope (to capture a cross-section of seafloor habitats and diversity).

Sites to which the site is related: The Canyons reference area sits within the boundary of The Canyons rMCZ.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM29N).

Features proposed for designation within The Canyons recommended reference area

Table II.4.1a shows a summary of the draft conservation objectives for this recommended reference area. This is an extract of the conservation objective summary tables in section II.2.6. All features in the table have draft conservation objectives, including those in the right-hand column, in line with the Conservation Objective Guidance. In this recommended reference area, the site is large enough to meet the ENG minimum viable size guidelines for all the listed features.

Table II.4.1a Draft conservation objectives for The Canyons recommended reference area. All features shown in the table have a draft conservation objective of 'recover to reference condition'. The full text of the draft conservation objectives can be found in appendix 15.

	Viable size guidelines met	Viable size guidelines not met
Broad-scale habitats	Deep-sea bed	
FOCI habitats	Cold water coral reefs	

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets.

Table II.4.1b **Subtidal broad-scale habitats** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
Deep-sea bed	34.51	2.16%	1

Table II.4.1c **FOCI habitats** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data source: JNCC / MESH Canyons survey data (Davies *et al.*, 2008).

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Cold-water coral reefs		1		Davies <i>et al.</i> (2008)

Table II.4.1d Habitats mapped from JNCC / MESH seafloor survey data (Davies *et al.*, 2008), represented within this recommended reference area.

Habitat	Area covered within site (km ²)	% of total in study area
Communities of Deep-Sea Corals	0.17	100%
Deep-Sea Bedrock	4.28	7.6%
Deep-Sea Biogenic Gravel	0.47	0.8%
Deep-Sea Mixed Substrata	10.89	2.7%
Deep-Sea Mud	17.19	9.4%
Deep-Sea Sand	1.55	5.9%

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Site summary

This recommended reference area is situated where recent survey data has shown cold water coral reefs to be present (Davies *et al.*, 2008). The reference area is located about 333km south-west of Land's End, and the depth of the site is between 250 and 450 metres below sea level. The site is located on the steep flanks of a submarine canyon on the continental shelf break, and it has been located to not just encompass the area of coral reef, but also a diversity of seafloor habitats across a range of depths.

Detailed site description

A recent MESH research cruise was carried out in the south-west Canyons. Detailed multibeam and backscatter survey focused on the canyons flanks, or interflaves, along with a boomer and sparker survey. Ground-truthing was undertaken using a drop frame equipped with high resolution digital stills and video. Communities of deep-sea corals (patches of cold water coral) were classified from video analysis of the Canyons. Habitats Directive Annex 1 bedrock reef and biogenic reef were all observed within the area. Cold water coral (*Lophelia pertusa*) reef was observed at the seaward entrance to, and within Explorer Canyon between 743-925m (Davies *et al.* 2008). The data from this

survey was used to create the detailed seafloor habitat map shown on the maps for this recommended reference area (map FR_009c at the end of this site report).

Biological data from the South West Canyons was undertaken by Howell *et al.* (2010a) over a thirteen day period in June 2007 on the Research Vessel 'Celtic Explorer'. One hundred and thirty-nine video transects were undertaken in total. Transects were selected to cover a range of substrates, depths and geomorphological features using existing multibeam bathymetry and backscatter data (Howell *et al.* 2010a).

During the period 2000–2006, Ellis *et al.* (2007a) carried out approximately 150 tows with a 2m-beam trawl during groundfish surveys of the South West offshore area. Catches along the edge of the continental shelf (130–350 m deep) were characterised by large numbers of the anemone *Actinauge richardi*, with the hermit crab *Pagurus prideaux* dominating on coarse grounds in shallower waters. The study described the spatial distribution of the epibenthic fauna.

Stakeholder narrative: Assumptions and Implications

Reference areas will exclude all depositional and extractive activities, and might result in restrictions or management of potentially damaging and disturbing activities, as defined in the SNCB's draft reference area guidance document (available [here](#)⁴⁸). This guidance is relatively clear and specific, therefore no further work on defining assumptions on management of reference areas was carried out.

Appendix 10 shows the content of the draft reference area guidance, converted into a layout similar to the layout for the assumptions/ implications tables presented in the rMCZ site reports – this was used at meetings as a template upon which to record site-specific comments. However, site-specific comments were limited, so we have not inserted the whole table here.

Stakeholder representatives from across many sectors were concerned about the implications of reference areas for the large range of activities affected (the Impact Assessment, to be finished in January 2012, will analyse these impacts in detail). On the other hand, conservation representatives highlighted the conservation benefits of highly protected areas. These generic comments apply to all recommended reference areas.

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

As stated above, there was much clearer guidance available on what activities will be restricted in reference areas, compared with MCZs in general. Therefore, the uncertainties around reference areas were much more limited.

A remaining uncertainty that stakeholder representatives highlighted repeatedly was about possible impacts on activities near the boundary of reference areas. Some activities might have knock-on impacts beyond the area where they are being carried out, e.g. sediment plumes from aggregate extraction, or from construction / infrastructure maintenance work. There is uncertainty over what 'buffer zones' might be needed around reference areas for such activities.

⁴⁸ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

Additional comments

No additional comments were recorded specifically for this site, but please refer to the general narrative for recommended reference areas in section II.2.3.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Fishing representatives have stated that they will not support any recommendations for reference areas. In this site, there are specific concerns about impacts on non-UK fishermen using static gear (especially Spanish longlining). However, there is a wide recognition of the ecological uniqueness of the shelf break, and the coral reef habitat in particular. There is strong support from the conservation sector for this site, and compared to other recommended reference areas, this one is less controversial than others.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, and JNCC/MESH Canyons survey data (Davies *et al.*, 2008), supplied to the project by the JNCC. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Garrard (1977) and Wilson *et al.* (2001).

Site map series

On the following pages there are three maps of this site.

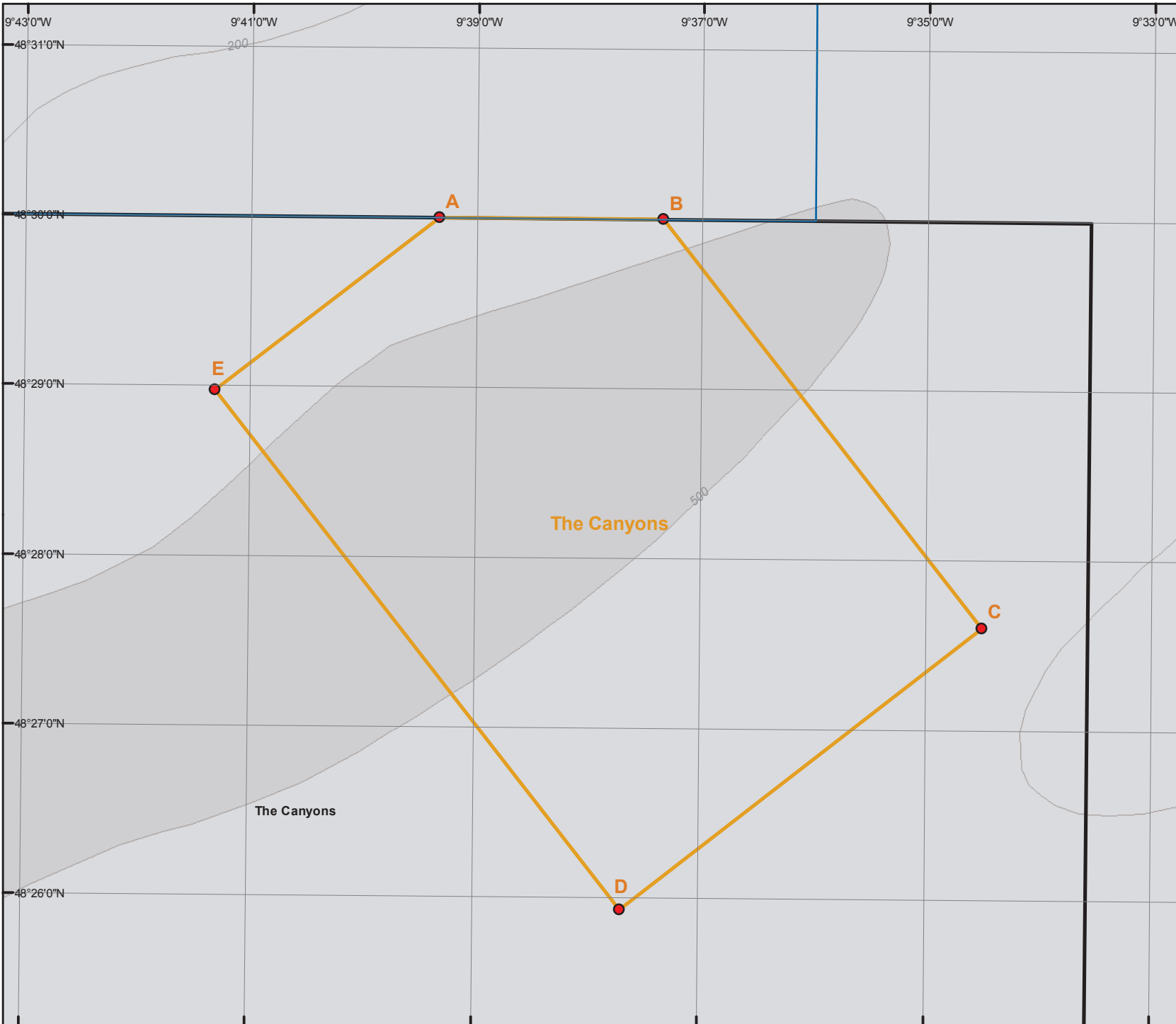
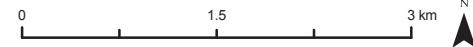
- The first map (FR_060a) is the main site map showing the site boundary and includes points with coordinates (in WGS84 UTM29N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_060b) shows the site boundary over broad-scale habitats, and records of habitat and species FOCl. The data shown on this map corresponds with the information in tables II.4.1b and II.4.1c, data sources are indicated in the tables.
- The third map (FR_060c) shows detailed biotope information for the seabed, from the JNCC/MESH survey data (Davies *et al.*, 2008).
- Most site reports contain a map showing socio-economic datasets. This one does not, as there is not much data to map, except for fisheries. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).

- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

The Canyons Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM29N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062008.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.



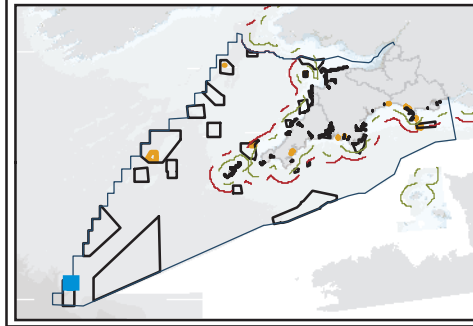
Lat/Long Co-ordinates (WGS84)

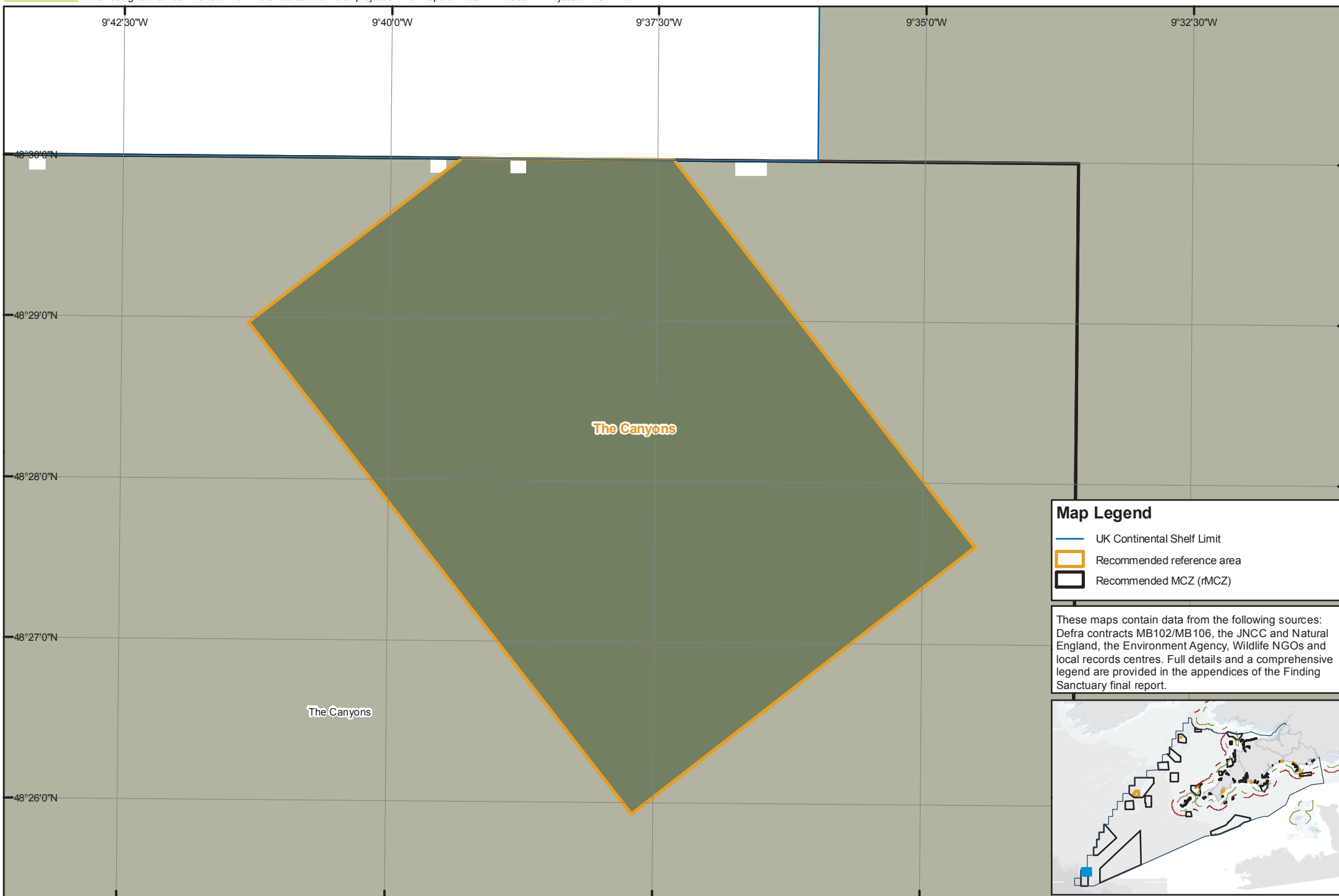
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	48.5000	-9.6555	48° 30' 0" N	9° 39' 19" W
B	48.5000	-9.6225	48° 30' 0" N	9° 37' 20" W
C	48.4601	-9.5750	48° 27' 36" N	9° 34' 30" W
D	48.4321	-9.6282	48° 25' 55" N	9° 37' 41" W
E	48.4829	-9.6886	48° 28' 58" N	9° 41' 18" W

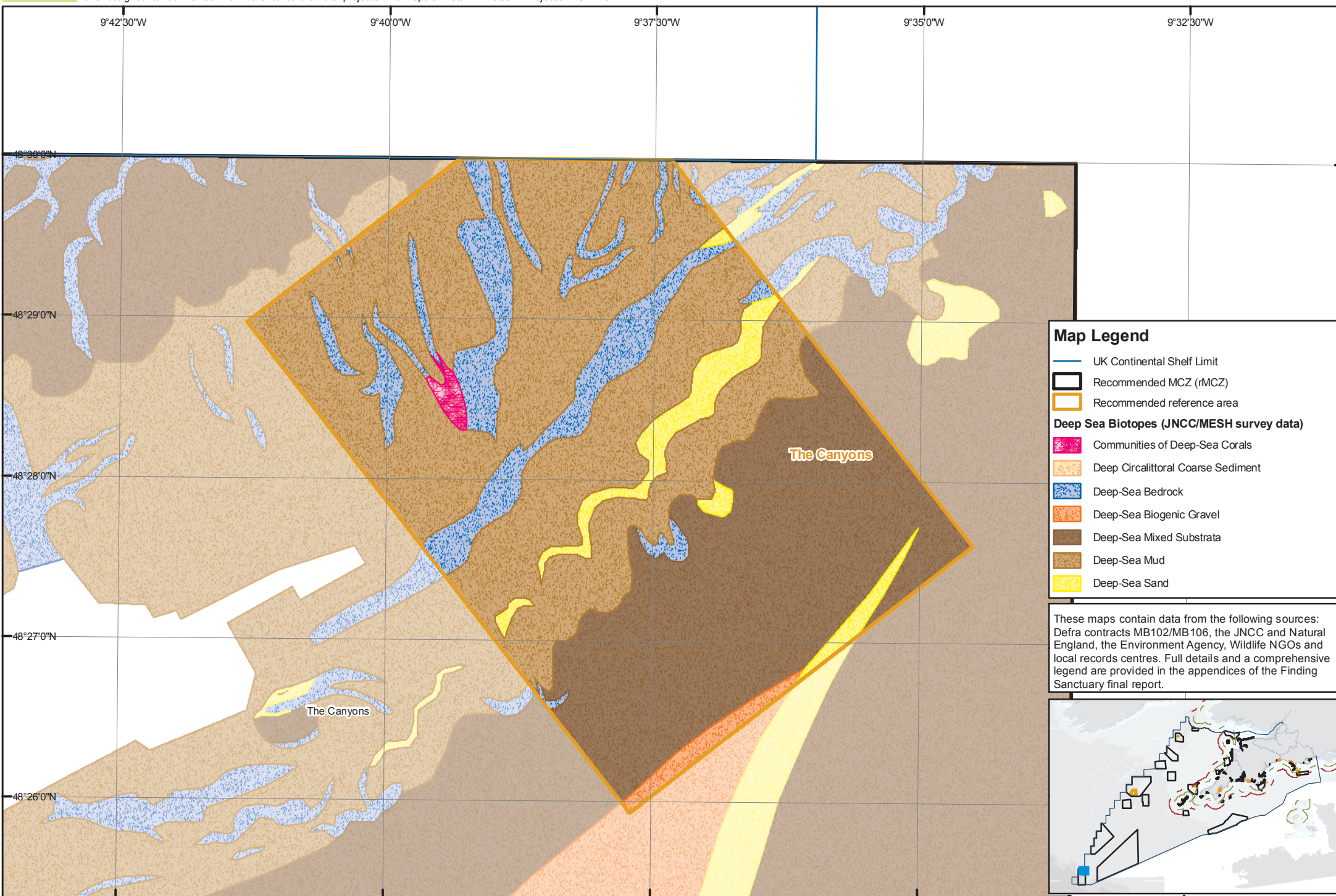
Map Legend

- UK Continental Shelf Limit
- Recommended reference area
- Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.







II.4.2 Greater Haig Fras recommended reference area

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.1585	-7.9588	50° 9' 30" N	7° 57' 31" W

Site surface area: 148.23 km²

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Seas

Site boundary: The northern boundary of the Greater Haig Fras recommended reference area is a straight east to west line which runs in parallel to the northern boundary of the Greater Haig Fras rMCZ and UK Continental Shelf Limit. The eastern boundary is a simple straight line from that runs north to south and similarly the southern boundary is a simple east to west line that runs parallel to this sites northern boundary. The western boundary of this site runs north to south in a south-west direction following the boundary of the Haig Fras cSAC before turning in a south-east direction to connect with the southern boundary of the site.

Sites to which the site is related: The Greater Haig Fras recommended reference area sits within the boundary of the Greater Haig Fras rMCZ and partially within the Haig Fras cSAC.

Maps of the site are included at the end of this site report. The main site map shows lat/lon points along the site boundary with coordinates (in WGS84 UTM29N).

Features proposed for designation within Greater Haig Fras recommended reference area

Table II.4.2a shows a summary of the draft conservation objectives for this recommended reference area. This is an extract of the conservation objective summary tables in section II.2.6. All features in the table have draft conservation objectives, including those in the right-hand column, in line with the Conservation Objective Guidance. In this recommended reference area, the site is large enough to meet the ENG minimum viable size guidelines for all the listed features.

Table II.4.2a Draft conservation objectives for The Greater Haig Fras recommended reference area. All features shown in the table have a draft conservation objective of 'recover to reference condition'.

The full text of the draft conservation objectives can be found in appendix 15.

	Viable size guidelines met	Viable size guidelines not met
Broad-scale habitats	Moderate energy circalittoral rock Subtidal coarse sediment Subtidal mixed sediments Subtidal mud Subtidal sand	

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.4.2b Subtidal broad-scale habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
Moderate energy circalittoral rock	30.01	0.2%	1
Subtidal coarse sediment	48.20	0.2%	1
Subtidal sand	7.06	<0.1%	1
Subtidal mud	8.50	0.1%	1
Subtidal mixed sediments	54.45	1.5%	1

Table II.4.2c FOCI habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	75.58			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

This recommended reference area intersects with the Haig Fras rock complex, an ENG-listed geological/ geomorphological feature of importance. The recommended reference area boundary contains 5.0% (3.71 km²) of the feature, as mapped in MB102 data layers.

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Site summary

Greater Haig Fras is an isolated, fully submarine bedrock outcrop located in the Celtic Sea, 95 km North West of the Isles of Scilly. It is the only substantial area of rocky reef in the Celtic Sea beyond the coastal margin. It supports a variety of fauna ranging from jewel anemones and Devonshire cup coral near the peak of the outcrop to encrusting sponges, crinoids and ross coral towards the base of the rock (where boulders surround its edge). The rock is granite, mostly smooth with occasional fissures. The rocky outcrop protrudes from an area of surrounding sediment and is approximately 45 km long, 15km wide, and in one area rises to a peak 1km wide, which lies just 38 m beneath the sea surface. Around the base of the shoal, boulders and cobbles partially embedded in sediment provide a complex habitat. Distinct biotopes are associated with both the rock habitat and the sediment 'pockets' which occur on the platform area (Rees, 2000; JNCC, 2008). The recommended reference area lies on the south-western side of the Haig Fras SAC, has a depth ranging from 76 to 132 metres below sea level, and is located approximately 155km off Land's End.

Detailed site description

On the uppermost parts of the Haig Fras shoal, the exposed bedrock is dominated by the jewel anemone *Corynactis viridis*. This region also supports encrusting sponges and bryozoans, as well as mobile fauna such as the sea urchin *Echinus esculentus* and gastropod mollusc *Calliostoma* spp. At the shallowest depth surveyed (c. 52 m), small patches of encrusting pink coralline algae were observed, indicating that the peak of the shoal protrudes into the photic zone. At depths of between 60 m and 70 m, the shoal bedrock is slightly covered in silt and is not widely colonised except by cup corals *Caryophyllia smithii* (which are abundant) and a few mobile species such as the urchin *Echinus esculentus*, *Calliostoma* spp. and crinoids (*Antedon* spp.). High numbers of cup corals were also seen on parts of the rock platform away from the shoal. At the base of the shoal, the rock was covered with a thin layer of fine calcareous sand and mud and supported cup sponges, erect branching sponges, *Caryophyllia smithii* (although in lower numbers than shallower parts of the shoal) and crinoids. The boulders and cobbles around the base of the shoal supported encrusting sponge, *Caryophyllia smithii* and crinoids in low numbers; brittlestars, squat lobster (*Munida* spp.) and the Ross coral *Pentapora foliacea* (now *Pentapora fascialis*) were also present (Rees, 2000).

During the period 2000–2006, Ellis *et al.* (2007a) carried out approximately 150 tows with 2m-beam trawl have been undertaken during groundfish surveys of the South West offshore area. Catches along the edge of the continental shelf (130–350 m deep) were characterised by large numbers of the anemone *Actinauge richardi*, with the hermit crab *Pagurus prideaux* dominating on coarse grounds in shallower waters. The study described the spatial distribution of the epibenthic fauna.

JNCC and Cefas undertook a marine survey that integrated biodiversity and other environmental monitoring on the same cruise. The survey was conducted on the Cefas Research Vessel Endeavour from 20th January - 3rd February 2011 at, and in the vicinity of, the Haig Fras Site of Community Importance (SCI) (McBreen *et al.* 2011). Wilson *et al.*, 2001 surveyed the benthic biodiversity of the Southern Irish Sea which included the Haig Fras.

Stakeholder narrative: Assumptions and Implications

Reference areas will exclude all depositional and extractive activities, and might result in restrictions or management of potentially damaging and disturbing activities, as defined in the SNCB's draft reference area guidance document (available [here](#)⁴⁹). This guidance is relatively clear and specific, therefore no further work on defining assumptions on management of reference areas was carried out.

Appendix 10 shows the content of the draft reference area guidance, converted into a layout similar to the layout for the assumptions / implications tables presented in the rMCZ site reports – this was used at meetings as a template upon which to record site-specific comments. However, site-specific comments were limited, so we have not inserted the whole table here.

Stakeholder representatives from across many sectors were concerned about the implications of reference areas for the large range of activities affected (the Impact Assessment, to be finished in January 2012, will analyse these impacts in detail). On the other hand, conservation representatives highlighted the conservation benefits of highly protected areas. These generic comments apply to all recommended reference areas.

⁴⁹ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

As stated above, there was much clearer guidance available on what activities will be restricted in reference areas, compared with MCZs in general. Therefore, the uncertainties around reference areas were much more limited.

A remaining uncertainty that stakeholder representatives highlighted repeatedly was about possible impacts on activities near the boundary of reference areas. Some activities might have knock-on impacts beyond the area where they are being carried out, e.g. sediment plumes from aggregate extraction, or from construction / infrastructure maintenance work. There is uncertainty over what 'buffer zones' might be needed around reference areas for such activities.

Additional comments

No additional comments were recorded specifically for this site, but please refer to the general narrative for recommended reference areas in section II.2.3.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Fishing representatives have stated that they will not support any recommendations for reference areas. This site has been located to avoid existing cable routes (including cables which are not included on the KISCA charts, but which the representative from The Crown Estate highlighted to the group), and to maximise the number of broad-scale habitats captured within the site. Given the distance from shore, it is relatively less controversial than other recommended reference areas.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site. Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](http://jncc.defra.gov.uk/page-4)⁵⁰.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. Recent survey work has been carried out by the JNCC within the area of Haig Fras SAC, which will yield additional data to underpin this site.

⁵⁰ <http://jncc.defra.gov.uk/page-4>

Site map series

On the following pages there are two maps of this site.

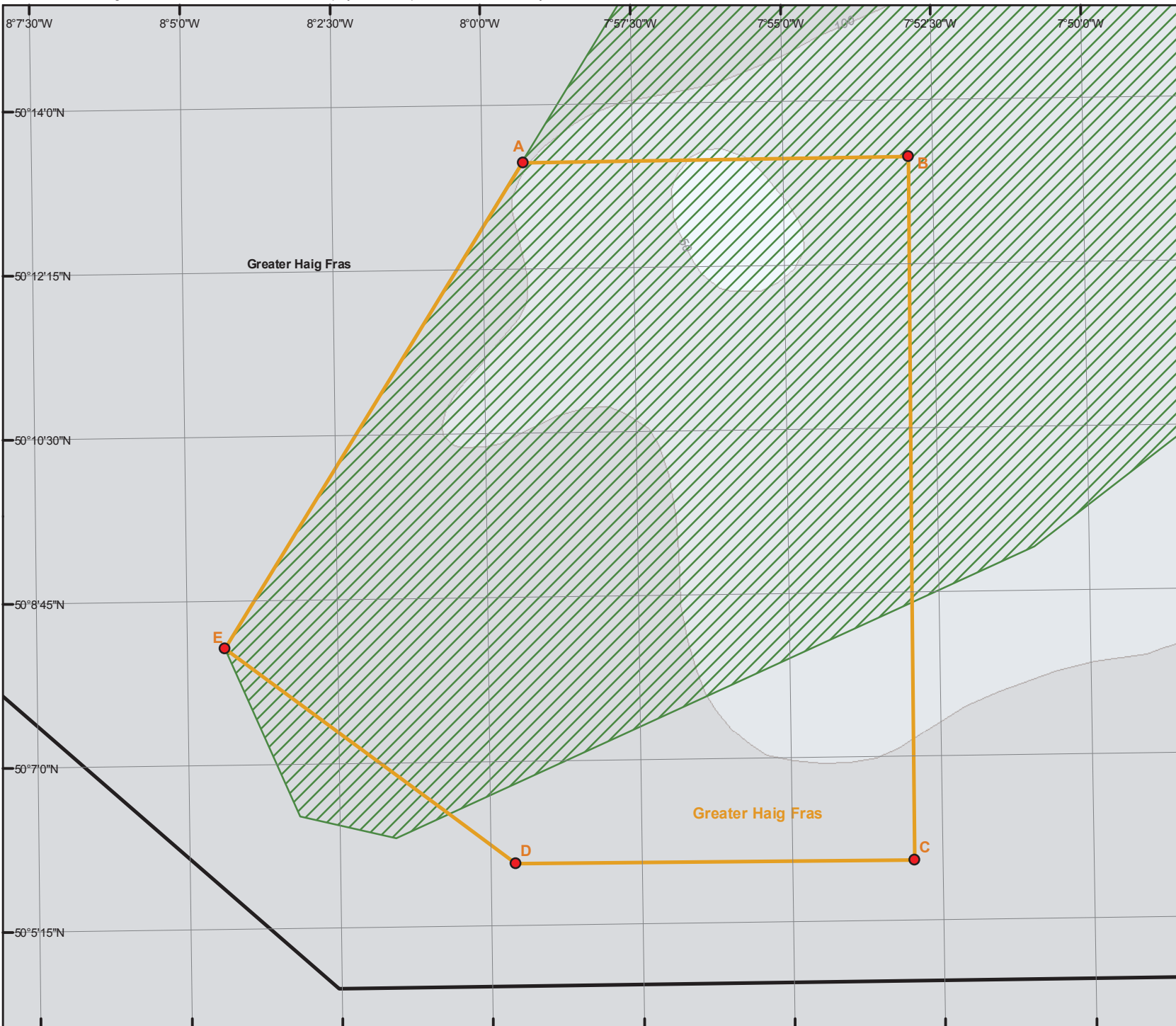
- The first map (FR_061a) is the main site map showing the site boundary and includes points with coordinates (in WGS84 UTM29N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_61b) shows the site boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in table II.4.2b, data sources are indicated in the table.
- Most site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site (except for fisheries information, which is included in the interactive PDF maps supplied with the additional materials listed in appendix 14). Map FR_013c, in the Greater Haig Fras rMCZ site report, shows the routes of nearby cables for which we have GIS data (KISCA data). We are aware of an additional cable route running past this site in the south-west, which The Crown Estate representative informed the Working Group about, and which resulted in the site boundary being adjusted to avoid overlaps with the recommended reference area.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

Greater Haig Fras Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM29N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062006.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 2.5 5 km



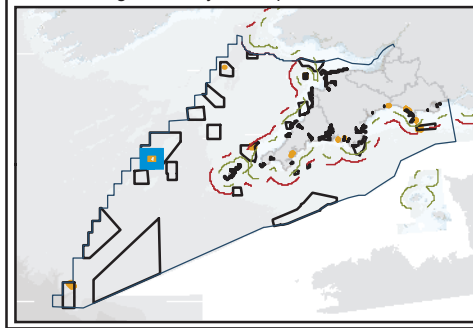
Lat/Long Co-ordinates (WGS84)

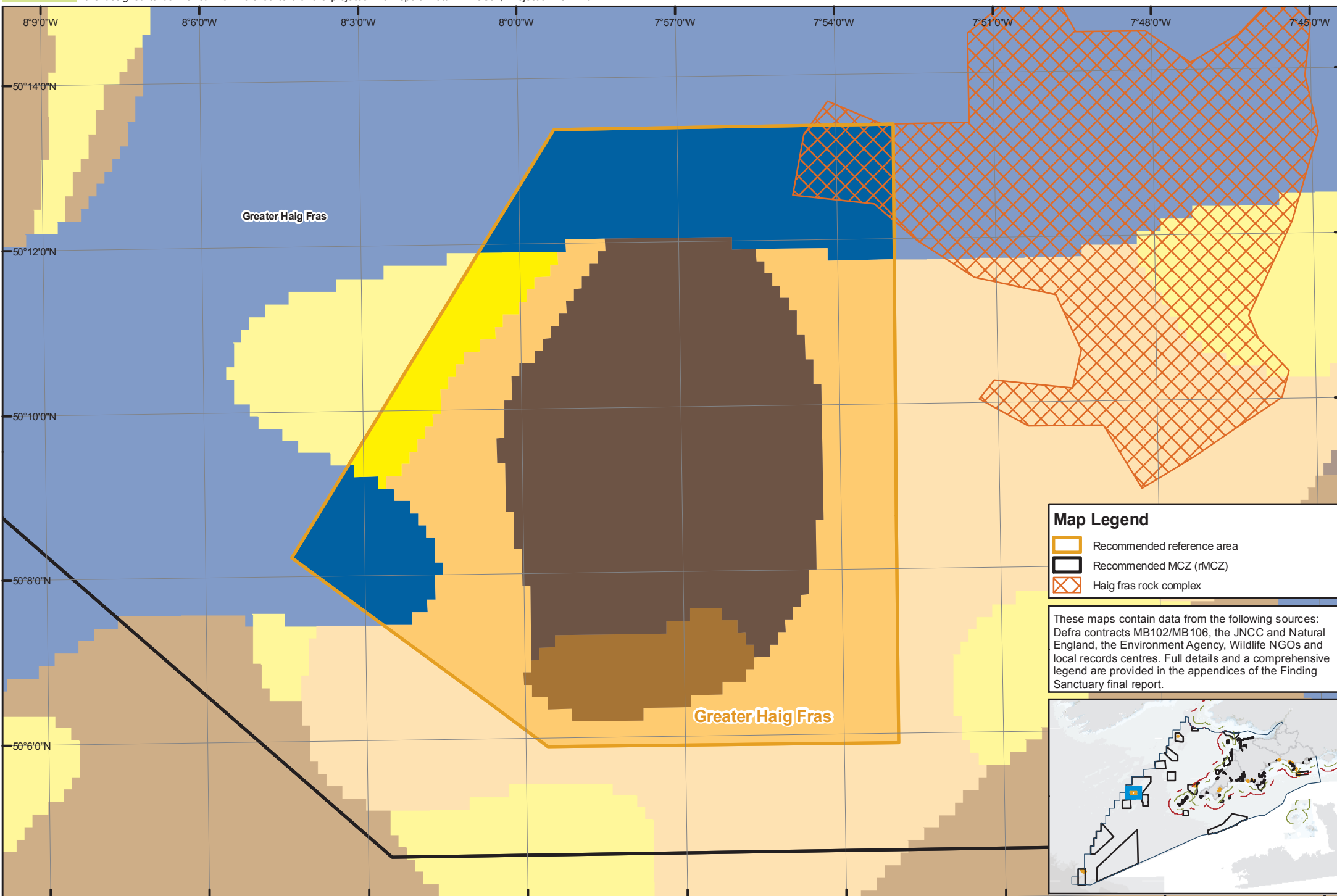
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.2232	-7.9887	50° 13' 23" N	7° 59' 19" W
B	50.2234	-7.8816	50° 13' 24" N	7° 52' 53" W
C	50.0982	-7.8829	50° 5' 53" N	7° 52' 58" W
D	50.0985	-7.9932	50° 5' 54" N	7° 59' 35" W
E	50.1374	-8.0730	50° 8' 14" N	8° 4' 22" W

Map Legend

- Recommended reference area
- Recommended MCZ (rMCZ)
- Existing MPAs**
- SAC

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





II.4.3 Celtic Deep recommended reference area

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
51.3559	-6.4012	51° 21' 21" N	6° 24' 4" W

Site surface area: 1 km²

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Seas

Site boundary: The site is a simple square, with borders running north to south and east to west, in line with ENG guidelines. The northern and western boundaries running parallel to the northern and western boundaries of the Celtic Deep rMCZ.

Sites to which the site is related: The Celtic Deep recommended reference area sits within the boundary of the Celtic Deep rMCZ.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Celtic Deep recommended reference area

Table II.4.3a shows a summary of the draft conservation objectives for this recommended reference area. This is an extract of the conservation objective summary tables in section II.2.6. All features in the table have draft conservation objectives, including those in the right-hand column, in line with the Conservation Objective Guidance. Features in the right-hand column are not counted towards the figures in section II.2.9 unless specifically stated.

Table II.4.3a Draft conservation objectives for Celtic Deep recommended reference area. All features shown in the table have a draft conservation objective of 'recover to reference condition'. The full text of the draft conservation objectives can be found in appendix 15.

	Viable size guidelines met	Viable size guidelines not met
Broad-scale habitats		Subtidal mud
FOCI habitats	Mud Habitats in Deep Water	

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets.

Table II.4.3b **Subtidal broad-scale habitats** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
Subtidal mud	1.00	<0.1%	1

Table II.4.3c **FOCI habitats** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Mud habitats in deep water	2.00	6		1

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Site summary

The Celtic Deep is a charted marine feature, a depression in the seabed where there are muddy sediments supporting a fishery for *Nephrops norvegicus*. The mud habitat in deep water FOCI habitat present in the site is unique in the south-west context, and is the main reason why the site is included in the recommended network. The recommended reference area at this location is very small (500m by 500m), just meeting the minimum viable ENG size guideline for the FOCI habitat. The depth of the site is 118 metres below chart datum, the nearest land is Pembrokeshire (about 90km to the north-east), and Hartland Point in North Devon (about 135km to the south-east).

Detailed site description

As the site is so small, it has not been possible to locate literature specific to that location. However, there is literature about the wider Celtic Deep, and some of it is reviewed here.

The most extensive published survey of the benthic fauna of the Celtic sea is that undertaken in 1974 and 1975 by the Field Studies Council Oil Pollution Research Unit (Hartley & Dicks 1977; Hartley 1979). The fauna at most sites was typical of a 'deep *Venus* community' as described by Mackie (1990). At the edge of the Celtic Deep, the communities were typical of a 'boreal deep mud association' and included the brittlestars *Amphiura chiajei* and *Amphiura filiformis*, the bivalves *Nucula sulcata*, *Nucula tenuis*, *Thyasira flexuosa* and *Abra nitida*, and polychaetes *Myriochele heeri*, *Lagis* (now *Pectinaria*) *koreni* and *Amphicteis gunneri* (Hiscock, 1998). Bryozoan species occurring on hard substratum in depths of 159 to 1582m are recorded by Hayward & Ryland (1978).

During April and May 1993, and in February and May 1994, Rees *et al.* (1999) took samples of the benthic macrofauna from the Celtic Deep. At each location, five sediment samples for macrofauna analysis were collected using a 0.1 m² day grab from the central point of a 500 m grid of 9 stations, the latter being sampled for contaminant analyses only.

Marret & Scourse (2003) took surface sediments from seven stations located in the seasonally stratified, frontal and mixed water regions in the Celtic and Irish seas. They analysed them for their dinoflagellate cyst assemblages and dinosterol content. Sediment samples were collected at six stations in the Celtic Deep and one station in Tremadog Bay (muddy hollow) during nine cruises onboard the Research Vessel Prince Madog during 1999 and 2000.

Schratzberger *et al.* (2004) studied the diversity and structure of meiobenthic nematodes and macrobenthic infauna from the subtidal Celtic Deep in relation to a number of measured environmental variables. Schratzberger *et al.* (2008) surveyed four stations at the Celtic deep for nematode and polychaete assemblages in muddy sediment. Robinson *et al.* (2011) predicted the distribution of biotopes in the Irish Sea which covered the area of the Celtic Deep and East of Celtic Deep.

Rogers *et al.* (2008) investigated two sample sites on offshore mud sediments in the Celtic Deep and North-western Irish Sea, and two sites on sand sediments in the Bristol Channel and Outer Carmarthen Bay during July 2004 and 2005.

During the period 2000 to 2006, Ellis *et al.* (2007a) carried out approximately 150 tows with 2m-beam trawl during groundfish surveys of the South West offshore area. Catches along the edge of the continental shelf (130–350 m deep) were characterised by large numbers of the anemone *Actinauge richardi*, with the hermit crab *Pagurus prideaux* dominating on coarse grounds in shallower waters. The study described the spatial distribution of the epibenthic fauna.

In July 2004 and 2005 respectively Rogers *et al.* (2008) took sediment samples (sand habitats), benthic fauna and demersal fish in the Celtic Deep. The deep water (78–110 m) sediments of mud habitat sites in the Celtic Deep were thought to be influenced by the relatively low levels of tidal stress.

Field sampling was undertaken during four cruises from 2004–2007 by Ellis *et al.* (2007b) with each cruise targeting specific habitat types. Sampling examined the mud habitat of the Celtic Deep and the shell-gravel habitat of the western English Channel.

One of the largest ever known gatherings of Fin Whales in British waters was recently observed in the Celtic Deep during a seabird and cetacean research cruise by the Research Vessel *Cefas Endeavour* in May 2011 (see weblinks [here](#)⁵¹ and [here](#)⁵²).

Stakeholder narrative: Assumptions and Implications

Reference areas will exclude all depositional and extractive activities, and might result in restrictions or management of potentially damaging and disturbing activities, as defined in the SNCB's draft reference area guidance document (available [here](#)⁵³). This guidance is relatively clear and specific, therefore no further work on defining assumptions on management of reference areas was carried out.

Appendix 10 shows the content of the draft reference area guidance, converted into a layout similar to the layout for the assumptions / implications tables presented in the rMCZ site reports – this was

⁵¹ <http://www.marine-life.org.uk/fin-whale-discovery-in-celtic-sea-%28020611%29>

⁵² <http://wildlifeneews.co.uk/2011/21-giant-fin-whales-spotted-off-coast-of-britain/>

⁵³ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

used at meetings as a template upon which to record site-specific comments. However, site-specific comments were limited, so we have not inserted the whole table here.

Stakeholder representatives from across many sectors were concerned about the implications of reference areas for the large range of activities affected (the Impact Assessment, to be finished in January 2012, will analyse these impacts in detail). On the other hand, conservation representatives highlighted the conservation benefits of highly protected areas. These generic comments apply to all recommended reference areas.

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

As stated above, there was much clearer guidance available on what activities will be restricted in reference areas, compared with MCZs in general. Therefore, the uncertainties around reference areas were much more limited.

A remaining uncertainty that stakeholder representatives highlighted repeatedly was about possible impacts on activities near the boundary of reference areas. Some activities might have knock-on impacts beyond the area where they are being carried out, e.g. sediment plumes from aggregate extraction, or from construction / infrastructure maintenance work. There is uncertainty over what 'buffer zones' might be needed around reference areas for such activities.

Additional comments

For this specific site, additional comments highlighted that there are multiple fisheries in this area. Please also refer to the general narrative for recommended reference areas in section II.2.3.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Fishing representatives have stated that they will not support any recommendations for reference areas. Given the importance of the area for fisheries, the reference area was made the minimum size for the FOCI habitat 'mud habitats in deep water', as stipulated in the ENG. Other feedback has indicated that this small size is unenforceable at this distance from shore. VMS data would be too coarse-scale to even tell whether a vessel had been within the site boundaries. Although there is strong support from conservation interests for a reference area to be located in this area (given its additional ecological importance and FOCI habitat), the site, as it stands, is controversial.

Supporting documentation

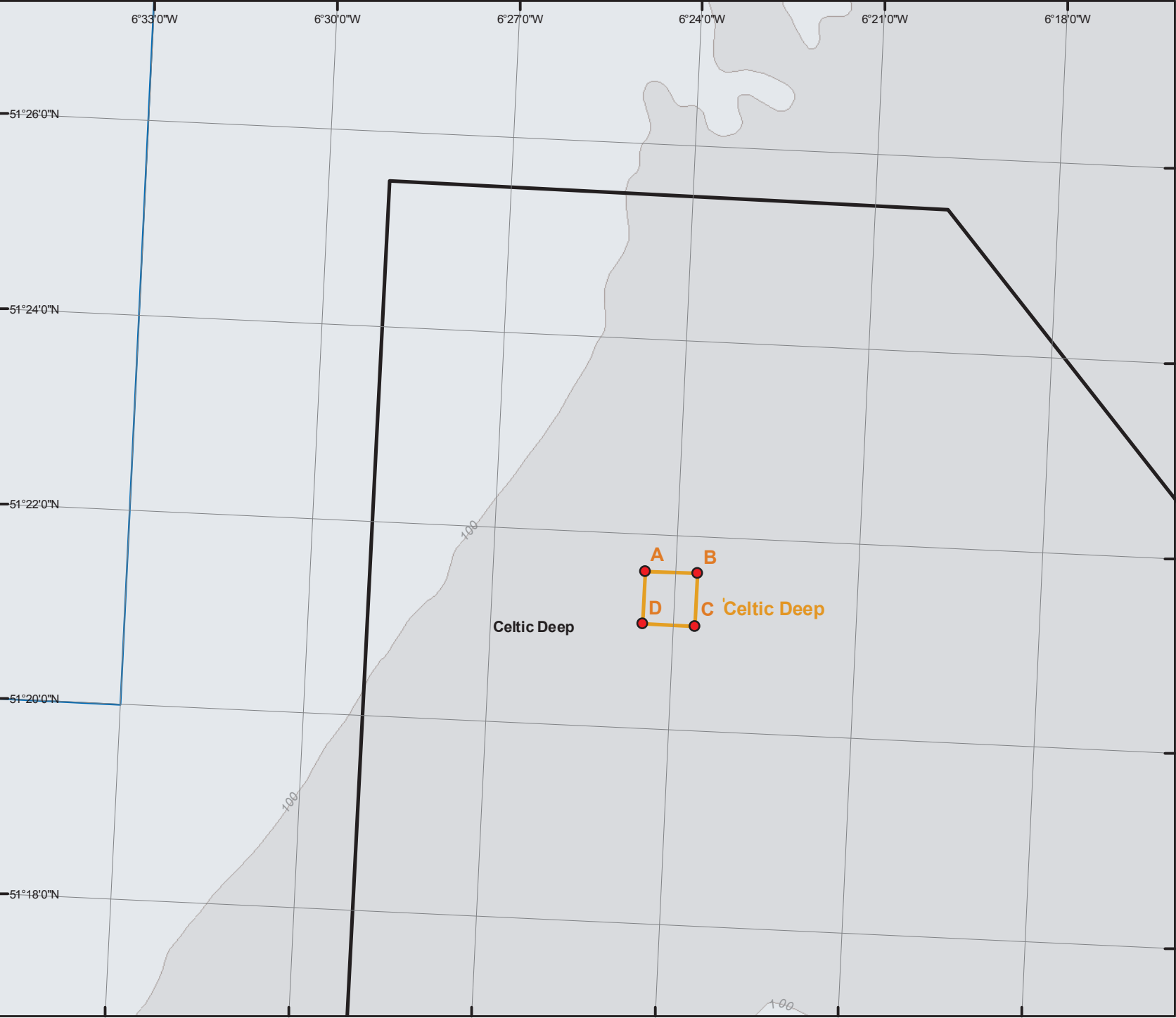
GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence relevant to the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to the wider Celtic Deep area in Brown *et al.* (2003), Farrow and Fyfe (1988), Garrard (1977), O'Brien *et al.* (2009), Schratzberger *et al.* (2000), Scott *et al.* (2003), and Wilson *et al.* (2001).

Site map series

On the following pages there are two maps of this site.

- The first map (FR_062a) is the main site map showing the site boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_062b) shows the site boundary over broad-scale habitats, and records of habitat and species FOCL. The data shown on this map corresponds with the information in tables II.4.3b and II.4.3c, data sources are indicated in the tables.
- Most site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site (except for fisheries information, which is included in the interactive PDF maps supplied with the additional materials listed in appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



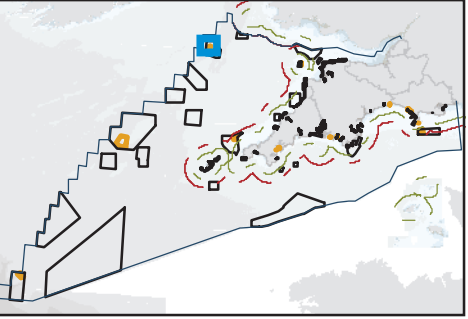
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	51.3604	-6.4083	51° 21' 37" N	6° 24' 30" W
B	51.3604	-6.3940	51° 21' 37" N	6° 23' 38" W
C	51.3514	-6.3940	51° 21' 4" N	6° 23' 38" W
D	51.3514	-6.4083	51° 21' 4" N	6° 24' 30" W

Map Legend

- UK Continental Shelf Limit
- Recommended reference area
- Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



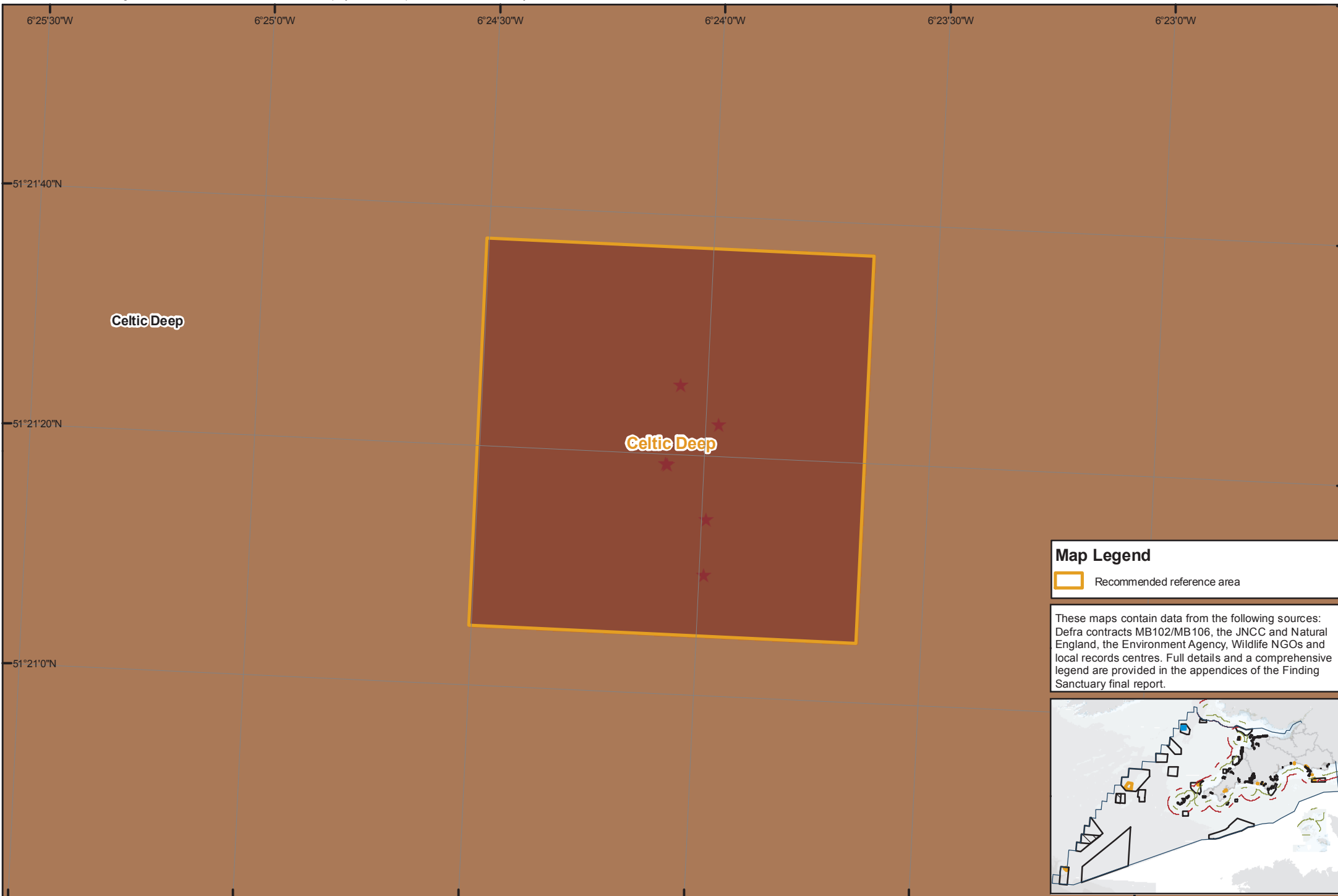
Celtic Deep Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062006.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 0.25 0.5 km

N



II.4.4 South Dorset recommended reference area

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.3831	-2.3557	50° 22' 59" N	2° 21' 20" W

Site surface area: 25 km²

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The site is a simple square, with 5km borders running north to south and east to west, in line with ENG guidelines. This site sits between the 6nm and 12nm limits and as it sits entirely within the western extent of the South Dorset rMCZ, its borders run in parallel with this rMCZ.

Sites to which the site is related: The South Dorset recommended reference area sits within the boundary of the South Dorset rMCZ.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within South Dorset recommended reference area

Table II.4.4a shows a summary of the draft conservation objectives for this recommended reference area. This is an extract of the conservation objective summary tables in section II.2.6. All features in the table have draft conservation objectives, including those in the right-hand column, in line with the Conservation Objective Guidance. In this recommended reference area, the site is large enough to meet the ENG minimum viable size guidelines for all the listed features.

Table II.4.4a Draft conservation objectives for South Dorset recommended reference area. All features shown in the table have a draft conservation objective of 'recover to reference condition'. The full text of the draft conservation objectives can be found in appendix 15.

	Viable size guidelines met	Viable size guidelines not met
Broad-scale habitats	High energy circalittoral rock Moderate energy circalittoral rock Subtidal mixed sediments	
FOCI habitats	Subtidal chalk	

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets.

Table II.4.4b Subtidal broad-scale habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
High energy circalittoral rock	20.53	1.6%	1
Moderate energy circalittoral rock	3.70	<0.1%	1
Subtidal mixed sediments	0.78	<0.1%	1

Table II.4.4c FOCI habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal chalk		3		1

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Site summary

This recommended reference area encompasses the western portion of the South Dorset rMCZ, where there are records of the FOCI habitat subtidal chalk. The depth of the site is between 47m and 52m. It is located about 13km south-east of Portland Bill.

Detailed site description

A literature search was carried out on this site, but as for other for non-coastal sites in the network it has proved difficult to find information associated with this specific site.

Coggan & Diesing (2011) carried out a broad-scale mapping programme in the central Channel in order to provide information on the distribution, extent and character of potential Habitats Directive Annex I reef habitat to facilitate the selection of Special Areas of Conservation (SAC) in UK waters.

Benthic biodiversity and seabed sediments derived from cluster analysis of presence/absence data was carried out by Rees *et al.* (1999) in the general area around South Dorset rMCZ. It may be that this work overlapped the zone, but further checks need to be made.

Although confirmed sightings have not been found in this area, there is anecdotal evidence to suggest this area is important as a wintering ground for seahorses (especially the Short Snouted Seahorse) which are known to go to great depths during the winter. We have a record of 254 feet off Dartmouth and it is not uncommon to find 60 to 70 feet records (Neil Garrick-Maidment, *pers. comm.*).

The seabed in the region is characterised mainly by muddy, sandy gravel which may include bedrock reef (Poulton *et al.* 2002). Holme (1953, 1966) and Holme & Barrett (1977) surveyed the bottom fauna of the English Channel and it is likely that they have included the area of the South Dorset site.

Stakeholder narrative: Assumptions and Implications

Reference areas will exclude all depositional and extractive activities, and might result in restrictions or management of potentially damaging and disturbing activities, as defined in the SNCB's draft reference area guidance document (available [here](#)⁵⁴). This guidance is relatively clear and specific, therefore no further work on defining assumptions on management of reference areas was carried out.

Appendix 10 shows the content of the draft reference area guidance, converted into a layout similar to the layout for the assumptions/ implications tables presented in the rMCZ site reports – this was used at meetings as a template upon which to record site-specific comments. However, site-specific comments were limited, so we have not inserted the whole table here.

Stakeholder representatives from across many sectors were concerned about the implications of reference areas for the large range of activities affected (the Impact Assessment, to be finished in January 2012, will analyse these impacts in detail). On the other hand, conservation representatives highlighted the conservation benefits of highly protected areas. These generic comments apply to all recommended reference areas.

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

As stated above, there was much clearer guidance available on what activities will be restricted in reference areas, compared with MCZs in general. Therefore, the uncertainties around reference areas were much more limited.

A remaining uncertainty that stakeholder representatives highlighted repeatedly was about possible impacts on activities near the boundary of reference areas. Some activities might have knock-on impacts beyond the area where they are being carried out, e.g. sediment plumes from aggregate extraction, or from construction / infrastructure maintenance work. There is uncertainty over what 'buffer zones' might be needed around reference areas for such activities.

Additional comments

For this specific site, additional comments highlighted that there is a mackerel fishery in the area and the fishing industry has outstanding concerns over access for this fishery. Please also refer to the general narrative for recommended reference areas in section II.2.3.

⁵⁴ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Fishing representatives have stated that they will not support any recommendations for recommended reference areas. There is acceptance of the fact that this area contains rare records of the FOCI habitat subtidal chalk, and this is the main reason why this recommended reference area is located here. There is non-UK fishing interest in the area, and long-term tidal resource interest. Like other recommended reference areas, the site is controversial, with strong support from conservationists and strong concerns over the socio-economic impacts from many other sectors.

Supporting documentation

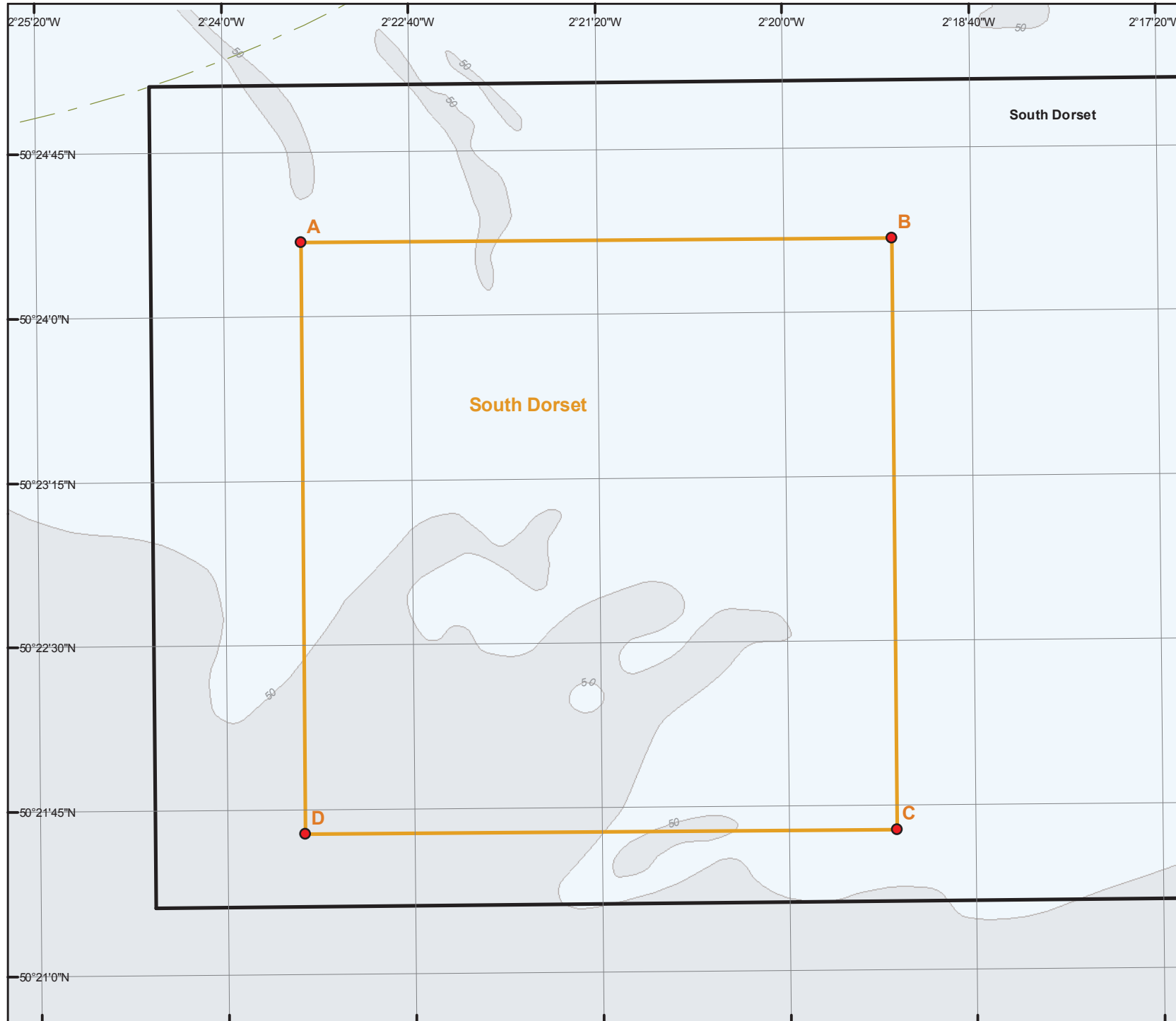
GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this recommended reference area in Bastos *et al.* (2002, 2003), Donovan *et al.* (1961), Holme & Barrett (1977), Southward *et al.* (2004), and Spooner & Holme (1961).

Site map series

On the following pages there are two maps of this site.

- The first map (FR_063a) is the main site map showing the site boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (map FR_063b) shows the site boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.4.4b and II.4.4c, data sources are indicated in the tables.
- Most site reports contain a map showing socio-economic datasets. This one does not, as the human activity data relevant to this site is already included on map FR_027c in the South Dorset rMCZ site report (except for fisheries information, which is included in the interactive PDF maps supplied with the additional materials listed in appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



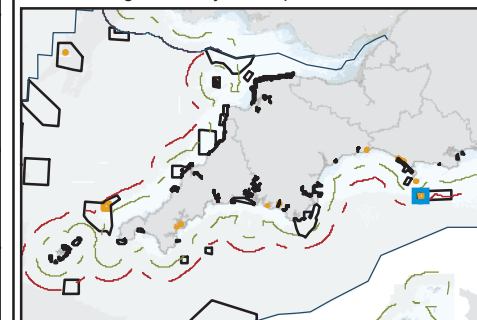
Lat/Long Co-ordinates (WGS84)

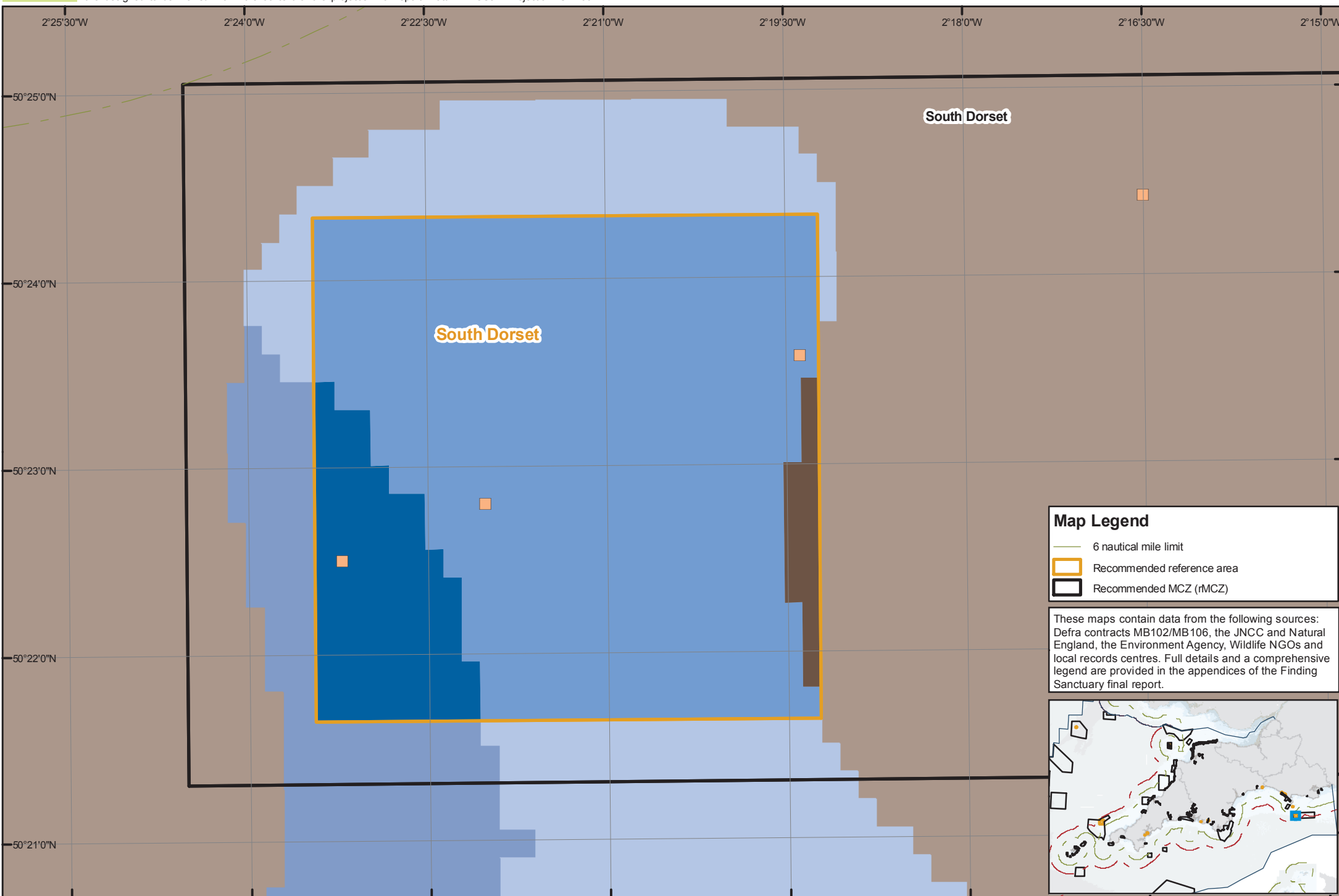
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.4056	-2.3908	50° 24' 20" N	2° 23' 26" W
B	50.4056	-2.3204	50° 24' 20" N	2° 19' 13" W
C	50.3606	-2.3205	50° 21' 38" N	2° 19' 13" W
D	50.3607	-2.3908	50° 21' 38" N	2° 23' 26" W

Map Legend

- 6 nautical mile limit
- Recommended reference area
- Recommended MCZ (rMCZ)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





II.4.5 South-East of Portland Bill recommended reference area

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.4883	-2.4105	50° 29' 18" N	2° 24' 37" W

Site surface area: 250000 m²

Biogeographic region:

JNCC regional sea: Eastern Channel

OSPAR region: Region II: Greater North Sea

Site boundary: The site is a simple square, with borders running north to south and east to west, in line with ENG guidelines.

Sites to which the site is related: The South-East of Portland Bill recommended reference area sits within the boundary of the Studland to Portland dSAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within South-East Portland Bill recommended reference area

Table II.4.5a shows a summary of the draft conservation objectives for this recommended reference area. This is an extract of the conservation objective summary tables in section II.2.6. All features in the table have draft conservation objectives, including those in the right-hand column, in line with the Conservation Objective Guidance. Features in the right-hand column are not counted towards the figures in section II.2.9 unless specifically stated.

Table II.4.5a Draft conservation objectives for South-East of Portland Bill recommended reference area. All features shown in the table have a draft conservation objective of 'recover to reference condition'. The full text of the draft conservation objectives can be found in appendix 15.

	Viable size guidelines met	Viable size guidelines not met
Broad-scale habitats		High energy circalittoral rock
FOCI habitats	Blue Mussel beds	

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets.

Table II.4.5b **Subtidal broad-scale habitats** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	0.25	<0.1%	1

Table II.4.5c **FOCI habitats** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Blue Mussel beds ¹	0.24			4

¹ Dorset Wildlife Trust have stated that the Mussel beds habitat in this location is mussel bed on rock.

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Site summary

This small recommended reference area just meets the minimum viable size guidance for the FOCI habitat Blue Mussel Beds, and the main reason for including the site within the recommended network was to represent mussel beds within the set of reference areas. The depth of the site ranges from 30 – 35 m, and the site is located 4km south-east of Portland Bill, within the Studland to Portland dSAC.

Detailed site description

The area was covered by the [DORIS](#)⁵⁵ survey, which provided detailed bathymetry data, and mapped an extensive mussel bed in the area, both shown the site maps at the end of this report. There is a significant seed mussel bed off Portland, which is primarily used for relaying in Poole Harbour (Wright & Bailey, 2009). Shambles Bank (just north of South-East of Portland) is surrounded by bedrock, with mussel beds (Bastos *et al.* 2003).

Stakeholder narrative: Assumptions and Implications

Reference areas will exclude all depositional and extractive activities, and might result in restrictions or management of potentially damaging and disturbing activities, as defined in the SNCB's draft reference area guidance document (available [here](#)⁵⁶). This guidance is relatively clear and specific, therefore no further work on defining assumptions on management of reference areas was carried out.

Appendix 10 shows the content of the draft reference area guidance, converted into a layout similar to the layout for the assumptions / implications tables presented in the rMCZ site reports – this was

⁵⁵ <http://www.dorsetwildlifetrust.org.uk/page283.html>

⁵⁶ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

used at meetings as a template upon which to record site-specific comments. However, site-specific comments were limited, so we have not inserted the whole table here.

Stakeholder representatives from across many sectors were concerned about the implications of reference areas for the large range of activities affected (the Impact Assessment, to be finished in January 2012, will analyse these impacts in detail). On the other hand, conservation representatives highlighted the conservation benefits of highly protected areas. These generic comments apply to all recommended reference areas.

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

As stated above, there was much clearer guidance available on what activities will be restricted in reference areas, compared with MCZs in general. Therefore, the uncertainties around reference areas were much more limited.

A remaining uncertainty that stakeholder representatives highlighted repeatedly was about possible impacts on activities near the boundary of reference areas. Some activities might have knock-on impacts beyond the area where they are being carried out, e.g. sediment plumes from aggregate extraction, or from construction/ infrastructure maintenance work. There is uncertainty over what 'buffer zones' might be needed around reference areas for such activities.

Additional comments

For this specific site, additional comments from the fishing industry highlighted that there are multiple fisheries in the area. We also received information from the Dorset Wildlife Trust that suggested 'giant' dog-whelks – *Nucella lapillus*, twice the size of the usual intertidal ones can be found at this location (Peter Tinsley *pers. comm.*). Please also refer to the general narrative for recommended reference areas in section II.2.3.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Fishing representatives have stated that they will not support any recommendations for recommended reference areas. Like other recommended reference areas, the site is controversial, with strong support from conservationists and strong concerns over the socio-economic impacts from many other sectors. The site was drawn with feedback from the Local Group, many members of that group considered the location of the site as the least bad location in terms of impacts on ongoing activities such as angling. The site has the minimum dimensions stipulated in the ENG for the FOCI habitat 'mussel beds', this is a reflection of the concern about socio-economic impacts of the site.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and DORIS data. Refer to

appendix 8 for details, and to the tables above for data sources for specific features in this site. Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](#)⁵⁷.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

The area was surveyed as part of the DORIS survey, a collaborative effort between Dorset Wildlife Trust, the Maritime and Coastguard Agency (MCA), the Channel Coastal Observatory (CCO) and the National Oceanographic Centre, Southampton (NOCS), funded by Viridor Credits ([here is a weblink to further information](#)⁵⁸). The DORIS project provided us with detailed bathymetry data, shown on map FR_064c at the end of this report, as well as with FOCl records (see appendix 8).

The is located within the revised boundary of the Studland to Portland draft SAC, and Natural England may have additional information of relevance to this site in the site selection assessment document for this draft SAC (the public consultation on this draft SAC was due to start around the time that this report was being finalised).

Site map series

On the following pages there are three maps of this site.

- The first map (FR_064a) is the main site map showing the site boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_064b) shows the site boundary over broad-scale habitats, and records of habitat and species FOCl. The data shown on this map corresponds with the information in tables II.4.5b and II.4.5c, data sources are indicated in the tables.
- The third map (FR_064c) shows detailed bathymetry data from the DORIS survey.
- Most site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site (except for fisheries information, which is included in the interactive PDF maps supplied with the additional materials listed in appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

⁵⁷ <http://jncc.defra.gov.uk/page-4>

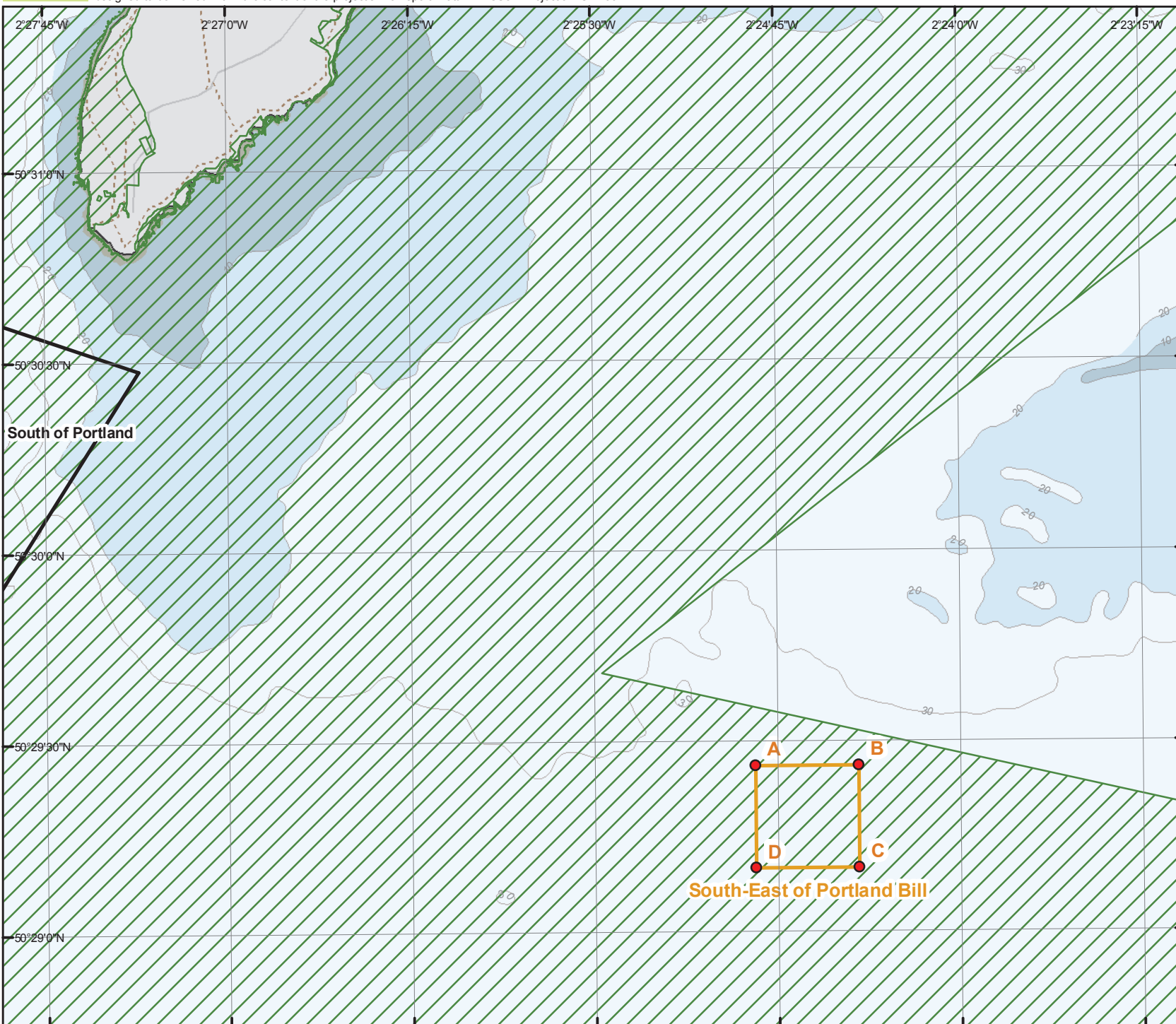
⁵⁸ <http://www.dorsetwildlifetrust.org.uk/page283.html>

South East of Portland Bill Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 002005.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 0.25 0.5 1 Km



Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.4906	-2.4140	50° 29' 26" N	2° 24' 50" W
B	50.4906	-2.4070	50° 29' 26" N	2° 24' 25" W
C	50.4861	-2.4070	50° 29' 9" N	2° 24' 25" W
D	50.4861	-2.4140	50° 29' 9" N	2° 24' 50" W

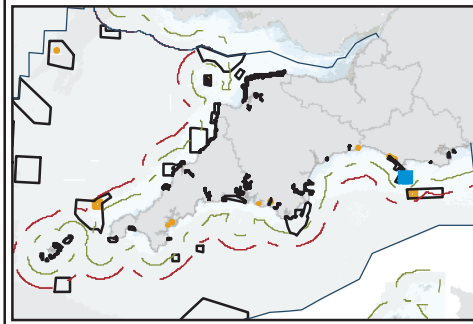
Map Legend

- Recommended reference area
- Recommended MCZ (rMCZ)

Existing MPAs

- dSAC

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



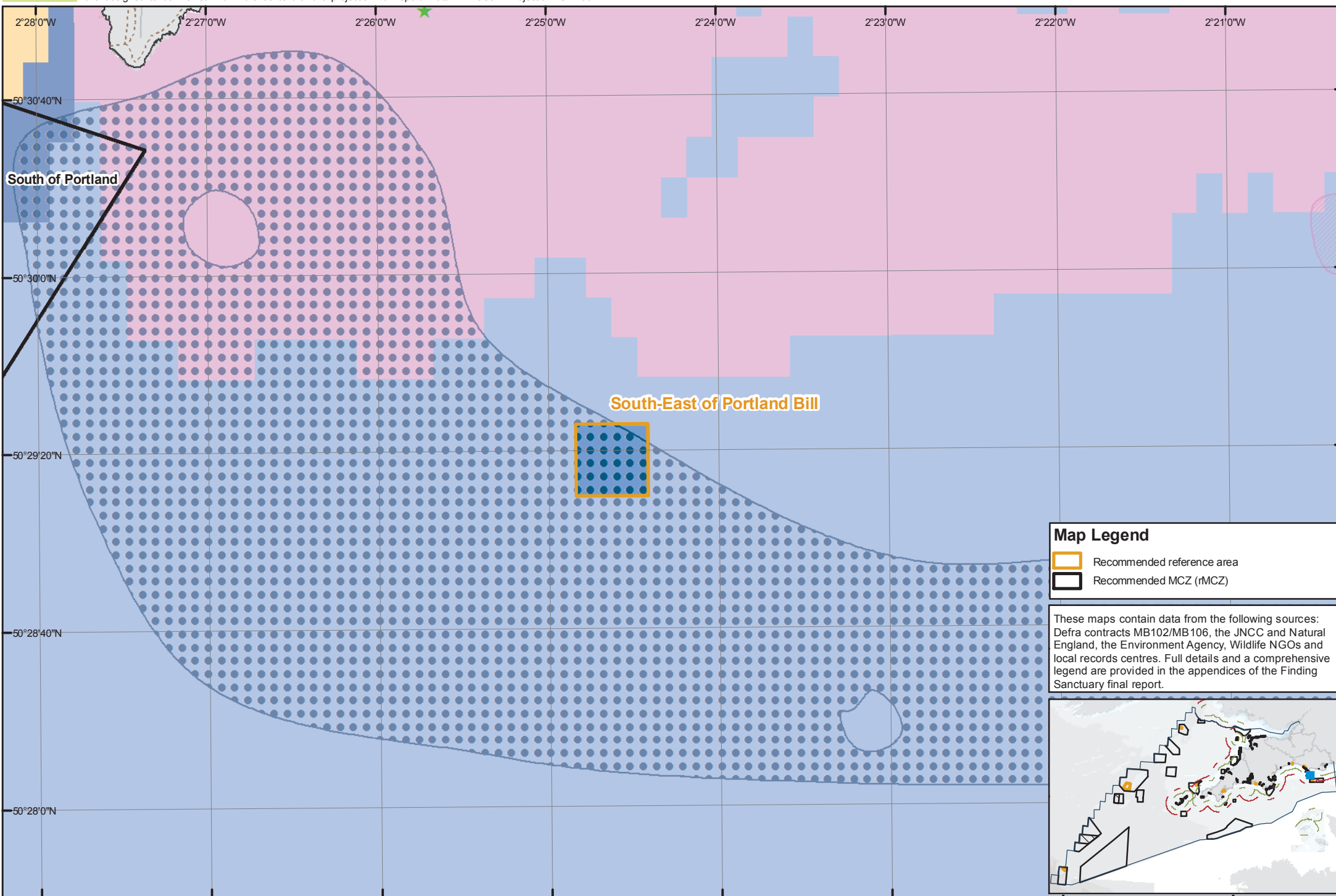
South-East of Portland Bill Recommended Reference Area

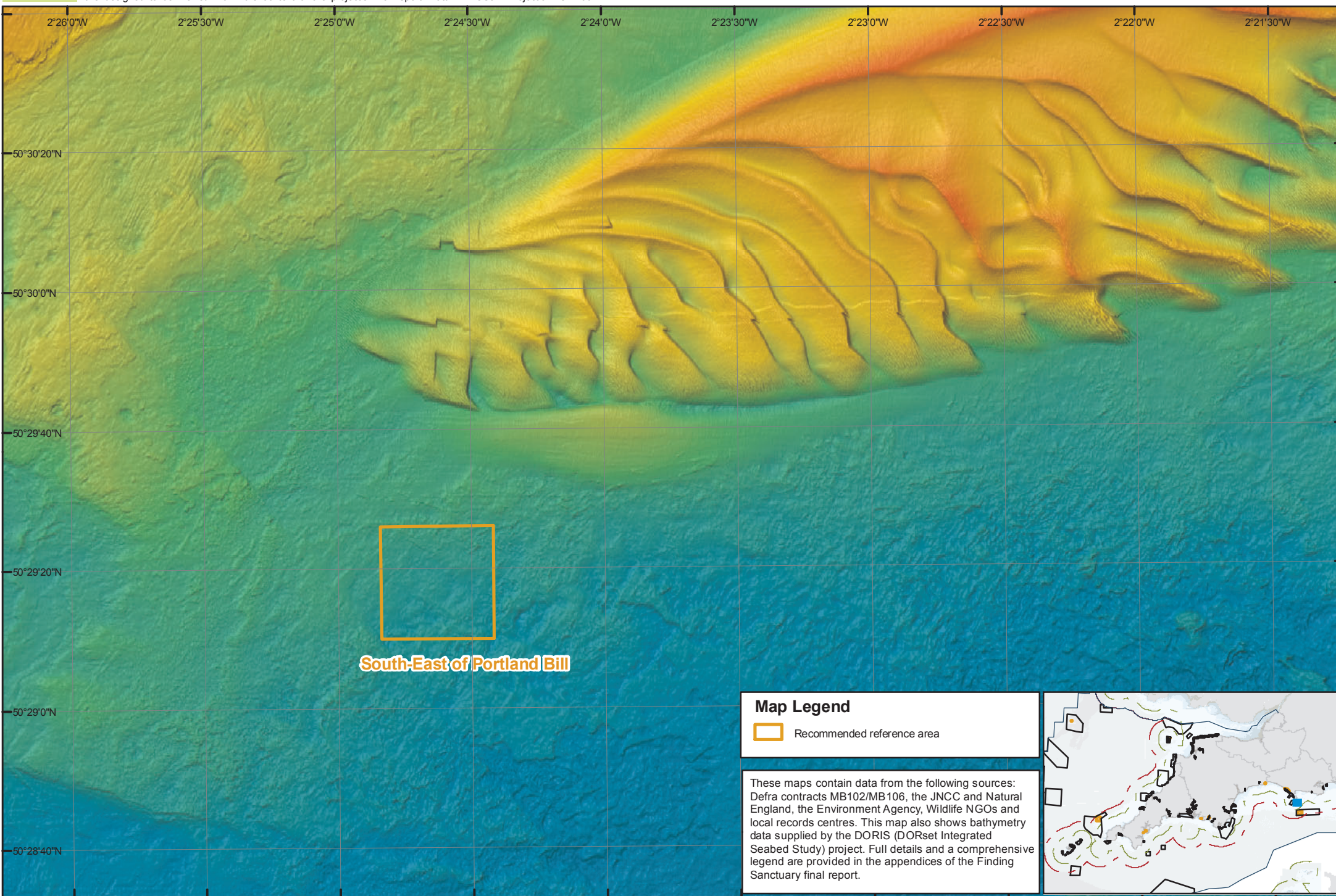
This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 0.5 1 Km

N





II.4.6 The Fleet recommended reference area

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.6361	-2.5699	50° 38' 9" N	2° 34' 11" W

Site surface area: 2.1 km²

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The Fleet recommended reference area sits within the northern half of the Fleet Lagoon and the northern, eastern and western boundaries follow the ordnance survey Boundary Line mean high water mark. The southern boundary is a simple straight line cutting across the lagoon from between an area between Gore Cove and Butterstreet Cove.

Sites to which the site is related: The Fleet recommended reference area sits within the boundary of the SAC, SPA and SSSI that cover the Fleet Lagoon and Chesil Beach.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within The Fleet recommended reference area

Table II.4.6a shows a summary of the draft conservation objectives for this recommended reference area. This is an extract of the conservation objective summary tables in section II.2.6. All features in the table have draft conservation objectives, including those in the right-hand column, in line with the Conservation Objective Guidance. Features in the right-hand column are not counted towards the figures in section II.2.9 unless specifically stated.

Table II.4.6a Draft conservation objectives for the Fleet recommended reference area. All features shown in the table have a draft conservation objective of 'recover to reference condition'. The full text of the draft conservation objectives can be found in appendix 15.

	Viable size guidelines met	Viable size guidelines not met
Broad-scale habitats		Subtidal coarse sediment Coastal saltmarshes and saline reedbeds ¹ Intertidal coarse sediments ¹ Intertidal mud ¹ Intertidal sediments dominated by aquatic angiosperms ¹
FOCI habitats		Seagrass Beds
FOCI species		<i>Tenellia adspersa</i> ²

¹ None of the intertidal broad-scale habitats are represented in recommended reference areas that meet the minimum size guideline (5km), but recent SAP and SNCB advice has recognised that the size guideline is not realistic for intertidal habitats. The intertidal habitats have been highlighted in green to show that we are considering these to be represented within the current set of recommended reference areas (unlike the other features listed in the second column).

² The minimum patch size for *Tenellia adspersa* is the whole feature. As this recommended reference area does not cover the entire Fleet Lagoon, this site does not meet the minimum size guidance for this species.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets.

Table II.4.6b Subtidal broad-scale habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
Subtidal coarse sediment	1.80	<0.1%	1

Table II.4.6c Intertidal broad-scale habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
Intertidal coarse sediments	0.02	0.1%	3
Intertidal mud	0.11	<0.1%	1, 3
Coastal saltmarshes and saline reedbeds	<0.01	<0.1%	1, 3
Intertidal sediments dominated by aquatic angiosperms	<0.01	0.1%	1

Table II.4.6d **FOCI habitats** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Seagrass beds	1.09	5		1

Table II.4.6e **FOCI species** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Tenellia adspersa</i>	1		1

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Site summary

The Fleet Lagoon is a large natural shallow inlet, separated from the sea by Chesil Beach. The coarse sediments of the inlet channel are predominately colonised by brown and red algae, whereas the soft mud beds of the lagoonal basin support seagrass, *Zostera* and *Ruppia* spp., and green algal meadows. Oysters (*Crassostrea gigas*) are cultivated in the eastern lagoon (Foden *et al.* 2005), although the recommended reference area boundary has been drawn to exclude the area where aquaculture takes place. A historic swannery (founded by Benedictine monks in the 1040s, now under private ownership) is located near Abbotsbury at the western end of the Fleet. The Fleet is the largest saline/ brackish lagoon in England, and has been designated as a protected area under a range of designations.

Detailed site description

The Fleet is a shallow tidal inlet some 13 km long connected to the sea by a narrow channel entering Portland Harbour (Davies, 1998). Tidal streams up to 4 knots have been recorded within the channel. Sea water percolates through Chesil Bank influencing salinity along the length of the Fleet (Davies, 1998). Low freshwater input results in fully saline or polyhaline conditions throughout most of the lagoon; only the Abbotsbury embayment at the western end has low-salinity brackish water (Whittaker 1980).

The lagoon was rated as a site of national marine biological importance by Holme & Bishop (1980). Following the formation of the Fleet Study Group in 1975, the area has been extensively studied with the results published in two seminar reports (Ladle 1981a, 1985a); these volumes include papers on physical aspects and hydrography (Carr 1981; Whittaker 1981a; Robinson 1981a, 1981b), algae (Burrows 1981), the distribution of the seagrasses *Zostera* and *Ruppia* (Holmes, 1983, 1985, 1993; Whittaker 1981b), invertebrates (Ladle 1981b; Seaward 1981), meiofauna (Humphrey 1985), ostracods (Whittaker 1981c), subtidal communities (Dyrynda 1985, 2003; Dyrynda & Farnham,

1985), fish (Ladle 1981c, 1985b), observations on the opisthobranch mollusc *Akera bullata* (Thompson & Seaward 1989), and an extensive bibliography (Ladle 1985a) (Davies, 1998).

Foden *et al.* (2005) conducted a survey every 3–4 weeks during summer 2002 (24th April to 27th August) at 7 stations within the Fleet Lagoon. At each station a field assay was employed for separating microalgal epiphytes. The dominant seagrass (macrophytes) and seaweed (macroalgae) species were identified and replicate samples taken.

Davison & Hughes (1998) carried out an integrated seasonal monitoring study during spring 1995 which was funded by WWF. The monitoring was undertaken at a cross-channel transect. The monitoring involved 1-2 monthly observations of percentage cover of *Zostera* within the Fleet. Trial monitoring work included the use of video transects (Dyrynda. in prep.).

Dyrynda & Cleator (1995) completed a series of cross-lagoonal transects, mapping benthic communities and providing information on variations of vegetative cover. Spencer *et al.* (1994) surveyed the intertidal area on areas of hard substrate (shell and stone) within the Fleet, of shell and stone, in the Dart, Devon Avon estuaries and in the Fleet whilst surveying spatfalls of the non-native oyster.

A detailed survey of species composition and density was conducted for seagrass in Fleet lagoon during 2002 (Bunker *et al.*, 2004). With regard to area, *Z. marina* has been lost from the swannery in the lagoon since 1982, but a north-westward extension of *Z. noltii* range has occurred in West Fleet since 1999. *Ruppia* sp. has been lost from the Swannery Basin and west of Berry Coppice since 1983, but distributions in the rest of the Fleet remain broadly unchanged since 1999 (Bunker *et al.*, 2004). Porter *et al.*, (2001) conducted seasonal monitoring of vegetation cover between January 1995 and January 1997. The shallow subtidal bottom (<1 m) was dominated by organic muds supporting seagrass meadows (two species of *Zostera*, two of *Ruppia*). Little *et al* (1989) described the distribution of molluscs in lagoonal shingle of the Fleet. Barnes (1989) gives an overview and conservation appraisal of the Fleet.

Stakeholder narrative: Assumptions and Implications

Reference areas will exclude all depositional and extractive activities, and might result in restrictions or management of potentially damaging and disturbing activities, as defined in the SNCB's draft reference area guidance document (available [here](#)⁵⁹). This guidance is relatively clear and specific, therefore no further work on defining assumptions on management of reference areas was carried out.

Appendix 10 shows the content of the draft reference area guidance, converted into a layout similar to the layout for the assumptions / implications tables presented in the rMCZ site reports – this was used at meetings as a template upon which to record site-specific comments. However, site-specific comments were limited, so we have not inserted the whole table here.

Stakeholder representatives from across many sectors were concerned about the implications of reference areas for the large range of activities affected (the Impact Assessment, to be finished in January 2012, will analyse these impacts in detail). On the other hand, conservation representatives highlighted the conservation benefits of highly protected areas. These generic comments apply to all recommended reference areas.

⁵⁹ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

As stated above, there was much clearer guidance available on what activities will be restricted in reference areas, compared with MCZs in general. Therefore, the uncertainties around reference areas were much more limited.

A remaining uncertainty that stakeholder representatives highlighted repeatedly was about possible impacts on activities near the boundary of reference areas. Some activities might have knock-on impacts beyond the area where they are being carried out, e.g. sediment plumes from aggregate extraction, or from construction / infrastructure maintenance work. There is uncertainty over what 'buffer zones' might be needed around reference areas for such activities.

For this specific site, it was highlighted that Portland Harbour, which is approx 4-5km in distance at its closest point from this recommended reference area has expressed concern regarding the proximity of it and the potential impact it might have on the long term growth of the port (specifically in relation to construction of structures and dredging). Natural England advised that due to its distance from the recommended reference area this would not be the case and that future economic regeneration of the port would not be subject to any additional requirements over and above what already exists, as a result of this particular site.

Portland Port has requested that if there is any uncertainty that the above statement from Natural England does not hold true that any economic impact assessment would need to factor in not only the costs of the immediate economic impact on the port but the knock on effects to the region and the industries, such as renewables, that rely on the port being able to provide them with the facilities they need. In the event of uncertainty, consideration should be given to whether this site should remain within the network.

Additional comments

- *Ports and Harbours*
 - Portland Port is at the forefront of economic regeneration in the area and supports significant employment locally and regionally as well as bringing additional economic opportunities for the future. The port also offers a solution to current energy issues including security of supply and meeting renewable targets. Portland Gas, an internationally significant gas storage project (the current estimate of total development cost for the project is £456m), W4BRE, the green energy facility, and the planned Eneco wind park, are examples of companies that recognise this in the port and are prime examples of growth areas for the future.
 - The Government has approved Portland Port's long term strategic plan to reclaim some 35 acres in order fully to convert the Naval Base to a commercial port. This will entail investment of more than £70 million to take full advantage of Portland's unique features as a deep water, all weather port, strategically located on the South Coast with easy access to the shipping lanes to Europe, proximity to France and well positioned for ports on the Iberian Peninsula. Furthermore, Portland is the only port in the South West with the potential to take alongside very large cruise ships and, similarly, is the only remaining practical South Coast alternative to Portsmouth to berth the Royal Navy's new aircraft carriers.

Please also refer to the general narrative for recommended reference areas in section II.2.3.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Fishing representatives have stated that they will not support any recommendations for recommended reference areas. Like other recommended reference areas, the site is controversial, with strong support from conservationists and strong concerns over the socio-economic impacts from many other sectors. There are concerns from the landowner who owns the private land alongside the upper Fleet, who is worried about potential impacts on the swannery at Abbotsbury, and on recreational activities. There has been some concern from the local water company relating to whether or not existing outfalls in the Fleet would be affected. The ports sector has voiced strong reservations about this site because of concerns about impacts on the planned expansion of Portland harbour (5km to the east of the site), although the Natural England representative considered it unlikely to have any impacts.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site. Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](http://jncc.defra.gov.uk/page-4)⁶⁰.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

Site map series

On the following pages there are two maps of this site.

- The first map (FR_065a) is the main site map showing the site boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_065b) shows the site boundary over broad-scale habitats, and records of habitat and species FOCl. The data shown on this map corresponds with the information in tables II.4.6b to II.4.6e, data sources are indicated in the tables.
- Most site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity mapped in the site.

⁶⁰ <http://jncc.defra.gov.uk/page-4>

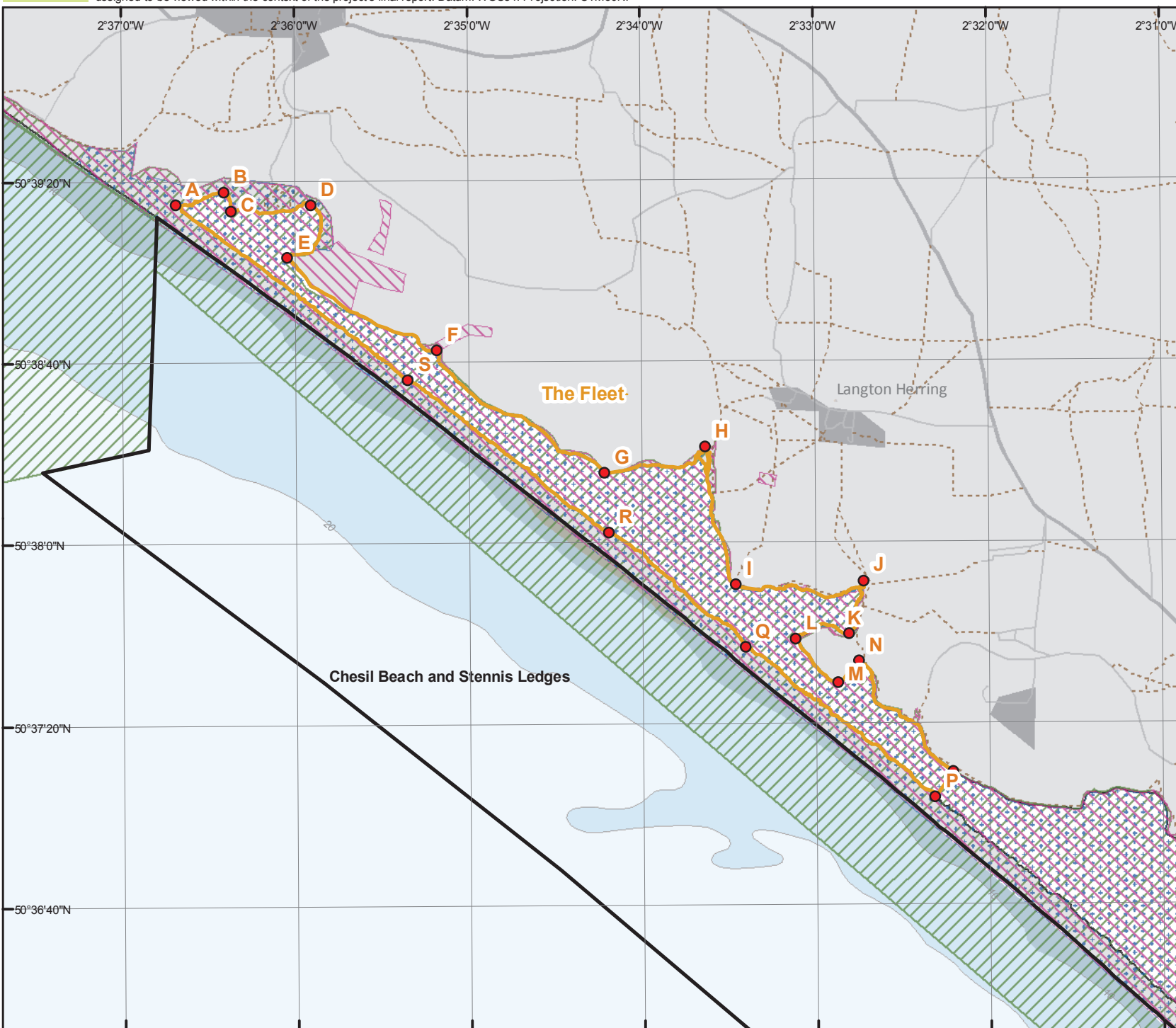
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

The Fleet Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 0.4 0.8 1.6 km



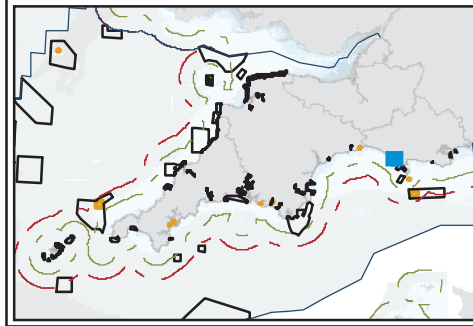
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.6541	-2.6115	50° 39' 14" N	2° 36' 41" W
B	50.6549	-2.6068	50° 39' 17" N	2° 36' 24" W
C	50.6537	-2.6062	50° 39' 13" N	2° 36' 22" W
D	50.6541	-2.5985	50° 39' 14" N	2° 35' 54" W
E	50.6509	-2.6007	50° 39' 3" N	2° 36' 2" W
F	50.6452	-2.5864	50° 38' 42" N	2° 35' 11" W
G	50.6376	-2.5703	50° 38' 15" N	2° 34' 12" W
H	50.6392	-2.5605	50° 38' 21" N	2° 33' 37" W
I	50.6307	-2.5576	50° 37' 50" N	2° 33' 27" W
J	50.6309	-2.5454	50° 37' 51" N	2° 32' 43" W
K	50.6277	-2.5468	50° 37' 39" N	2° 32' 48" W
L	50.6274	-2.5519	50° 37' 38" N	2° 33' 6" W
M	50.6247	-2.5479	50° 37' 28" N	2° 32' 52" W
N	50.6260	-2.5459	50° 37' 33" N	2° 32' 45" W
O	50.6192	-2.5368	50° 37' 9" N	2° 32' 12" W
P	50.6176	-2.5386	50° 37' 3" N	2° 32' 18" W
Q	50.6269	-2.5568	50° 37' 36" N	2° 33' 24" W
R	50.6339	-2.5699	50° 38' 2" N	2° 34' 11" W
S	50.6433	-2.5892	50° 38' 35" N	2° 35' 21" W

Map Legend

- Recommended reference area
- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - SPA
 - SSSI (part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



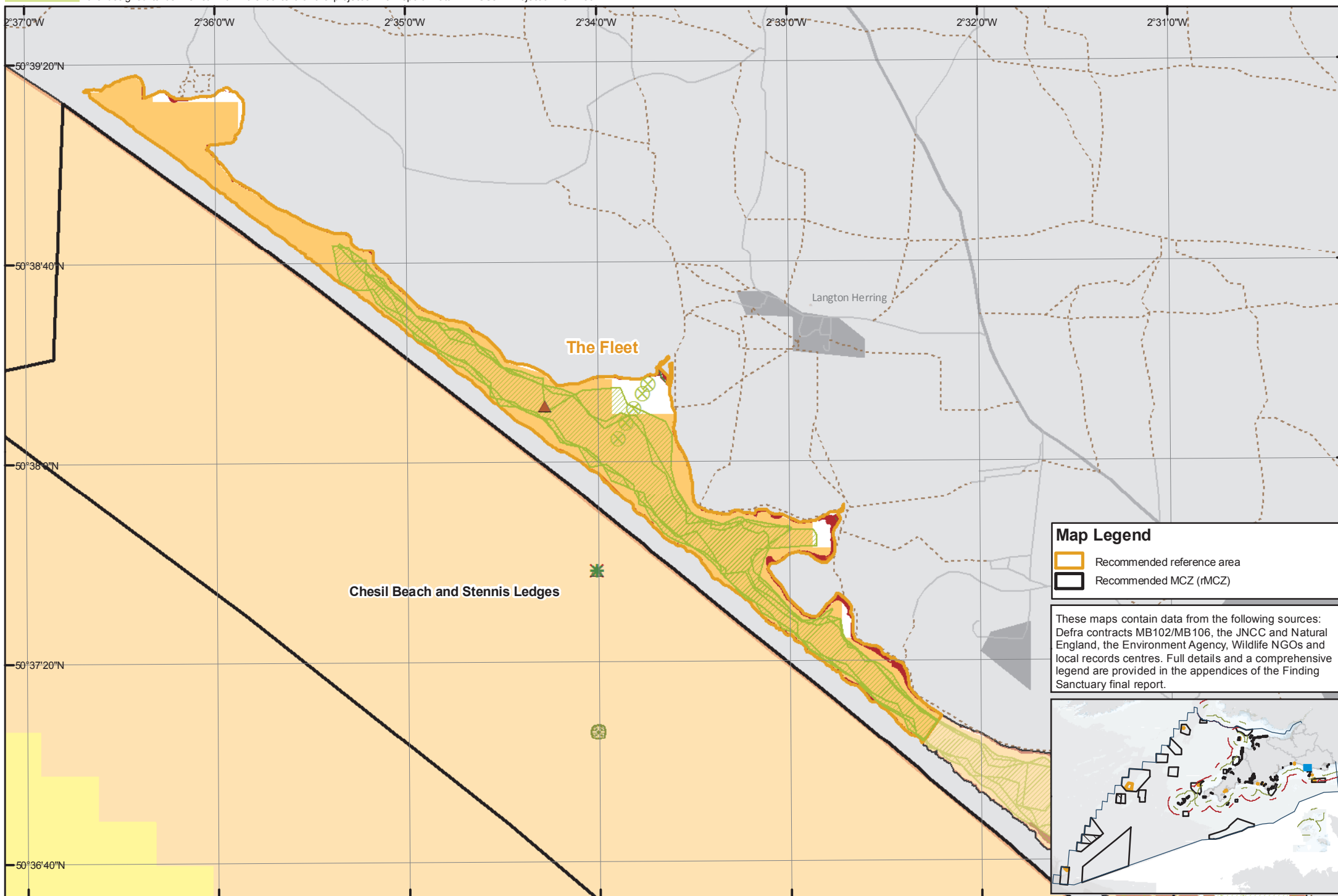
The Fleet Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 0.7 1.4 km

N



II.4.7 Lyme Bay recommended reference area

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.7111	-2.9553	50° 42' 40" N	2° 57' 19" W

Site surface area: 293623 m²

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The Lyme Bay recommended reference area is a simple square shape with borders running north to south and east to west. The Northern boundary follows the Ordnance Survey Boundary Line mean high water mark from Seven Rock Point in the west to an area just to the west of Devonshire Head.

Sites to which the site is related: The Lyme Bay recommended reference area is located within the boundary of the Lyme Bay and Torbay Bay cSAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Lyme Bay recommended reference area

Table II.4.7a shows a summary of the draft conservation objectives for this recommended reference area. All features in the table have draft conservation objectives, including those in the right-hand column, in line with the Conservation Objective Guidance. Features in the right-hand column are not counted towards the figures in section 11.2.9 unless specifically stated.

Table II.4.7a Draft conservation objectives for Lyme Bay recommended reference area. All features shown in the table have a draft conservation objective of 'recover to reference condition'. The full text of the draft conservation objectives can be found in appendix 15.

	Viable size guidelines met	Viable size guidelines not met
Broad-scale habitats		High energy infralittoral rock Subtidal mixed sediments Intertidal coarse sediments ¹
FOCI habitats	<i>Sabellaria alveolata</i> reefs	
FOCI species	<i>Halicystus auricula</i> <i>Padina pavonica</i>	

¹ None of the intertidal broad-scale habitats are represented in recommended reference areas that meet the minimum size guideline (5km), but recent SAP and SNCB advice has recognised that the size guideline is not realistic for intertidal habitats. The intertidal habitats have been highlighted in green to show that we are considering these to be represented within the current set of recommended reference areas (unlike the other features listed in the second column).

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets.

*Table II.4.7b **Subtidal broad-scale habitats** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.*

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	0.18	<0.1%	1
Subtidal mixed sediments	0.07	<0.1%	1

*Table II.4.7c **Intertidal broad-scale habitats** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.*

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
Intertidal coarse sediments	0.04	0.2%	1

*Table II.4.7d **FOCI habitats** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.*

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Honeycomb worm (<i>Sabellaria alveolata</i>) reefs		1		1

*Table II.4.7e **FOCI species** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.*

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Haliclystus auricula</i>	1		4
<i>Padina pavonica</i>	1		1

This recommended reference area also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.29 km² of seahorse area polygon (refer to appendix 8 for more information).

This rMCZ intersects with the Axmouth to Lyme Regis Undercliffs Geological Conservation Review site.

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Site summary

The site extends from the shoreline to depths of approximately 10 metres below chart datum.

This recommended reference area is a very small area, included in the network recommendations in order to represent a variety of ENG-listed features (e.g. *Padina pavonica* and *Sabellaria alveolata* reefs) in the set of recommended reference areas. The site is located just off the Undercliffs at Lyme Regis, an area of historic coastal landslides that has been protected within a coastal (terrestrial) SAC.

Detailed site description

Since the site is so small, it has proved difficult to locate information that is relevant to the specific site within the literature.

There may be some relevant information in Schratzberger *et al.* (2000), who report on surveys that collected coarse sediments in Lyme bay between February and May 1999. *Padina pavonica* was recorded during the 1992-95 Devon Wildlife Trust Axmouth littoral survey. *Sabellaria alveolata* reefs were recorded in the Lyme Bay area during the 1994-95 Devon Wildlife Trust Exmouth to Chesil (Lyme Bay) survey. Wood (2003) surveyed the distribution, abundance and condition of pink sea fans in the Lyme bay area (3 different sites) during 2001-2002, 41 in total were found. No *Amphianthus dohrnii* was recorded. 2007 Seasearch recorded subtidal mixed sediment in Lyme Bay (Wood, 2007).

Stakeholder narrative: Assumptions and Implications

Reference areas will exclude all depositional and extractive activities, and might result in restrictions or management of potentially damaging and disturbing activities, as defined in the SNCB's draft reference area guidance document (available [here](#)⁶¹). This guidance is relatively clear and specific, therefore no further work on defining assumptions on management of reference areas was carried out.

Appendix 10 shows the content of the draft reference area guidance, converted into a layout similar to the layout for the assumptions / implications tables presented in the rMCZ site reports – this was used at meetings as a template upon which to record site-specific comments. However, site-specific comments were limited, so we have not inserted the whole table here.

Stakeholder representatives from across many sectors were concerned about the implications of reference areas for the large range of activities affected (the Impact Assessment, to be finished in January 2012, will analyse these impacts in detail). On the other hand, conservation representatives highlighted the conservation benefits of highly protected areas. These generic comments apply to all recommended reference areas.

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

⁶¹ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

As stated above, there was much clearer guidance available on what activities will be restricted in reference areas, compared with MCZs in general. Therefore, the uncertainties around reference areas were much more limited.

A remaining uncertainty that stakeholder representatives highlighted repeatedly was about possible impacts on activities near the boundary of reference areas. Some activities might have knock-on impacts beyond the area where they are being carried out, e.g. sediment plumes from aggregate extraction, or from construction / infrastructure maintenance work. There is uncertainty over what 'buffer zones' might be needed around reference areas for such activities.

No additional comments were recorded specifically for this site, but please refer to the general narrative for recommended reference areas in section II.2.3.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Fishing representatives have stated that they will not support any recommendations for recommended reference areas. Like other recommended reference areas, the site is controversial, with strong support from conservationists and strong concerns over the socio-economic impacts from many other sectors. This site is very small, and has elicited no specific further commentary.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, Dorset Environmental Records Centre (DERC), and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site. Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](http://jncc.defra.gov.uk/page-4)⁶².

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

Site map series

On the following pages there are three maps of this site.

- The first map (FR_066a) is the main site map showing the site boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.

⁶² <http://jncc.defra.gov.uk/page-4>

- The second map (FR_066b) shows the site boundary over broad-scale habitats, and records of habitat and species FOCl. The data shown on this map corresponds with the information in tables II.4.7b to II.4.7e, data sources are indicated in the tables.
- The third map (FR_066c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

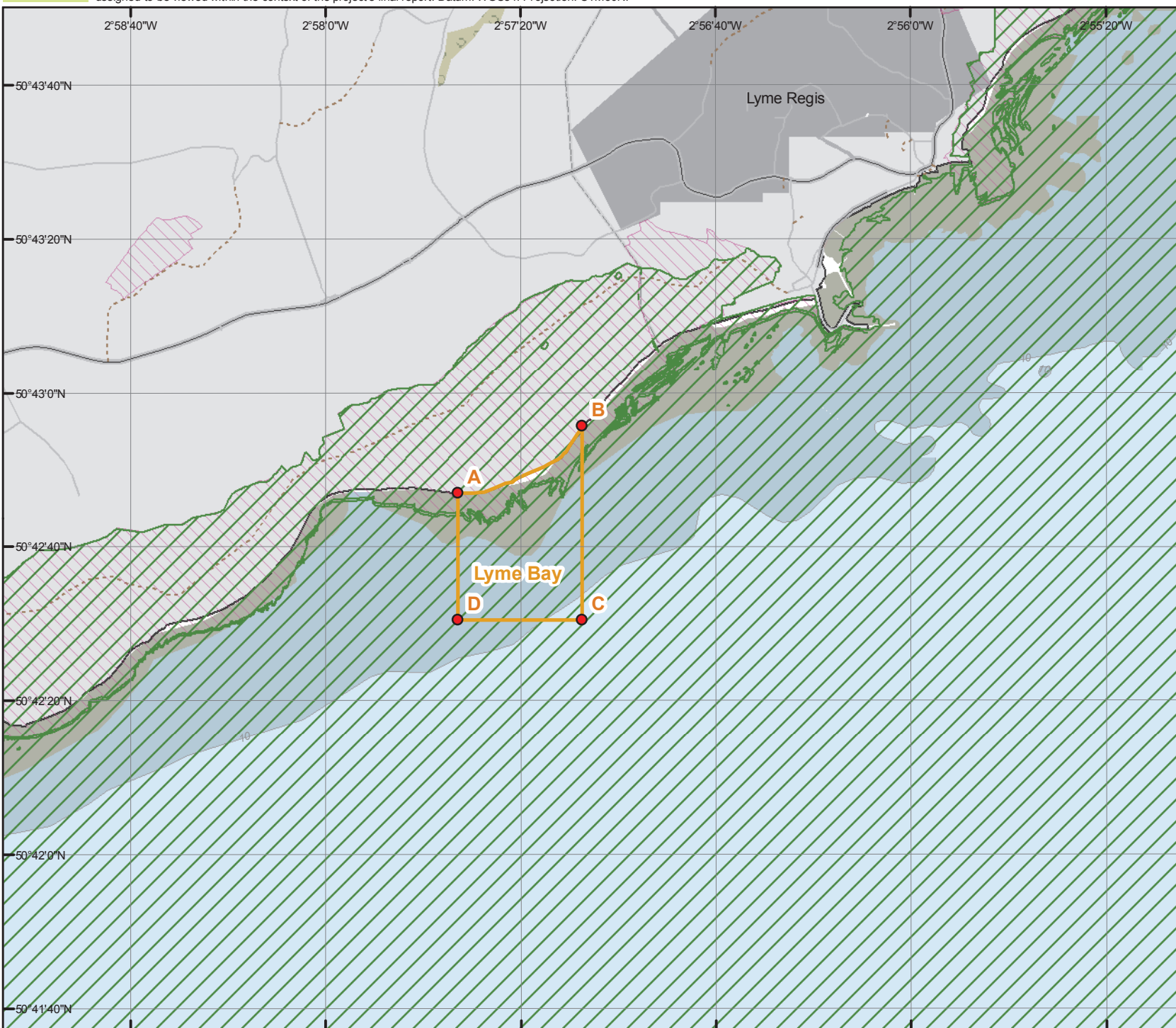
Lyme Bay Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
All Rights Reserved. Data Licence No. 062006.004. Land basemap part
© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

0 0.5 1 Km

N



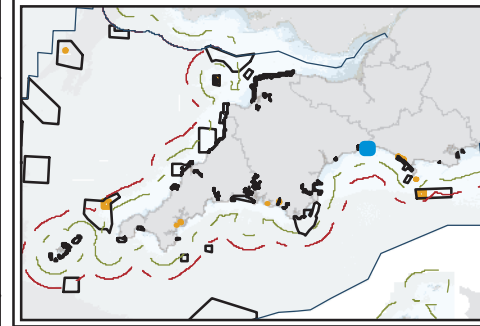
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.7131	-2.9591	50° 42' 46" N	2° 57' 32" W
B	50.7155	-2.9520	50° 42' 55" N	2° 57' 7" W
C	50.7085	-2.9520	50° 42' 30" N	2° 57' 7" W
D	50.7085	-2.9591	50° 42' 30" N	2° 57' 32" W

Map Legend

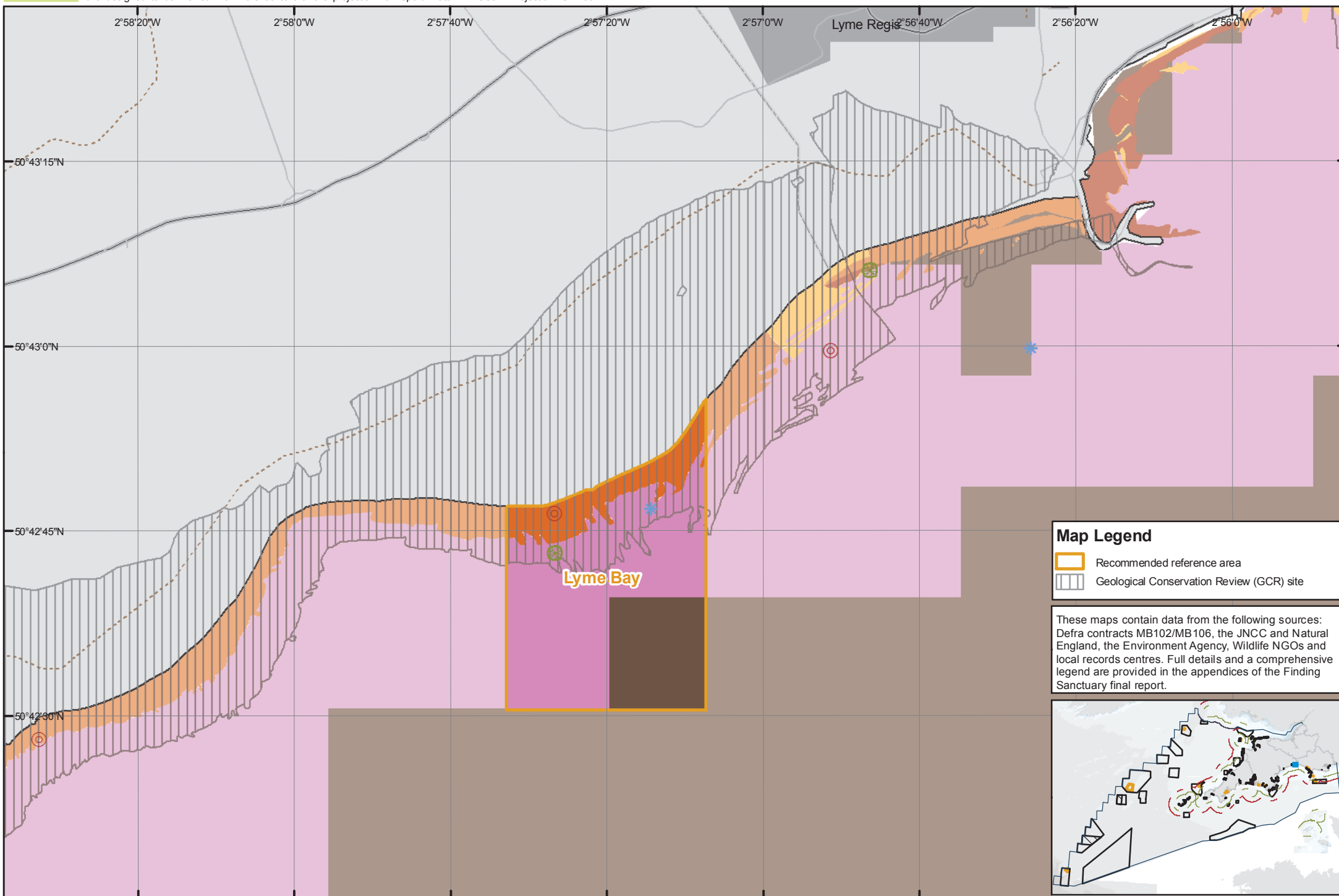
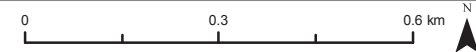
- Recommended reference area
- Existing MPAs**
- SAC
- SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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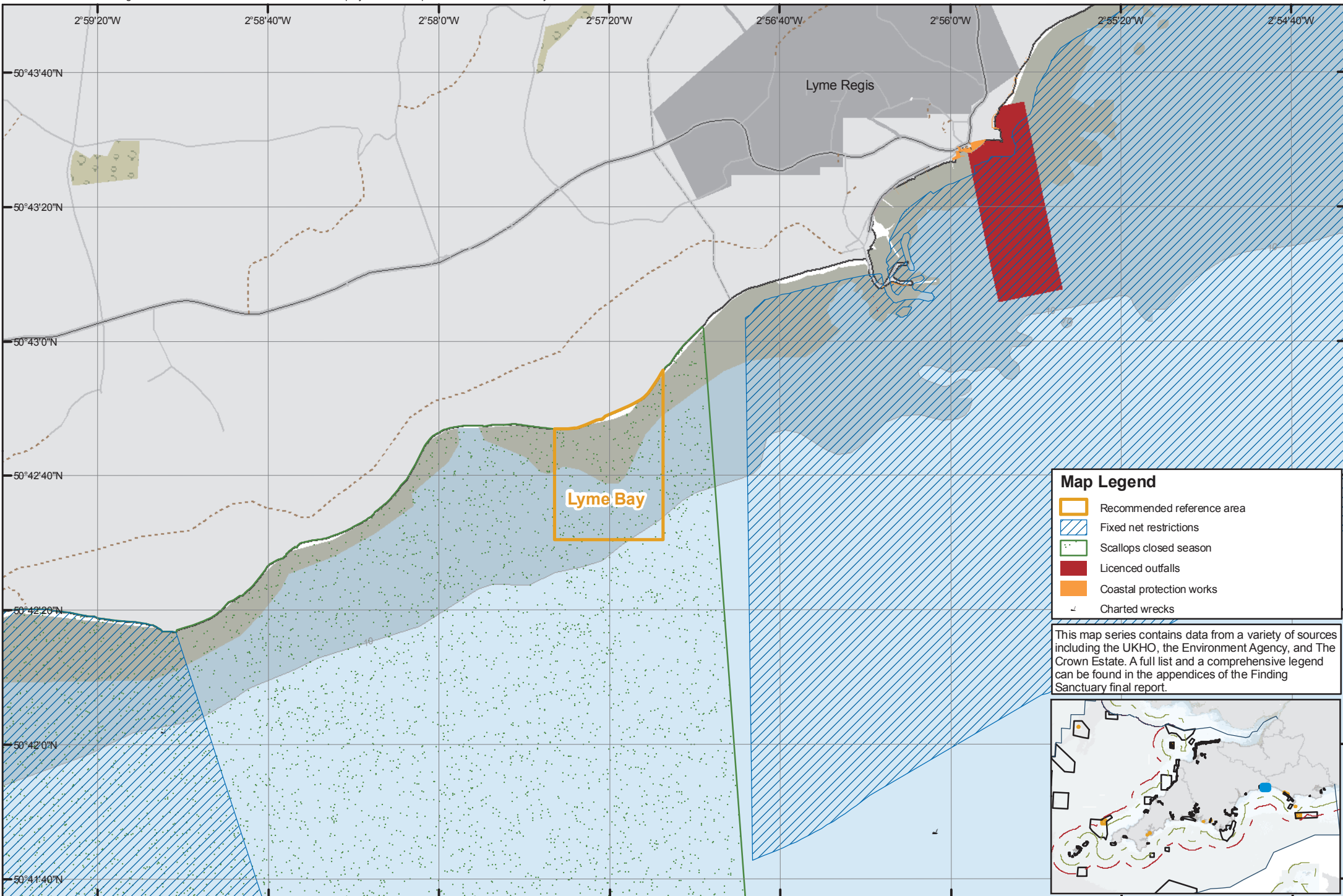


Lyme Bay Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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© OpenStreetMap & contributors, CC-BY-SA. Not to be used for navigation.
Contains OS data © Crown copyright 2011.

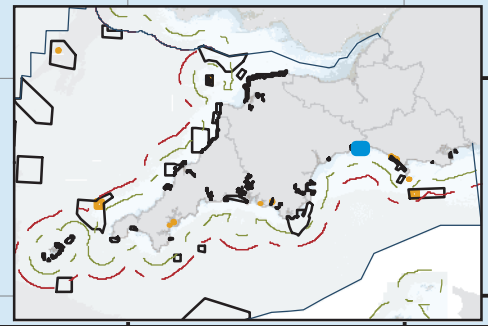
0 0.5 1 Km



Map Legend

- Recommended reference area
- Fixed net restrictions
- Scallops closed season
- Licensed outfalls
- Coastal protection works
- Charted wrecks

This map series contains data from a variety of sources including the UKHO, the Environment Agency, and The Crown Estate. A full list and a comprehensive legend can be found in the appendices of the Finding Sanctuary final report.



II.4.8 Erme Estuary recommended reference area

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.3259	-3.9368	50° 19' 33" N	3° 56' 12" W

Site surface area: 0.19 Km²

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The Erme Estuary recommended reference area sits in the upper extent of the estuary. The site boundary follows the Ordnance Survey Boundary Line mean high water mark. The southern boundary cuts across the estuary from the western bank between Pamfleet Wood and Skerill Coppice, to Tor Wood on the eastern bank. The eastern boundary extends roughly half way into the eastern tributary before continuing up the main estuary until the northern extent of Orcheton Wood where the boundary cuts back across the estuary onto the western bank just north of Efford House. From Efford house the western boundary continues south to join the southern boundary.

Sites to which the site is related: The Erme Estuary recommended reference area sits within the boundary of the Erme Estuary rMCZ, and the Erme Estuary SSSI.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Erme Estuary recommended reference area

Table II.4.8a shows a summary of the draft conservation objectives for this recommended reference area. This is an extract of the conservation objective summary tables in section II.2.6. All features in the table have draft conservation objectives, including those in the right-hand column, in line with the Conservation Objective Guidance. Features in the right-hand column are not counted towards the figures in section II.2.9 unless specifically stated.

Table II.4.8a Draft conservation objectives for Erme Estuary recommended reference area. All features shown in the table have a draft conservation objective of 'recover to reference condition'. The full text of the draft conservation objectives can be found in appendix 15.

	Viable size guidelines met	Viable size guidelines not met
Broad-scale habitats		Low energy infralittoral rock Subtidal mud Coastal saltmarshes and saline reedbeds¹ Intertidal mixed sediments¹ Intertidal mud¹
FOCI habitats	Sheltered muddy gravels	
FOCI species	<i>Anguilla anguilla</i> ²	

¹ None of the intertidal broad-scale habitats are represented in recommended reference areas that meet the minimum size guideline (5km), but recent SAP and SNCB advice has recognised that the size guideline is not realistic for intertidal habitats. The intertidal habitats have been highlighted in green to show that we are considering these to be represented within the current set of recommended reference areas (unlike the other features listed in the second column).

² The European eel is included in draft conservation objectives for estuarine sites on the basis of evidence provided by the Environment Agency (see appendix 8). No minimum viable patch size for the species is included in the ENG.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets.

Table II.4.8b Subtidal broad-scale habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
Low energy infralittoral rock	0.02	0.2%	1
Subtidal mud	<0.01	<0.1%	1

Table II.4.8c Intertidal broad-scale habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
Intertidal mud	0.13	<0.1%	1, 3
Intertidal mixed sediments	0.01	0.1%	1
Coastal saltmarshes and saline reedbeds	0.04	1.2%	3

Table II.4.8d FOCI habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Sheltered muddy gravels	0.07			1

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Site summary

The Erme is a narrow, sheltered estuary approximately 6.5 km long. It is very secluded, has steep wooded banks and a notified SSSI for its woodland interest. It lies within an Area of Outstanding Natural Beauty, and within the South Devon Heritage Coast (Davies 1998). The area around the Erme estuary is privately owned by the Flete Estate. The Erme Estuary is also designated as a Several Fishery and has managed bait and shellfish collecting (EEMAG, 2003). The estuary remains largely unaffected by industrialisation (compared with for example the Tamar estuary) and therefore has been the focus of a number studies (Price *et al.* 2005). One of the reasons for the inclusion of this recommended reference area in the network was in recognition of the added ecological importance of estuaries in terms of productivity, and their ecological function as nursery areas.

Detailed site description

The following description applies to the estuary as a whole, including the small recommended reference area within it.

The habitats are predominantly sedimentary with some broken sand scoured bedrock at the mouth. Mobile sediments near the channel have a typical crustacean-polychaete community characterised by the amphipods *Bathyporeia pilosa* and *Eurydice pulchra*. More sheltered sediment infaunal communities are characterised by ragworm *Hediste diversicolor*. Low shore shingle and cobble habitats are colonised by the brackish water algae *Fucus ceranoides*. The estuary is a spawning ground for sea trout and has a population of the European Otter (Davies 1998).

Anguilla anguilla was reported in the Erme during the 1992-97 Devon Wildlife Trust Stoke Point and Erme Estuary littoral survey.

Luoma & Bryan (1978) took sediment samples from the oxidized surface layer of intertidal sediments within the Erme to determine the availability of sediment-bound lead to *Scrobicularia plana*. Turner *et al.* (2009) collected sediment from the marine reaches of the estuary during June 2008. This was used as a control to antifouling paint contaminated sediment studies. Jones & Turner (2009) collected approximately 6 L of surficial sandy sediment at low water from the marine reaches of the estuary, and Sheehan *et al.* (2010) surveyed the Erme during July and August in the summers of 2003 and 2004. Sediments were classified as poorly sorted sandy muds (mean 5.3 ± 0.03 SE).

Sampling of four major taxonomic groups was carried out by Attrill *et al.* (2009) in the Erme estuary: oligochaetes; amphipod crustaceans (mainly *Gammarus* spp.); the ragworm *Nereis diversicolor* and either mysids (mainly *Neomysis integer*) or the brown shrimp *Crangon crangon*, depending on which was common.

Like all the main estuaries of the south-west, the Erme is potentially very important for seahorse populations as it provides food and shelter. The Seahorse Trust does not have sightings for seahorses in this area, but a lack of sightings does not mean that they are not there (Neil Garrick-Maidment, *pers. comm.*).

Stakeholder narrative: Assumptions and Implications

Reference areas will exclude all depositional and extractive activities, and might result in restrictions or management of potentially damaging and disturbing activities, as defined in the SNCB's draft reference area guidance document (available [here](#)⁶³). This guidance is relatively clear and specific, therefore no further work on defining assumptions on management of reference areas was carried out.

Appendix 10 shows the content of the draft reference area guidance, converted into a layout similar to the layout for the assumptions / implications tables presented in the rMCZ site reports – this was used at meetings as a template upon which to record site-specific comments. However, site-specific comments were limited, so we have not inserted the whole table here.

Stakeholder representatives from across many sectors were concerned about the implications of reference areas for the large range of activities affected (the Impact Assessment, to be finished in January 2012, will analyse these impacts in detail). On the other hand, conservation representatives highlighted the conservation benefits of highly protected areas. These generic comments apply to all recommended reference areas.

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

As stated above, there was much clearer guidance available on what activities will be restricted in reference areas, compared with MCZs in general. Therefore, the uncertainties around reference areas were much more limited.

A remaining uncertainty that stakeholder representatives highlighted repeatedly was about possible impacts on activities near the boundary of reference areas. Some activities might have knock-on impacts beyond the area where they are being carried out, e.g. sediment plumes from aggregate extraction, or from construction / infrastructure maintenance work. There is uncertainty over what 'buffer zones' might be needed around reference areas for such activities.

No additional comments were recorded specifically for this site, but please refer to the general narrative for recommended reference areas in section II.2.3.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Fishing representatives have stated that they will not support any recommendations for recommended reference areas. Like other recommended reference areas, the site is controversial, with strong support from conservationists and strong concerns over the socio-economic impacts from many other sectors. The Erme estuary water bailiff has highlighted concern over impacts of the site on a Bass angling business in the estuary.

⁶³ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

Supporting documentation

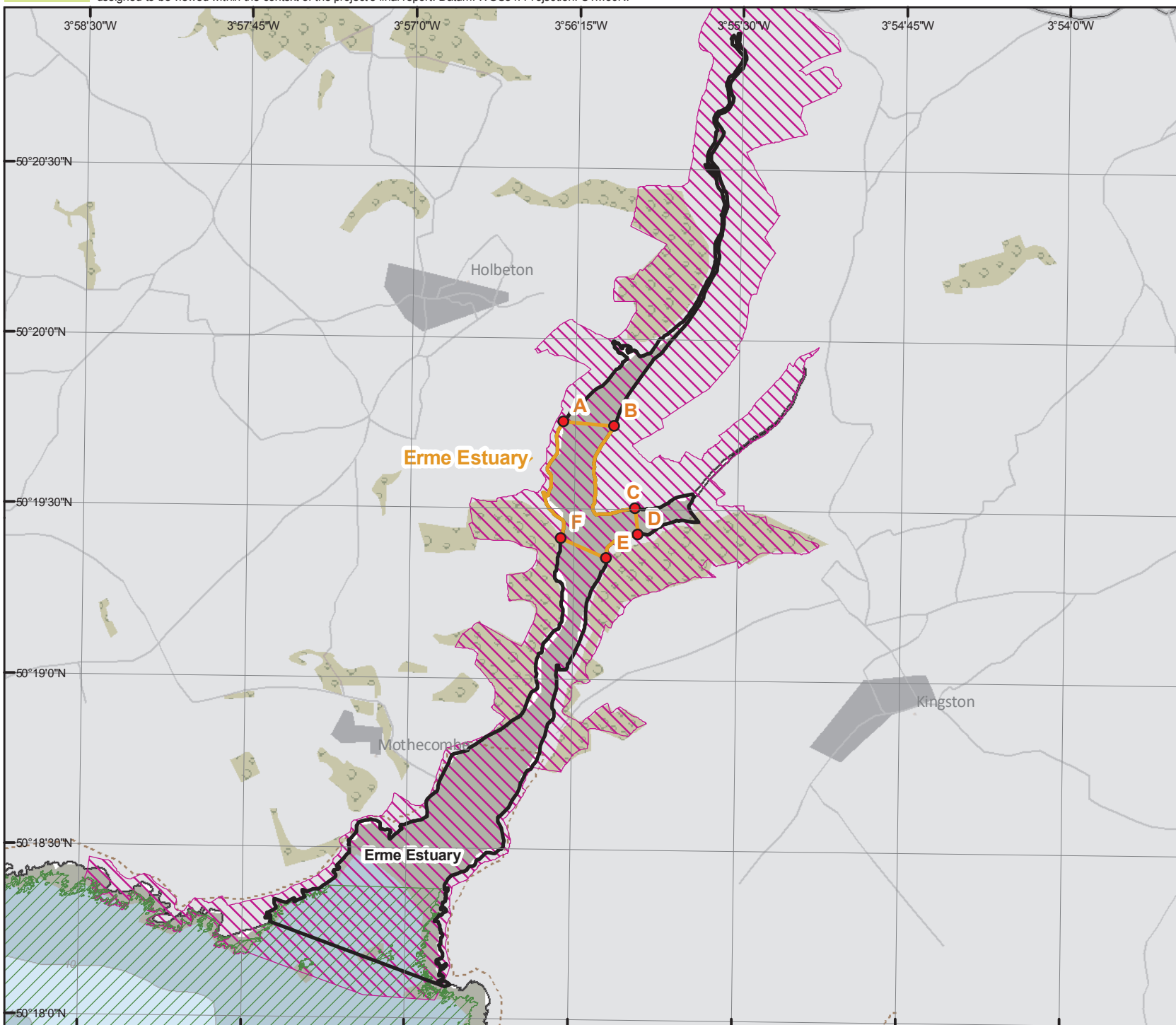
GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

Site map series

On the following pages there are two maps of this site.

- The first map (FR_067a) is the main site map showing the site boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_067b) shows the site boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.4.8b to II.4.8d, data sources are indicated in the tables. The area with dark red dots is a polygon for the FOCI habitat 'sheltered muddy gravels', layered on top of broad-scale habitat data.
- Most site reports contain a map showing socio-economic datasets. This one does not, please refer instead to the site report for the Erme Estuary rMCZ (map FR_037c).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.



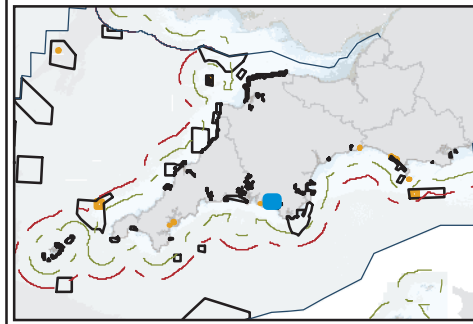
Lat/Long Co-ordinates (WGS84)

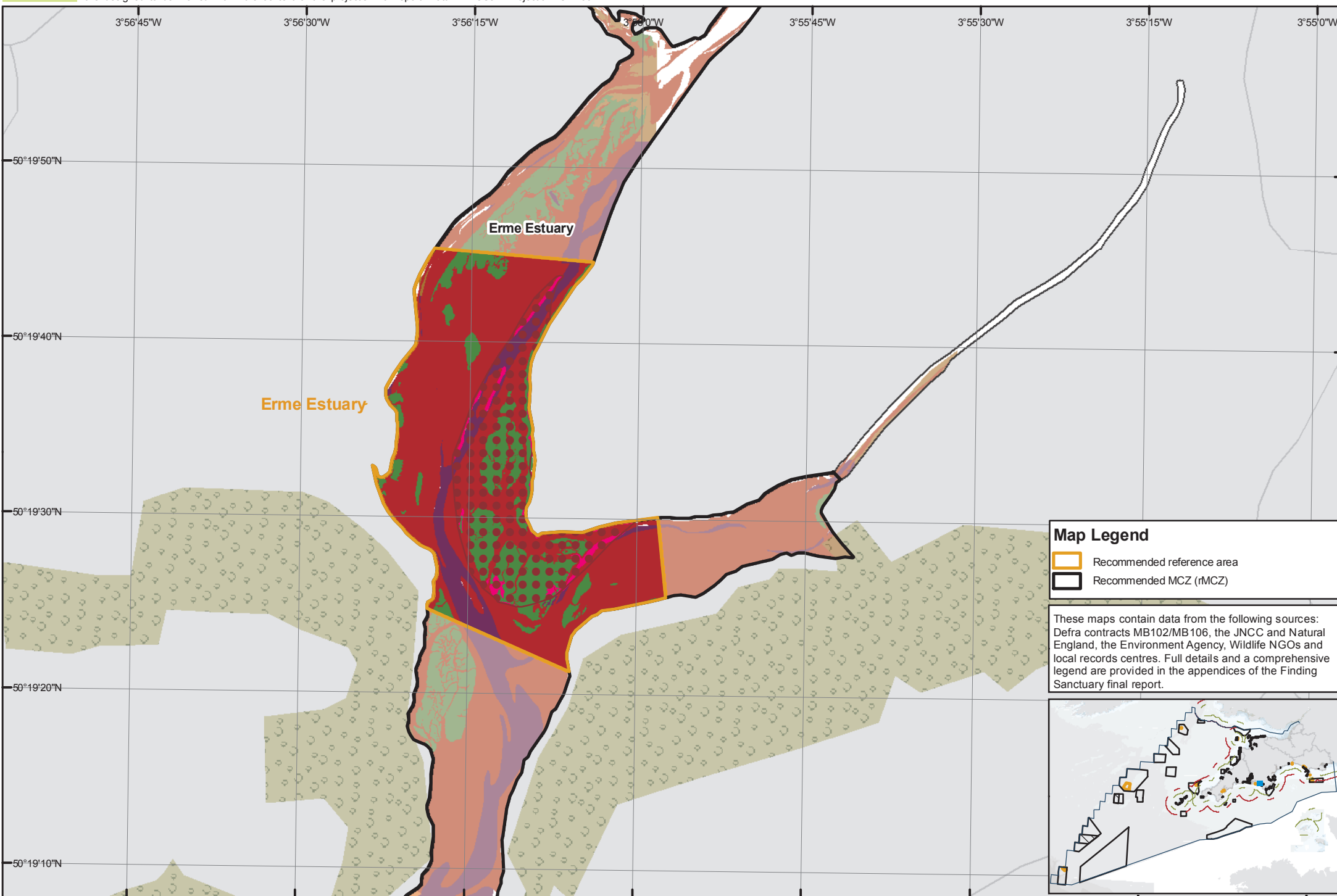
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.3292	-3.9384	50° 19' 45" N	3° 56' 18" W
B	50.3291	-3.9345	50° 19' 44" N	3° 56' 4" W
C	50.3250	-3.9328	50° 19' 30" N	3° 55' 58" W
D	50.3238	-3.9326	50° 19' 25" N	3° 55' 57" W
E	50.3226	-3.9350	50° 19' 21" N	3° 56' 5" W
F	50.3235	-3.9385	50° 19' 24" N	3° 56' 18" W

Map Legend

- Recommended reference area
- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - SSSI (part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





II.4.9 Mouth of the Yealm recommended reference area

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.3136	-4.0712	50° 18' 49" N	4° 4' 16" W

Site surface area: 35407.6 m²

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region II: Greater North Sea

Site boundary: The site boundary follows the Ordnance Survey Boundary Line mean high water mark from The Tomb in the west to just east of Season point. At the time that the boundary was discussed and mapped, we did not have a suitable GIS low water mark available for mapping the site boundary, so the lower boundary marked on the map should be seen as an approximation – the recommendation is for a purely intertidal site that stops at the low water mark. The lower boundary of the Wembury Point SSSI may be a visual indication of where the boundary should lie.

Sites to which the site is related: The Mouth of the Yealm recommended reference area sits within the boundary of Yealm Estuary SSSI.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Mouth of the Yealm recommended reference area

Table II.4.9a shows a summary of the draft conservation objectives for this recommended reference area. This is an extract of the conservation objective summary tables in section II.2.6. All features in the table have draft conservation objectives, including those in the right-hand column, in line with the Conservation Objective Guidance. Features in the right-hand column are not counted towards the figures in section II.2.9 unless specifically stated.

Table II.4.9a Draft conservation objectives for Mouth of the Yealm recommended reference area. All features shown in the table have a draft conservation objective of 'recover to reference condition'. The full text of the draft conservation objectives can be found in appendix 15.

	Viable size guidelines met	Viable size guidelines not met
Broad-scale habitats		High energy intertidal rock ¹ Intertidal coarse sediments ¹ Moderate energy intertidal rock ¹
FOCI habitats		Estuarine rocky habitats ² Seagrass Beds ²

¹ None of the intertidal broad-scale habitats are represented in recommended reference areas that meet the minimum size guideline (5km), but recent SAP and SNCB advice has recognised that the size guideline is not realistic for intertidal habitats. The intertidal habitats have been highlighted in green to show that we are considering these to be represented within the current set of recommended reference areas (unlike the other features listed in the second column).

² The Mouth of the Yealm recommended reference area only covers the intertidal. Estuarine rocky habitats and Seagrass beds may be present in the intertidal, or they might only be found only in the subtidal area. If the latter is the case, the features should come off the list for this site. [At the time the site boundary was being defined, we did not have a definitive low water line to use to delimit this site, nor to use in spatial analyses].

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets.

Table II.4.9b Subtidal broad-scale habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	0.02	<0.1%	1

Table II.4.9c Intertidal broad-scale habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
High energy intertidal rock	0.01	0.1%	1
Moderate energy intertidal rock	<0.01	<0.1%	1
Intertidal coarse sediments	<0.01	<0.1%	1, 3

Table II.4.9d FOCI habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Estuarine rocky habitats	<0.01			1
Seagrass beds	<0.01			1

This recommended reference area also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.02 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Site summary

This is a small recommended reference area that is entirely intertidal. It is included in the recommendations to represent intertidal features in the set of recommended reference areas. The site is located along a stretch of rocky coastline with patches of sand and coarse sediment, in between Wembury and the Yealm estuary.

Detailed site description:

The following description relates to the estuary as a whole. The site itself is a small stretch of intertidal habitat along the western estuary mouth.

The mouth of the Yealm opens into Wembury Bay. The estuary is tidal for 6.5km inland with two side creeks: Newton Creek in the lower estuary and Cofflete Creek in the upper reaches. The Yealm is a very sheltered estuary; the sand bar at the mouth greatly reduces wave action even at the entrance. For the majority of the length of the estuary, it is less than 300 m wide and fringed by steep and mainly wooded slopes. Upper shore habitats are predominantly rocky with mainly sedimentary lower shores. Sand at the mouth gives way to muddy shingle on soft mud in the upper reaches (Davies, 1998). A general description of the estuary is given by Hunt (1977).

Powell *et al.* (1978) considered the estuary to have primary biological importance. Three areas were highlighted for their importance: the south shore between Newton Creek and Misery Point, Cellars beach and the rocks to the west, and the Yealm sand bank. Littoral zones between Newton Creek and Misery Point were sheltered with a narrow band of rocks on the upper shore with muddy gravel in the mid and low shore zones. Low shore habitats had rich infaunal communities characterised by polychaetes, sipunculids and bivalve molluscs. At Cellars beach, sandy shores have a seagrass bed *Zostera marina* on the low shore and in the shallow sublittoral. Large numbers of the razor shell, *Ensis arcuatus* are found in the clean sand of the Yealm sand bank.

Littoral habitats and their associated communities were surveyed by Cunningham & Hawkins (1985) who, from six sites, recorded a total of 82 taxa. More recently, Hiscock & Moore (1986) described seven littoral and six sublittoral habitats and communities within the estuary. Within the channel, the substrata are mainly of cobbles and pebbles subject to tidal streams with a high species richness which is considered of national importance (Hiscock and Moore, 1986). Large quantities of the red alga *Gracilaria foliifera*, were present in the Yealm estuary.

Wave-sheltered bedrock occurred at the entrance to the Yealm. The area of Cellar Beach included a wide range of rocky and sediment shore habitats. Open bedrock and boulder communities were colonised by patchy *Pelvetia canaliculata* on the upper shore with a high abundance of *Chthalamus montagui*, *Littorina 'saxatilis'* and *L. littorea*. Limpets, barnacles, *Fucus vesiculosus* and *Enteromorpha* sp. provided patchy cover to most of the upper midshore (Hiscock & Moore, 1986).

Sand with gravel and pebbles occurred at the entrance to the Yealm. Cellar Beach extended down to a wide area of sand which was sampled at the lower midshore and lower shore. Communities

present dominated visibly and in samples by *Lanice conchilega*, *Pygospio elegans*, *Spio martinensis* and *Corophium crassicornis*. Large specimens of *Ensis ensis* and *Glycera* sp. were occasional (Hiscock & Moore, 1986). Fine clean sand colonised in places by dense *Zostera marina* also occurred at the entrance to the Yealm (Hiscock & Moore, 1986). Johnson *et al.* (2007) studied the intertidal mud meiofauna within the Yealm over a two-week period.

The University of Plymouth have supported B.Sc. dissertations in the Yealm area including investigations into seagrass epiphytic biomass and fauna (Strong, A. 'An investigation into seagrass complexity, epiphyte biomass and epiphytic fauna'; and Webster, P. 'The infaunal benthic community structure in a seagrass bed'. The *Z. Marina* bed at Cellars Cove on the River Yealm was partially mapped by divers in July 1996.)

Attrill *et al.* (2000) investigated a subtidal *Zostera marina* bed located at Cellars Cove (opposite shore to the recommended reference area) within the mouth of the Yealm estuary. Sheehan (2007) examined mid-shore intertidal mudflats and sands 3 times a week for 1 month. Sheehan *et al.* (2008) investigated the impact of crab-tiling on the population structure of *Carcinus maenas*. This was determined by sampling crabs from tiled estuaries and non-tiled estuaries using baited drop-nets. Data were collected on two sampling occasions; October-November 2004 and May-June 2005. Scarlett *et al.* (1999) collected *Z. marina* plants from the Yealm estuary UK at low water spring tides (around midday) from summer 1997 to spring 1998 for use within exposure experiments. Sheehan *et al.* (2010) conducted sediment surveys within the Yealm estuary.

Stakeholder narrative: Assumptions and Implications

Reference areas will exclude all depositional and extractive activities, and might result in restrictions or management of potentially damaging and disturbing activities, as defined in the SNCB's draft reference area guidance document (available [here](#)⁶⁴). This guidance is relatively clear and specific, therefore no further work on defining assumptions on management of reference areas was carried out.

Appendix 10 shows the content of the draft reference area guidance, converted into a layout similar to the layout for the assumptions/ implications tables presented in the rMCZ site reports – this was used at meetings as a template upon which to record site-specific comments. However, site-specific comments were limited, so we have not inserted the whole table here.

Stakeholder representatives from across many sectors were concerned about the implications of reference areas for the large range of activities affected (the Impact Assessment, to be finished in January 2012, will analyse these impacts in detail). On the other hand, conservation representatives highlighted the conservation benefits of highly protected areas. These generic comments apply to all recommended reference areas.

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

As stated above, there was much clearer guidance available on what activities will be restricted in reference areas, compared with MCZs in general. Therefore, the uncertainties around reference areas were much more limited.

⁶⁴ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

A remaining uncertainty that stakeholder representatives highlighted repeatedly was about possible impacts on activities near the boundary of reference areas. Some activities might have knock-on impacts beyond the area where they are being carried out, e.g. sediment plumes from aggregate extraction, or from construction/ infrastructure maintenance work. There is uncertainty over what 'buffer zones' might be needed around reference areas for such activities.

No additional comments were recorded specifically for this site, but please refer to the general narrative for recommended reference areas in section II.2.3.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Fishing representatives have stated that they will not support any recommendations for recommended reference areas. Like other recommended reference areas, the site is controversial, with strong support from conservationists and strong concerns over the socio-economic impacts from many other sectors.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MB102, and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description.

Site map series

On the following pages there are three maps of this site.

- The first map (FR_068a) is the main site map showing the site boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_068b) shows the site boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.4.9b to II.4.9d, data sources are indicated in the tables.
- The third map (FR_068c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site

maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.

- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

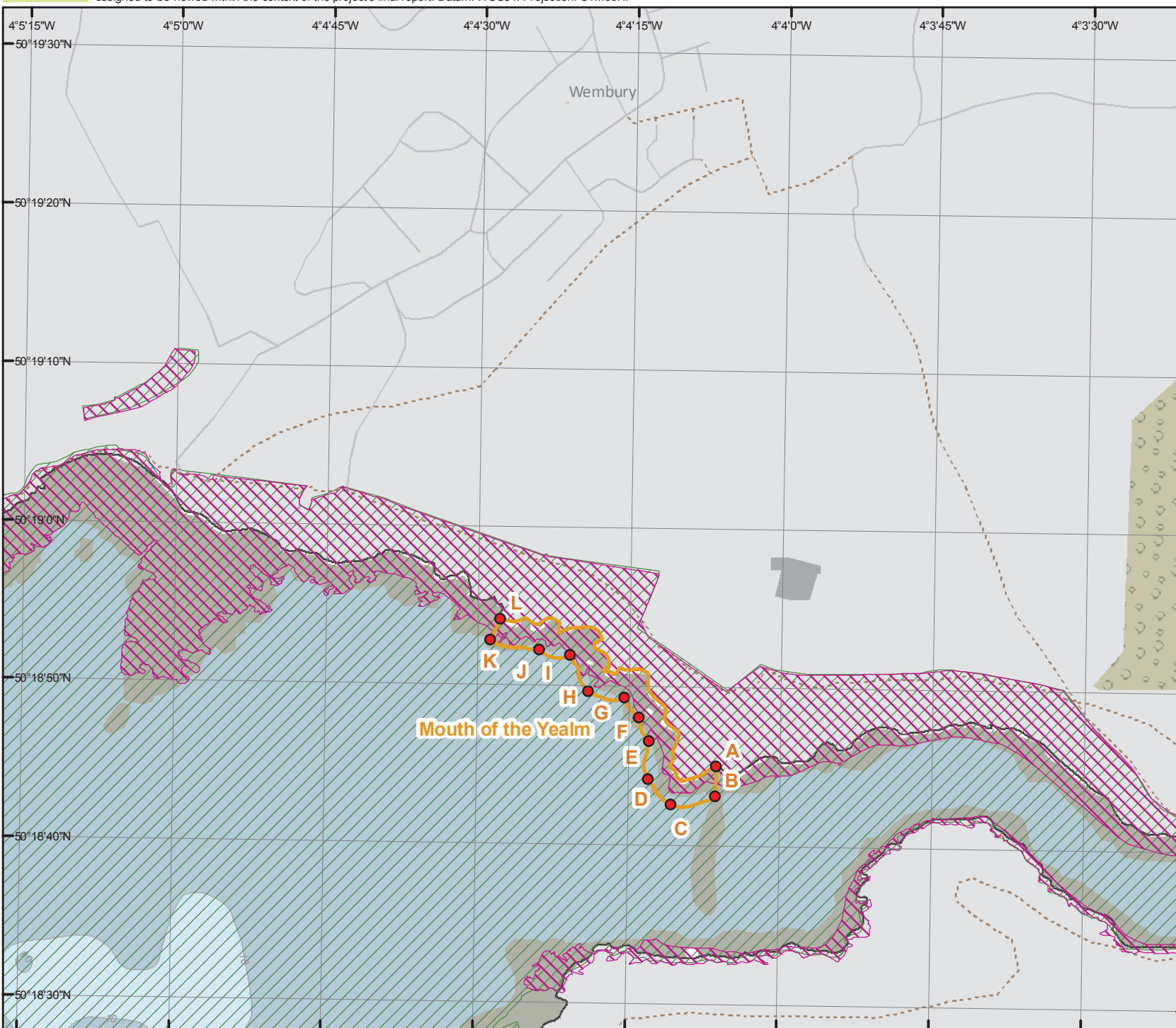
Mouth of The Yealm Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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0 125 250 500 m

N



Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.3125	-4.0684	50° 18' 44" N	4° 4' 6" W
B	50.3120	-4.0684	50° 18' 43" N	4° 4' 6" W
C	50.3118	-4.0696	50° 18' 42" N	4° 4' 10" W
D	50.3123	-4.0703	50° 18' 44" N	4° 4' 12" W
E	50.3129	-4.0703	50° 18' 46" N	4° 4' 12" W
F	50.3133	-4.0705	50° 18' 47" N	4° 4' 13" W
G	50.3137	-4.0710	50° 18' 49" N	4° 4' 15" W
H	50.3138	-4.0719	50° 18' 49" N	4° 4' 18" W
I	50.3144	-4.0725	50° 18' 51" N	4° 4' 20" W
J	50.3145	-4.0733	50° 18' 52" N	4° 4' 23" W
K	50.3147	-4.0746	50° 18' 52" N	4° 4' 28" W
L	50.3150	-4.0744	50° 18' 54" N	4° 4' 27" W

Map Legend

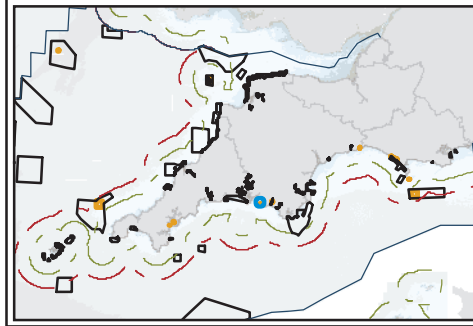
Recommended reference area

Existing MPAs

SAC

SSSI (part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



Map: FR_068b

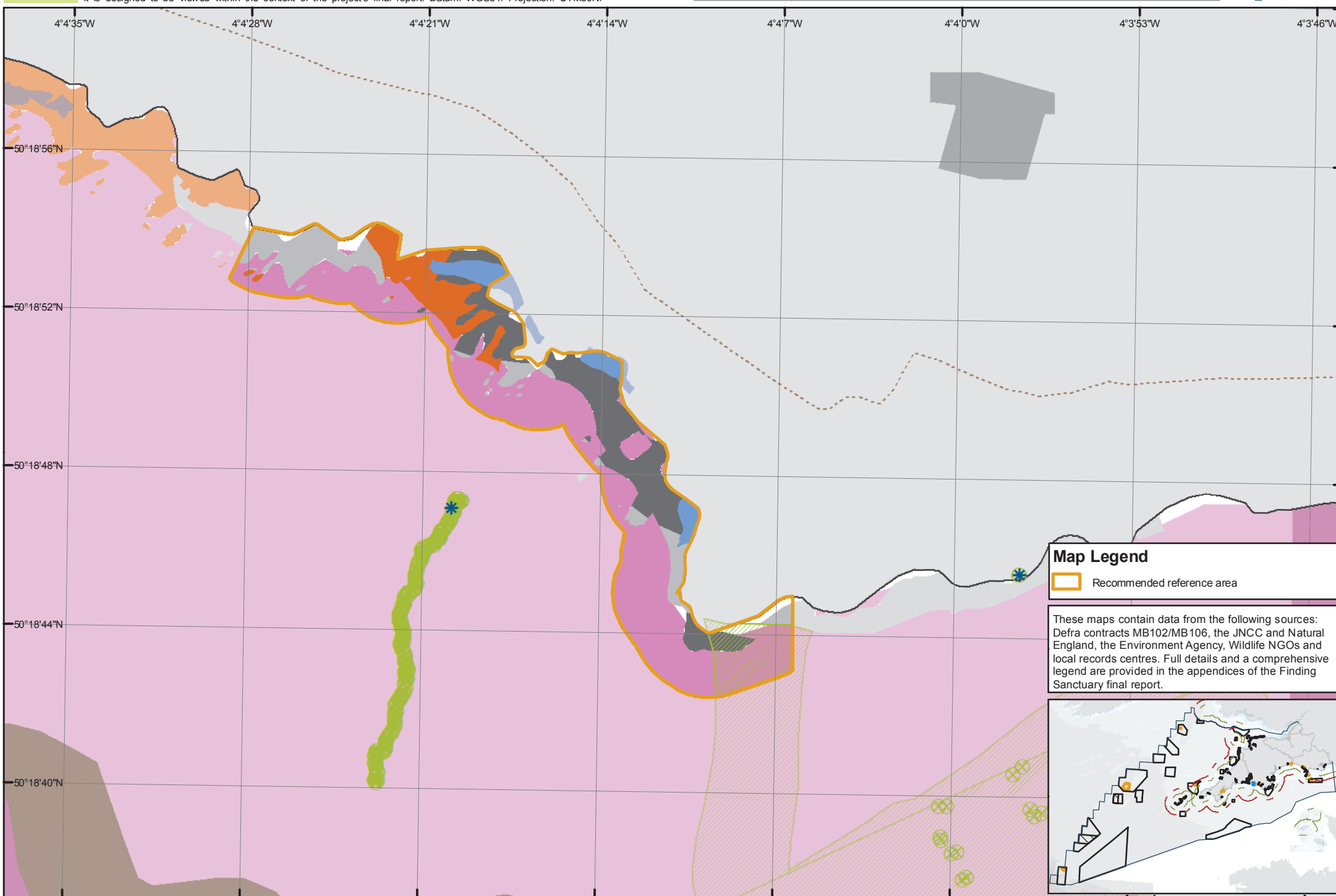
Version: 31 Aug 11

Mouth of The Yealm Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 90 180 m

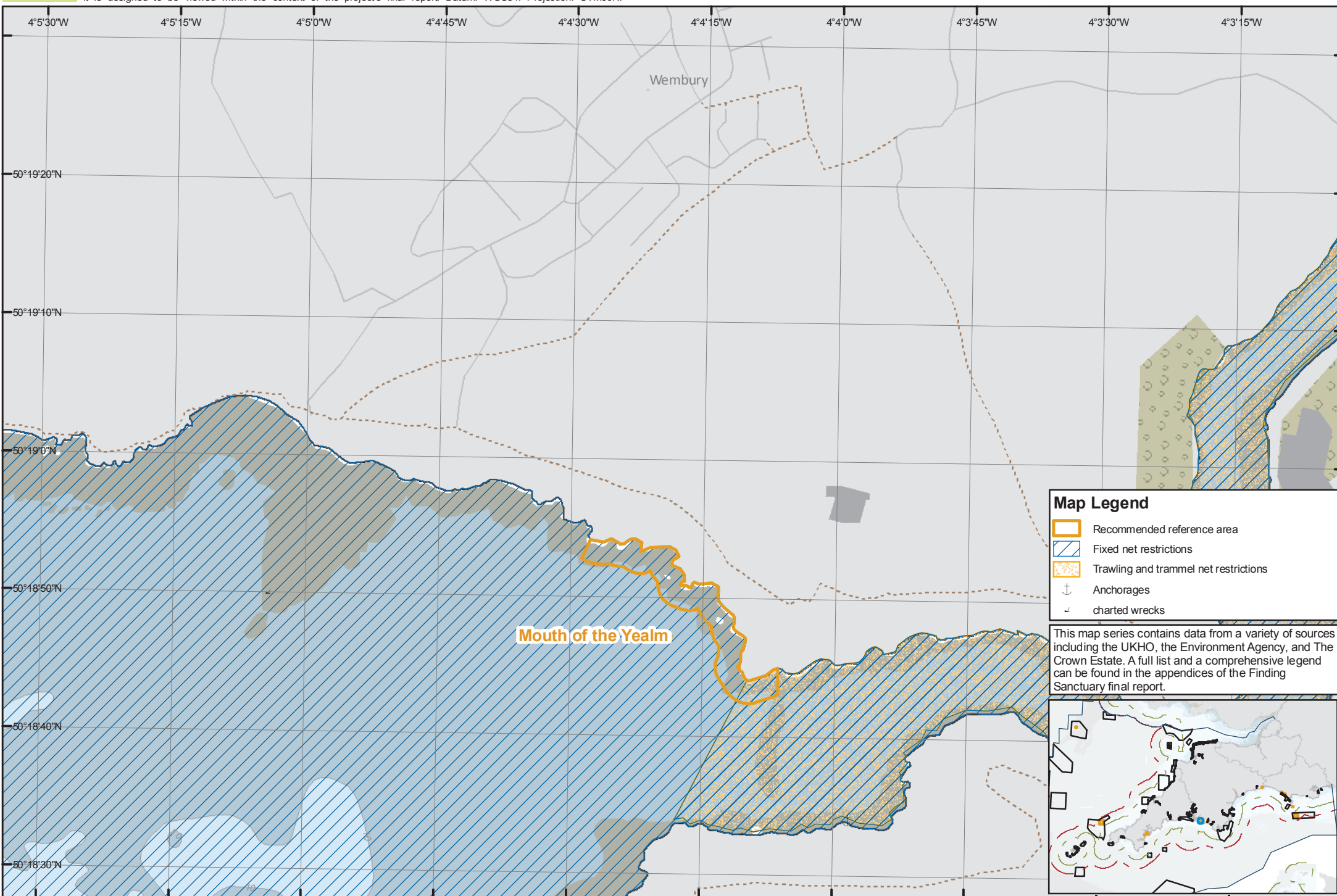


Mouth of The Yealm Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 125 250 500 m



II.4.10 The Fal recommended reference area

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.1676	-5.0278	50° 10' 3" N	5° 1' 40" W

Site surface area: 715195.1 m²

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Seas

Site boundary: The Fal recommended reference area is rectangular in shape. The northern boundary is a straight east to west line from an area on the east bank of the Fal in line with Tregear Vean (which is further inland). The western boundary is a straight line which runs north to south in a south-west direction before the southern boundary comes inland in a straight line to an area on the east bank of the river in line with Newton Farm (which is further inland). The eastern boundary then follows the Ordnance Survey Boundary Line mean high water mark until it joins the northern boundary.

Sites to which the site is related: The Fal recommended reference area sits within the boundary of the Fal and Helford SAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within The Fal recommended reference area

Table II.4.10a shows a summary of the draft conservation objectives for this recommended reference area. This is an extract of the conservation objective summary tables in section II.2.6. All features in the table have draft conservation objectives, including those in the right-hand column, in line with the Conservation Objective Guidance. Features in the right-hand column are not counted towards the figures in section II.2.9 unless specifically stated.

Table II.4.10a Draft conservation objectives for The Fal recommended reference area. All features shown in the table have a draft conservation objective of ‘recover to reference condition’. The full text of the draft conservation objectives can be found in appendix 15.

	Viable size guidelines met	Viable size guidelines not met
Broad-scale habitats		Subtidal coarse sediment Subtidal macrophyte-dominated sediment Subtidal sand Intertidal coarse sediments¹ Low energy intertidal rock¹
FOCI habitats	Maërl Beds Seagrass Beds	
FOCI species	<i>Lithothamnion corallioides</i> <i>Ostrea edulis</i> <i>Phymatolithon calcareum</i>	<i>Cruoria cruoriaeformis</i> ² <i>Gobius couchi</i> ² <i>Grateloupia montagnei</i> ²
	<i>Anguilla anguilla</i> ³	

¹ None of the intertidal broad-scale habitats are represented in recommended reference areas that meet the minimum size guideline (5km), but recent SAP and SNCB advice has recognised that the size guideline is not realistic for intertidal habitats. The intertidal habitats have been highlighted in green to show that we are considering these to be represented within the current set of recommended reference areas (unlike the other features listed in the second column).

² The Fal recommended reference area, is a little smaller than the minimum size requirement of 1km. Enlarging this site westwards, however, would not capture more of the same habitat (maërl and seagrass beds), as the depth increases to the west – so enlarging the site to meet the minimum size guidelines would probably not provide more habitat suitable for these species.

³ The European eel is included in draft conservation objectives for estuarine sites on the basis of evidence provided by the Environment Agency (see appendix 8). No minimum viable patch size for the species is included in the ENG.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary’s GIS datasets.

Table II.4.10b Subtidal broad-scale habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary’s EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
Subtidal coarse sediment	0.05	<0.1%	1
Subtidal sand	0.38	<0.1%	1, 2
Subtidal macrophyte-dominated sediment	0.26	1.3%	1

Table II.4.10c Intertidal broad-scale habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary’s EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 2 - MESH, 3 - Environment Agency, 4 – MB102.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
Low energy intertidal rock	0.02	0.5%	1
Intertidal coarse sediments	<0.01	<0.1%	3

Table II.4.10d **FOCI habitats** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Maerl beds	0.24	11		1
Seagrass beds	0.34	2		1

Table II.4.10e **FOCI species** to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Cruoria cruoriaeformis</i>	1		1
<i>Gobius couchi</i>	1		1
<i>Grateloupia montagnei</i>	1		1
<i>Lithothamnion corallioides</i>	5		1
<i>Ostrea edulis</i>	3	1	1
<i>Phymatolithon calcareum</i>	7	1	1, 3

This recommended reference area also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 0.45 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Site summary

The recommended reference area in the Fal estuary is a small area located just north of St Mawes. It has a depth range from mean high water to 7 -8 metres below chart datum. The reason for including this area as a recommended reference area is because of its particularly rich benthic habitat and species diversity; with two important FOCI habitats present (maërl beds and seagrass beds).

Detailed site description

There is a lot of information on the Fal estuary system, and some of the literature is briefly reviewed below. It has been harder to find information relating just to the specific location of the recommended reference area, as it is such a small site.

The most site-specific relevant information was found in Farnham & Bishop, 1985; Farnham & Jephson, 1977; Rostron (1985) and James (1983). St Mawes bank has the most extensive bed of the unattached calcified seaweed (maërl) in England and Wales (Farnham & Bishop, 1985; Farnham & Jephson, 1977). Maerl beds attract many other species particularly those sheltering amongst the branching interstices, for example, the rare Couch's goby (*Gobius couchii*). Two species of maërl have been identified, *Phymatolithon calcareum* and *Lithothamnium coralloides*. Inshore of the maërl

bed, seagrass (*Zostera marina*) is present on the sandy substrata (Rostron, 1985). Down to some 16m, the seabed was covered with live maërl (James, 1983). The maërl was mixed with pebbles, mud and a considerable amount of shell. Many burrowing species were present, including a possible record of the anemone *Halcampoides purpurea*. Large numbers of *Asterias rubens* and *Cancer pagurus* were working over this section. From 16m down to 30m, the seabed slopes steeply, with many rather bare rocky outcrops. These had small amounts of *Verruca stroemia* and *Nemertesia antennina* and clumps of smaller hydroids, particularly *Campanularia hinksii* and *Halecium* spp. (James, 1983). At the bottom of the channel (around 34m), the bottom consisted of broken shell and sand, with rocky outcrops. There is a large bed of *Pecten maximus* at this depth which is apparently little dredged due to the rocky nature of the bottom. *Laminaria saccharina* (*Saccharina latissima*) was the main kelp recorded, growing on some of the larger pebbles among the maërl (James, 1983).

Rostron (1985) carried out intertidal surveys between 2nd and 9th May, 1985. Various types of shore with rocky, muddy or mixed substrata were surveyed. Twenty-four intertidal and 51 subtidal sites were surveyed. Trawls and dredges obtained from 7 areas and suction samples from 3 sites were examined. Shores of St Mawes bank dominated by furoid algae with a rich variety of species under the canopy and within rockpools. The Percuil River, inland of Carricknath Point/St Mawes Harbour, has rich sublittoral and littoral communities. Patches of sublittoral rock, an uncommon habitat within the ria system, provide suitable substrata for a rich sponge and ascidian community. Substrata within the Fal estuary are predominantly sediments. Fine mud is present intertidally in the upper reaches of the rivers and creeks and also in the deep central channel where it passes through Carrick Roads (Rostron, 1985).

The wider Fal and Ruan estuary complex has long been recognised as a site of major marine biological importance (Davies, 1998). Within the littoral environment, there is a wide range of habitats from moderately exposed rock to very sheltered sediment. Sites within the estuary, notably Place Cove and Carricknath Point, have been studied since 1955 by scientists from the Plymouth Marine Laboratory. Many of these records are unpublished; the Cornish Biological Records Unit retains a large amount of data for the area (Davies, 1998). Slow tidal currents and a high rate of siltation results in a general lack of sublittoral rock habitats and the presence of extensive sediment banks. Within the littoral environment, there is a wide range of habitats from moderately exposed rock to very sheltered sediment (Davies, 1998). Bryan & Gibbs (1983) describe the rocky shore communities within the Fal.

Sheltered rocky shores from Amsterdam Point to Carricknath Point were algal dominated and displayed well developed zonation patterns. Bishop & Holme (1980) rated the whole of the St Mawes Inlet of national marine biological importance for the sediment communities present. Sheltered flats composed of sand and muddy sand had a wide range of burrowing invertebrate species which were classified as '*Echinocardium – siliqua*', '*Pallustra*' and '*Lanice*' communities (Rostron, 1985).

Place cove is a sheltered sediment cove with rich infaunal communities. The communities present were dominated by polychaete worms *Myxicola infundibulum*, *Sabella pavonica* and *Lanice conchilega*, the bivalves, *Chamelea gallina* (*Venus striatula*), *Angulus* (*Tellina*) *tenuis* and razor shells *Ensis arcuatus* (Rostron, 1985).

Turnaware Point to King Harry Reach provides examples of littoral and sublittoral communities on bedrock, shingle and in coarse sediment and was considered of regional importance (Rostron, 1985). Littoral communities typical of sheltered shores, the growth from of some groups such as the sponges were characteristic of marine inlets. At Turnaware Point, a substrata of tideswept stony

sediment had high species richness. Sublittoral communities considered to be similar to an impoverished open coast community but with growth forms of sponges typical of sheltered conditions (Rostron, 1985).

The Fal-Ruan estuary was surveyed by Bunker & Perrins (1993) under contract to the National Rivers Authority (Davies, 1998). The Fal was a major source of native oysters (*Ostrea edulis*) but a combination of over-fishing, pollution, poor spat-fall and more recently an outbreak of the disease, *Bonamia*, has led to a decline in the Oyster fishery (Davies, 1998).

Two surveys of the South West England estuaries were undertaken by Craig & Moreton (1986) during the periods June-August 1981 and October 1982. Sediment samples were collected at low water from intertidal sites. Luoma & Bryan (1978) collected sediment samples from the oxidized surface layer of intertidal sediments. Widdows *et al.* (2007a) measured sediment properties and macrofauna. The Devoran site on a branch of the Fal estuary (represented a firm consolidated mud in front of an extensive saltmarsh of *Salicornia europaea*). *Cruoria cruoriaeformis* and *Gobius couchii* was reported in the Fal during the 1985 OPRU HRE Fal Estuary survey (Rostron, 1985). *Lithothamnion corallioides* and *Phymatolithon calcareum* was also reported during the 1985 OPRU HRE Fal Estuary survey (Rostron, 1985) and the 2001/2002 Falmouth and Helford sublittoral survey. *Ostrea edulis* was reported in 2009 during the Cefas survey of the Fal and Solent. Ongoing research is being carried out by the Falmouth Habitat Project directed by Miss Trudy Russell at the Falmouth Marine School.

Stakeholder narrative: Assumptions and Implications

Reference areas will exclude all depositional and extractive activities, and might result in restrictions or management of potentially damaging and disturbing activities, as defined in the SNCB's draft reference area guidance document (available [here](#)⁶⁵). This guidance is relatively clear and specific, therefore no further work on defining assumptions on management of reference areas was carried out.

Appendix 10 shows the content of the draft reference area guidance, converted into a layout similar to the layout for the assumptions / implications tables presented in the rMCZ site reports – this was used at meetings as a template upon which to record site-specific comments. However, site-specific comments were limited, so we have not inserted the whole table here.

Stakeholder representatives from across many sectors were concerned about the implications of reference areas for the large range of activities affected (the Impact Assessment, to be finished in January 2012, will analyse these impacts in detail). On the other hand, conservation representatives highlighted the conservation benefits of highly protected areas. These generic comments apply to all recommended reference areas.

The ports sector (and Falmouth Harbour Commissioners specifically) have serious concerns about the potential implications of this recommended reference area. They are not in favour of it being implemented. They requested that the information in the following bullet points be noted in this site report:

- Port of Falmouth has a significant role in serving the local, regional and national economy and is of strategic significance to the County of Cornwall. The Port facilitates a diverse range of activities with marine-based industry, commercial shipping, recreational activities and

⁶⁵ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

aquaculture generating significant socio-economic value for the local Cornish economy. These activities, specifically commercial activities within Falmouth Port significantly contribute towards the local Cornish and wider national economy. Falmouth Port is a key source of employment for the region where the shipping industry also supports the tourism sector. Annual turnover of the port is in the region of £45 million/ annum (of which the Inner Harbour generates approx. 10%) and the capital investment in the port master plan over the next 10 years is expected to be in the region of £140 million which includes main channel dredging and construction of new berths.

- The recommended reference site is in the limits of the port jurisdiction and situated in an active part of the Port of Falmouth. The locality including the reference site and the port are within an existing SAC, and the SAC brings with it its own legal and environmental requirements. The port considers that sufficient protection is in place already. There is concern that by having a reference site within a SAC, additional regulatory requirements will be introduced.
- A thorough Economic Impact Assessment is outstanding and essential in order to assess the immediate and future economic impact of this reference site on the port. Furthermore the site risks navigational safety having been used in the recent past for casualty reception and sheltering vessels. A serious question should be raised about the viability of an active port and reference site in such close proximity and in this case the economic significance of the port and navigational safety should take priority.
- Natural England have advised that despite the close proximity of the site to the docks that this should not impact on the future expansion of the port (specifically construction of structures and dredging). If this does not hold true, the ports representative stated that the direct impact on the port and any impact on industries that may use it should be factored into the impact assessment and a reference site in this location should be reconsidered. Falmouth Harbour has and continues to pursue Government permissions to develop the port, including building new structures to develop the port, and this should be a major factor in considering whether this is an appropriate location for a reference site.
- This recommended reference area overlaps with the several order for an existing traditional oyster dredge fishery (sail and oar).

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

As stated above, there was much clearer guidance available on what activities will be restricted in reference areas, compared with MCZs in general. Therefore, the uncertainties around reference areas were much more limited.

A remaining uncertainty that stakeholder representatives highlighted repeatedly was about possible impacts on activities near the boundary of reference areas. Some activities might have knock-on impacts beyond the area where they are being carried out, e.g. sediment plumes from aggregate extraction, or from construction/ infrastructure maintenance work. There is uncertainty over what 'buffer zones' might be needed around reference areas for such activities.

Additional comments

- *Recreational Sea Angling*

- It has been highlighted that sea angling, including catch and release, occurs at this location and these activities can be hard to police. Catch and release angling is not viable for soft species e.g. Mackerel and herring
 - The local Cornish Federation of Sea Anglers practices catch and release and have set higher than legal catch sizes, reflecting an attitude which is in favour of conservation.
- *Commercial Fishing*
 - Very important area for prawn fishing (winter only).

Please also refer to the general narrative for recommended reference areas in section II.2.3.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Fishing representatives have stated that they will not support any recommendations for recommended reference areas. Like other recommended reference areas, the site is controversial, with strong support from conservationists and strong concerns over the socio-economic impacts from many other sectors.

This site has strong support from conservationists, as it has such a rich benthic habitat. Other stakeholders have also recognised that this site is an efficient location for contributing towards the ENG requirements for reference areas. However, Falmouth Harbour Commissioners are strongly opposed to the site, for the reasons stated above.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, MESH, MB102, Cornwall Wildlife Trust and Environment Agency intertidal habitat data. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](http://jncc.defra.gov.uk/page-4)⁶⁶.

Site map series

On the following pages there are three maps of this site.

- The first map (FR_070a) is the main site map showing the site boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees,

⁶⁶ <http://jncc.defra.gov.uk/page-4>

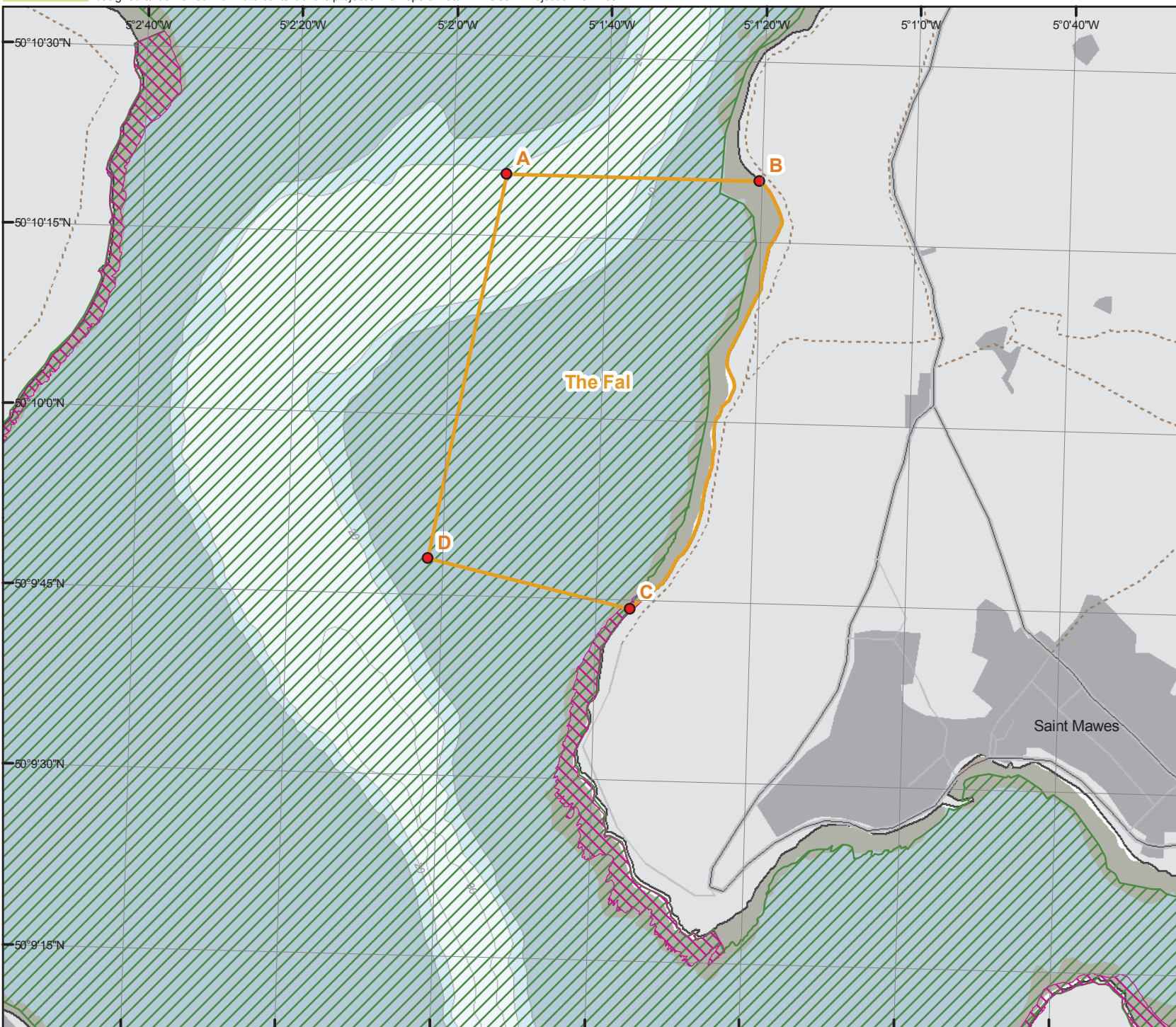
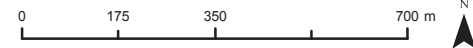
minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.

- The second map (FR_070b) shows the site boundary over broad-scale habitats, and records of habitat and species FOCI. The data shown on this map corresponds with the information in tables II.4.10b to II.4.10e, data sources are indicated in the tables. The pink squares on this map are polygon data for the maërl bed FOCI habitat, not the high-energy infralittoral rock broad-scale habitat (the symbology used is similar for both, see appendix 7). The biophysical interactive PDF maps (in additional materials, see appendix 14) allow individual data layers to be individually clicked on and off, which may help visual interpretation of the information.
- The third map (FR_070c) shows socio-economic datasets. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

The Fal Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.




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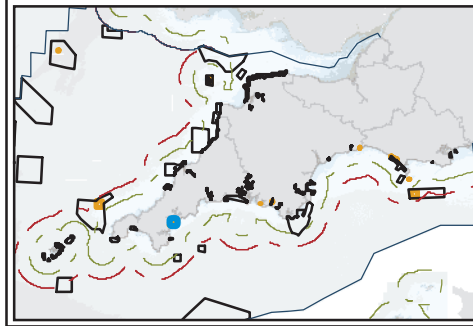
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.1723	-5.0314	50° 10' 20" N	5° 1' 53" W
B	50.1723	-5.0223	50° 10' 20" N	5° 1' 20" W
C	50.1623	-5.0265	50° 9' 44" N	5° 1' 35" W
D	50.1633	-5.0339	50° 9' 48" N	5° 2' 1" W

Map Legend

-  Recommended reference area
- Existing MPAs**
 -  SAC
 -  SSSI (part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



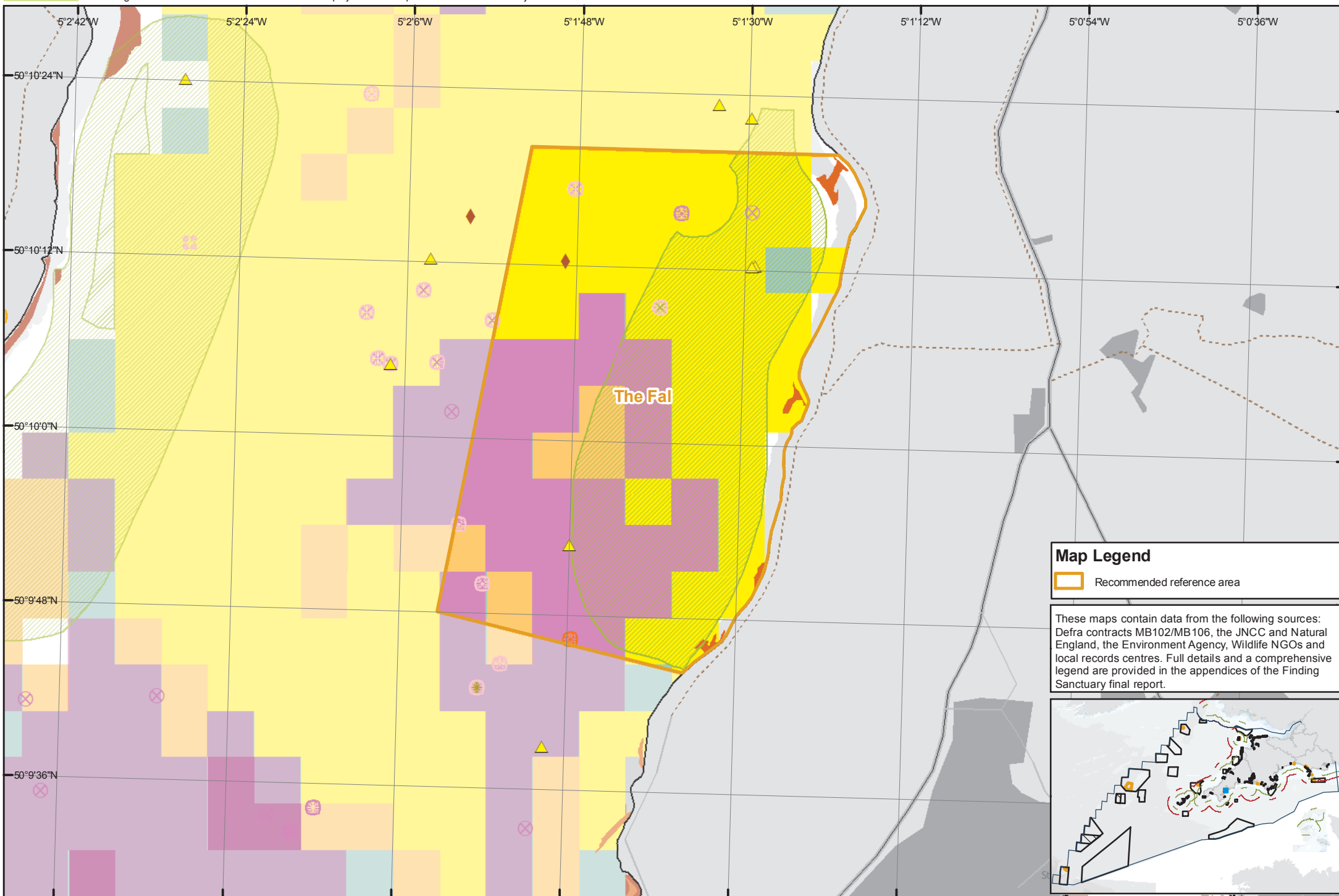
Map: FR_070b The Fal Recommended Reference Area

Version: 31 Aug 11

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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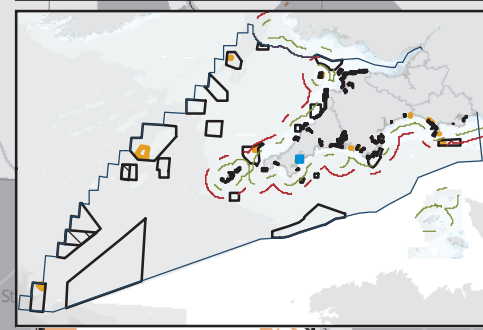
0 125 250 500 m



Map Legend

Recommended reference area

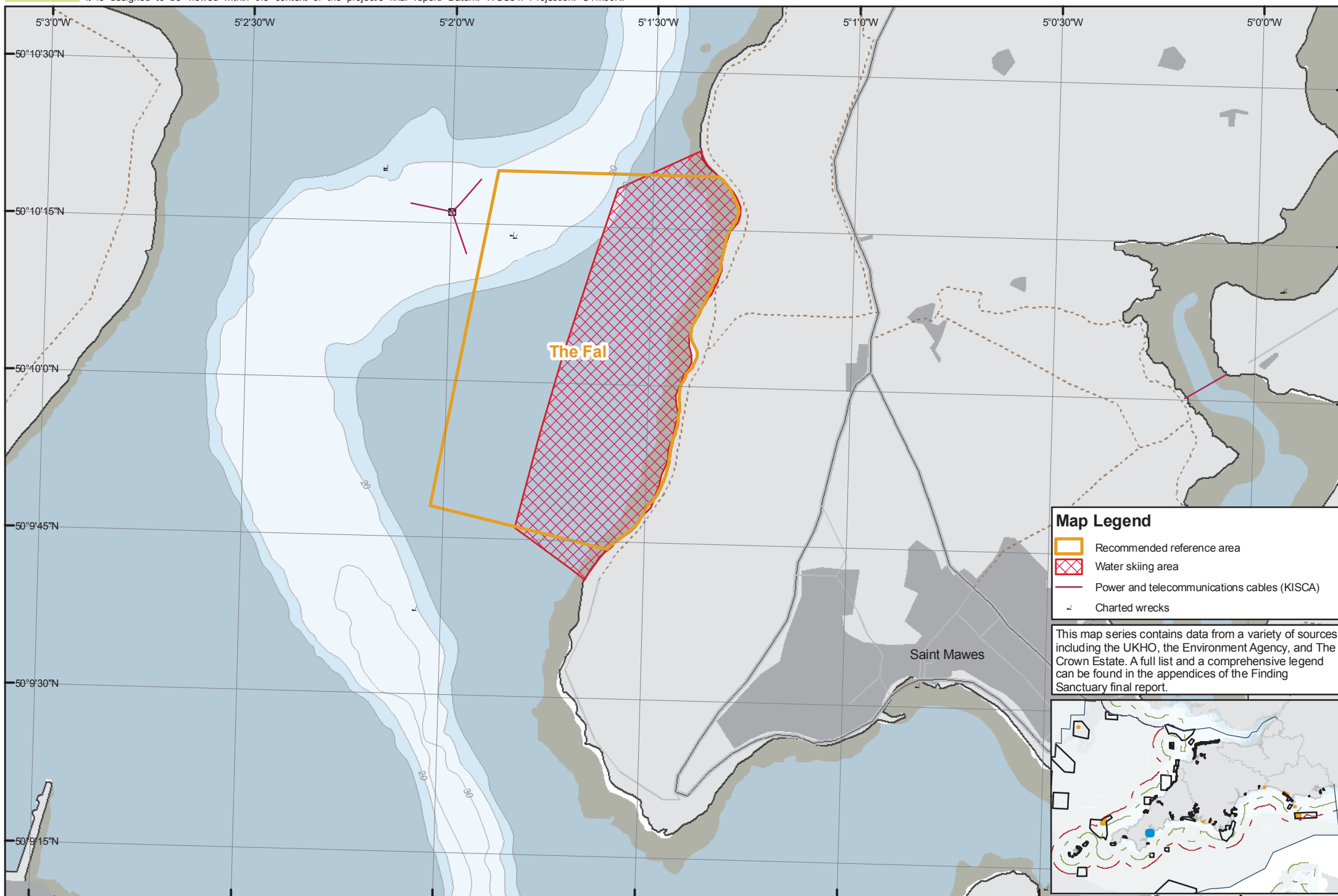
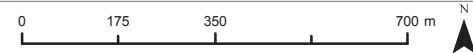
These maps contain data from the following sources: Defra contracts MB102/MB106, the JNCC and Natural England, the Environment Agency, Wildlife NGOs and local records centres. Full details and a comprehensive legend are provided in the appendices of the Finding Sanctuary final report.



The Fal Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with socio-economic information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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II.4.11 Swanpool recommended reference area

Basic site information

The Swanpool Lagoon in Falmouth is the only place in English waters where the trembling sea mat *Victorella pavid*a has been recorded. It would need to be a reference area in order to meet the ENG. However, the site falls above the OS Boundary Line mean high water line, which is the line we use to define the limit of our study region. Therefore, it is viewed by some to be beyond the remit of Finding Sanctuary.

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.1428	-5.0781	50° 8' 34" N	5° 4' 41" W

Site surface area: 64347.5 m²

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Seas

Site boundary: The site is technically outside the limits of the study area (above the OS Boundary Line MHW). At the time of the planning discussions, no detailed terrestrial basemap GIS data was available to the project. The boundary for this site is very roughly drawn, to indicate the location of the Swanpool lagoon, but not following the exact boundary of the lagoon. If this site is to be implemented, then the site boundary should be re-drawn around the lagoon feature, using a standard terrestrial basemap such as OS Mastermap.

Sites to which the site is related: The Swanpool recommended reference area sits within the boundary of the Fal and Helford SAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Swanpool recommended reference area

Table II.4.11a shows a summary of the draft conservation objectives for this recommended reference area. This is an extract of the conservation objective summary tables in section II.2.6. All features in the table have draft conservation objectives, including those in the right-hand column, in line with the Conservation Objective Guidance. Features in the right-hand column are not counted towards the figures in section II.2.9 unless specifically stated.

Table II.4.11a Draft conservation objectives for Swanpool recommended reference area. All features shown in the table have a draft conservation objective of 'recover to reference condition'. The full text of the draft conservation objectives can be found in appendix 15.

	Viable size guidelines met	Viable size guidelines not met
FOCI species		<i>Victorella pavid</i> a

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets.

Table II.4.11b FOCI species to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Victorella pavida</i>	102		1

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Site summary

Swanpool is a lagoon, fed by two freshwater streams, formed behind a sand and shingle bar on the coast at Falmouth (Davies, 1998). It is included in the set of recommended reference areas because it is the only known location in the region where the FOCI species *Victorella pavida* is recorded.

Detailed site description

Swanpool has the only natural population in Britain of a species of Bryozoan, the trembling sea mat *Victorella pavida* (Whitten, 1990). From 1968 to 1982 a series of investigations studied the hydrography and ecology of the pool (Barnes *et al.* 1971; Dorey *et al.* 1973; Little, 1985; 1986). Carter *et al.* (2010) monitored the life-cycle of *V. pavida* in its natural habitat within Swanpool. The results from the study suggest that any changes in the hydrographic regime at Swanpool could have significant consequences for the survival of *V. pavida*.

Stakeholder narrative: Assumptions and Implications

Reference areas will exclude all depositional and extractive activities, and might result in restrictions or management of potentially damaging and disturbing activities, as defined in the SNCB's draft reference area guidance document (available [here](#)⁶⁷). This guidance is relatively clear and specific, therefore no further work on defining assumptions on management of reference areas was carried out.

Appendix 10 shows the content of the draft reference area guidance, converted into a layout similar to the layout for the assumptions / implications tables presented in the rMCZ site reports – this was used at meetings as a template upon which to record site-specific comments. However, site-specific comments were limited, so we have not inserted the whole table here.

⁶⁷ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

Stakeholder representatives from across many sectors were concerned about the implications of reference areas for the large range of activities affected (the Impact Assessment, to be finished in January 2012, will analyse these impacts in detail). On the other hand, conservation representatives highlighted the conservation benefits of highly protected areas. These generic comments apply to all recommended reference areas.

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

As stated above, there was much clearer guidance available on what activities will be restricted in reference areas, compared with MCZs in general. Therefore, the uncertainties around reference areas were much more limited.

A remaining uncertainty that stakeholder representatives highlighted repeatedly was about possible impacts on activities near the boundary of reference areas. Some activities might have knock-on impacts beyond the area where they are being carried out, e.g. sediment plumes from aggregate extraction, or from construction/ infrastructure maintenance work. There is uncertainty over what 'buffer zones' might be needed around reference areas for such activities.

Additional comments

No additional comments were recorded specifically for this site, but please refer to the general narrative for recommended reference areas in section II.2.3.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Fishing representatives have stated that they will not support any recommendations for recommended reference areas. Very few human activities of significance occur in Swanpool, so there is relatively less concern over this site compared to others. However, there is also less strong support from conservationists for this site compared to others, as most conservationists would rate the ecological value of other sites in the network above this one, especially given that Swanpool is already a designated SSSI, and *V. pavidus* is already protected within it.

In comparison to other sites in the network, a lot less time was spent discussing or working on the narrative and boundary definition of this site. As stated above, it is viewed by some, technically, to fall beyond the remit of this project.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Bamber

(1998). Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](#)⁶⁸.

Site map series

On the following pages there are two maps of this site.

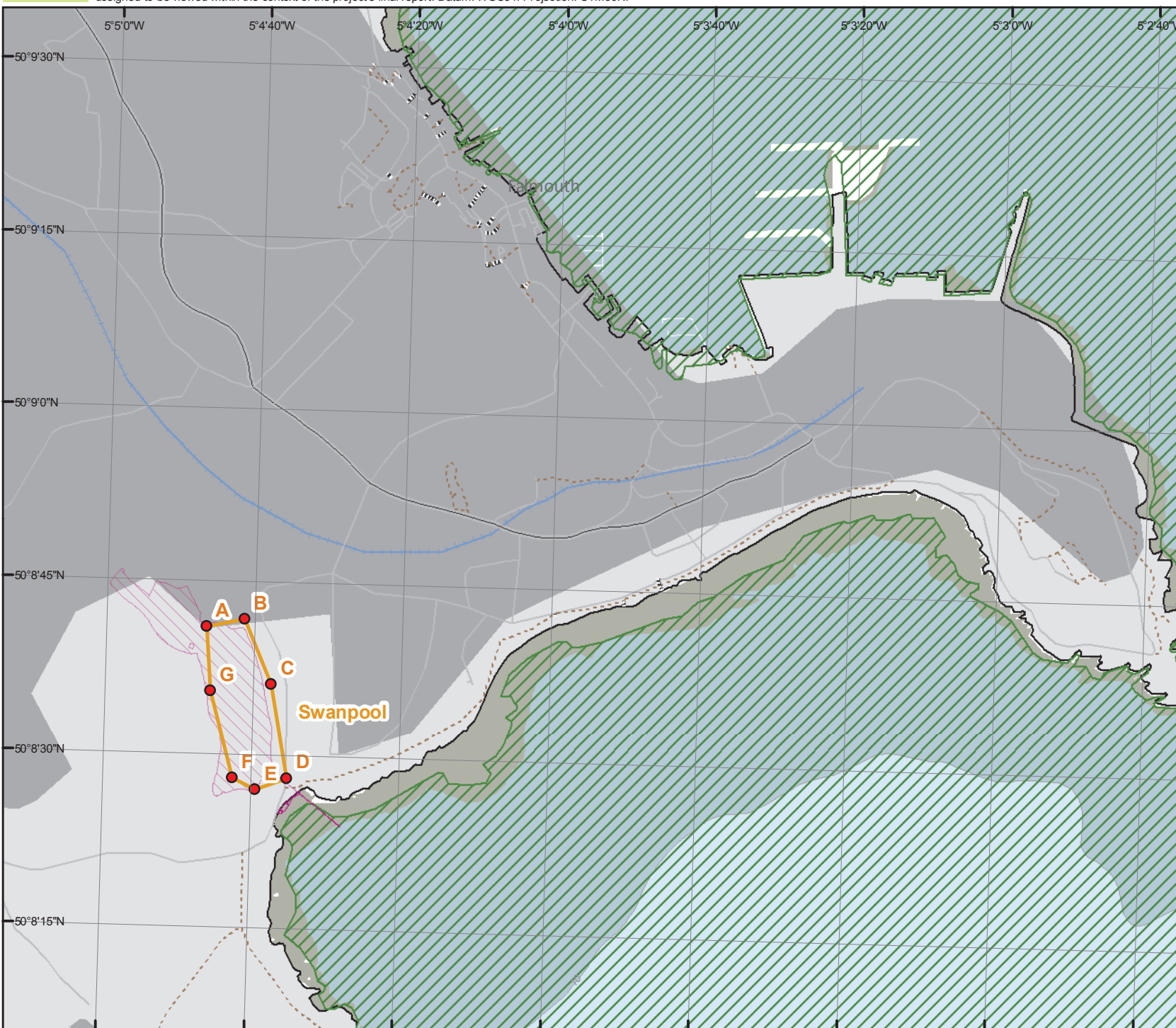
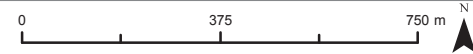
- The first map (FR_071a) is the main site map showing the site boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_071b) shows the site boundary over broad-scale habitats, and records of habitat and species FOCl. The data shown on this map corresponds with the information in table II.4.11b, data sources are indicated in the table.
- Most site reports contain a map showing socio-economic datasets. This one does not, as there is limited human activity within the site.
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

⁶⁸ <http://jncc.defra.gov.uk/page-4>

Swanpool Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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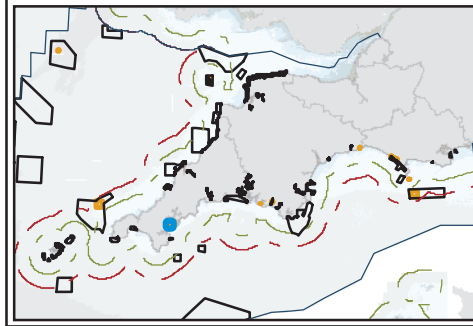
Lat/Long Co-ordinates (WGS84)

	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.1447	-5.0796	50° 8' 41" N	5° 4' 46" W
B	50.1449	-5.0782	50° 8' 41" N	5° 4' 41" W
C	50.1434	-5.0771	50° 8' 36" N	5° 4' 37" W
D	50.1411	-5.0764	50° 8' 28" N	5° 4' 35" W
E	50.1408	-5.0776	50° 8' 26" N	5° 4' 39" W
F	50.1411	-5.0785	50° 8' 27" N	5° 4' 42" W
G	50.1432	-5.0794	50° 8' 35" N	5° 4' 45" W

Map Legend

- Recommended reference area
- Existing MPAs**
- SAC
- SSSI (part of MPA network)
- SSSI (not part of MPA network)

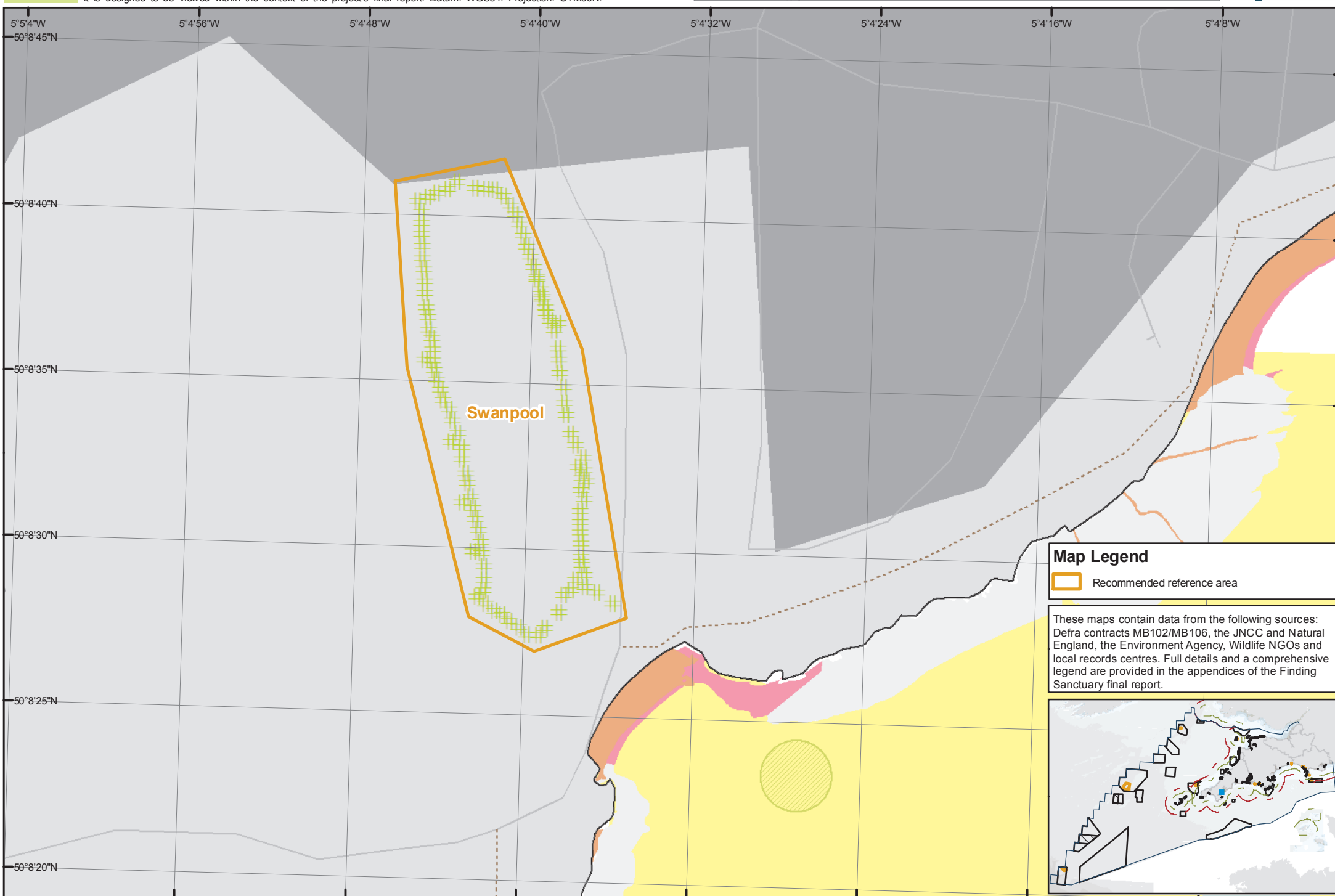
A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.



This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, with biophysical information. It is designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 50 100 200 m



II.4.12 Cape Bank recommended reference area

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
50.2796	-5.8568	50° 16' 46" N	5° 51' 24" W

Site surface area: 24.99 km²

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Seas

Site boundary: The site is a simple square, with borders running north to south and east to west, in line with ENG guidelines. The northern boundary is in line with the northern boundary of the Cape Bank rMCZ.

Sites to which the site is related: The Cape Bank recommended reference area sits within the boundary of the Cape Bank rMCZ and the Cape Bank section of the Land's End and Cape Bank cSAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Cape Bank recommended reference area

Table II.4.12a shows a summary of the draft conservation objectives for this recommended reference area. This is an extract of the conservation objective summary tables in section II.2.6. All features in the table have draft conservation objectives, including those in the right-hand column, in line with the Conservation Objective Guidance. In this recommended reference area, the site is large enough to meet the ENG minimum viable size guidelines for all the listed features.

Table II.4.12a Draft conservation objectives for Cape Bank recommended reference area. All features shown in the table have a draft conservation objective of 'recover to reference condition'. The full text of the draft conservation objectives can be found in appendix 15.

	Viable size guidelines met	Viable size guidelines not met
Broad-scale habitats	High energy circalittoral rock High energy infralittoral rock Moderate energy circalittoral rock Moderate energy infralittoral rock Subtidal coarse sediment	
FOCI species	<i>Palinurus elephas</i> ¹ <i>Eunicella verrucosa</i> ¹	

¹ There are no records in our spatial datasets of these species within the boundaries of this site, but a recent NE SAC survey (Natural England, 2010) confirmed the presence of both species on Cape Bank. We therefore assume these species are represented within this site.

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.4.12b Subtidal broad-scale habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
High energy infralittoral rock	0.70	<0.1%	1
Moderate energy infralittoral rock	0.69	0.2%	1
High energy circalittoral rock	0.42	<0.1%	1
Moderate energy circalittoral rock	20.59	0.1%	1
Subtidal coarse sediment	2.60	<0.1%	1

Table II.4.12c FOCI habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Subtidal sands and gravels ¹	3.16			1

¹ Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Site summary

Cape Bank lies to the west of the Land's End peninsula and extends to almost 25 km from the coast. The area contains a crescent-shaped Annex I reef system, which is protected under the Land's End and Cape Bank cSAC. The recommended reference area at Cape Bank is located within the cSAC and rMCZ boundaries, approximately 16km north-west of Cape Cornwall. The site's depth range is 35 and 60 metres below sea level.

Detailed site description

The reefs within the cSAC are fully submarine, upstanding features which are composed of almost entirely of granite. The crescent shaped system of offshore upstanding rocky reefs forms the major feature of conservation interest within the cSAC. It measures about 35km along its central spine and 12km at its widest point. The reef is characterised by high biodiversity tide-swept communities such as sponges, faunal and algal turfs and crustose communities (Natural England, 2010).

The site's south westerly position on the British coast means that the sub-littoral zone is exposed to the full force of the waves and oceanic swells coming in from the Atlantic, as well as experiencing full

salinity, given the absence of any major source of fresh water runoff from the land (Natural England, 2010).

Two multidisciplinary (acoustic and sampling) surveys were conducted in 2007 by CEFAS (2008) as part of work to identify the site boundary for the cSAC. A total of 540 km of acoustic survey lines (sidescan sonar and multibeam bathymetry) were run at the which equated to a coverage of 215 km². Digital video and stills data were collected at 27 sites and 12 scallop dredge sites were sampled along with 13 Hamon grabs sites CEFAS (2008). An inshore survey was also conducted to collect only acoustic and optical data (i.e. sidescan sonar and visual data) on the upstanding shallow inshore reef areas CEFAS (2008).

The outer part of Cape Bank is characterised by at least three sub-parallel, high linear rock ridges which extend for over 20 km in a slightly curving S-NNE trending arc. These ridges sit on a rock platform at a depth of 45 to 55 m and can reach up to 25 m high and be over a kilometre wide with steep slopes and cover over 100 km² in total area (Natural England, 2010).

Palinurus elephas was reported in the Cape Bank area during the 2007 Natural England Cape Bank Annex I habitat survey. The offshore upstanding rocky reefs areas are the most biodiverse of all rocky reef habitats within the site. The most abundant biotope in this area is *Caryophyllia smithii* and sponges with *Pentapora foliacea*, *Porella compressa* and crustose communities on wave-exposed circalittoral rock (Natural England, 2010).

Poulton *et al.* (2002) In Jones *et al.* (2004) have described the sediment types of the Cape Bank area using models supported by ground-truthing.

Stakeholder narrative: Assumptions and Implications

Reference areas will exclude all depositional and extractive activities, and might result in restrictions or management of potentially damaging and disturbing activities, as defined in the SNCB's draft reference area guidance document (available [here](#)⁶⁹). This guidance is relatively clear and specific, therefore no further work on defining assumptions on management of reference areas was carried out.

Appendix 10 shows the content of the draft reference area guidance, converted into a layout similar to the layout for the assumptions/ implications tables presented in the rMCZ site reports – this was used at meetings as a template upon which to record site-specific comments. However, site-specific comments were limited, so we have not inserted the whole table here.

Stakeholder representatives from across many sectors were concerned about the implications of reference areas for the large range of activities affected (the Impact Assessment, to be finished in January 2012, will analyse these impacts in detail). On the other hand, conservation representatives highlighted the conservation benefits of highly protected areas. These generic comments apply to all recommended reference areas.

⁶⁹ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

As stated above, there was much clearer guidance available on what activities will be restricted in reference areas, compared with MCZs in general. Therefore, the uncertainties around reference areas were much more limited.

A remaining uncertainty that stakeholder representatives highlighted repeatedly was about possible impacts on activities near the boundary of reference areas. Some activities might have knock-on impacts beyond the area where they are being carried out, e.g. sediment plumes from aggregate extraction, or from construction/ infrastructure maintenance work. There is uncertainty over what 'buffer zones' might be needed around reference areas for such activities.

Additional comments

For this specific site, additional comments from the fishing industry highlighted that the area is potted for shellfish and there are outstanding concerns over access for the shellfishery. Handline fishermen (from outside the Steering Group) have commented that they have more marks in northern part of Cape Bank than southern part, and that the recommended reference area is located in one of the worst parts of the area as far as their interests are concerned (this feedback was not available to the Working Group, so it was not taken into consideration).

Please also refer to the general narrative for recommended reference areas in section II.2.3.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Fishing representatives have stated that they will not support any recommendations for recommended reference areas. Like other recommended reference areas, the site is controversial, with strong support from conservationists and strong concerns over the socio-economic impacts from many other sectors.

Support for this site from the renewables sector will depend on whether a buffer is required surrounding a reference area, and whether this will add extra burden to future developments in the nearby area. The reason for locating the reference area in that specific location was in part to avoid cable routes, not all of which are represented on KISCA charts, but which the representative from The Crown Estate highlighted to the group. Local small-scale handliners (fishing for bass, mackerel and haddock, amongst others) do not support the site.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Dipper (1981) and Hiscock (1981). Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](http://jncc.defra.gov.uk/page-4)⁷⁰.

Site map series

On the following pages there are two maps of this site.

- The first map (FR_072a) is the main site map showing the site boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_072b) shows the site boundary over broad-scale habitats, and records of habitat and species FOCl. The data shown on this map corresponds with the information in table II.4.2b, data sources are indicated in the table.
- Most site reports contain a map showing socio-economic datasets. This one does not – refer instead to map FR_050c, included in the Cape Bank rMCZ site report. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

⁷⁰ <http://jncc.defra.gov.uk/page-4>

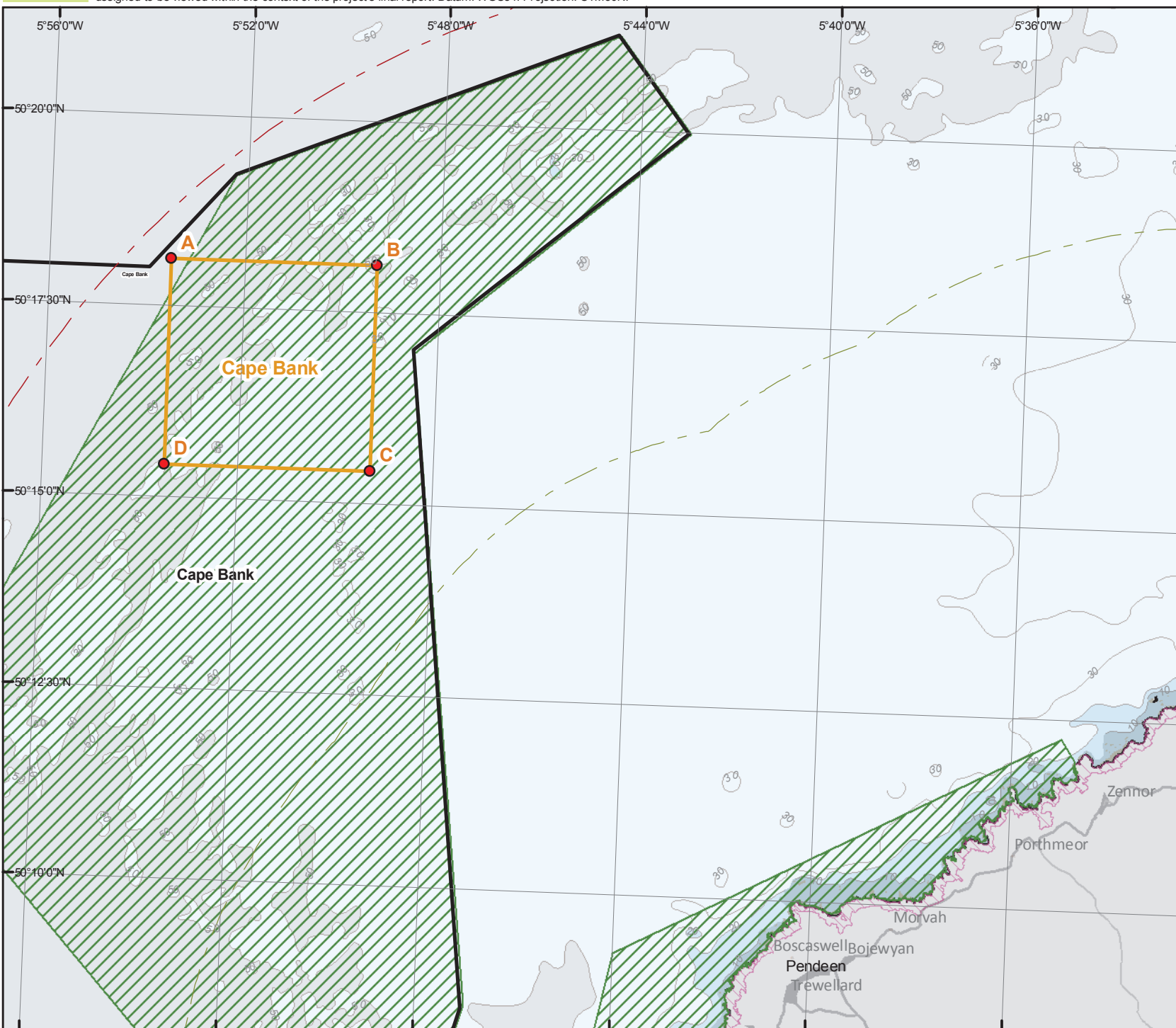
Cape Bank Recommended Reference Area

This is one of a series of maps showing Finding Sanctuary's final MCZ recommendations, designed to be viewed within the context of the project's final report. Datum: WGS84. Projection: UTM30N.

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0 1.5 3 6 km

N



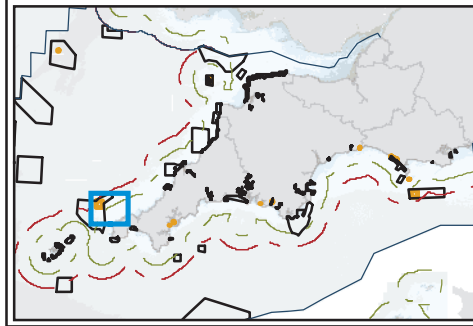
Lat/Long Co-ordinates (WGS84)

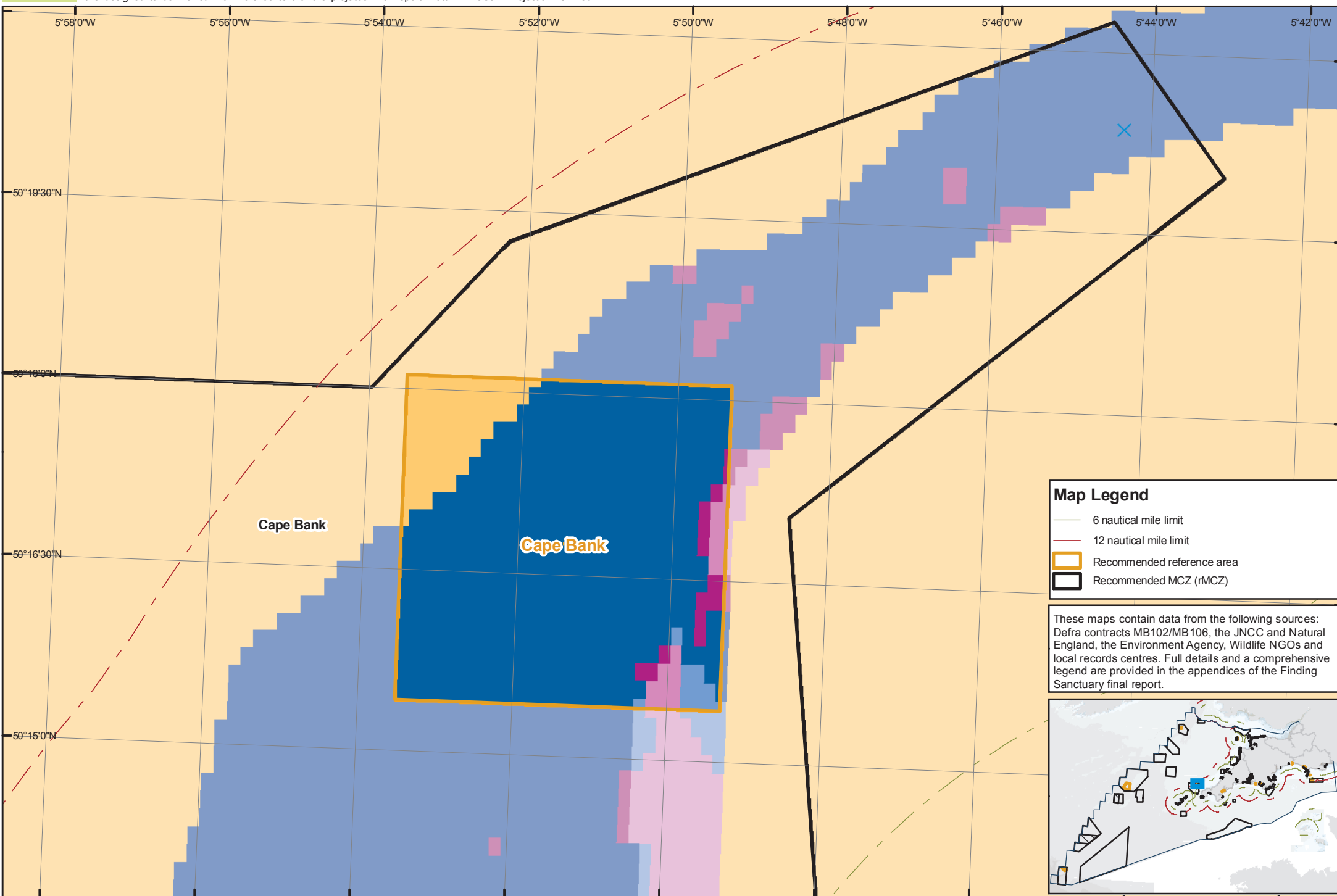
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	50.3020	-5.8919	50° 18' 7" N	5° 53' 30" W
B	50.3021	-5.8217	50° 18' 7" N	5° 49' 18" W
C	50.2571	-5.8218	50° 15' 25" N	5° 49' 18" W
D	50.2571	-5.8919	50° 15' 25" N	5° 53' 30" W

Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- Recommended reference area
- Recommended MCZ (rMCZ)
- Existing MPAs**
- SAC
- SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





II.4.13 Lundy recommended reference area

Basic site information

Site centre location (datum used: ETRS89):

Decimal Degrees		Degrees Minutes Seconds	
Lat	Long	Lat	Long
51.1859	-4.6575	51° 11' 9" N	4° 39' 27" W

Site surface area: 3.7 km²

Biogeographic region:

JNCC regional sea: Western Channel and Celtic Sea

OSPAR region: Region III: Celtic Seas

Site boundary: The site boundary is identical to the boundary of the existing Lundy no-take zone.

Sites to which the site is related: The Lundy recommended reference area is identical to the boundary of the existing Lundy no-take zone and sits within the Lundy MCZ and SAC.

Maps of the site are included at the end of this site report. The main site map shows points with coordinates along the site boundary (in WGS84 UTM30N).

Features proposed for designation within Lundy recommended reference area

Table II.4.13a shows a summary of the draft conservation objectives for this recommended reference area. This is an extract of the conservation objective summary tables in section II.2.6. All features in the table have draft conservation objectives, including those in the right-hand column, in line with the Conservation Objective Guidance. Features in the right-hand column are not counted towards the figures in section II.2.9 unless specifically stated.

Table II.4.13a Draft conservation objectives for Lundy recommended reference area. All features shown in the table have a draft conservation objective of 'recover to reference condition'. The full text of the draft conservation objectives can be found in appendix 15.

	Viable size guidelines met	Viable size guidelines not met
Broad-scale habitats		Moderate energy circalittoral rock Moderate energy infralittoral rock Subtidal coarse sediment Subtidal sand
FOCI habitats	Fragile sponge & anthozoan communities on subtidal rocky habitats	Mud Habitats in Deep Water
FOCI species	<i>Amphianthus dohrnii</i> <i>Leptopsammia pruvoti</i> <i>Phymatolithon calcareum</i>	<i>Eunicella verrucosa</i> <i>Palinurus elephas</i>

The following tables show ENG-related statistics for this site, reported from spatial data available in Finding Sanctuary's GIS datasets. Greyed out rows indicate features for which GIS data exists within the site boundary, but which have not been included on the list of draft conservation objectives (the reasons are stated in table footnotes).

Table II.4.13b Subtidal broad-scale habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's EUNIS level 3 broad-scale habitat GIS data (see appendix 8). Data sources: 1 - UKSeaMap, 2 - MESH, 3 - Environment Agency.

Habitat	Area covered within site (km ²)	% of total in study area	Source(s)
Moderate energy infralittoral rock	0.99	0.3%	1
Moderate energy circalittoral rock	0.04	<0.1%	1
Subtidal coarse sediment	0.14	<0.1%	1
Subtidal sand	2.53	<0.1%	1

Table II.4.13c FOCI habitats to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data sources: 1 - MB102; 2 - JNCC/ MESH Canyons survey data; 3 - ERCCIS/Isles of Scilly Wildlife Trust; 4 - DORIS.

Habitat	Area covered (km ²)	Number of point records (total)	Number of point records (pre-1980)	Source(s)
Fragile sponge & anthozoan communities on subtidal rocky habitats		1	1	1
Mud habitats in deep water ¹		12	12	1
Subtidal sands and gravels ²	2.21			1

¹ The presence of this habitat at Lundy has been questioned by a member of the SAP who knows the area first hand (see detailed site description for this site and the Lundy MCZ).

² Conservation objectives have not been included for subtidal sands and gravels as we have considered any conservation requirements met by listed broad-scale habitats.

Table II.4.13d FOCI species to be protected in this recommended reference area, based on an analysis of Finding Sanctuary's amalgamated GIS FOCI datasets (see appendix 8). Data Sources: 1 - MB102; 2 - Dorset Wildlife Trust; 3 - Cornwall Wildlife Trust; 4 - DERC; 5 - SeaSearch 2009; 6 - Steve Trehwella Survey Log 2010.

Species	Number of point records (total)	Number of point records (pre-1980)	Source(s)
<i>Amphianthus dohrnii</i>	1		1
<i>Eunicella verrucosa</i>	37	14	1, 5
<i>Leptopsammia pruvoti</i>	12	1	1, 5
<i>Palinurus elephas</i>	2	1	1
<i>Phymatolithon calcareum</i>	1	1	1

This recommended reference area also intersects with polygonal data which The Seahorse Trust provided via our interactive map, indicating the stretches of the south-west coastline along which one or both species of seahorse are found. This site intersects with 1.56 km² of seahorse area polygon (refer to appendix 8 for more information).

For additional understanding on how this site is located in relation to areas of high benthic biodiversity, offshore bird aggregation areas, or areas of seasonal or persistent sea surface temperature fronts, please refer to the data layers supplied in the interactive PDF presented alongside this report.

Site summary

Lundy is a small island lying 18 km off the North Devon coast (Davies, 1998). It measures just 5 km by 1.25 km and has 15 km of coastline ranging from very exposed to very sheltered from wave action. Most of the island is formed of granite with softer slate in the south-east corner, off the south coast and offshore of the north coast. Rock-type strongly influences the shores of the island: the majority of the coast comprises steep granite cliffs with inaccessible shores of granite boulders below. A breeding colony of grey seals *Halichoerus grypus* is present on the island (Davies, 1998). Studies of the marine biology of Lundy are summarised in Hiscock (1997). In 1973, the island became the first voluntary marine nature reserve in Britain and, in November 1986, Britain's first statutory Marine Nature Reserve. The management plan was published by English Nature (1993). After the Marine and Coastal Access Act came into force, Lundy became an MCZ.

There has been a small no-take zone on the eastern side of Lundy since 2003, and it is this no-take zone that is recommended as a reference area. The site extends from the shoreline to depths of approximately 30 metres below sea level.

Detailed site description

The full salinity reefs are both infralittoral and circalittoral (>50 m depth), and are highly influenced by coastal processes. Several communities at their northern limit of distribution occur here. Fragile long-lived species, such as the soft coral *Parerythropodium coralloides*, sea-fans *Eunicella verrucosa* and erect branching sponges, are present, as are all five British species of cup-coral (English Nature, 2000).

The communities of benthic fauna around Lundy are unusually rich with many rare and delicate slow-growing species (McDouall, 2006). Hiscock (1981a) described the distribution of species with depth on sediment. The highest diversity of fauna and flora was present in conditions of weak wave action but moderate tidal streams, mainly the northern part of the east coast of Lundy. Many of the conspicuous Mediterranean– Atlantic elements of the fauna were recorded in that area. For example, the rare alga *Carpomitra costata*, red sea-fingers *Alcyonium glomeratum*, the anemones *Parazoanthus axinellae* and *Aiptasia mutabilis* and the southern species of cup coral *Leptopsammia pruvoti* (Hiscock, 1981a) which was recorded during a preliminary study on the Porifera of Lundy (Hiscock *et al.* 1983).

There is a particularly rich diversity of seaweeds - 316 species have been recorded, approximately 50% of the UK total (McDouall, 2006). This may in part be a reflection of survey effort, and the intense study it has received by phycologists over 60 years, but it is considered genuinely very rich. It is the most northerly site for *Laminaria ochroleuca* in the UK. In 2008, alien species of seaweed were recorded that had not been reported in earlier studies (Brodie *et al.* 2007). The communities of benthic fauna are also unusually rich with many rare and delicate slow-growing species (McDouall, 2006). A number of nationally rare and scarce species have been recorded from coarse sediments around Lundy, including the sea squirt *Molgula oculata* and the brown seaweed *Choristocarpus tenellus*. The red band fish *Cepola rubescens* occurs in subtidal mud around Lundy (McDouall, 2006).

Lundy is home to Short Snouted Seahorses and even though the actual sightings have been low in number, the habitat is perfect to support a reasonable population in this area (Neil Garrick-Maidment, *pers. comm.*). Seahorses *Hippocampus hippocampus* and *Hippocampus guttulatus*, Crawfish *Palinurus elephas*, and *Phymatolithon calcareum* have all been recorded during Seasearches around Lundy, although the presence of *Phymatolithon calcareum* could not be verified on later surveys and its presence has been questioned. Three dive surveys on rock and boulder areas in 2007 recorded *Eunicella verrucosa* and *Palinurus elephas* (Sharrock, 2008). Broad-scale habitats are already protected by the SAC (Keith Hiscock, *pers. comm.*)

Leptopsammia pruvoti was also recorded during the 1983 MCS Lundy MNR sublittoral survey; 1978-79 SWBSS Lundy sublittoral survey; and 1983-1984 Lundy and Isles of Scilly sessile epifaunal survey. *Palinurus elephas* specimens were recorded during the 1978-79 SWBSS Lundy sublittoral survey. A number of nationally rare and scarce species have been recorded from coarse sediments around Lundy, including the sea squirt *Molgula oculata* and the brown seaweed *Choristocarpus tenellus*. The red band fish *Cepola rubescens* occurs in subtidal mud around Lundy (McDouall, 2006). Warwick & Davies (1977) surveyed the sublittoral sediments and macrofauna in the Bristol Channel and around Lundy.

Hall-Spencer *et al.* (2007) and Munn *et al.* (2008) examined bacterial cultures from two *Eunicella verrucosa* specimens (which were described as necrotic) from Lundy to compare differences in the activity levels of bacterial enzymes. Wood (2003) conducted a pink sea fan survey from 2001-2002 during which the distribution, abundance and condition of sea fans were surveyed, and 100 sea fans were recorded from Lundy (east and west sides). *Eunicella verrucosa* has also been recorded around Lundy during the MCS Lundy MNR sublittoral survey (1983) and various SeaSearch surveys. Southward *et al.* (2004) carried out dredging, trawling, and SCUBA diving to recover *Solidobalanus fallax*, during which active searches for *Eunicella verrucosa* were carried out (record on Petes Pinnacle, Lundy Island at 28 m on *E. verrucosa*).

Stakeholder narrative: Assumptions and Implications

Reference areas will exclude all depositional and extractive activities, and might result in restrictions or management of potentially damaging and disturbing activities, as defined in the SNCB's draft reference area guidance document (available [here](#)⁷¹). This guidance is relatively clear and specific, therefore no further work on defining assumptions on management of reference areas was carried out.

Appendix 10 shows the content of the draft reference area guidance, converted into a layout similar to the layout for the assumptions/ implications tables presented in the rMCZ site reports – this was used at meetings as a template upon which to record site-specific comments. However, site-specific comments were limited, so we have not inserted the whole table here.

Stakeholder representatives from across many sectors were concerned about the implications of reference areas for the large range of activities affected (the Impact Assessment, to be finished in January 2012, will analyse these impacts in detail). On the other hand, conservation representatives highlighted the conservation benefits of highly protected areas. These generic comments apply to all recommended reference areas.

⁷¹ http://www.naturalengland.org.uk/Images/MCZ-regional-guidance_tcm6-23451.pdf

Stakeholder narrative: Uncertainties and Additional Comments

Uncertainties

As stated above, there was much clearer guidance available on what activities will be restricted in reference areas, compared with MCZs in general. Therefore, the uncertainties around reference areas were much more limited.

A remaining uncertainty that stakeholder representatives highlighted repeatedly was about possible impacts on activities near the boundary of reference areas. Some activities might have knock-on impacts beyond the area where they are being carried out, e.g. sediment plumes from aggregate extraction, or from construction / infrastructure maintenance work. There is uncertainty over what 'buffer zones' might be needed around reference areas for such activities. The site is located in a high tidal resource area, and changing it from a no-take zone to a reference area would preclude any future construction of tidal energy devices within the site boundaries.

Additional comments

No additional comments were recorded specifically for this site, but please refer to the general narrative for recommended reference areas in section II.2.3.

Levels of support

The network report (section II.2) includes a project team reflection on levels of support for the network recommendations as a whole, and the site specific reflection presented here should be read within the wider network context.

Fishing representatives have stated that they will not support any recommendations for recommended reference areas. Given that the site is already a no-take zone, there is less controversy and more support for this site than for other recommended reference areas. There is tidal resource at Lundy, and the renewables sector have stated some concern, because the current no-take zone does not theoretically prevent renewables developments, whereas a reference area would (and there is uncertainty over the need for a buffer area). However, they also recognise the ecological importance of the site, and the fact that a reference area located within the no-take zone would have less socio-economic impact than a similar sized reference area elsewhere. The wardens on Lundy support the site.

Supporting documentation

GIS data used for reporting the quantitative habitat and species figures in the tables above includes the following sources: UKSeaMap modelled broad-scale habitat data, Seasearch 2009, and MB102. Refer to appendix 8 for details, and to the tables above for data sources for specific features in this site.

Further evidence underpinning the site can be found in the publications and datasets referred to in the detailed site description. There may be additional information relevant to this rMCZ in Hiscock *et*

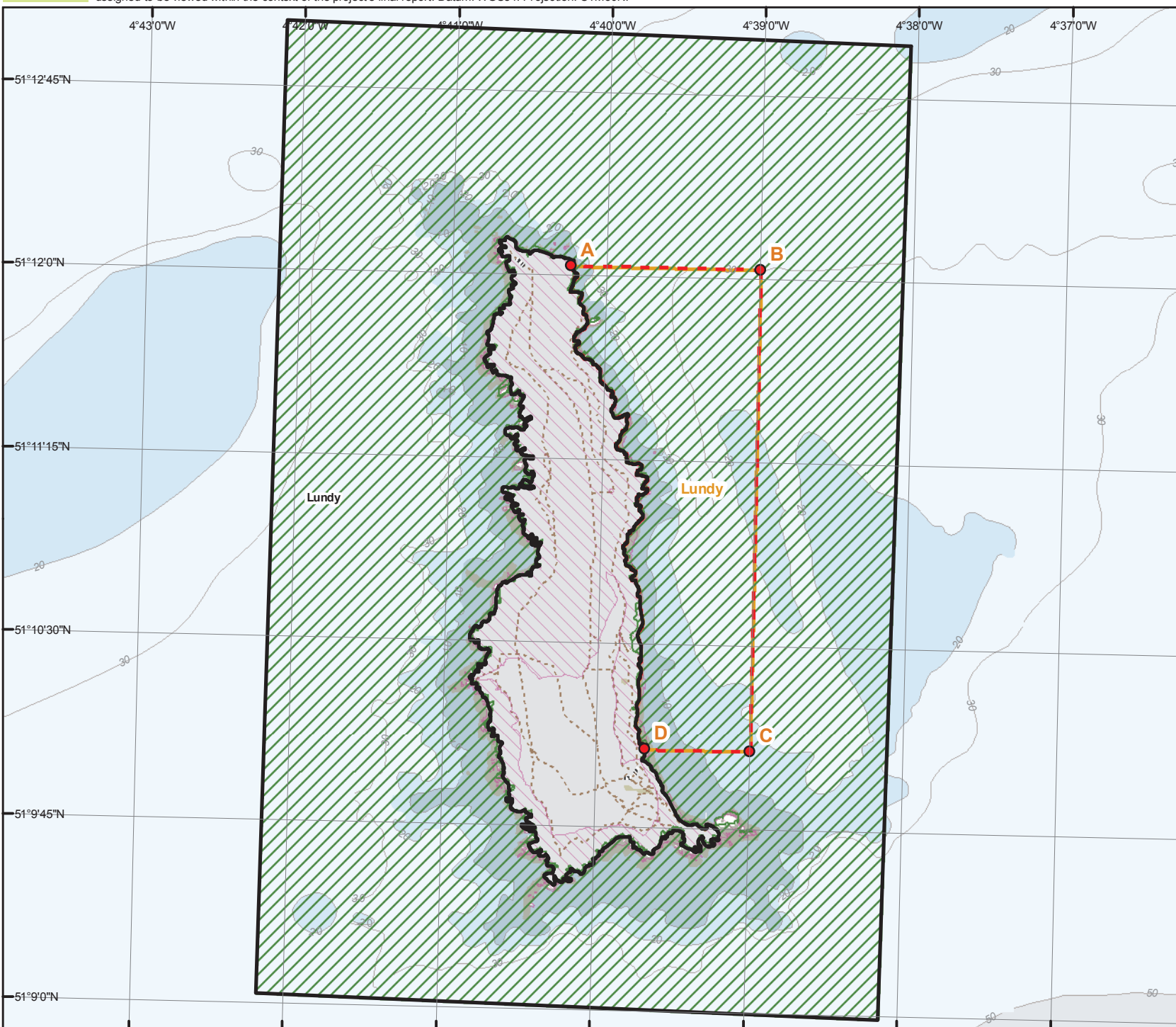
al. (1973). Further information on the Natura 2000 sites to which this site is related may be found on the JNCC's [website](#)⁷².

Site map series

On the following pages there are two maps of this site.

- The first map (FR_073a) is the main site map showing the site boundary and includes points with coordinates (in WGS84 UTM30N). The map also shows charted depth and existing Marine Protected Areas for reference. Please note: the lat/long coordinates of the vertices in the following maps have been calculated in decimal degrees, and in degrees, minutes and seconds. For plotting on a standard Admiralty (UKHO) chart, the seconds of each coordinate need to be converted to decimal. An MS Excel table showing all coordinates in degrees, minutes and decimal seconds has been provided in the additional materials section (see Appendix 14) for plotting purposes.
- The second map (FR_073b) shows the site boundary over broad-scale habitats, and records of habitat and species FOI. The data shown on this map corresponds with the information in tables II.4.13b to II.4.13d, data sources are indicated in the tables.
- Most site reports contain a map showing socio-economic datasets. This one does not – refer instead to map FR_055d, in the Lundy MCZ site report. For spatial data showing the distribution of fishing effort, please refer to the interactive PDF maps supplied with the additional materials (see appendix 14).
- Because of the large number of features shown on the site maps (especially inshore biophysical maps), it has not been possible to embed comprehensive legends within the site maps themselves. A comprehensive map legend is therefore provided in appendix 7, which explains the symbology used on all the maps within this final report.
- Appendix 8 describes the data sources for the information shown on the final report maps in detail.

⁷² <http://jncc.defra.gov.uk/page-4>



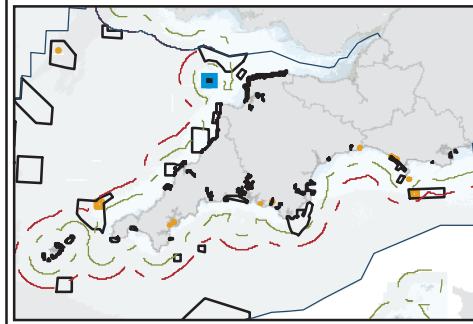
Lat/Long Co-ordinates (WGS84)

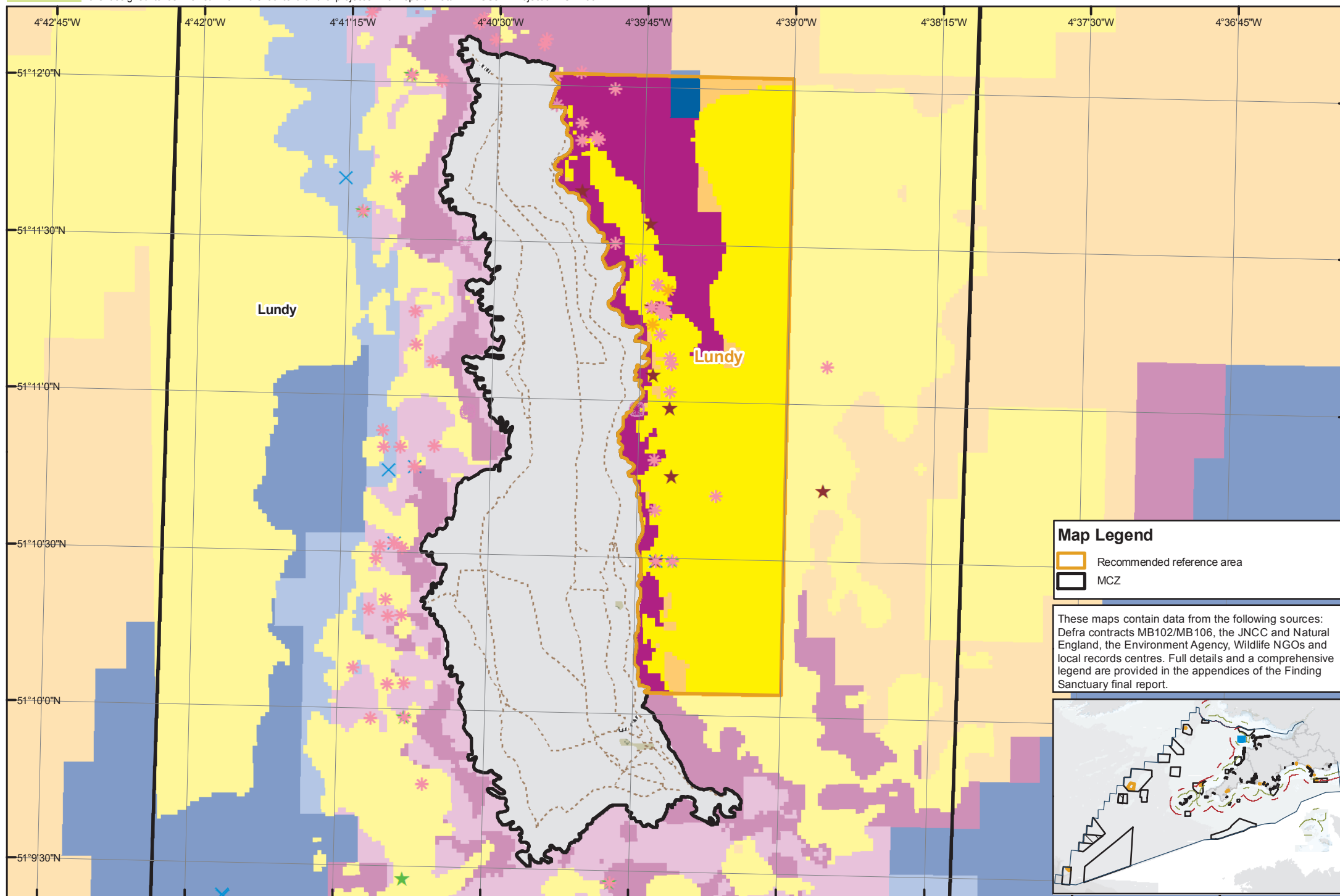
	Decimal degrees		Degrees Minutes Seconds	
	Lat	Long	Lat	Long
A	51.2007	-4.6705	51° 12' 2" N	4° 40' 13" W
B	51.2007	-4.6500	51° 12' 2" N	4° 38' 59" W
C	51.1678	-4.6500	51° 10' 4" N	4° 38' 59" W
D	51.1678	-4.6614	51° 10' 4" N	4° 39' 40" W

Map Legend

- Recommended reference area
- Recommended MCZ (rMCZ)
- Existing MPAs**
 - SAC
 - Lundy NTZ
 - SSSI (not part of MPA network)

A comprehensive legend is provided in the appendices of the Finding Sanctuary final report.





Appendix 1: Acknowledgements

The Finding Sanctuary project could not have been successful without the support of a very large number of individuals. Apologies to anyone we have missed.

Development of recommendations: Stakeholders

The completion of the recommendations presented in part II of this report are the result of hundreds of hours of work by a large number of stakeholder representatives, many of whom put in several days of their own time into the planning process. The members of the Inshore and Offshore Working Groups deserve particular mention, but many other individuals have worked very hard on shaping the network and accompanying narrative, including within the Local Groups. The membership of the stakeholder groups is detailed in appendices 2, 3, and 4.

Project Delivery and support

Project Founders: Chris Davis, Kate Bull, Roger Covey, Philippa Hoskin, Janette Ward

Project Board: Christine Marshall, Helen Booker, Ken Buchan, Jamie Davies, Phil Dyke, Rachel Waldock, Jenny Christie, Aidan Winder, Trevor Edwards, Amy Ridgeway, Jon Davies, Janette Ward, Philippa Hoskins, Rebecca Seaman, Simon Brenman, Chris Davis, Kate Bull

National Partners: Beth Stoker, Rhiannon Pipkin, Sangeeta McNair, Fiona McNie, Annabelle Aish, Jen Ashworth, Kate Bull, Sarah Wiggins, Gavin Black, Eddy Mayhew, James Marsden, John Goold, Nigel Gooding, Simon Crabbe, Jo Myers, Emily Musson, Gavin Ross, Ian Barrett, Alison Reeves, Kath Cameron, Cristina Herbon, Darren Green, Sarah Baxter, Lizzy Pearson, Robbie Fisher, Lydia Barnes, Michelle Hawkins, Roger Ward

Volunteers and Assistants: Catherine Burgess, Lauren Davis, Vanessa Smith, Esther Hughes, Dan Bayley, Holly Latham, Armandina Deller, Olusola Popoola

External support: Nick Pearce, Aimee Hammett, Guy Newman, Annette Newman, Abby Elliot-Square, Joanne Myram, Bertie Bowser, Claire Carsberg, Jon Young, Andrew May

Volunteer Liaison Officers: Melissa Clout, Brian Collic, Adrian Dowding, Roger Hollingsworth, Kate Last, Peter Maddern, Dougal Matthews, Martin Pratt, David Rayfield, Hannah Rose, Sharon Scurlock, Phil Sylvester, George Whitfield, Ben Winter

Office support: Mark Stevens, Julie Sherry, Jess Hoult

Data Providers

FisherMap and StakMap

Between October 2007 and October 2010 a total of 860 interviews were conducted with sea users across the region representing 251 fishing vessels and 247372 sea users. We are extremely grateful to all interviewees for giving up their time to help complete the questionnaires.

Those who have agreed to let us acknowledge them personally are as follows: Lewis Mulhearn, Paul Reidy, Douglas Hamlen, Steve Cox, Guy Penwarden, Geoff King, P.A. Hodder,

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Ecological Data Providers: Devon Environmental Records Centre, Russell Wynn, Neil Garrick-Maidment, Peter Tinsley, Dorset Environmental Records Centre, Environmental Records Centre for Cornwall and the Isles of Scilly, Seasearch, Royal Haskoning, CEFAS, JNCC, Natural England, Torbay Coast and Countryside Trust, North Devon Biosphere, Isles of Scilly Wildlife Trust, Pauline Weatherall (GEBCO), Helen Booker (RSPB), Gavin Black (DERC), Paul Robinson (JNCC), Beth Stoker (JNCC), Caroline Turnbull (JNCC), Matt Parsons (JNCC), Leigh Jones (Natural England)

Ecological Advisors, Science Workshop Participants: Gavin Black, Jean-Luc Solandt, Lauren Davis, Sue Ranger, Fiona McNie, Colin Speedie, Nick Tregenza, Tom Brereton, Dave Jarvis, Sue Sayer, Matt Witt, Rory Goodall, Ali Hood, Doug Herdson, Peter Richardson, Milly Hatton-Brown, Chris Davis, Beth Stoker, Nathalie Coltman, David Cotton, Nathan Sykes, Peter Tinsley, Richard White, Miles Hoskin, Philippa Hoskin, Emma Jackson, Andy Webb, James Grecian, Alice Jones, Russell Wynn, Nigel Smallbones, Paul McCartney, Ruth Porter, Paul St. Pierre, Kate Sugar, Helen Booker, Kerry Howell, Sian Rees, Miles Hoskin, Maria Campbell, Keith Hiscock, Robert Irving, Chris Wood, Harvey Tyler-Walters, Peter Tinsley

Isles of Scilly: Tim Allsop

Social Data Providers: William Lawrence (DSFC), Colin Trundle (CSFC), Jenny Christie (Cornwall Council), Nick Philips (Cornwall Wildlife Trust)

Technical Advice

A number of people have provided technical advice, constructive criticism and feedback to questions for the project over the years:

Jeff Ardron (Marine Conservation Biology Institute), Samantha Murray (Ocean Conservancy), Charles Steinback (Ecotrust), Will McClintock (University of California Santa Barbara), Mary Gleason (The Nature Conservancy), Dominique Monie (MLPA Initiative members &

associates), Hugh Possingham (University of Queensland), Bob Smith (DICE), Keith Hiscock (MarLIN), Lynda Rodwell (University of Plymouth), Annie Linley (Plymouth Marine Laboratory), Carissa Klein (University of Queensland), Dan Laffoley (IUCN), Fiona Gell (Isle of Man Government), Mark Duffy (Natural England), Jeff Jenness (Jenness Enterprises), Andrew Cottam (JNCC), Ian Ball (University of Queensland), Natalie Ban (University of British Columbia), ESRI user forum, Marxan mailing list

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Advocates and supporters

Paul Rose, Frank Pope, Jean-Luc Solandt, Joan Edwards, Paula Ferris, Alison Champion, Mark Simmonds

Regional project staff across England

The many project staff of the other three regional MCZ projects (Balanced Seas, Irish Sea Marine Conservation Zones, and Net Gain) deserve particular recognition for the support provided, including the sharing of tools, methods and experiences, and moral support. Thanks, and good luck to everyone following the end of the projects.

Appendix 2: Steering Group membership

SECTOR	SUBSECTOR	ORGANISATION	MEMBER	WORKING GROUP	SUBSTITUTE
Commercial Fishing ^[1]	Inshore	New Under Ten Fishermen's Association	Dave Cuthbert	Inshore	
	Inshore	South Coast Fishermen's Council	Richard Stride	Inshore	David Sales
	Inshore/ Offshore	North Devon Fishermen's Association	John Butterwith	Offshore	
	Offshore	South West Fish Producers Organisation (SWFPO)	Jim Portus		Nick Prust
	Inshore/Offshore	Cornish Fish Producers Organisation (CFPO)	Paul Trebilcock ^[2]		
	National	National Federation of Fishermen's Organisation (NFFO) SW Committee	Dale Rodmell	Offshore	
	Commercial Handliners	South West Handline Fishermen's Association	David Marshall ^[3]		
Leisure & Tourism	Canoe & Kayak Paddle Sport	Canoe England & British Canoe Union	Andy Davey		
	Leisure Boating	Royal Yachting Association (RYA)	Caroline Price ^[4]	Inshore	Neil Northmore
	Scuba Diving	Professional Association of Diving Instructors (PADI)	Dale Spree ^[5]		
	Scuba Diving	British Sub Aqua Club (BSAC)	Jane Maddocks		
	Spearfishing	British Spearfishing Association	Dave Thomasson		
	Recreational Sea Angling	Bass Anglers Sports Fishing Society (BASS) & The Angling Trust Conservation Group	Peter Macconnell		
	Recreational Sea Angling	Brixham Sea Angling Club	Mike Bailey	Inshore	
	Recreational Sea Angling	Cornish Federation of Sea Anglers (CFSA)	Paul Taylor		
	Tourism	South West Tourism	Malcolm Bell ^[6]		Annette Cole
Commercial & Industry	Charter Boat Skippers	Offshore Adventure Dive Charter & Professional Boatmen's Association	Rick Parker	Inshore & Offshore	
	Aggregates	British Marine Aggregate Producers Association (BMAPA)	Mark Russell		
	Offshore Renewables	Renewable UK	Paul Reynolds ^[7]		Oliver Wragg

	Offshore Renewables	Regen South West	John Gowdy ⁽⁸⁾		Cheryl Hiles
	Regional Development and Economy	South West Regional Development Agency	Colin Cornish ⁽⁹⁾	Inshore & Offshore	Jonet Waldock
	Shipping & Ports	British Ports Association	Sandie Wilson ⁽¹⁰⁾		
	Shipping & Ports	British Chamber of Shipping	Adrian Lester		
Conservation	Conservation NGOs	Royal Society for the Protection of Birds (RSPB)	Paul St Pierre	Offshore	Mark Robins
	Conservation NGOs	The Wildlife Trust	Richard White	Inshore	Lissa Goodwin
	Conservation NGOs	Marine Conservation Society (MCS)	Dominic Flint		
	Statutory Conservation (offshore)	Joint Nature Conservation Committee (JNCC)	Beth Stoker	Offshore	
	Statutory Conservation (inshore)	Natural England (NE)	Roger Covey	Inshore	
Owners	Land Owners	The Crown Estate	Andrew Finlay ⁽¹¹⁾	Offshore	David Tudor
	Land Owners	The Duchy of Cornwall	Christopher Mathews		
Science	Scientific Advisors	Marine Biological Association (MBA)	Olivia Langmead ⁽¹²⁾	Inshore	
Statutory Bodies & Local MCZ Groups	Enforcement	Inshore Fisheries and Conservation Authorities	Tim Robbins ⁽¹³⁾		Tim Robbins
	Enforcement	Marine Management Organisation	Julian Roberts		
	Environment Agency	Environment Agency	Elly Andison		Martin Williams
	Local MCZ Group	Somerset & North Somerset	Jim Barnard		John Chinn
	Local MCZ Group	Dorset	Bridget Betts		
	Local MCZ Group	Devon	Jim Masters		Stephanie Clark
	Local MCZ Group	Cornwall	Sam Davis		Philippa Hoskin
	Local MCZ Group	Isles of Scilly	Steve Watt		Mike Hicks
Heritage	Historic Environment	English Heritage	Nick Russell	Inshore	
Military	Ministry of Defence	Ministry of Defence	Rod Jones		Susie Norbury

^[1] The representative for the Shellfish Association of Great Britain (SAGB) left the Steering Group as of February 2011 and the organisation become a Named Consultative Stakeholder.

^[2] Paul Trebilcock replaced Armand Toms in April 2010 to represent the commercial fishing sector in Cornwall.

^[3] David Marshall replaced David Bond in April 2010 to represent the commercial handlining sector

^[4] Caroline Price replaced Peter Bartlett (Royal Yachting Association) on the Steering Group in February 2011.

^[5] Dale Spree replaced Mark Layton in November 2009 to represent the Professional Association of Diving Instructors.

^[6] Malcolm Bell replaced Emma Whittlesea in January 2011 to represent the South West tourism industry

^[7] Paul Reynolds replaced Peter Madigan in October 2010 to represent Renewable UK

^[8] Johnny Gowdy replaced Cheryl Hiles in February 2010 to represent RegenSW

^[9] Colin Cornish replaced Jonet Waldock in April 2010 to represent regional economy and development

^[10] Sandie Wilson replaced Dick Appleton in June 2010 to represent the ports sector

^[11] Andrew Finlay replaced David Tudor in October 2010 to represent the Crown Estate

^[12] Olivia Langmead replaced Emma Jackson in July 2010 to represent Marine Science

^[13] Time Robbins replaced Keith Bower (Sea fisheries Committees) on the Steering Group in February 2011.

Chairman: Sir Harry Studholme

Regional Steering Group (Members who retired or moved on): Keith Bower, Peter Bartlett, Emma Whittlesea, Tom Pickerell, Dick Appleton, Cheryl Hiles, Peter Madigan, Fiona Wynne,

Substitute Steering Group members: Susie Norberry, David Tudor, Nick Prust, Mark Robins, Oliver Wragg,

Process Group members: Andy Green, Richard White, Dave Cuthbert, Dick Appleton, Jim Masters, Rick Parker

Appendix 3: Local Group membership

Cornwall (Co-ordinated by Sam Davis, Cornwall IFCA):

Name	Organisation	Sector
Nigel Walker		Independent Chair
Dave Thomasson	British Spearfishing Association	Spearfishing, recreational diving
Dave Lewis/Jenny Christie	Cornwall Council	Local Authority
Bryn Tapper	Cornwall Council (Archaeological Unit)	Maritime archaeology
Kevin Bennetts/Paul Taylor	Cornish Federation of Sea Anglers	Angling
Paul Trebilcock	Cornish Fish Producers' Organisation	Inshore/offshore fisheries
Steve Kestin	Cornish Mussels	Aquaculture
Jemma Roberts	Cornwall Sustainable Tourism Project	Tourism
Alan Jordan	Cornwall Marine Network	Maritime industries
Ruth Williams/Tom Hardy	Cornwall Wildlife Trust	Conservation
Simon Toms	Environment Agency	Statutory nature conservation
Peter Ghey	Hayle Fishermen's Association	Inshore fishing (North coast)
Terry George	Land's End Fishermen's Association	Inshore fishing (West coast)
Duncan Jones	Marine Discovery Penzance	Wildlife tourism
Andy Banks	Marine & Fisheries Agency	Statutory fisheries regulation
Rob Preston	Mevagissey Fishermen's Association	Inshore fishing (South coast)
Hugh Bowles	Mevagissey Harbour Commissioners	Ports & harbours
Janet Lister	National Trust	Nature conservation/landowner
Paul St. Pierre	Royal Society for the Protection of Birds	Conservation
Sangeeta McNair	Natural England	Statutory nature conservation
John Munday		Angling

Devon (Co-ordinated by Jim Masters, Devon Maritime Forum):

Name	Organisation	Sector
Bill Horner	DCC	Archaeology
Richard White	Devon Wildlife Trust	Biodiversity
Helen Booker	RSPB	Biodiversity
Alex Scholefield	Torbay Coast and Countryside Trust	Biodiversity
Colin Munro	Marine Bio images	Biodiversity
John Hepburn	Maritime Plymouth	Economy and commerce
Brian Pawley	South Devon and Channel Shell fishermen ltd	Commercial fishing
Orme Vince	Commercial Fishing	Commercial Fishing
John Balls		Commercial fishing
Andrew McLeod	McLeod Trawlers Ltd	Commercial fishing
Andy Bell	North Devon Biosphere Reserve	Communities - North Devon
Rose Day	North Devon AONB	Communities - North Devon
Graeme Smith	Teignbridge District Council	Communities - Teignbridge
Jenny Lockett	Exe Estuary Management Partnership	Community - Exeter
Kaja Curry	Plymouth City Council	Community - Plymouth
Nigel Mortimer	South Devon AONB	Community - South Hams
Elaine Hayes	Living Coasts	Community - Torbay
Rick Parker	self employed	Diving
Sally Sharrock	Sea Search	Diving
Jamie Evans	Devon County Council	Economy and commerce
Janet Lister	National Trust	Landowner
Jill Portsmouth	Coastwise	Marine Education
James Chubb	East Devon District Council	Marine Education
Kevin Mowatt	Torbay Council	Ports and Harbours
David Pennington	Self employed	Recreational Sea Angling
Doug Mosedale	Brixham Sea Anglers Club	Recreational sea angling
Peter Wilkins	BASS	Recreational sea angling
Gavin Black	Natural England	Relevant Authority

Randolph Velterop	Royal Haskoning	Renewable Energy
Lynda Rodwell	Marine Institute	Science
Sian Rees	Marine Institute	Science
Charlotte Marshall	Marine Institute	Science
Dr Karen Edwards	Met Office	Science and Research
Isabelle Bromham	North Devon Plus	Watersports and recreation
Bill Horner	DCC	Archaeology
Richard White	Devon Wildlife Trust	Biodiversity
Helen Booker	RSPB	Biodiversity

Dorset (Co-ordinated by Bridget Betts, Dorset Coastal Forum):

Name	Organisation	Sector
Peter Dadds	Mudford and District Fishermens' Association	Inshore fishing
Robert Channon	Poole and District Fishermens' Association	Inshore fishing
Norman Miller	Independent Fisherman - Representing Lulworth Cove Fishermen	Inshore fishing
Andy Alcock	Dorset Handline Fishermans Association	Inshore fishing
Dave Sales	Bridport Commercial Boatowners and Fishermens' Association	Inshore fishing
Ian Taylor	Dorset Handliners Fishermans Association	Inshore fishing
Alan Lander	Swanage Fishermens' Association ssfc	Inshore fishing
Nigel Stuart Parkinson	Weymouth and Portland Fishermans Association	Inshore fishing
Neil Richardson	Southern Sea Fisheries District Committee	Enforcement
Eamon Riordan	Angling Trust Wessex Group	Recreational sea angling
Peter Tinsley	Dorset Wildlife Trust	Conservation
Fiona McNie	Natural England	Statutory nature conservation
David Cornick	West Bay Sea Angling Club	Recreational sea angling
Colin Smith	Fishfarms	Aquaculture
Randolph Velterop	Royal Haskoning	Planning
Chris Caines	Weymouth and Portland Licensed Skippers Association	Charter boats
Dave Gibson	Weymouth and Portland Licensed Skippers Association	Charter boats
Philip Higgins	Poole Charter Skippers Association / pdfa	Charter boats
Dave Dunn	Royal Yaching Association	Recreational boating
Dave Harlow	Bournemouth borough Council – Coast defence	Local Authority
Emma Perrin	Portland Harbour Authority Limited	Ports and harbours
Joe Miller	Lulworth Cove Fishermen	Inshore fishing
John Ballett		Inshore Fishing
Jon Reed	Boat owners response group	Recreational boating
Justine Jury	Southern Seas Fisheries Committee	Enforcement
Mike Bailey	Netting	Inshore fishing
Ness Smith	CSCOPE Project Officer – Dorset Coast Forum	Local Authority
Tom Russell	Poole and District Fishermen's Association	Inshore fishing

Isles of Scilly (Co-ordinated by Steve Watt, Isles of Scilly IFCA):

Name	Organisation	Sector
Mike Hicks	Isles of Scilly Sea Fisheries Committee	Local Authority
Angie Gall	Isles of Scilly Wildlife Trust	Environment
Tim Allsop	St. Martin's Diving Services	Diving
Justin Williams	Marine Management Organisation	Statutory Fishing Agency
Craig Dryden	Council of the Isles of Scilly	Chief Planning Officer
Trevor Kirk	Council of the Isles of Scilly	AONB Officer
Dr. Vic Heaney	Council of the Isles of Scilly	RSPB
Sangeeta McNair	Natural England	Environment
Robert Francis	Isles of Scilly Fishermen's Association	Fisherman
Spike Searle	Finding Sanctuary	
Delwyn Thompson		Angling
Nick Jenkins	Isles of Scilly Fishermen's Association	Fisherman
Steve Hicks	St. Mary's Boatmen's Association	Boatman
Cllr Richard McCarthy		Renewable Energy Projects
Harbourmaster	Harbourmaster	Port Authority
Cllr Chris Thomas	Chairman of the Isles of Scilly IFCA	Local Authority
Dale Clark	St Mary's Harbourmaster	Ports and Harbours
Cllr John Goddard	Vice Chairman Isles of Scilly IFCA	Enforcement

Somerset(Co-ordinated by Martin Syvret, Finding Sanctuary):

Name	Organisation	Sector
Jim Barnard	Finding Sanctuary Steering Group member	Chairman
Rebecca Seaman/ Paul Jones	Somerset County Council	Local Authority
Don Holland / John Chinn/ Simon Stroud	Burnham Boat Owners Sea Angling Association	Boat Anglers
Brian Richards	Porlock Weir Marine Aquarium	Marine Education
Christine Marsh/ Paul Parker	Severn Estuary Partnership	Coastal Partnership
Anne Hayes	Environment Manager (Marine Dept.) Bristol Port Company	Ports
Nigel Chaffey	Course Leader (Environmental Science), Senior Lecturer in Physiological Plant Anatomy, Department of Science, Bath Spa University	Science
Angela Lamplough/ Steve Watts	Economy & Climate Change - West Somerset Council	Economy & Climate Change
Don Metcalfe/ Frank Beaugendre	Bristol Channel Federation of Sea Anglers	Recreational Anglers
Toby Catchpole	Archaeology Service, Environment Directorate , Gloucestershire County Council	Archaeology
Rachel Lewis	North Somerset Council	Economy & Regeneration
Lucy Rogers/ Matt Hamilton	Avon Wildlife Trust	Conservation
Michelle Osbourn/ Alison Slade	Somerset Wildlife Trust	Conservation
Richard Archer/ Helen Booker	Somerset & Severn Estuary Conservation Officer, RSPB	Conservation
Nigel Hester	National Trust Countryside Manager	Conservation
Julian Carpenter/ David Shaw	MARINET	Conservation
Nick Michael	Ecologist, Natural Environment Service, Streets and Open Spaces	Ecology
Larry Burrows	Ecology Officer - Spatial Planning, Environment Directorate, Somerset County Council	Ecology
Don Sutherland	Vice Chairman RYA South West	Recreational Boating
Keith Bower/ Tim Robins/ Sarah Clarke	Devon Sea Fisheries (to become the IFCA for this region)	Enforcement
Steve Yeandle/ Dave Roberts	Charter skippers	Charter boats
Randolph Velterop/ Pete Gaches	Environmental Scientist Royal Haskoning	Commercial/ Consultants
Barry Phillip	Natural England - Somerset	Statutory nature conservation
Angus Bloomfield	Maritime Advisor - Severn Estuary Natural England	Statutory nature conservation

John Carter	Somerset County Council	Tourism
Name	Organisation	Sector
Rob Solomon	Weston Bay Watersports Club	Watersports
Vanessa Straker/ Robert Isles	English Heritage	English Heritage
The following do not attend meetings but are sent the relevant outputs from the meetings for information :		
Graham Wills	Exmoor National Park Authority	Conservation
Simon Ford	Regional Nature Conservation Advisor, Wessex, The National Trust	Conservation

Appendix 4: Named Consultative Stakeholders

SECTOR	SUBSECTOR	ORGANISATION	MEMBER
Leisure & Tourism	Waterskiing	British Water-ski	Rachel Tallon
	Shooting	British Association of Shooting and Conservation (BASC)	Jamie Stewart
	Angling	The Angling Trust	David Mitchell
	Leisure Boating	The Cruising Association	Edward Cartner
	Board sports	Surfers Against Sewage	Andy Cummins
Conservation	Geology and Geomorphology	University of Plymouth	Malcolm Hart
Commercial & Industry	Submarine Cables	UK Cable Protection Committee (UKCPC)	Richard Hill
	Nuclear Power	EDF Energy	Madeline Hodge
	Marine Safety	Trinity House	Thomas Arculus
	Leisure & Industry	British Marine Federation	Brian Clark
Statutory Bodies	Marine Safety	Marine and Coastguard Agency	Helen Croxton
Local Authority		Cornwall Council	Steve Crummay
Commercial Fishing	Commercial Fishing	Irish South and West Producers Organisation	Joyce Novak
	Commercial Fishing	CNP-MEM (Comité National des Pêches Maritimes et des Elevages Marins)	Perrine Ducloy
	Commercial Fishing	MPA Coalition	Dale Rodmell
	Commercial Fishing	Rederscentrale	Tom Craeynest
	Commercial Fishing	Pêcheurs de Manche d'Atlantique	Nolwenn Gace- Rimaud
	Commercial Fishing	Shellfish Association of Great Britain (SAGB)	Tom Pickerell
	Commercial Fishing	Pelagic Regional Advisory Council	Anne-Marie Kats

Named Consultative Stakeholder (NCS) status was set up to allow stakeholders who may not be able to resource attendance at Steering Group meetings to play a less involved role in the decision-making process. They can provide information to the Steering Group in relation to their specialised knowledge and comment on work emerging from the Steering Group. However, they do not have a direct role in the decision-making process, in that they will not be at Steering Group meetings. At key stages they will be asked for their views on the work of the Steering Group and their comments will be recorded.

Appendix 5: Finding Sanctuary Project Team

	Name	Position	Dates	Notes
Management	Tom Hooper	Project Manager	5 th January 2005 to 28 th October 2011	Initial job title was 'Project Development Officer'
GIS and Planning	Louise Lieberknecht	MPA Planner	30 th April 2007 to 28 th October 2011	Initial job title was 'MPA Network Development Co-ordinator'
	Shaun Lewin	Senior GIS and Data Specialist	8 th October 2007 to 28 th October 2011	Initial job title was GIS and Data Officer
	Tom Mullier	GIS and Planning Specialist	1 st August 2008 to 28 th October 2011	Initial job title was GIS and Data Assistant
	Alana Murphy	GIS and Planning Specialist	12 th October 2009 to 31 st August 2011	Initial job title was GIS and Data Assistant
	Mitchell Neilly	GIS and Planning Assistant	4 th April 2011 to 20 th September 2011	
Communications	Joana Smith (née Doyle)	Communications Co-ordinator	3 rd November 2008 to 14 th January 2011	
	Hannah Carr	Communications Co-ordinator	4 th January 2011 to 30 th September 2011	
Liaison	Sarah McLintock	Liaison Support Co-ordinator	9 th July 2009 – 31 st March 2011	
	Spike Searle	Devon Liaison Officer	3 rd September 2007 to 23 rd June 2008	
		Cornwall Liaison Officer	23 rd June 2008 to 19 th November 2010	
	Dan Edwards	Dorset Liaison Officer	8 th October 2007 to 14 th August 2009	
	John Weinberg	Dorset Liaison Officer	21 st September 2009 to 31 st March 2011	
	Martin Syvret	Somerset Liaison Officer	6 th July 2009 to 31 st March 2011	Worked on a 25% fte basis
	Dave Murphy	Devon Liaison Officer	23 rd June 2008 to 29 th July 2011	
	Beth Henshall	Assistant Liaison Officer	16 th October 2009 to 2 nd April 2010	
	Jeremy Teale	Assistant Liaison Officer	16 th October 2009 to 2 nd April 2010	
	Jennie Reeves	Assistant Liaison Officer	16 th October 2009 to 2 nd April 2010	
Economist	Rupert Haines	Project Economist	1 st March 2010 to 31 st January 2012	
	Andrea Harvey	Assistant Economist	1 st June 2011 to 30 th September 2011	

Additional support was provided by a number of short-term employees at various stages in the process, these are mentioned in the acknowledgements (appendix 1). Esther Hughes provided significant support in writing the final report, and is mentioned as one of the report authors.

The Finding Sanctuary Stakeholder Process has been designed and facilitated by Rob Angell of R K Partnership Ltd (RKP). Lynn Wetenhall and Jim Welch have supported the facilitation and process design.

Appendix 6: List of abbreviations


Annex I	This refers to features listed on Annex I of the EU Habitats Directive
BGS	British Geological Survey
BMAPA	British Marine Aggregate Producers Association
BSH	Broad-scale habitat
Cefas	Centre for Environment, Fisheries & Aquaculture Science, an executive agency of Defra
CFP	Common Fisheries Policy
CFPO	Cornish Fish Producers Organisation
CO	Conservation Objective
COG	Conservation Objective Guidance
CWT	Cornwall Wildlife Trust
DECC	Department of Energy and Climate Change
Defra	Department for Environment, Food and Rural Affairs
DNC	Developing Network Configuration (a term used frequently over the course of the planning period)
DORIS	Dorset Integrated Seabed Study - a joint project between a number of organisations to map seabed habitats off Dorset. www.dorsetwildlifetrust.org.uk/page283.html
DWT	Devon or Dorset Wildlife Trusts
EA	Environment Agency
EIA	Environmental Impact Assessment
ENG	Ecological Network Guidance - the ecological criteria that the overall MPA network (MCZs plus existing MPAs) has to meet, and that the Finding Sanctuary recommendations have to adhere to. The ENG are published here http://www.naturalengland.org.uk/Images/100608_ENG_v10_tcm6-17607.PDF and an official summary can be downloaded here http://www.naturalengland.org.uk/Images/identifyingMCZs_tcm6-21967.PDF
FOCI	Features of Conservation Importance – habitats and species listed in the ENG.
GCR	Geological Conservation Review
GIS	Geographical Information System (software used to process spatial data and to make maps)
ERCCIS	Environmental Records Centre for Cornwall and the Isles of Scilly
EUNIS L3	EUNIS level 3. The EUNIS habitat classification is a European-scale hierarchical habitat classification system covering terrestrial, freshwater and marine habitats. Level 3 is a very broad level in the hierarchy, and the broad-scale habitats listed in the ENG are defined at EUNIS L3.
FS	Finding Sanctuary
IA	Impact Assessment – In the context of this report, it refers to the IA being carried out by Finding Sanctuary economist, looking at the socio-economic impacts of rMCZs.
IFCA	Inshore Fisheries and Conservation Authority.
IPA	Inshore Potting Agreement (refers to an agreement between fishermen using the area off Start Point in Devon to resolve conflict between fishing gear types, this started as a voluntary agreement and is now a set of fisheries byelaws).
IWG	Inshore Working Group - A subgroup of the Finding Sanctuary Steering Group, which focussed on the detailed planning work for the inshore area (within 12nm) within the wider Finding Sanctuary project boundary. At the end of 2010 it merged

	with the Offshore Working Group to form the Joint Working Group.
JNCC	Joint Nature Conservation Committee
JWG	Joint Working Group - A subgroup of the Finding Sanctuary Steering Group consisting of the Inshore and Offshore Working Groups. Reported to the Steering Group.
KIS-CA	Kingfisher Information Service - Cable Awareness
LG	Local Group – cross-sectoral county-based stakeholder groups providing a local perspective on MCZ planning to the Finding Sanctuary Working Groups
MB102	Defra contract that gathered ecological data for Marine Protected Area projects
MB106	Defra contract that gathered socio-economic data for Marine Protected Area projects
MB5301	Defra contract that gathered data on spawning and nursery grounds
MCA	Maritime and Coastguard Agency
MCZ	Marine Conservation Zone (specific term to denote areas designated under the Marine and Coastal Access Act)
MESH	Mapping European Seabed Habitats project, www.searchmesh.net
MMO	Marine Management Organisation
MoD	Ministry of Defence
MPA	Marine Protected Area (umbrella term relating to any designation)
N2K	Natura 2000, an ecological network of protected areas within the European Union. Includes SACs and SPAs.
NC	Network Configuration
NCS	Named Consultative Stakeholder, a formal status that allowed stakeholders to feedback to the main Steering Group without direct participation in the process.
NE	Natural England
NGO	Non-Governmental Organisation
nm	Nautical mile (not nanometre)
OSPAR	Oslo and Paris Convention for the protection of the marine environments in the North-East Atlantic
ORRAD	Offshore Renewables Resource Assessment and Development project (see PMSS, 2010).
OWG	Offshore Working Group - A subgroup of the Finding Sanctuary Steering Group, which carried out the detailed planning work for the offshore area (outside 12nm) within the wider Finding Sanctuary project boundary. At the end of 2010, it merged with the Inshore Working Group to form the Joint Working Group.
PDF	Portable Document Format, an open standard for document exchange. Some versions allow data layers to be switched on and off
PDG	Project Delivery Guidance
PG	Finding Sanctuary's Process Group
PR	Progress Report
PT	Finding Sanctuary's Project Team
pMCZ	Potential Marine Conservation Zone, a term used during the planning process to refer to sites in the developing network configuration. In this final report, the sites are referred to as rMCZs (recommended MCZs).
RAC	Regional Advisory Council, part of the reform of the Common Fisheries Policy
REC	Regional Environmental Characterisation
rMCZ	Recommended Marine Conservation Zone
RP	Regional Project
rRA	Recommended Reference Area
RSPB	The Royal Society for the Protection of Birds

SAC	Special Areas of Conservation, a designation defined in the European Union Habitats Directive.
SAFFA	Salmon and Freshwater Fisheries Act
SAP	Science Advisory Panel
SG	Steering Group
SNCBs	Statutory Nature Conservation Bodies (e.g. Natural England & JNCC)
SPA	Special Protection Area for Birds, a designation under the European Union Directive Birds Directive
SSSI	Sites of Special Scientific Interest
SWIFA	South-West Inshore Fishermen's Association
TCE	The Crown Estate
TSS	Traffic Separation Scheme
UKSeaMap	Modelled broad-scale habitat data provided by the JNCC
UNCLOS	United Nations Convention on the Law of the Sea
VA	Vulnerability Assessment
VMCA	Voluntary Marine Conservation Area
VMS	Vessel Monitoring System
WGs	Working Groups - subgroups of Finding Sanctuary Steering Group, includes the Inshore, Offshore and Joint Working Groups

Legend (part 1)

MPAs and Broad-scale Habitats

Limits and MCZs	Broad-scale Intertidal habitats (EUNIS level 3)	
 Finding Sanctuary project area	 Coastal saltmarshes and saline reedbeds	
 6 nautical mile limit	 Mosaic of intertidal mud and coastal saltmarshes and saline reedbeds	
 12 nautical mile limit	 Littoral biogenic reefs	
 Recommended MCZ (rMCZ)	 Littoral sediments dominated by aquatic angiosperms	
 Zone within a rMCZ	 High energy intertidal rock	
 Recommended reference area (rRA)	 Moderate energy intertidal rock	
	 Low energy intertidal rock	
Existing MPAs	 Intertidal coarse sediments	
 Lundy NTZ	 Intertidal sand and muddy sand	
 SAC	 Intertidal mud	
 SPA	 Intertidal mixed sediments	
 SSSI (part of MPA network)		
 SSSI (not part of MPA network)	<th>Broad-scale Subtidal habitats (EUNIS level 3)</th>	Broad-scale Subtidal habitats (EUNIS level 3)
	 Deep-sea bed	
	 High energy circalittoral rock	
	 Moderate energy circalittoral rock	
	 Low energy circalittoral rock	
	 High energy infralittoral rock	
	 Moderate energy infralittoral rock	
	 Low energy infralittoral rock	
	 Subtidal coarse sediment	
	 Subtidal mixed sediments	
	 Subtidal mud	
	 Subtidal sand	
	 Subtidal macrophyte-dominated sediment	

Legend (part 2)

Species and Habitat FOCI

Habitats of conservation importance (FOCI)

Habitat areas

	Blue Mussel beds
	Estuarine rocky habitats
	Fragile sponge & anthozoan communities on subtidal rocky habitats
	Intertidal underboulder communities
	Maerl beds
	Mud habitats in deep water
	Sabellaria alveolata reefs
	Sabellaria spinulosa reefs
	Seagrass beds
	Sheltered muddy gravels
	Subtidal chalk
	Tideswept communities
	Tideswept channel

Individual habitat records

	Blue Mussel beds
	Estuarine rocky habitats
	Fragile sponge & anthozoan communities on subtidal rocky habitats
	Intertidal underboulder communities
	Maerl beds
	Mud habitats in deep water
	Peat and clay exposures
	Sabellaria alveolata reefs
	Sabellaria spinulosa reefs
	Seagrass beds
	Subtidal chalk
	Tideswept channel

Species of conservation importance (FOCI)

Species areas

	Area of pink seafans (from DORIS survey)
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Individual species records






	Trembling sea mat (<i>Victorella pavida</i>)
	Sea fan anemone (<i>Amphianthus dohmii</i>)
	Pink sea fan (<i>Eunicella verrucosa</i>)
	Sunset cup coral (<i>Leptopsammia pruvoti</i>)
	Starlet sea anemone (<i>Nematostella vectensis</i>)
	Stalked jellyfish (<i>Lucernariopsis campanulata</i>)
	St. John's jellyfish (<i>Lucernariopsis cruxmelitensis</i>)
	Kaleidoscope jellyfish (<i>Haliclystus auricula</i>)
	Tentacled lagoon worm (<i>Alkmaria romijni</i>)
	Lagoon sandworm (<i>Armandia cirrhosa</i>)
	Ocean quahog (<i>Arctica islandica</i>)
	Fan mussel (<i>Atrina pectinata</i>)
	Defolin's lagoon snail (<i>Caecum armoricum</i>)
	Lagoon sea slug (<i>Tenellia adspersa</i>)
	Native oyster (<i>Ostrea edulis</i>)
	Sea snail (<i>Paludinella littorina</i>)
	Burgundy maerl paint weed (<i>Cruoria cruoriaeformis</i>)
	Grateloup's little-lobed weed (<i>Grateloupia montagnei</i>)
	Coral maerl (<i>Lithothamnion corallioides</i>)
	Common maerl (<i>Phymatolithon calcareum</i>)
	Peacock's tail (<i>Padina pavonica</i>)
	Giant goby (<i>Gobius cobitis</i>)
	Couch's goby (<i>Gobius couchi</i>)
	Long snouted seahorse (<i>Hippocampus guttulatus</i>)
	Short snouted seahorse (<i>Hippocampus hippocampus</i>)
	Lagoon sand shrimp (<i>Gammarus insensibilis</i>)
	Amphipod shrimp (<i>Gitanopsis bispinosa</i>)
	Spiny lobster (<i>Palinurus elephas</i>)
	Gooseneck barnacle (<i>Pollicipes pollicipes</i>)

Legend (part 3)






Socio-Economic Activity

Socio-economic activity








Wrecks

-  Charted wrecks (UKHO vector data)
-  Protected wreck (archaeological site)
-  Protected wreck (military)
-  Protected wreck exclusion zone (archaeological site)
-  Protected wreck exclusion zone (military)




Dumping and disposal

-  Open disposal sites
-  Closed and disused disposal sites
-  Milford Haven proposed extension to disposal area
-  Licenced outfalls (The Crown Estate)
-  Location of consented discharge (EA)





Ports, harbours and coastal defence

-  Harbour administration regions
-  Anchorages, berths & docks
-  Anchorages
-  Marinas
-  Moorings
-  Flood or coastal defence structure (EA)
-  Coastal protection works (The Crown Estate)



Recreational activity restriction areas

-  Studland voluntary no anchor zone
-  Swimming area (UKHO vector data)
-  Water skiing area (UKHO vector data)











Dredging and Aggregates (The Crown Estate)

-  Current dredging license
-  Aggregate applications
-  Aggregate prospecting or option areas
-  Aggregate production licences

Aquaculture Licence (The Crown Estate)

-  Current
-  Expired
-  Pending







Fisheries regulations

-  Fishery Order (The Crown Estate)
-  Several Order (The Crown Estate)
-  Fixed net restrictions (NFFO, DSFC, SSFC, CSFC)
-  Midchannel Potting Agreement (NFFO - voluntary)
-  Prawns closed season
-  Temporary gillnet closure
-  Scallops closed season
-  Trawling and/or fixed net restriction
-  Trevoise Box
-  NDFA Ray Box

Inshore Potting Agreement (FR_033d and FR_035d)

-  Start point: no trawling area
-  Trawling 1 Jan - 31 March
-  Trawling 1 Jan - 1 June
-  Trawling 1 Jan - 31 August
-  Trawling 1 - 31 March
-  Trawling all year

Renewable energy and cables

-  Round 3 windfarm licences
-  Planned extent of Atlantic Array
-  Eneco wind park planned development area
-  WaveHub
-  Potential cable routes for Eneco wind park
-  Power and telecommunications cables (KISCA)

Appendix 8: GIS data and planning tools

Introduction to appendix 8

The following is a description of the datasets that were used during the planning, and the datasets that were used to calculate statistics in part II of this report. It assumes a working knowledge of the MCZ project and the national datasets that have been gathered by the Defra-funded projects MB102 and MB106.

Some of the ecological datasets were updated during the planning process. We tried to prioritise the updating of our data and maps in such a way that we always had the most up-to-date information to hand when it was most useful - generally within the Working Groups. Originally this information was presented through the regional profile. This was a collection of A4 sized maps and accompanying notes that filled a lever arch file, supplied to the Steering Group as hard copies and electronic copies. However, the regional profile proved too unwieldy as a practical tool to refer to during the meetings, so the project team started to create large (A2-sized) maps to use during the planning meetings. There were frequent data updates, making map changes necessary. The last update to the regional profile was made in June 2010. From then onwards, A2 meeting maps and interactive PDFs took priority, and the regional profile was no longer comprehensively updated. Where possible, readers are advised to refer to our interactive PDFs and Working Group maps (with 'OWG' and 'IWG' codes) in preference to the regional profile maps. The latest versions of these maps are available alongside this report, as part of the additional materials (listed in appendix 14). Any references in the text below to maps with IWG and OWG codes refer to these A2 maps.

Broad-scale habitats

Our maps of EUNIS level 3 broad-scale habitats primarily used data that was provided by the JNCC, who supplied a combined dataset from a number of sources. Over the course of the project, it went through several iterations and updates. At the beginning of Iteration 2, we were working with the same EUNIS level 3 habitat data that we had available for the first Iteration. The dataset was substantially updated over the summer of 2010, and by the end of the second planning Iteration we had a combined dataset, consisting of modelled subtidal habitat data (from the JNCC's [UKSeaMap](#)⁷³ work), survey data from [MESH](#)⁷⁴ (where this was of sufficient quality to replace the modelled data, shown in map FR_074 at the end of this appendix), and intertidal habitat data from MB102. Corrections to that dataset (which were still outstanding at the time of writing our second progress report) were thought to have been finalised prior to the third progress report, however, data from the South Coast REC ([Regional Environmental Characterisation](#)⁷⁵), was also added.

We carried out our own (minor) edits to the combined EUNIS L3 habitat map, mostly in order to correct some small errors in the modelled data along the edge of our study region (small misclassified areas). More significantly, the modelled data showed what we considered to be a spurious patch of 'deep-sea bed' habitat located in the south-west of our study area, on the continental shelf and at a distance from the actual shelf break. This patch came from the UKSeaMap modelled data, which uses 200m depth as a cut-off for the differentiation between the continental shelf habitats (subtidal sand, subtidal mixed sediments etc), and the deep-sea habitat that lies beyond the shelf break. In general terms this works well – on nautical charts in the south-west

⁷³ <http://jncc.defra.gov.uk/page-2117>

⁷⁴ <http://www.searchmesh.net/>

⁷⁵ www.southcoastrecgis.org.uk/sc/

region, the 200m contour coincides with the location of the shelf break. However, the bathymetry data used by the UKSeaMap model showed an area of a depression below 200m, located on the continental shelf – this is not an area of rapid change in slope. In the modelled outputs, this was classified as 'deep-sea bed'. We reclassified it as the surrounding shelf habitat (subtidal sand) in the dataset that we used during stakeholder meetings and in order to calculate the figures presented here.

For intertidal broad-scale habitat, a significant addition to the JNCC-provided EUNIS L3 data was provided to us in the shape of detailed intertidal habitat data from the Environment Agency (map FR_075). We used a lookup table provided by the EA ([here](http://huchitang.pwp.blueyonder.co.uk/ihs-brief-definitions-1-100.htm)⁷⁶) to reclassify the intertidal habitat types mapped by the EA (IHS, Integrated Habitat System) to EUNIS L3, and amalgamated the resulting polygons with our EUNIS L3 data layer. Where the EA data overlapped with the EUNIS L3 habitat data provided by the JNCC (which was delivered through MB102), we chose the EA data in preference.

The EA intertidal habitat data was of better quality and much more detailed than the information from MB102. However, the EA used a habitat classification (IHS) which differed from the EUNIS habitat classification. A standard translation table exists to translate from IHS to EUNIS, and this was used to convert the EA data to EUNIS L3 habitat data. An important point to note that the IHS classification has a single category for intertidal mud and sand habitats. In the IHS/EUNIS translation table, IHS habitat code LS41 (mudflats and sandflats not covered by sea water at low tide) correlates with EUNIS code A2.3 (intertidal mud). In some areas this resulted in habitat that is known to be intertidal sand and muddy sand being incorrectly labelled as intertidal mud (e.g. some of the sandy surf beaches along the north coast of the study area). Overall, this hasn't affected the ENG targets - both intertidal mud and intertidal sand and muddy sand are adequately covered through existing MPAs and were not habitats that drove the planning process. However, it has led to 'intertidal mud' being listed in the statistics and draft conservation objective tables in some unexpected sites, where the habitat is known to be too exposed for muddy intertidal areas. Where this has happened, it is indicated in the site report.

Our EUNIS L3 habitat data is shown on Working Group maps IWG_09 and OWG_08 (these are A2 Working Group maps), on our interactive biophysical PDF maps, and also on the site maps included within this report. The combined EUNIS dataset was also used at EUNIS level 2 to create the connectivity maps presented in section II.2.8 of the report. A map showing the broad-scale habitat data at EUNIS level 4 is also provided (map FR_076).

The JNCC also provided a detailed biotope map of the Canyons area (Davies *et al.*, 2008) that was used during the planning process and is shown in the biophysical interactive PDF provided with this report, and on the maps in The Canyons rMCZ and recommended reference area site reports.

⁷⁶ <http://huchitang.pwp.blueyonder.co.uk/ihs-brief-definitions-1-100.htm>

Species of Conservation Importance (non-mobile)

Our FOCI species dataset are primarily based on records extracted from the MB102 national data layers. We excluded all records marked as 'uncertain'. In addition to the national MB102 data layers, we were supplied with a number of regional datasets that we added to the MB102 data, creating combined FOCI species and habitat layers. These additional datasets have significantly added to the MB102 data, especially in the Isles of Scilly, along the coast of Cornwall, and in some inshore areas off Dorset. The data is shown on maps IWG_10b and IWG_10c (A2 Working Group maps), the site maps in this report, and on our interactive biophysical PDFs.

During Iteration 2, the combined FOCI data layers included data supplied by the Dorset Environmental Records Centre and Seasearch 2009. For the calculation of the statistics presented in the second progress report, we added further records from the Marine Conservation Society (who provided a small number of additional records of the fan mussel *Atrina pectinata*), from Dorset Wildlife Trust, and from Cornwall Wildlife Trust (who have sent us some of their own records, and those held by the Ecological Records Centre for Cornwall and the Isles of Scilly, including data from recent Seasearch surveys). We also did a brief cross-check between our combined non-mobile FOCI records, and 2009/2010 records in the JNCC's Marine Recorder database. No significant additional data was found to have been added since the completion of the MB102 data gathering contract.

At the start of the third planning Iteration, a final review and update of the combined FOCI datasets was carried out. We added a small number of records from Environment Agency benthic survey data, records provided by Dorset Wildlife Trust, and some data from the DORIS ([Dorset Integrated Seabed Study](#)⁷⁷) project provided by Dorset Wildlife Trust. The Seahorse Trust provided us with their local knowledge on the distribution of both species of seahorse, mapped as polygon data via the interactive map (sometimes referred to as 'webGIS'). This data was added to our FOCI maps for use during the planning process. More detailed information on seahorse locations was provided by the Seahorse Trust for relevant site reports.

In response to advice from the SAP, we did not exclude any data on the basis of age of the records. Instead, we mapped the age distribution of the data and wherever possible we have reported data from before 1980 separately.

Overlaps between the different species datasets that we were provided with caused problems, as there was no simple way of identifying duplicate records. The same survey data often appeared to have been entered into two separate databases, but with different unique identifiers, and often with incomplete survey information. Furthermore, the same record, after it was entered into different datasets, will often not plot out on exactly the same location on a map (this is likely to have resulted from geographical transformations or coordinate rounding errors) – mismatches in the order of 10s of metres were common. This meant that the only reliable way of identifying duplicate data was a time-consuming manual cross-check of individual records. Because we had limited time available to spend on this work, we applied the following rules of thumb:

- MB102 data was used as the starting point, against which other data was cross-referenced. Where there are duplicate records, MB102 was used in preference to other sources, having gone through a thorough quality assurance (QA) process and being presented in a standard format with a good level of attribution.

⁷⁷ www.dorsetwildlifetrust.org.uk/page283.html

- Data from additional sources was checked against the top copy (in the first instance, MB102). Any records of the same species from the same date that fall within 150 metres of a record already in our dataset were discarded, unless we were certain that they were genuinely separate records. Records that were further apart were removed if we could see a consistent pattern of transformation-induced spatial 'slippage' across a set of records.
- A small number of records we received fell more than 10m landward of the mean high water line on our maps – these were assumed to have erroneous geographical references and were discarded.
- The above steps were carried out one dataset at a time, creating a growing combined dataset that became the top copy against which each successive new dataset was cross-referenced.
- Any data that was flagged as uncertain or which did not have a minimum of a species name, year, and source, was discarded.
-

Because this manual cross-check was a time-consuming task, we implemented a cut-off for accepting any further survey data to be incorporated into the process. No additional datasets were incorporated after January 2011 (species or habitats). It is stated throughout this report where we had knowledge of additional datasets that we were not able to access within the time available.

Habitats of Conservation Importance

The data for habitats of conservation importance consists of point records and polygon data from MB102, survey records provided by Cornwall Wildlife Trust (who have sent us some of their own records and those held by the Ecological Records Centre for Cornwall and the Isles of Scilly, including data from recent SeaSearch surveys), data from the DORIS project and data provided by Dorset Wildlife Trust. We also have additional data for the Isles of Scilly, provided by the Isles of Scilly Local Group, mapped from their local knowledge. The data is shown on maps IWG_11b and IWG_11c (these are A2 Working Group maps).

One aspect of this data that has changed is the working definition of 'tide-swept channels'. The MB102 data layers included a lot of records labelled 'tide-swept communities', and some modelled polygon data showing areas where tidal streams above 7 knots occur in the UK. During the second planning iteration, we received guidance that the working definition of the listed FOCI should only include records located in the areas where the tidal streams are above 7 knots. On that basis, we removed the data we had previously mapped for this habitat, as none of the MB102 'tide-swept communities' records in the south-west intersected with the mapped polygons. We were provided with recent survey data by Cornwall Wildlife Trust that includes records labelled as the equivalent BAP habitat, located in the Isles of Scilly. The Isles of Scilly Local Group also provided information indicative of tide-swept channels in that area. Within the Isles of Scilly this feature is considered protected within the Isles of Scilly SAC, however this information didn't get added to the national gap analysis and is missing from that report (see appendix 11).

The Environment Agency went to great efforts to provide us with detailed intertidal habitat maps for the south-west coastline. This data was used to supplement the intertidal broad-scale habitat data provided through MB102 (see above). It could possibly have supplemented some of the intertidal FOCI habitat data, but we did not have time to introduce it into the planning process (complex licensing arrangements resulted in receiving the data very late in 2010). The data was supplied before our end-of-year data deadline as a very well-organised series of geodatabases with group layer files. However, the sheer size and complexity of these data sets required a significant amount of processing time.

Additional seagrass bed information was provided through the online interactive map, but this was very limited in scope.

MB102 benthic biodiversity data

The MB102 data contract included benthic biodiversity data layers, designed to help identify areas of additional ecological importance. The data were not available soon enough to be considered during the second planning iteration, but were reviewed during the third. The datasets include different biodiversity scores (including Chao2 and taxonomic distinctness), presented on a data grid. The grid used for the intertidal area is relatively fine, as this is where the most records are available. The inshore area uses a coarser grid, and the offshore grid is very coarse (and contains so little information that it was disregarded entirely in our process). Exact details of the methods used and the outputs generated can be found in the MB102 reports, and are not repeated here.

For the inshore and the intertidal data, we mapped out the grid cells falling within the top 10 and 25 percentile of each score. We presented two maps, one showing the scores relative to the entire UK dataset (which highlights a lot of the grid cells in our region, as the south-west benthos is diverse within a UK context), and one highlighting the highest scoring grid cells within a south-west context. The latter map was reviewed in detail by the Inshore Working Group during one of their meetings, and some site boundaries were modified to better incorporate diverse areas (refer to the Working Group meeting reports from spring 2011). Benthic biodiversity data from MB102 is included in the biophysical interactive PDF maps.

Late in the process (February 2011) we received new versions of these datasets combining the various different biodiversity measures into areas of low, medium and high benthic biodiversity for species and habitats. These were provided to aid presentation of the data, and were minimally used in the planning process.

Bird foraging ranges

We received information from the RSPB on the kind of habitat utilised for foraging by a number of shore-nesting bird species, as well as information on their known foraging ranges. We also had data from the Seabird 2000 dataset (a survey of shore-nesting birds, indicating the location of colonies and observed counts of breeding pairs within them, from surveys carried out in 2000). Using the RSPB information on known foraging ranges, we created buffers around the location of the colonies within the Seabird 2000 dataset for a number of nesting species, thereby mapping an indicative foraging area. We then used the RSPB's knowledge on foraging habitat type (substrate type, depth, frontal areas) to overlay the buffers with areas that might be suitable for foraging for the different species, using information such as the MB102 sea surface temperature fronts data, EUNIS level 3 habitat data, and bathymetry. These maps are IWG_21 to IWG_25, and IWG_31.

Offshore bird observation / aggregation areas

The JNCC provided us with data extracted from the European Seabirds at Sea (ESAS) dataset, which is data collated from survey work carried out over several decades, corrected for sampling intensity on a grid. The data extracts we were given were the top 25% grid cells for each species in terms of average densities observed during the breeding and wintering seasons, plus the average density values for those grid cells. These data have been summed across species for the two seasons, and mapped to create an overall rough indication of the areas where the highest densities are observed across all species combined. This data is on maps OWG_15 and OWG_16 (these are A2 Working

Group maps). We were supplied with an updated version of this, consisting of the full dataset, however following the guidance from the JNCC regarding designation of offshore rMCZs for birds, these maps were not updated.

Frontal systems

Data on frontal systems can be used as a surrogate for pelagic productivity, and we have used the data supplied with MB102 to create maps of locations of persistent seasonal fronts. Persistent summer fronts are mapped on OWG_10; and the location of the strongest persistent fronts in all four seasons on map OWG_11 (these are A2 Working Group maps).

Cetaceans and basking sharks

During the third planning iteration, we took along additional information on the distribution and sightings of marine megafauna. That includes a map of basking shark sightings which we created from Marine Conservation Society sightings data (map OWG_38). Given constraints on our time, and the fact that these features are not specifically mentioned in the ENG, we relied mainly on mapped products created by other organisations, i.e. the JNCC's cetaceans atlas, and the recent report by the Whale and Dolphin Conservation Society on areas of importance for cetaceans.

Areas of additional pelagic ecological importance

Towards the end of the planning process we received a data layer showing areas of additional pelagic ecological importance (APEI). This layer was created from several NGO datasets (basking shark sighting data, marine mammal important areas, seabird foraging radii) and two data layers from the JNCC (spawning and nursery grounds and oceanic thermal fronts). A combined score was generated from these and can be seen in map FR_081. As the combined APEI dataset was received late in the planning process (December 2010), it had a limited effect on the final network configuration.

Mobile FOCI

The Environment Agency provided us with detailed evidence on the importance of estuaries for spawning and nursery habitats and for mobile FOCI (eels and smelt). This was referred to during discussions around which estuaries to include as rMCZs. The Environment Agency information was detailed, and a dossier of evidence was provided for each estuary in the region. The information is supplied with the additional materials listed in appendix 14.

The scale of the mobile FOCI data provided through MB102 was considered too coarse to use during planning, a map demonstrating this is provided (FR_078).

Local ecological data

Both the Isles of Scilly Local Group and the North Devon Biosphere Reserve marine Working Group provided additional ecological information to be used during the process. The Isles of Scilly Local Group supplied evidence supporting their recommended areas (photographs and site descriptions, these were shared with the SAP after progress report 2). This information was not digitised and included in the GIS dataset as the amount of time required was prohibitive. The North Devon Biosphere Reserve marine Working Group supplied site descriptions and map fragments in support of their recommendations around the north Devon coast. These materials are provided alongside this report as described in appendix 14.

Datasets not used in the planning process

We received two datasets from the national data contracts which we reviewed and discussed, both within the project and cross-regionally, and which were not used in the planning process. They are the MB102 data on mobile FOCI (which is very coarse scale) and MB102 data on spawning and nursery areas (which, again, is too broad-scale to be meaningful in our planning context, see map FR_079).

Survey work by the Wildlife Trusts has been ongoing throughout this project, though not all of it was available during the planning process. Additional information can be obtained from Cornwall and Isles of Scilly Wildlife Trust/ the Environmental Records Centre for Cornwall and the Isles of Scilly, Devon Wildlife Trust/Devon Environmental Records Centre, Dorset Wildlife Trust/Dorset Environmental Records Centre and Somerset Environmental Records Centre.

Data gathering and planning tools

Online Interactive Map (WebGIS)

In order to collect information from commercial fishers who did not have time to complete a map-based interview with a Liaison Officer, an online interactive Geographic Information System (interactive map or webGIS) was developed with Exegesis Spatial Data Management and launched in July 2008.

In spring 2009 the tool was expanded to accommodate other sea users. This system allowed the project to gather information from those sea users from outside the region as well as from sea users who had not met with a liaison officer. In November 2009 the tool was managed nationally to service all four regional projects and act as a public information source for distributing information on how the network was progressing.

Excel planning tool

Tom Mullier, one of the GIS specialists at Finding Sanctuary, developed an interactive planning tool, which allowed us to calculate the amount of EUNIS level 3 habitat and FOCI records within a selected set of building blocks automatically during the Working Group meetings. The tool incorporated figures from the gap analysis for the existing sites, so it was able to provide an indication of how well a given configuration of sites would perform against these aspects of the ENG. This tool proved to be very useful for speeding up progress during the Working Group meetings, as it allowed stakeholders to swap selected building blocks and get instant feedback, rather than having to wait for the project team to carry out time-consuming GIS analyses at every point.

An updated version of this tool was also used during the reference area planning process to measure how well different combinations of recommended reference areas met the ENG, including how the minimum dimension of sites affected the viability of the species and habitats within it. This proved to be invaluable during the reference area discussions, providing instant feedback and minimising delays.

Interactive PDFs

We created interactive PDF maps that can include multiple, switchable, layers of information. This proved effective during planning, particularly in the discussions around reference areas. This

approach, to some extent, replaced the need for large numbers of hard copy maps to be used during planning meetings.

Socio-economic and basemap data sources

The following indicates the sources of socio-economic and base map datasets used by the project. It is not a comprehensive description of the data used.

UKHO data

UK Hydrographic Office data was initially provided through SeaZone Solutions Ltd. As well as data mentioned specifically below, this dataset included maritime boundaries, charted depth and named sea areas, recreational activity restrictions, mooring locations, anchorages, berths and docks, harbour administration regions and traffic separation schemes.

Protected Wrecks

Information on protected wrecks was provided by English Heritage and the Maritime and Coastguard Agency.

Outfalls and discharge points

The locations of consented discharge points were provided by the Environment Agency. The Crown Estate provided the locations of the outfall licenses that they owned.

Renewables

Round three offshore wind licenses were provided by The Crown Estate. Eneco provided GIS data describing the Eneco wind park area and potential cable corridors in the West of Wight area. Later in the process, Eneco provided data describing a preferred area where offshore wind and MCZs could be co-located. RWE nPower provided information describing the Atlantic Array offshore wind area. The WaveHub exclusion zone was provided by Plymouth University. The associated cable route was supplied by the Marine Operations Manager for WaveHub, for internal research use only. Outputs from the Offshore Renewables Resource Assessment and Development (ORRAD) project describing potential renewable resource areas was provided by the South West RDA (see PMSS, 2010).

Cables

Existing submarine cable routes were downloaded from the KISCA (Kingfisher Information Service - Cable Awareness Charts) website. Cables relating to renewables installations are described above. Additional information on cables was referred to by The Crown Estate representative during planning meetings, but this was not available as GIS data for the project.

Aggregates

Information on aggregate extraction licensing, historical use and potential future development was provided by The Crown Estate.

Ports and related activities

Port of Bristol dredged areas were supplied as a CAD drawing by the Bristol Port Company. Dredging licenses were provided by The Crown Estate. RYA marinas were provided as part of the Royal Yachting Associations Coastal Atlas. Milford Haven Port Authority provided information on dredge disposal site LU169 and potential future extensions.

Fisheries restrictions

- The Start Bay no trawl area, Start Point IPA and Lundy NTZ boundaries were supplied by Devon Sea Fisheries Committee.
- Fixed Net Restrictions (Section 6 Salmon Act 1975) and other trawling and fixed net restrictions were supplied by Cornwall and Devon Sea Fisheries Committees.
- Where a coastline was included, this was digitised by Finding Sanctuary using the Ordnance Survey Boundary-Line mean high water mark as a reference.
- The Midchannel Potting Agreement, Prawns Closed season and Scallops closed season were digitised by Finding Sanctuary from descriptions of the Byelaws in the NFFO yearbook.
- Temporary Gill net closures were supplied by the Cornwall Sea Fisheries Committee.
- The Trevoise box was digitised by Finding Sanctuary from European Union document EC 40/2008.
- The NDFA Ray Box was digitised from illustration provided by J.Butterwith of the North Devon Fishermen's Association.

Fisheries use (other than FisherMap)

Vessel monitoring system data was supplied through Defra-led contract MB106. This originally consisted of amalgamated UK and EU data from 2006 and 2007. A later update split the data into different countries and added 2008 and 2009. Inshore fishing data around Cornwall was supplied by the Cornish Fish Producers Organisation.

Base mapping data

The Ordnance Survey mean high water mark was used as the landward component of the Finding Sanctuary study area. This was originally licensed from the OS and later through Defra's OS licensing. This dataset is now part of the OS OpenData project and can be freely downloaded from their website. Land basemapping consisted of OpenStreetMap data, outputs from a collaborative project to create free mapping resources (licensed under Creative Commons, CC-BY-SA), UKHO vector data and the NOAA World Vector Shoreline.

Map: FR_074

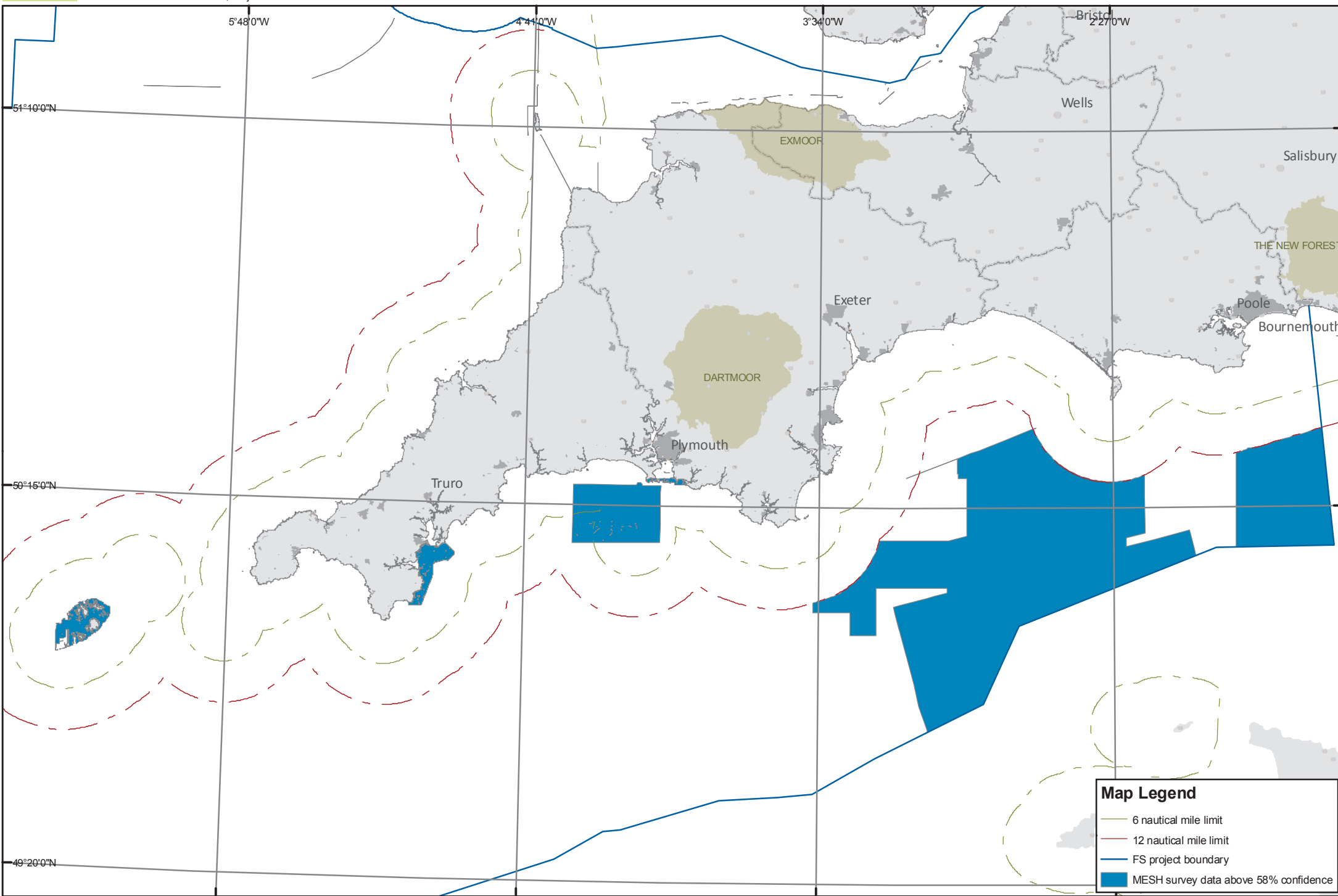
Version: 6Sep11

Extent of MESH survey data with confidence of at least 58%

This map shows the extent of the Mapping of European Seabed Habitats (MESH) data that contributed to the combined broad-scale habitats dataset. Datum: WGS84; Projection: UTM30N.

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0 25 50 km



Map Legend

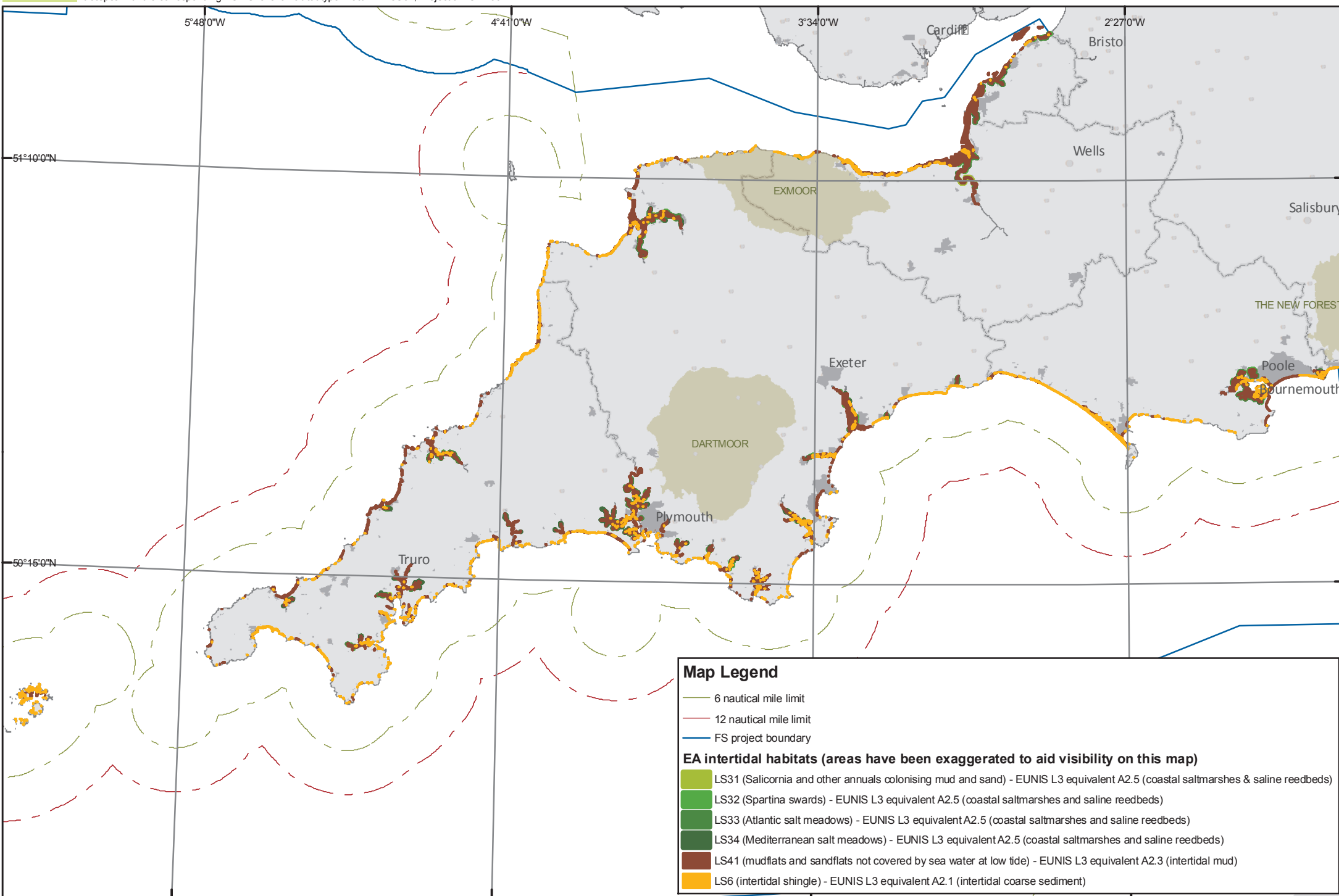
- 6 nautical mile limit
- 12 nautical mile limit
- FS project boundary
- MESH survey data above 58% confidence

Extent of relevant Environment Agency intertidal habitat data

This map shows the extent of the relevant intertidal habitats that were provided by the Environment Agency. Habitats are shown as IHS biotopes with the corresponding EUNIS level 3 habitat type. Datum: WGS84; Projection: UTM30N.

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0 25 50 km



Map: FR_076

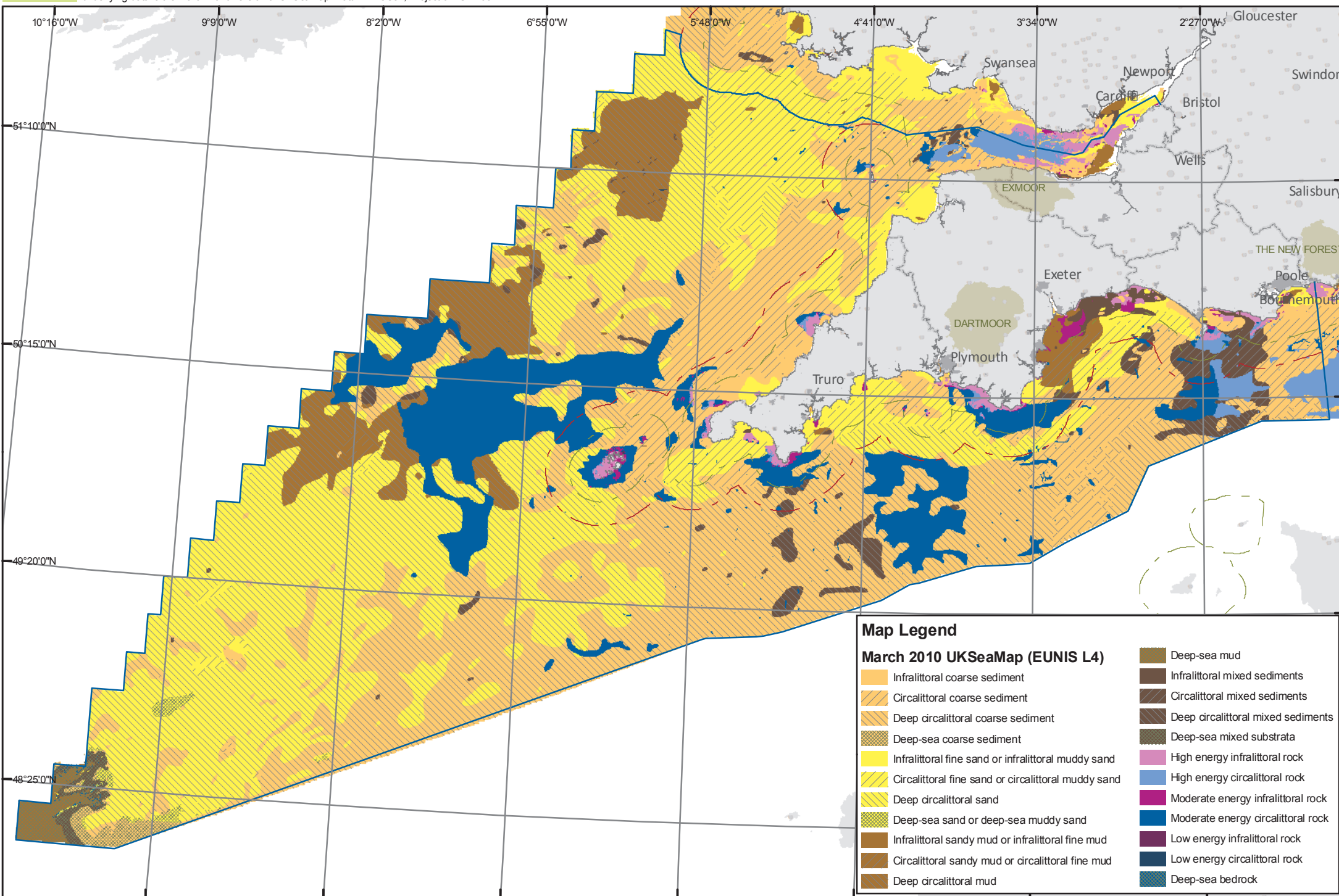
Version: 6Sep11

Broad-scale habitats mapped at EUNIS level 4 (where possible)

This map shows broad-scale habitats at EUNIS L4 (where possible) as mapped in the June 2010 version of the regional profile. The underlying data is the March 2010 version of UKSeaMap. Datum: WGS84; Projection: UTM30N.

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0 50 100 km

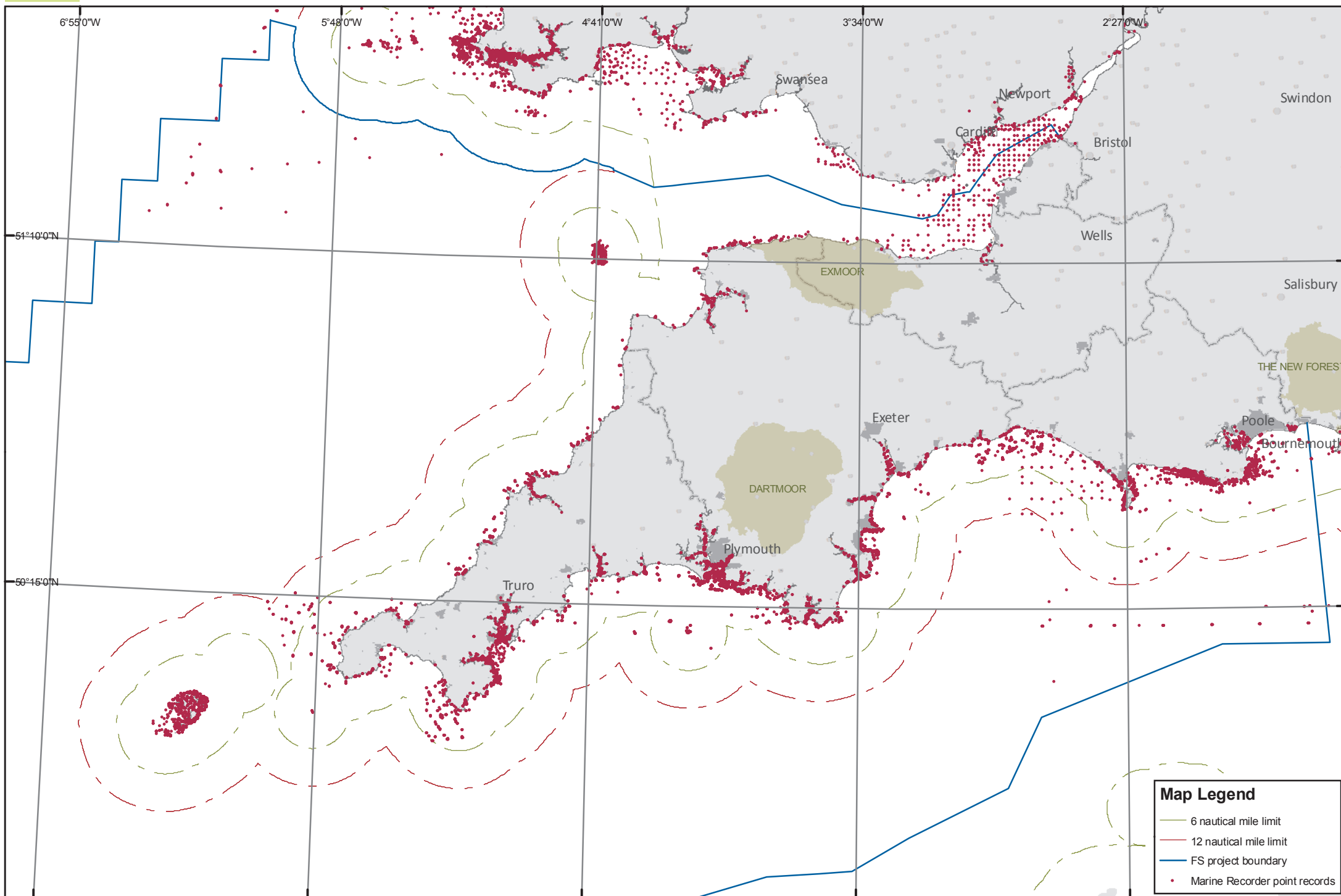


Distribution of Marine Records records (snapshot taken January 2011)

This map shows the distribution of Marine Recorder records from a snapshot taken in January 2011. Datum: WGS84; Projection: UTM30N.

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0 30 60 km



Map: FR_078

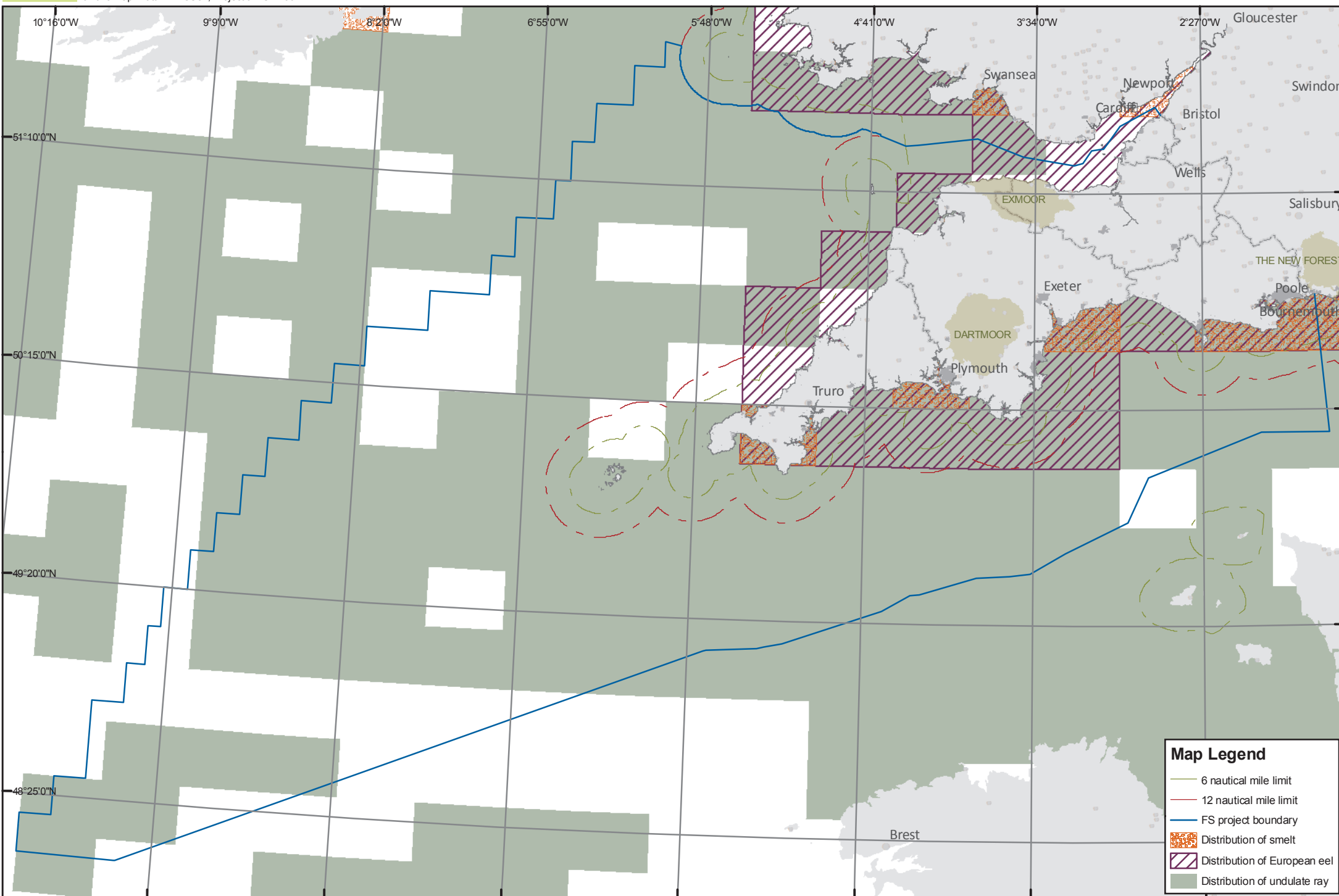
Version: 6Sep11

Distribution of mobile species

This map shows data on the distribution of mobile FOCI species from MB102 task 2B. Both current and historic smelt records are included on this map. Datum: WGS84; Projection: UTM30N.

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0 50 100 km



Map: FR_079

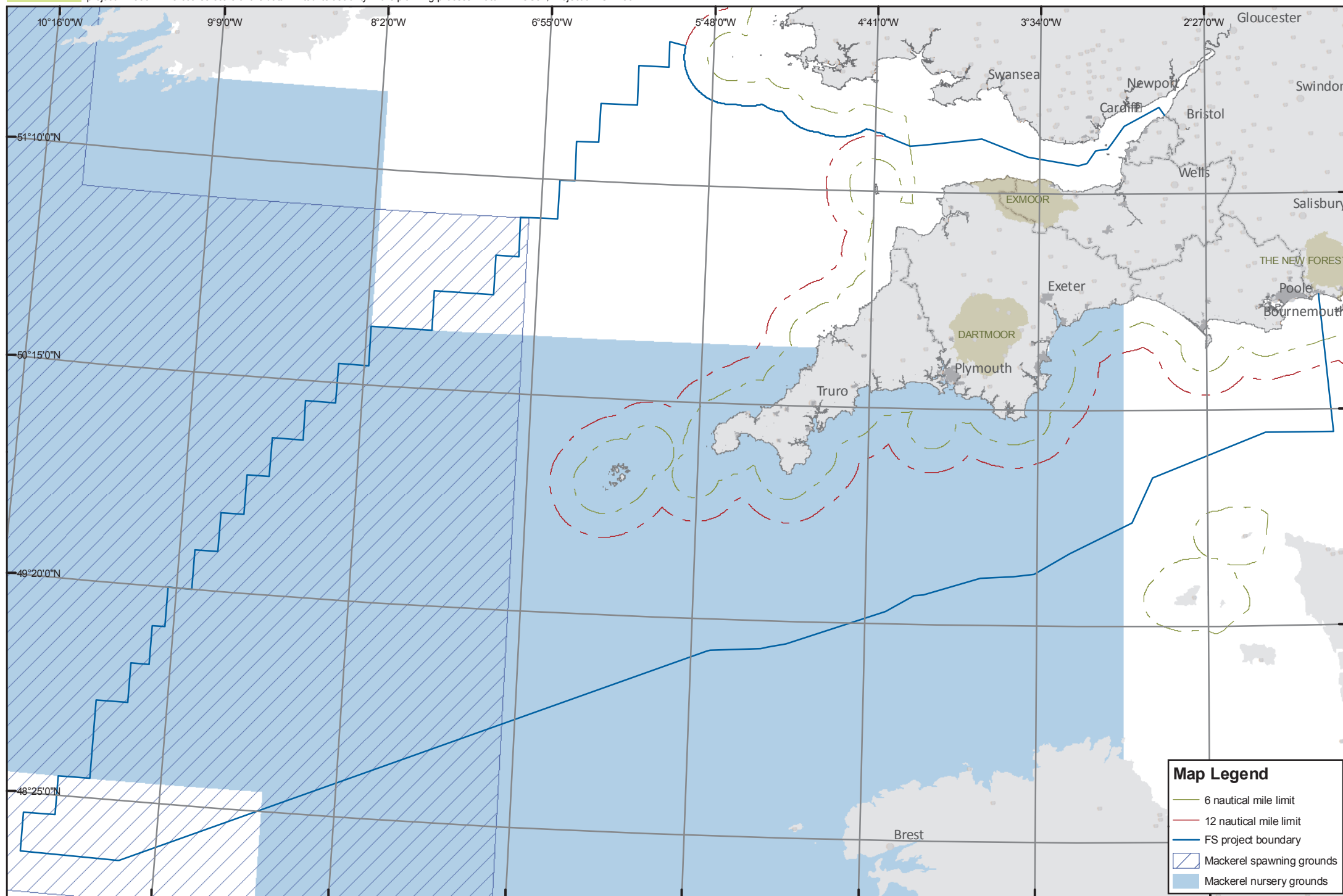
Version: 6Sep11

Example of nursery and spawning data from MB5301 (mackerel)

This map shows the nursery and spawning grounds for a single species (mackerel) extracted from the data provided through Defra led project MB5301. The coarse scale of the data limited its usability in the planning process. Datum: WGS84; Projection: UTM30N.

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0 50 100 km



Map Legend

- 6 nautical mile limit
- 12 nautical mile limit
- FS project boundary
- Mackerel spawning grounds
- Mackerel nursery grounds

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Appendix 10: Draft reference area guidance table

The table below is an A4-scaled representation of larger tables that were used at planning meetings to capture stakeholder narrative for recommended reference areas. The content is based on the draft reference area guidance.

Extractive and Depositional Activities which will not be allowed in any reference areas			
	Activity	Type	Comments / Implications for potential reference area:
1	Aquaculture	extractive & depositional	
2	Beachcombing	extractive	
3	Catch-and-release angling	extractive & depositional	
4	Collection of flora and fauna	extractive	
5	Collection of natural substrates / materials	extractive	
6	Commercial fishing	extractive & depositional	
7	Construction of structures	extractive & depositional	
8	Dredging	extractive	
9	Marine curio collection	extractive	
10	Military activities	extractive & depositional	
11	Petroleum / gas exploration	extractive & depositional	
12	Petroleum / gas operation	extractive & depositional	
13	Recreational angling	extractive & depositional	
14	Deposition of gravel / rock	depositional	
15	Disposal of dredge spoil	depositional	

Potentially damaging or disturbing activities that might need mitigation, restriction or complete exclusion from reference areas				
	Activity	More specific examples where activity may cause a problem	Possible mitigation	Comments / Implications for potential reference area:
1	Anchoring / mooring	Where sensitive habitats are present such as seagrass beds and biogenic reefs	Restrictions on anchoring, moorings, code of conduct	
2	Low flying aircraft	Noise or visual disturbance to wildlife or visitors	Restrictions on low-flying activity	
3	Maintenance and operation of existing structures	Mortality of seabirds during windfarm operation Removal of large decommissioned structures Disturbance to wildlife from electromagnetic fields	Mitigation unlikely to be possible, so activity probably incompatible with reference area Mitigation unlikely to be possible, so activity probably incompatible with reference area Deep burial of cables, no new cables once reference area in place	
4	Motorised boating	Noise disturbance or physical impact on species such as cetaceans, seals Noise disturbance or physical impact on wildlife with dependent young Anchoring in sensitive habitat	Seasonal closures, code of conduct, speed restrictions Seasonal closures, code of conduct, speed restrictions Provision of moorings, zoning	
5	Navigation / transit of vessels	Noise disturbance or physical impact on species such as cetaceans, seals Noise disturbance or physical impact on wildlife with dependent young Visual disturbance during wildlife breeding / feeding / resting times	Appropriate speed restrictions Appropriate speed restrictions Speed restrictions, restricted access	
6	Non-motorised boating	Visual disturbance during wildlife breeding / feeding / resting times	Code of conduct, seasonal restrictions	
7	Other recreational pursuits	Dog walking - disturbance to wildlife	seasonal closures, code of conduct, zoning	
		Dog walking - faeces	Must be removed, waste disposal facilities, zoning	
		Horse riding - disturbance to	seasonal closures, code of	

		wildlife Horse riding - disturbance to sensitive habitats Surfing / Kitesurfing / kayaking - disturbance to wildlife Surfing / Kitesurfing / kayaking - disturbance to sensitive habitats	conduct, zoning Restricted access, zoning seasonal closures, code of conduct, zoning Restricted access, zoning	
8	Personal water craft	Visual disturbance during wildlife breeding / feeding / resting times Noise disturbance or physical impact on species such as cetaceans, seals Noise disturbance or physical impact on wildlife with dependent young Damage to sensitive habitats by scour / wash / propellers Anchoring in sensitive habitat	Spatial and temporal restrictions Mitigation unlikely to be possible, so activity probably incompatible with reference area Mitigation unlikely to be possible, so activity probably incompatible with reference area Zoning Provision of moorings, zoning	
9	Point source discharges	All circumstances	Mitigation unlikely to be possible, so activity probably incompatible with reference area (draft guidance also states 'treatment of effluent appropriate to sensitivities of the habitats and species')	
10	Ports and harbours	Disturbance to sensitive habitats and species from shipping activity e.g. Noise, visual disturbance and wash Release of chemicals into marine environment	Mitigation unlikely to be possible, so activity probably incompatible with reference area Re-positioning of boat cleaning areas away from reference area, careful disposal of contaminants	
11	Scientific research and education	Damage to sensitive habitats e.g. By trampling or use of towed sampling gear / grab sampling	Code of conduct	
		Disturbance to sensitive species such as cetaceans / seals High numbers of people Extraction or removal of species for research	Code of conduct Code of conduct To be performed only under permit	
12	Scuba diving	High numbers of divers /	Permits to regulate numbers,	

	and snorkelling	snorkellers - trampling / sediment stirring / abrasion Low skill level of divers Presence of sensitive wildlife or habitats High numbers of boats - anchoring, noise and visual disturbance	code of conduct, zoning Signs and leaflets to raise awareness located at shore access points or dive centres; specified areas for beginners, zoning Seasonal closures, code of conduct Permits to regulate numbers	
13	Swimming	Trampling of sensitive intertidal populations Disturbance to sensitive species such as cetaceans / seals	Demarcation of access points Code of conduct, zoning	
14	Vehicular access	Sensitive populations / habitats in intertidal zone Noise / disturbance during wildlife breeding / feeding / resting times	Specified access routes Mitigation unlikely to be possible, so activity probably incompatible with reference area and will be restricted during these times	
15	Visitor amenities / camping	Effects of construction works for visitor amenities Increased waste or litter	Minimal construction of facilities, placed away from reference area Site facilities away from reference area, code of conduct in place, educational boards	
16	Walking / hiking	Trampling of sensitive intertidal populations Erosion of intertidal habitats	Access restrictions Well marked paths, code of conduct	
17	Wildlife observation	High numbers of boats - noise and visual disturbance to wildlife populations Noise / disturbance during wildlife (e.g. Seals, cetaceans, birds) breeding / feeding / resting times	Permits to regulate numbers, code of conduct and accreditation schemes code of conduct	
		Harassment of wildlife	code of conduct	

Appendix 11: Gap Analysis table

Broad-scale habitats and FOCI protected in existing marine protected areas

Name	Type	Broad-scale habitats protected	FOCI protected
Braunton Burrows	SAC		
Chesil & The Fleet	SAC	intertidal coarse sediment intertidal sand and muddy sand intertidal mud Intertidal mixed sediments Coastal saltmarshes and saline reedbeds Subtidal coarse sediment Subtidal macrophyte-dominated sediment	Seagrass beds Subtidal sands and gravels <i>Armandia cirrhosa</i> <i>Caecum armoricum</i> <i>Alkmaria romijni</i> <i>Nematostella vectensis</i> <i>Gammarus insensibilis</i> <i>Tenellia adspersa</i> <i>Paludinella littorina</i>
Fal & Helford	SAC	Moderate energy intertidal rock Low energy intertidal rock Intertidal coarse sediment Intertidal sand and muddy sand Intertidal mud Intertidal mixed sediments Coastal saltmarshes and saline reedbeds High energy infralittoral rock Moderate energy infralittoral rock Low energy infralittoral rock Moderate energy circalittoral rock Low energy circalittoral rock Subtidal coarse sediment Subtidal sand Subtidal mud Subtidal mixed sediments Subtidal macrophyte-dominated sediment	Intertidal underboulder communities Maerl beds Seagrass beds Sheltered muddy gravels Estuarine rocky habitats Fragile sponge and anthozoan communities on subtidal rocky habitats <i>Lithothamnion corallioides</i> <i>Ostrea edulis</i> <i>Phymatolithon calcareum</i> <i>Eunicella verrucosa</i>
Haig Fras	SAC	Moderate energy circalittoral rock Fragile sponge and anthozoan communities on subtidal rocky habitats	
Isle of Portland to Studland Cliffs	SAC		
Isles of Scilly Complex	SAC	Moderate energy intertidal rock Intertidal sand and muddy sand High energy infralittoral rock Moderate energy infralittoral rock Low energy infralittoral rock High energy circalittoral rock Moderate energy circalittoral rock Low energy circalittoral rock Subtidal coarse sediment Subtidal sand Subtidal mixed sediments	Intertidal underboulder communities Seagrass beds Subtidal sands and gravels Fragile sponge and anthozoan communities on subtidal rocky habitats Subtidal macrophyte-dominated sediment Intertidal sediments dominated by aquatic angiosperms <i>Leptosammia pruvoti</i> <i>Eunicella verrucosa</i>
Land's End and Cape Bank	SAC	High energy infralittoral rock Moderate energy infralittoral rock	Fragile sponge and anthozoan communities on subtidal rocky

		High energy circalittoral rock Moderate energy circalittoral rock	habitats
Lizard Point	SAC	High energy infralittoral rock Moderate energy infralittoral rock High energy circalittoral rock Moderate energy circalittoral rock	Fragile sponge and anthozoan communities on subtidal rocky habitats <i>Eunicella verrucosa</i>
Lundy	SAC	Moderate energy intertidal rock High energy infralittoral rock Moderate energy infralittoral rock High energy circalittoral rock Moderate energy circalittoral rock Low energy circalittoral rock Subtidal coarse sediment Subtidal sand	Intertidal underboulder communities Fragile sponge and anthozoan communities on subtidal rocky habitats <i>Leptopsammia pruvoti</i> <i>Eunicella verrucosa</i> <i>Amphianthus dohrnii</i> ¹
Lyme Bay and Torbay	SAC	High energy infralittoral rock Moderate energy infralittoral rock Low energy infralittoral rock High energy circalittoral rock Moderate energy circalittoral rock Subtidal biogenic reefs	Blue Mussel beds (including intertidal beds on mixed and sandy sediments) Ross worm (<i>Sabellaria spinulosa</i>) reefs ¹ Fragile sponge and anthozoan communities on subtidal rocky habitats <i>Leptopsammia pruvoti</i> <i>Eunicella verrucosa</i>
Plymouth Sound & Estuaries	SAC	High energy intertidal rock Moderate energy intertidal rock Low energy intertidal rock Intertidal sand and muddy sand Intertidal mud Intertidal mixed sediments Coastal saltmarshes and saline reedbeds High energy infralittoral rock Moderate energy infralittoral rock Low energy infralittoral rock High energy circalittoral rock Moderate energy circalittoral rock Low energy circalittoral rock Subtidal coarse sediment Subtidal sand Subtidal mud Subtidal mixed sediments Intertidal sediments dominated by aquatic angiosperms Subtidal macrophyte-dominated sediment	Intertidal underboulder communities Seagrass beds Sea-pen and burrowing megafauna communities Subtidal chalk Subtidal sands and gravels Estuarine rocky habitats Fragile sponge and anthozoan communities on subtidal rocky habitats <i>Eunicella verrucosa</i>
Prawle Point to Plymouth Sound & Eddystone	SAC	High energy infralittoral rock Moderate energy infralittoral rock High energy circalittoral rock Moderate energy circalittoral rock	Fragile sponge and anthozoan communities on subtidal rocky habitats <i>Leptopsammia pruvoti</i> <i>Eunicella verrucosa</i>
Prawle Point to Plymouth Sound & Eddystone extension	SAC	High energy infralittoral rock Moderate energy infralittoral rock High energy circalittoral rock Moderate energy circalittoral rock	Fragile sponge and anthozoan communities on subtidal rocky habitats <i>Leptopsammia pruvoti</i>

			<i>Eunicella verrucosa</i>
Severn Estuary	SAC	Moderate energy intertidal rock Low energy intertidal rock Intertidal coarse sediment Intertidal sand and muddy sand Intertidal mud Coastal saltmarshes and saline reedbeds Intertidal biogenic reefs High energy infralittoral rock Moderate energy infralittoral rock Low energy infralittoral rock High energy circalittoral rock Low energy circalittoral rock Subtidal coarse sediment Subtidal sand Subtidal mud Subtidal mixed sediments Subtidal biogenic reefs	Blue Mussel beds (including intertidal beds on mixed and sandy sediments) Seagrass beds Estuarine rocky habitats Honeycomb worm (<i>Sabellaria alveolata</i>) reefs Intertidal sediments dominated by aquatic angiosperms Subtidal macrophyte-dominated sediment
Sidmouth to West Bay	SAC		
Studland to Portland	SAC	High energy infralittoral rock Moderate energy infralittoral rock Low energy infralittoral rock High energy circalittoral rock Moderate energy circalittoral rock Subtidal biogenic reefs	Blue Mussel beds (including intertidal beds on mixed and sandy sediments) Fragile sponge and anthozoan communities on subtidal rocky habitats
Wight-Barfleur Reef ¹	SAC	High energy circalittoral rock Moderate energy circalittoral rock Subtidal coarse sediment Subtidal mixed sediments	Fragile sponge and anthozoan communities on subtidal rocky habitats
Poole Harbour	SPA	intertidal sand and muddy sand Intertidal mud Intertidal coarse sediment Intertidal mixed sediments Coastal saltmarshes and saline reedbeds Intertidal sediments dominated by aquatic angiosperms	Seagrass beds
Tamar Estuaries Complex	SPA	Coastal saltmarshes and saline reedbeds Intertidal mud Intertidal mixed sediments	
Berrow Dunes	SSSI	Coastal saltmarshes and saline reedbeds	Coastal saltmarsh
Bridgwater Bay	SSSI	Coastal saltmarshes and saline reedbeds	Coastal saltmarsh
Chesil Beach & The Fleet	SSSI	Coastal saltmarshes and saline reedbeds Low energy infralittoral rock	Coastal saltmarsh Saline lagoons <i>Nematostella vectensis</i>
Christchurch Harbour	SSSI	Coastal saltmarshes and saline reedbeds Subtidal sand Subtidal mud	Coastal saltmarsh Saline lagoons
Dawlish Warren	SSSI	Intertidal mud Coastal saltmarshes and saline	Coastal saltmarsh Intertidal mudflats

		reedbeds	
Erme Estuary	SSSI	Intertidal sand and muddy sand Intertidal mud Coastal saltmarshes and saline reedbeds	Coastal saltmarsh Intertidal mudflats
Exe Estuary	SSSI	Intertidal mud Coastal saltmarshes and saline reedbeds Subtidal mud	Coastal saltmarsh Intertidal mudflats Saline lagoons
Hayle Estuary & Carrack Gladden	SSSI	Intertidal sand and muddy sand Intertidal mud Coastal saltmarshes and saline reedbeds	Coastal saltmarsh Intertidal mudflats
Lower Fal & Helford Intertidal	SSSI	High energy intertidal rock Moderate energy intertidal rock Low energy intertidal rock Intertidal sand and muddy sand Intertidal mud Intertidal mixed sediments	Intertidal underboulder communities Sheltered muddy gravels Intertidal mudflats Estuarine rocky habitats
Malpas Estuary	SSSI	Low energy intertidal rock Intertidal sand and muddy sand Intertidal mud Intertidal mixed sediments Coastal saltmarshes and saline reedbeds	Coastal saltmarsh Intertidal mudflats Estuarine rocky habitats
Otter Estuary	SSSI	Coastal saltmarshes and saline reedbeds	Coastal saltmarsh
Plymouth Sound Shores & Cliffs	SSSI	High energy intertidal rock Moderate energy intertidal rock Intertidal mixed sediments	Intertidal underboulder communities Estuarine rocky habitats
Pool of Bryher & Popplestone Bank (Bryher)	SSSI	Low energy infralittoral rock	Saline lagoons
Poole Harbour	SSSI	Low energy intertidal rock Intertidal coarse sediment Intertidal mud Coastal saltmarshes and saline reedbeds Intertidal sediments dominated by aquatic angiosperms Low energy infralittoral rock	Coastal saltmarsh Intertidal mudflats Saline lagoons Estuarine rocky habitats <i>Nematostella vectensis</i>
Porlock Ridge & Saltmarsh	SSSI	Coastal saltmarshes and saline reedbeds	Coastal saltmarsh
Portland Harbour Shore	SSSI	Coastal saltmarshes and saline reedbeds	Coastal saltmarsh
Rosemullion	SSSI	High energy intertidal rock Moderate energy intertidal rock	
Salcombe to Kingsbridge Estuary	SSSI	Low energy intertidal rock Intertidal mud Coastal saltmarshes and saline reedbeds Intertidal sediments dominated by aquatic angiosperms	Coastal saltmarsh Intertidal mudflats Estuarine rocky habitats
Saltern Cove	SSSI	Moderate energy intertidal rock Low energy intertidal rock	

Severn Estuary	SSSI	High energy intertidal rock Moderate energy intertidal rock Low energy intertidal rock Intertidal coarse sediment Intertidal mud Intertidal mixed sediments Coastal saltmarshes and saline reedbeds Intertidal sediments dominated by aquatic angiosperms Intertidal biogenic reefs	Intertidal underboulder communities Sheltered muddy gravels Coastal saltmarsh Intertidal mudflats Estuarine rocky habitats
St Martin's Sedimentary Shore	SSSI	Intertidal sand and muddy sand Intertidal mud	Intertidal mudflats
Swanpool	SSSI		<i>Victorella pavid</i>
Tamar-Tavy Estuary	SSSI	Coastal saltmarshes and saline reedbeds	Coastal saltmarsh
Taw-Torridge Estuaries	SSSI	Intertidal mud Coastal saltmarshes and saline reedbeds	Coastal saltmarsh Intertidal mudflats
Upper Fal Estuary & Woods	SSSI	Intertidal mud Coastal saltmarshes and saline reedbeds	Coastal saltmarsh Intertidal mudflats
Wembury Point	SSSI	High energy intertidal rock Moderate energy intertidal rock Low energy intertidal rock Intertidal mixed sediments	Intertidal underboulder communities Intertidal underboulder communities
Yealm Estuary	SSSI	High energy intertidal rock Moderate energy intertidal rock Low energy intertidal rock Intertidal sand and muddy sand Intertidal mud Intertidal mixed sediments	Intertidal underboulder communities Sheltered muddy gravels Intertidal mudflats Estuarine rocky habitats

¹ Changes since progress report 3.

Appendix 12: Management measures terminology

A note on terminology in relation to the Finding Sanctuary project

[This was a briefing note prepared for stakeholder representatives in January 2011]

At Finding Sanctuary we've always considered it of key importance to clarify what activities will need restricting in MCZs, in order for our process to work effectively, and for our recommendations to be clear. We have strived hard to get as much clarity as possible, working with (amongst others) Natural England, the Joint Nature Conservation Committee, Defra, the Marine Management Organisation and other relevant authorities and organisations.

It has become increasingly evident that there is a lot of confusion around terminology. In particular, the term 'management measures' is sometimes used loosely to refer to the nature of activity restrictions, the mechanism by which restrictions are achieved, or both. Other people use the term in a much more narrowly defined way, to mean the mechanism through which management is put in place. Our own usage of the term has changed as we've realised this, and we now use the term in its narrower definition.

When it comes to management of MCZs, we now distinguish between the 'what' and the 'how':

- The 'what' refers to what needs to happen on the ground in order to achieve the conservation objectives: what activities need excluding entirely from a site, what activities are allowed to happen without restrictions, and what activities are allowed as long as they are managed, restricted, or modified in a particular way.
- The 'how' refers to the mechanism through which activity restrictions are put in place. For example, that might be a byelaw, activity licensing, a voluntary agreement, or a restriction put in place through the Common Fisheries Policy.

We use the term 'management measures' to refer only to the 'how', not to the 'what'. We have now been given an extended timeline and remit, in that we've been asked to develop options for management measures within our proposed MCZs, and to do so by working together with relevant regional stakeholders. We're currently planning how to approach this new work area.

However, before the 'how' can be addressed in any meaningful way, the 'what' needs to be clear. Getting the 'what' right and properly defined has been a real priority for us throughout, and a central aspect of our stakeholder work. In the absence of official guidance, we started by developing assumptions on what management restrictions would need to be put in place. These assumptions were based on project team and stakeholder knowledge.

Late last year, the regional projects were given official guidance on the environmental pressures that the species and habitats listed in the Ecological Network Guidance are sensitive to, and some guidance on what activities cause these pressures. This gives an indication of the activities that might need restricting in MCZs, but unfortunately does not give us any clear answers. We are therefore continuing to work with assumptions as previously, although the project team will now be cross-referencing the assumptions with the official guidance to ensure there are no obvious discrepancies. We have also asked Natural England and the JNCC to provide us with a 'reality check' of our assumptions throughout the remainder of our process, so that we can be assured that they will be able to support our recommendations.

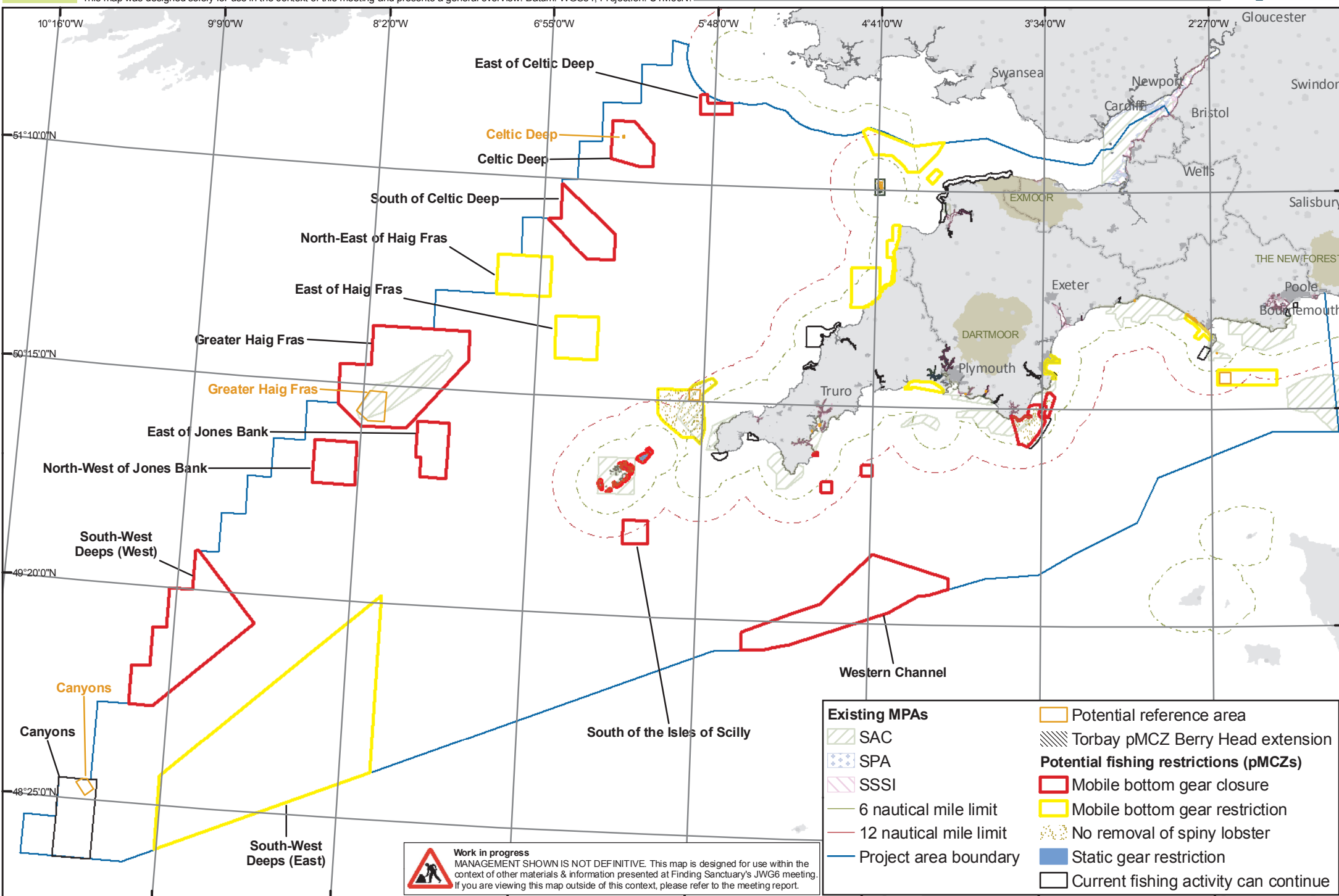
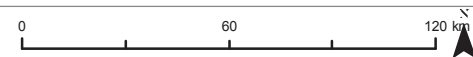
Appendix 13: Management maps

The maps on the following three pages (FR_084a-c) show a visual representation of the stage the management discussions had reached at the time of the vulnerability assessments described in section I.9. These maps were produced for management and Working Group meetings in June 2011 using the best advice available at the time. The management indicated is not definitive. These maps can be considered archive versions of OWG_63, IWG_82a and IWG_82d and contain data, terminology and symbology from the time they were first produced (May and June 2011).

Potential fisheries management in offshore MCZs (archive version)

This map was provided for the 23rd June 2010 fisheries management meeting and shows likely fisheries management in offshore rMCZs. This map was designed solely for use in the context of this meeting and presents a general overview. Datum: WGS84; Projection: UTM30N.

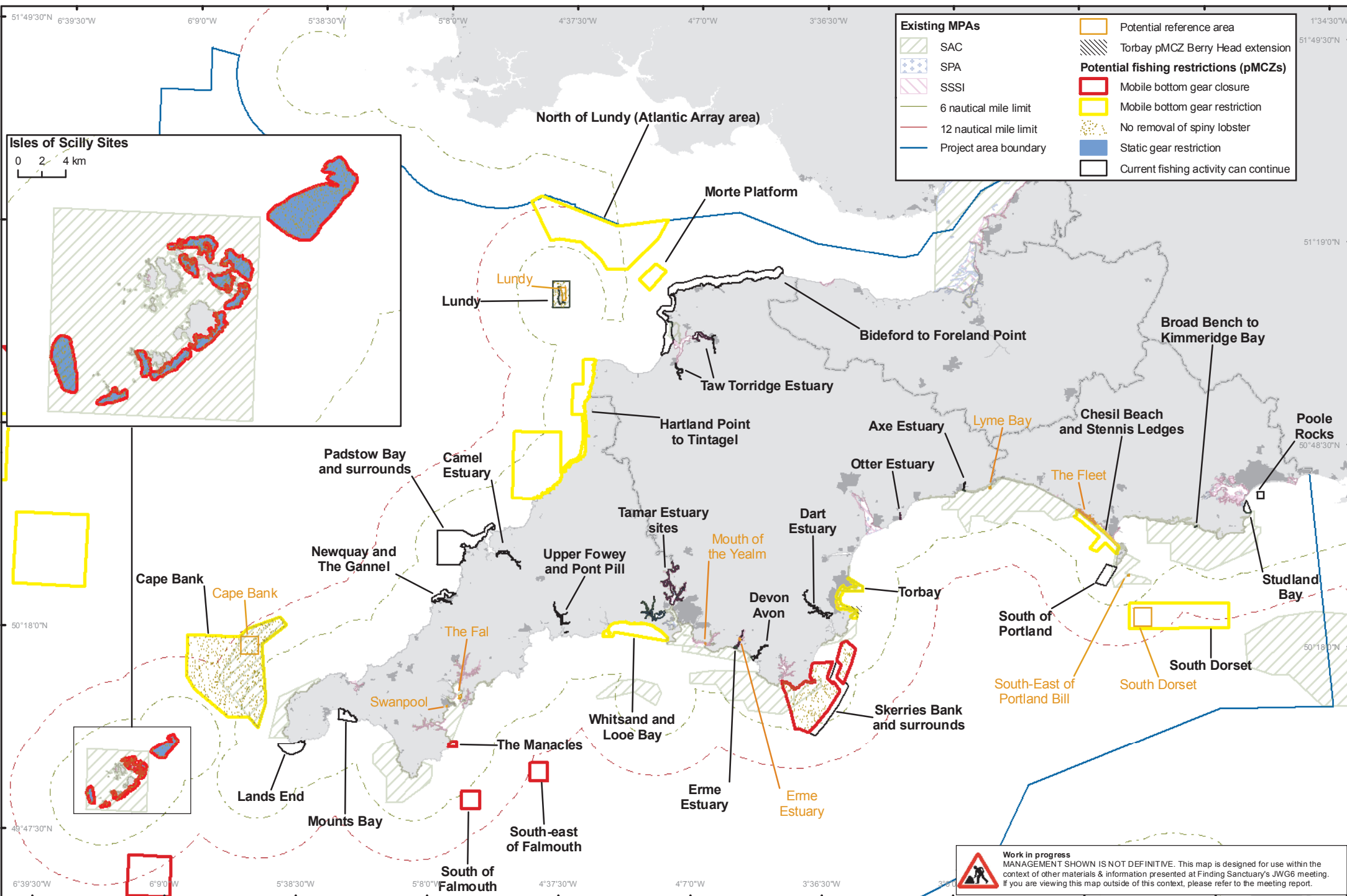
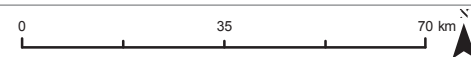
Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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Potential fisheries management in inshore MCZs (archive version)

This map was provided for the 23rd June 2010 fisheries management meeting and shows likely fisheries management in inshore rMCZs, based on the best advice available at the time. Datum: WGS84; Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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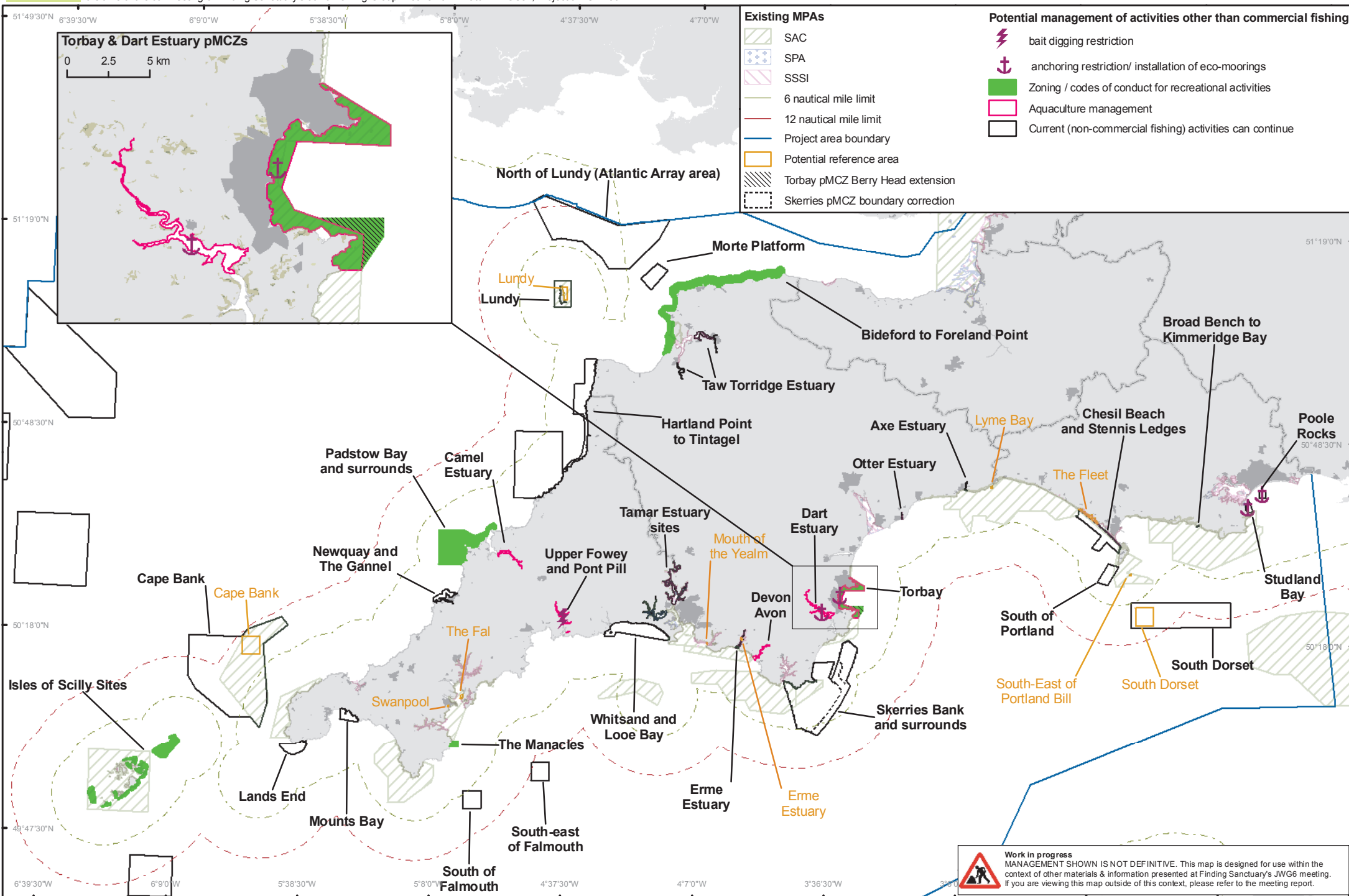


Potential non-fisheries management in inshore MCZs (archive version)

This map shows likely management of activities except fisheries in inshore pMCZs - this map was based on the best advice available at the time of the 6th meeting of Finding Sanctuary's Joint Working Group in June 2011. Datum: WGS84; Projection: UTM30N.

Maritime basemap © British Crown and SeaZone Solutions Limited, 2010.
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0 5 10 km



Work in progress
MANAGEMENT SHOWN IS NOT DEFINITIVE. This map is designed for use within the context of other materials & information presented at Finding Sanctuary's JWG6 meeting. If you are viewing this map outside of this context, please refer to the meeting report.

Appendix 14: Overview of all materials supplied with this report

Throughout this report, there are references to additional documents and materials. These will be available to download via a link on the project website over the days and weeks following the submission of the report. The materials available are listed here.

Summary documents

Summary of final recommendations

This is a document that summarises the recommendations in this report, giving a network overview but no site-specific details.

Final recommendations summary leaflet

This is a very brief summary of the final recommendations, aimed at the wider public.

Maps, GIS data and ecological information

iPDF Maps

These are PDF files with map layers that can be turned on and off individually. The following are provided:

- Offshore scale maps (covering the whole region), and county-scale maps, in three sets:
 - o Fisheries (showing spatial information on the distribution of fishing effort, from FisherMap and VMS data)
 - o Socio-economic (other than fisheries)
 - o Biophysical (ecological datasets including FOCI and broad-scale habitat data layers)

Network progression animation

Animated PowerPoint presentation showing the evolution of the network configuration over the planning iterations. For details, refer to the meeting reports and progress reports.

Table of major network alterations

A table summarising some of the key modification to the developing network configuration over the course of the planning period. This should always be viewed in the context of the network progression animation, and the information in meeting reports and progress reports.

Shapefile of network configuration (site boundaries) with metadata

This allows GIS users to map the network and carry out data analysis using rMCZ and recommended reference area boundaries.

All maps from final report as separate image files

IWG, OWG and JWG maps

These are the A2-sized maps prepared for stakeholder meetings over the course of the project.

June 2010 version of the regional profile

This contains the maps and notes that were provided to stakeholders earlier in the process, much of the information has been superseded since then.

Ecological information supplied by stakeholders

- Estuaries information supplied by the Environment Agency
- Isles of Scilly Local Group materials
- North Devon Biosphere Marine Reserve Working Group materials

Site statistics tables and site lists

Excel site statistics tables:

A spreadsheet containing all the site statistics from the site reports.

Full site list excel document

Spreadsheet containing a full site list, and the conservation objective summary tables.

Co-ordinates spreadsheet

A spreadsheet of site centroid and boundary co-ordinates in three formats: Degrees Minutes Seconds, Decimal Degrees, and Degrees Minutes Decimal Seconds. This spreadsheet has been provided with UKHO chart users in mind, as they will require Degrees Minutes Decimal Seconds in order to plot coordinates accurately, and this format is not used anywhere in the report.

All project reports

- IWG, OWG, JWG meeting reports
- LG meeting reports
- SG meeting reports
- Process Group meeting reports
- Progress reports and draft final recommendations report
- SAP feedback documents, and Finding Sanctuary's SAP feedback reaction document following the first iteration

Vulnerability Assessments Audit Trail

Audit trail excel sheets of VA meetings

FS process documents

Protocol from final project phase

Finding Sanctuary report on California MLPA

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Introduction to Appendix 15

This appendix contains the full text for each draft conservation objective listed in one or more sites. The full text of the draft conservation objectives is not included in the site reports, in order to avoid repeating the same text multiple times in where a given draft objective is listed for more than one site. Grouping the objectives in this appendix, and including each one just once rather than multiple times, has saved approximately 400 pages of what is already a very long report.

The first sentence of each conservation objective makes a brief statement about the importance of the feature that the objective is written for. In many instances, this simply states that protecting the feature is necessary in order to meet the ENG. A full detailed rationale and justification for why these features need protecting in order to achieve an ecologically coherent network is included in the ENG document, so it is not repeated here (where relevant, that includes details on which legislation or conservation lists a given feature is listed on).

The table below shows which objectives occur in which sites (please also refer to section II.2.6, which contains a table of all the sites in the recommendations with a summary list of draft conservation objectives in each one).

Broad Habitats	Scale	
High energy intertidal rock	Maintain in favourable condition	Chesil Beach and Stennis Ledges, Skerries Bank and surrounds, Erme Estuary, Whitsand to Looe Bay, Mounts Bay, Land's End, Newquay and the Gannel, Padstow Bay and Surrounds, Hartland point to tintagel, Bideford to foreland point, Men a Vaur to White Island, Tean, Hanague to Deep Ledge, Plympton to Spanish Ledge, Smith Sound Tide Swept Channel, Gilstone to Gorregan
High energy intertidal rock	recover to reference condition	Mouth of the Yealm
Moderate energy intertidal rock	Maintain in favourable condition	Broad Bench to Kimmeridge Bay, Torbay, Skerries Bank and surrounds, Devon Avon Estuary, Erme Estuary, Whitsand and Looe Bay, The Manacles, Mounts Bay, Newquay and the Gannel, Padstow Bay and surrounds, Hartland Point to Tintagel, Bideford to Foreland Point, Men a Vaur to White Island, Tean, Tean Non-disturbance area, Hanjague to Deep Ledge, Higher Town, Lower Ridge to Innisvoul, Peninnis to Dry Ledge, Plympton to Spanish Ledge, Smith Sound Tide Swept Channel, Smith Sound non-disturbance area, Gilstone to Gorregan

Moderate energy intertidal rock	recover to reference condition	Mouth of the Yealm
Low energy intertidal rock	Maintain in favourable condition	Torbay, Dart Estuary, Erme Estuary, Whitsand and Looe Bay, Upper Fowey and Pont Pill, Newquay and the Gannel, Camel Estuary, Bideford to Foreland Point, Taw Torridge Estuaries, Higher Town, Peninnis to Dry Ledge
Low energy intertidal rock	recover to reference condition	The Fal
Intertidal coarse sediment	Maintain in favourable condition	Broad Bench to Kimmeridge Bay, Chesil Beach and Stennis Ledges, Axe Estuary, Otter Estuary, Torbay, Skerries Bank and surrounds, Devon Avon Estuary, Erme Estuary, Tamar estuary sites, Whitsand and Looe Bay, Upper Fowey and Pont Pill, The Manacles, Mounts Bay, Land's End, Newquay and the Gannel, Padstow Bay and surrounds, Camel Estuary, Hartland Point to Tintagel, Bideford to Foreland Point, Taw Torridge Estuaries, Men a Vaur to White Island, Tean, Tean Non-disturbance area, Hanjague to Deep Ledge, Higher Town, Peninnis to Dry Ledge
Intertidal coarse sediments	recover to reference condition	The Fleet, Lyme Bay, Mouth of the Yealm, The Fal
Intertidal sand and muddy sand	Maintain in favourable condition	Studland Bay, Torbay, Skerries Bank and surrounds, Devon Avon Estuary, Whitsand and Looe Bay, Upper Fowey and Pont Pill, The Manacles, Mounts Bay, Land's End, Newquay and the Gannel, Padstow Bay and surrounds, Hartland Point to Tintagel, Bideford to Foreland Point, Taw Torridge Estuaries, Men a Vaur to White Island, Tean, Peninnis to Dry Ledge, Plympton to Spanish Ledge
Intertidal mud	Maintain in favourable condition	Studland Bay, Axe Estuary, Otter Estuary, Torbay, Dart Estuary, Skerries Bank and surrounds, Devon Avon Estuary, Upper Fowey and Pont Pill, The Manacles, Land's End, Newquay and the Gannel, Padstow Bay and surrounds, Hartland Point to Tintagel, Bideford to Foreland Point, Men a Vaur to White Island, Tean, Higher Town, Peninnis to Dry Ledge
Intertidal mud	recover to reference condition	The Fleet, Erme Estuary
Intertidal mixed sediment	Maintain in favourable condition	Hartland Point to Tintagel, Axe Estuary, Torbay, Skerries Bank and surrounds, Erme Estuary, Whitsand and Looe Bay, The Manacles, Mounts Bay, Bideford to Foreland Point, Peninnis to Dry Ledge
Intertidal mixed sediments	recover to reference condition	Erme Estuary
Coastal saltmarshes and saline reedbeds	Maintain in favourable condition	Dart Estuary, Devon Avon Estuary, otter estuary, Axe Estuary, Upper Fowey and Pont Pill, Newquay and the Gannel, Camel Estuary, Hartland Point to Tintagel, Taw Torridge Estuaries
Coastal saltmarshes and saline reedbeds	recover to reference condition	Erme Estuary, The Fleet
Intertidal sediments dominated by aquatic angiosperms	recover to reference condition	The Fleet
Intertidal biogenic reefs	Maintain in favourable condition	Tamar estuary sites

High energy infralittoral rock	Maintain in favourable condition	Otter Estuary, Skerries Bank and surrounds, Devon Avon Estuary, Erme Estuary, Whitsand and Looe Bay, Mounts Bay, Land's End, Padstow Bay and surrounds, Hartland Point to Tintagel, Bideford to Foreland Point, Men a Vaur to White Island, Tean, Hanague to Deep Ledge, Higher Town, Lower Ridge to Innisvouls, Peninnis to Dry Ledge, Plympton to Spanish Ledge, Smith Sound Tide Swept Channel, Smith Sound non-disturbance area, Gilstone to Gorregan, Bishop to Crim
High energy infralittoral rock	Recover to favourable condition	Chesil Beach and Stennis Ledges, Bristows to the Stones
High energy infralittoral rock	recover to reference condition	Lyme Bay, Cape Bank
Moderate energy infralittoral rock	Maintain in favourable condition	Skerries Bank and surrounds, Erme Estuary, The Manacles, Land's End, Padstow Bay and surrounds, Bideford to Foreland Point, Men a Vaur to White Island, Tean, Tean Non-disturbance area, Hanague to Deep Ledge, Higher Town, Lower Ridge to Innisvouls, Peninnis to Dry Ledge, Plympton to Spanish Ledge, Smith Sound Tide Swept Channel, Smith Sound non-disturbance area, Gilstone to Gorregan, Bishop to Crim
Moderate energy infralittoral rock	Recover to favourable condition	Bristows to the Stones
Moderate energy infralittoral rock	recover to reference condition	Cape Bank, Lundy
Low energy infralittoral rock	Maintain in favourable condition	Hanjague to Deep Ledge
Low energy infralittoral rock	recover to reference condition	Erme Estuary
High energy circalittoral rock	Maintain in favourable condition	South of Portland, Land's End, Padstow Bay and surrounds, Morte Platform, Men a Vaur to White Island, Hanjague to Deep Ledge, Lower Ridge to Innisvouls, Peninnis to Dry Ledge, Plympton to Spanish Ledge, Gilstone to Gorregan, Bishop to Crim
High energy circalittoral rock	Recover to favourable condition	South Dorset, Bideford to Foreland Point, Bristows to the Stones
High energy circalittoral rock	recover to reference condition	South Dorset, South-East of Portland Bill, Cape Bank
Moderate energy circalittoral rock	Maintain in favourable condition	Poole Rocks, South of Portland, Skerries Bank and surrounds, Whitsand and Looe Bay, The Manacles, Land's End, Padstow Bay and surrounds, North of Lundy (Atlantic Array Area), Morte Platform, Men a Vaur to White Island, Hanague to Deep Ledge, Lower Ridge to Innisvouls, Peninnis to Dry Ledge, Plympton to Spanish Ledge, Smith Sound Tide Swept Channel, Gilstone to Gorregan, Bishop to Crim
Moderate energy circalittoral rock	Recover to favourable condition	South Dorset, South of Falmouth, Cape Bank, Bristows to the Stones, Greater Haig Fras, East of Jones Bank, East of Haig Fras, Western Channel
Moderate energy circalittoral rock	recover to reference condition	Greater Haig Fras, South Dorset, Cape Bank, Lundy
Low energy circalittoral rock	Maintain in favourable condition	Hanjague to Deep Ledge

Subtidal sediment	coarse	Maintain in favourable condition	South Dorset, South of Portland, Skerries Bank and surrounds, Whitsand and Looe Bay, The Manacles, Land's End, Newquay and the Gannel, Padstow Bay and surrounds, Hartland Point to Tintagel, North of Lundy (Atlantic Array Area), Morte Platform, Bideford to Foreland Point, Bristows to the Stones, Peninnis to Dry Ledge, Gilstone to Gorregan, Bishop to Crim
Subtidal sediment	coarse	Recover to favourable condition	Chesil Beach and Stennis Ledges, South-East of Falmouth, South of Falmouth, Cape Bank, Canyons, South-West Deeps (West), South-West Deeps (East), North-West of Jones Bank, Greater Haig Fras, East of Haig Fras, North East of Haig Fras, South of Celtic Deep, East of Celtic Deep, Western Channel, South of the Isles of Scilly
Subtidal sediment	coarse	recover to reference condition	Greater Haig Fras, The Fleet, The Fal, Cape Bank, Lundy
Subtidal sand		Maintain in favourable condition	Poole Rocks, Studland Bay, South of Portland, Otter Estuary, Skerries Bank and surrounds, Devon Avon Estuary, Erme Estuary, Whitsand and Looe Bay, The Manacles, Mounts Bay, Land's End, Newquay and the Gannel, Hartland Point to Tintagel, North of Lundy (Atlantic Array Area), Bideford to Foreland Point, Taw Torridge Estuaries, Men a Vaur to White Island, Tean, Hanague to Deep Ledge, Higher Town, Lower Ridge to Innisvoul, Peninnis to Dry Ledge, Plympton to Spanish Ledge, Smith Sound Tide Swept Channel, South-West Deeps (East)
Subtidal sand		Recover to favourable condition	Chesil Beach and Stennis Ledges, South-East of Falmouth, Canyons, South-West Deeps (West), North-West of Jones Bank, Greater Haig Fras, East of Jones Bank, East of Haig Fras, North East of Haig Fras, South of Celtic Deep, East of Celtic Deep, South of the Isles of Scilly
Subtidal sand		recover to reference condition	Greater Haig Fras, The Fal, Lundy
Subtidal mud		Maintain in favourable condition	Dart Estuary, Skerries Bank and surrounds, Devon Avon Estuary, Erme Estuary, Newquay and the Gannel, Taw and Torridge Estuaries
Subtidal mud		Recover to favourable condition	Torbay, North-West of Jones Bank, Greater Haig Fras, East of Jones Bank, North East of Haig Fras, South of Celtic Deep, Celtic Deep, East of Celtic Deep
Subtidal mud		recover to reference condition	Greater Haig Fras, Celtic Deep, Erme Estuary
Subtidal sediments	mixed	Maintain in favourable condition	Poole Rocks, Studland Bay, South Dorset, South of Portland, Axe Estuary, The Manacles, Mounts Bay, North of Lundy (Atlantic Array Area), Bristows to the Stones, Tean, Tean non-disturbance area, Hanague to Deep Ledge, Higher Town, Lower Ridge to Innisvoul, Peninnis to Dry Ledge
Subtidal sediments	mixed	Recover to favourable condition	South-West Deeps (West), Greater Haig Fras, North East of Haig Fras, South of Celtic Deep, Western Channel
Subtidal sediments	mixed	recover to reference condition	Greater Haig Fras, South Dorset, Lyme Bay
Subtidal macrophyte-dominated sediment		Maintain in favourable condition	The Manacles, Tean, Tean non-disturbance area, Higher Town, Lower Ridge to Innisvoul
Subtidal macrophyte-dominated sediment		recover to reference condition	The Fal
Deep-sea bed		Recover to favourable condition	The Canyons, South-West Deeps (East)
Deep-sea bed		recover to reference condition	The Canyons
Habitat FOCI			

Blue Mussel beds (including intertidal beds on mixed and sandy sediments)	Maintain in favourable condition	Tamar estuary sites
Blue Mussel beds	recover to reference condition	South-East of Portland Bill
Cold-water coral reefs	Recover to favourable condition	The Canyons
Cold water coral reefs	recover to reference condition	The Canyons
Estuarine rocky habitats	Maintain in favourable condition	Dart Estuary, Erme Estuary, Upper Fowey and Pont Pill, Camel Estuary
Estuarine rocky habitats	recover to reference condition	Mouth of the Yealm
Fragile sponge & anthozoan communities on subtidal rocky habitats	Maintain in favourable condition	Hartland Point to Tintagel, Men a Vaur to White Island, Tean, Tean non-disturbance area, Hanjague to Deep Ledge, Lower Ridge to Innisvouls, Peninnis to Dry Ledge, Plympton to Spanish Ledge, Gilstone to Gorregan, Bishop to Crim
Fragile sponge & anthozoan communities on subtidal rocky habitats	Recover to favourable condition	Bristows to the Stones
Fragile sponge & anthozoan communities on subtidal rocky habitats	recover to reference condition	Lundy
Intertidal under boulder communities	Maintain in favourable condition	Torbay, Dart Estuary, Skerries Bank and surrounds, Men a Vaur to White Island, Tean, Tean Non-disturbance area, Hanague to Deep Ledge, Higher Town, Peninnis to Dry Ledge, Plympton to Spanish Ledge
Maërl beds	Maintain in favourable condition	The Manacles
Maërl Beds	recover to reference condition	The Fal
Mud habitats in deep water	Maintain in favourable condition	Lundy
Mud habitats in deep water	Recover to favourable condition	Celtic Deep
Mud Habitats in Deep Water	recover to reference condition	Celtic Deep, Lundy
Peat & clay exposures	Maintain in favourable condition	Higher Town
Sabellaria alveolata reefs	Maintain in favourable condition	Torbay, Hartland Point to Tintagel, Bideford to Foreland Point
Sabellaria alveolata reefs	recover to reference condition	Lyme Bay
Seagrass beds	Maintain in favourable condition	Whitsand and Looe Bay, Mounts Bay, Men a Vaur to White Island, Tean, Tean Non-disturbance area, Higher Town, Lower Ridge to Innisvouls
Seagrass beds	Recover to favourable condition	Studland Bay, Torbay
Seagrass Beds	recover to reference condition	The Fleet, The Fal, Mouth of the Yealm

Sheltered muddy gravels	Maintain in favourable condition	Erme Estuary, Upper Fowey and Pont Pill
Sheltered muddy gravels	recover to reference condition	Erme Estuary
Subtidal chalk	Recover to favourable condition	South Dorset
Subtidal chalk	recover to reference condition	South Dorset
Tide-swept channels	Maintain in favourable condition	Men a Vaur to White Island, Tean, Tean non-disturbance area, Higher Town, Lower Ridge to Innisvoul, Smith Sound Tide Swept Channel, Smith Sound non-disturbance area, Gilstone to Gorregan
Low or limited mobility FOCI species		
Padina pavonica	Maintain in favourable condition	Broad Bench to Kimmeridge Bay, Torbay, Hartland Point to Tintagel,
Padina pavonica	recover to reference condition	Lyme Bay
Cruoria cruoriaeformis	Maintain in favourable condition	Smith Sound Tide Swept Channel
Cruoria cruoriaeformis	recover to reference condition	The Fal
Grateloupia montagnei	recover to reference condition	The Fal
Lithothamnion corallioides	recover to reference condition	The Fal
Phymatolithon calcareum	recover to reference condition	The Fal, Lundy
Alkmaria romijni	Maintain in favourable condition	Dart Estuary, Devon Avon Estuary
Gobius cobitis	Maintain in favourable condition	Whitsand and Looe Bay, Mounts Bay, Newquay and the gannel, Peninnis to Dry Ledge, Smith Sound Tide Swept Channel, Gilstone to Gorregan, Poole Rocks
Gobius couchi	recover to reference condition	The Fal
Hippocampus guttulatus	Maintain in favourable condition	Torbay, Whitsand and Looe Bay
Hippocampus hippocampus	Maintain in favourable condition	Skerries Bank and surrounds
Hippocampus hippocampus	Recover to favourable condition	Studland Bay
Victorella pavida	recover to reference condition	Swanpool
Amphianthus dohrnii	Maintain in favourable condition	Lower Ridge to Innisvoul, Whitsand and Looe Bay, The Manacles, Men a Vaur to White Island, Hanjague to Deep Ledge, Peninnis to Dry Ledge, Plympton to Spanish Ledge, Smith Sound Tide Swept Channel, Smith Sound non-disturbance area, Smith Sound non-disturbance area, Gilstone to Gorregan
Amphianthus dohrnii	recover to reference condition	Lundy
Eunicella verrucosa	Maintain in favourable condition	Skerries Bank and surrounds, Whitsand and Looe Bay, The Manacles, Land's End, Newquay and the Gannel, Padstow Bay and surrounds, Bideford to Foreland Point, Men a Vaur to White Island, Hanjague to Deep Ledge, Lower Ridge to Innisvoul, Peninnis to Dry Ledge, Plympton to Spanish Ledge, Smith Sound Tide Swept Channel, Smith Sound non-disturbance area, Gilstone to Gorregan, Bishop to Crim
Eunicella verrucosa	Recover to favourable condition	Chesil Beach and Stennis Ledges, Bristows to the Stones

<i>Eunicella verrucosa</i>	recover to reference condition	Lundy, Cape Bank
<i>Halicystus auricula</i>	Maintain in favourable condition	Whitsand and Looe Bay, The Manacles, Mounts Bay, Padstow Bay and Surrounds, Men a Vaur to White Island, Higher Town, Peninnis to Dry Ledge, Gilstone to Gorregan,
<i>Halicystus auricula</i>	recover to reference condition	Lyme Bay
<i>Leptopsammia pruvoti</i>	Maintain in favourable condition	The Manacles, Hanague to Deep Ledge, Lower Ridge to Innisvouls, Peninnis to Dry Ledge, Plympton to Spanish Ledge
<i>Leptopsammia pruvoti</i>	recover to reference condition	Lundy
<i>Lucernariopsis campanulata</i>	Maintain in favourable condition	Mounts Bay, Men a Vaur to White Island, Higher Town, Peninnis to Dry Ledge,
<i>Lucernariopsis cruxmelitensis</i>	Maintain in favourable condition	Mounts Bay, Smith Sound Tide Swept Channel
<i>Lucernariopsis cruxmelitensis</i>	Recover to favourable condition	Padstow Bay and surrounds
<i>Palinurus elephas</i>	Maintain in favourable condition	Padstow Bay and surrounds
<i>Palinurus elephas</i>	Recover to favourable condition	Skerries Bank and surrounds, The Manacles, Cape Bank, Lundy, Bristows to the Stones, Men a Vaur to White Island, Hanjague to Deep Ledge, Lower Ridge to Innisvouls, Peninnis to Dry Ledge, Plympton to Spanish Ledge, Smith Sound Tide Swept Channel, Smith Sound non-disturbance area, Gilstone to Gorregan, Bishop to Crim
<i>Palinurus elephas</i>	recover to reference condition	Lundy, Cape Bank
<i>Arctica islandica</i>	Maintain in favourable condition	Whitsand and Looe Bay, Mounts Bay, Padstow Bay and surrounds, Peninnis to Dry Ledge
<i>Ostrea edulis</i>	Maintain in favourable condition	Poole Rocks, Studland Bay, Torbay, Tamar estuary sites, Newquay and the Gannel
<i>Ostrea edulis</i>	Recover to favourable condition	Chesil Beach and Stennis Ledges
<i>Ostrea edulis</i>	recover to reference condition	The Fal
<i>Paludinella littorina</i>	Maintain in favourable condition	Broad Bench to Kimmeridge Bay, Torbay, Land's End, Newquay and the Gannel, Bideford to Foreland Point, Peninnis to Dry Ledge, Gilstone to Gorregan
<i>Tenellia adpersa</i>	recover to reference condition	The Fleet
Geological and geomorphological features of importance		
Celtic sea relict sandbanks	Maintain in favourable condition	South-West Deeps (West), South-West Deeps (East)
Haig Fras rock complex	Maintain in favourable condition	Greater Haig Fras
Portland Deep	Maintain in favourable condition	South of Portland
Draft conservation objectives for mobile FOCI		
<i>Anguilla Anguilla</i>	Maintain/Recover in or to favourable condition	Axe estuary, Otter estuary, Dart estuary, Devon Avon estuary, Erme estuary, Upper Fowey and Pont Pill, Newquay and the Gannel, Taw Torridge estuaries
<i>Osmerus eperlanus</i>	Maintain/Recover in or to favourable condition	Tamar estuary sites
<i>Raja undulata</i>	Recover to favourable condition	Studland Bay
Draft conservation objectives for non-ENG listed mobile species		
<i>Gavia arctica</i>	Maintain in favourable condition	Torbay
<i>Gavia immer</i>	Maintain in favourable condition	Torbay
<i>Podiceps cristatus</i>	Maintain in favourable condition	Torbay
<i>Podiceps nigricollis</i>	Maintain in favourable condition	Torbay

<i>Podiceps grisegena</i>	Maintain in favourable condition	Torbay
<i>Podiceps auritus</i>	Maintain in favourable condition	Torbay
<i>Uria aalge</i>	Maintain in favourable condition	Torbay, Lundy, Bideford to Foreland Point
<i>Phocoena phocoena</i>	Maintain in favourable condition	Torbay, The Manacles, Land's End, Bideford to Foreland Point
<i>Cetorhinus maximus</i>	Maintain in favourable condition	The Manacles, Land's End
<i>Tursiops truncatus</i>	Maintain in favourable condition	Land's End, Padstow Bay and Surrounds
<i>Fulmarus glacialis</i>	Maintain in favourable condition	Padstow Bay and Surrounds
<i>Fratercula arctica</i>	Maintain in favourable condition	Padstow Bay and Surrounds, Lundy
<i>Alca torda</i>	Maintain in favourable condition	Padstow Bay and Surrounds, Lundy, Bideford to Foreland Point
<i>Rissa tridactyla</i>	Maintain in favourable condition	Padstow Bay and Surrounds
<i>Puffinus puffinus</i>	Maintain in favourable condition	Lundy
<i>Halichoerus grypus</i>	Maintain in favourable condition	Bideford to Foreland Point

Draft conservation objectives for broad-scale habitats

High energy intertidal rock: Maintain in favourable condition

High energy intertidal rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the High energy intertidal rock in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of high energy intertidal rock in the biogeographic region are maintained such that the feature makes its contribution to the network.

High energy intertidal rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical change (to another seabed type)	M-H	L
Physical removal (extraction of substratum)	M-H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M-H	L
Structural abrasion/penetration: Structural damage to seabed	M-H	L
>25mm		
Introduction or spread of non-indigenous species & translocations (competition)	NS-H	L
Salinity changes - local	NS-H	L
Temperature changes - local	NS-H	L
Water clarity changes	NS-H	L
Atmospheric climate change	M	L
Removal of target species (lethal)	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Emergence regime changes - local	NS-M	L
Introduction of microbial pathogens (disease)	NS-M	L
Siltation rate changes (high)	L	L
Siltation rate changes (low)	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

High energy intertidal rock: Recover to reference condition

High energy intertidal rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the High energy intertidal rock to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of High energy intertidal rock in the biogeographic region are recovered such that the feature makes its contribution to the network.

High energy intertidal rock is sensitive to the pressures listed below.

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical change (to another seabed type)	M-H	L
Physical removal (extraction of substratum)	M-H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M-H	L
Structural abrasion/penetration: Structural damage to seabed	M-H	L
>25mm		
Introduction or spread of non-indigenous species & translocations (competition)	NS-H	L
Salinity changes - local	NS-H	L
Temperature changes - local	NS-H	L
Water clarity changes	NS-H	L
Atmospheric climate change	M	L
Removal of target species (lethal)	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Emergence regime changes - local	NS-M	L
Introduction of microbial pathogens (disease)	NS-M	L
Siltation rate changes (high)	L	L
Siltation rate changes (low)	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Moderate energy intertidal rock: Maintain in favourable condition

Moderate energy intertidal rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Moderate energy intertidal rock in favourable condition, such that the:

- extent;
 - diversity;
 - community structure;
 - natural environmental quality; and
 - natural environmental processes
- representative of moderate energy intertidal rock in the biogeographic region are maintained such that the feature makes its contribution to the network.

Moderate energy intertidal rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical change (to another seabed type)	M-H	L
Physical removal (extraction of substratum)	M-H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M-H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
Siltation rate changes (high)	L-H	L
Atmospheric climate change	M	L
Removal of target species (lethal)	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Emergence regime changes - local	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	L-M	L
Introduction of microbial pathogens (disease)	NS-M	L
Water flow (tidal & ocean current) changes - regional/national	NS-M	L
Water flow (tidal current) changes - local	NS-M	L
Wave exposure changes - local	NS-M	L
Wave exposure changes - regional/national	NS-M	L
Temperature changes - local	L	L
Salinity changes - local	NS-L	L
Siltation rate changes (low)	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Moderate energy intertidal rock: Recover to reference condition

Moderate energy intertidal rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Moderate energy intertidal rock to reference condition by 2020, and maintain thereafter, such that the:

- extent;
 - diversity;
 - community structure;
 - natural environmental quality; and
 - natural environmental processes
- representative of moderate energy intertidal rock in the biogeographic region are recovered such that the feature makes its contribution to the network.

Moderate energy intertidal rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical change (to another seabed type)	M-H	L
Physical removal (extraction of substratum)	M-H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M-H	L
Structural abrasion/penetration: Structural damage to seabed	M-H	L
>25mm		
Siltation rate changes (high)	L-H	L
Atmospheric climate change	M	L
Removal of target species (lethal)	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Emergence regime changes - local	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	L-M	L
Introduction of microbial pathogens (disease)	NS-M	L
Water flow (tidal & ocean current) changes - regional/national	NS-M	L
Water flow (tidal current) changes - local	NS-M	L
Wave exposure changes - local	NS-M	L
Wave exposure changes - regional/national	NS-M	L
Temperature changes - local	L	L
Salinity changes - local	NS-L	L
Siltation rate changes (low)	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Low energy intertidal rock: Maintain in favourable condition

Low energy intertidal rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Low energy intertidal rock in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of low energy intertidal rock in the biogeographic region are maintained such that the feature makes its contribution to the network.

Low energy intertidal rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	M-H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M-H	L
Siltation rate changes (high)	M-H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
Surface abrasion: damage to seabed surface features	M-H	L
Temperature changes - local	L-H	L
Organic enrichment	NS-H	L
Siltation rate changes (low)	NS-H	L
Water flow (tidal & ocean current) changes - regional/national	NS-H	L
Water flow (tidal current) changes - local	NS-H	L
Wave exposure changes - local	NS-H	L
Wave exposure changes - regional/national	NS-H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Removal of target species (lethal)	M	L
Temperature changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	L-M	L
Introduction of microbial pathogens (disease)	NS-M	L
Salinity changes - local	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Low energy intertidal rock: Recover to reference condition

Low energy intertidal rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Low energy intertidal rock in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of low energy intertidal rock in the biogeographic region are recovered such that the feature makes its contribution to the network.

Low energy intertidal rock is sensitive to the pressures:

	<i>Sensitivity</i> y^*	<i>Confidence</i> e^*
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	M-H	L
Shallow abrasion/penetration: damage to seabed surface and penetration $\leq 25\text{mm}$	M-H	L
Siltation rate changes (high)	M-H	L
Structural abrasion/penetration: Structural damage to seabed $> 25\text{mm}$	M-H	L
Surface abrasion: damage to seabed surface features	M-H	L
Temperature changes - local	L-H	L
Organic enrichment	NS-H	L
Siltation rate changes (low)	NS-H	L
Water flow (tidal & ocean current) changes - regional/national	NS-H	L
Water flow (tidal current) changes - local	NS-H	L
Wave exposure changes - local	NS-H	L
Wave exposure changes - regional/national	NS-H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Removal of target species (lethal)	M	L
Temperature changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	L-M	L
Introduction of microbial pathogens (disease)	NS-M	L
Salinity changes - local	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

* *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Intertidal coarse sediment: Maintain in favourable condition

Intertidal coarse sediment is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Intertidal coarse sediment in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of intertidal coarse sediment in the biogeographic region are maintained such that the feature makes its contribution to the network.

Intertidal coarse sediment is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Temperature changes - local	L-H	L
Atmospheric climate change	M	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	NS-M	L
Siltation rate changes (high)	L	L
Siltation rate changes (low)	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Intertidal coarse sediments: Recover to reference condition

Intertidal coarse sediment is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Intertidal coarse sediment to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of intertidal coarse sediment in the biogeographic region are recovered such that the feature makes its contribution to the network.

Intertidal coarse sediment is sensitive to the pressures listed below.

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Temperature changes - local	L-H	L
Atmospheric climate change	M	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	NS-M	L
Siltation rate changes (high)	L	L
Siltation rate changes (low)	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Intertidal sand and muddy sand: Maintain in favourable condition

Intertidal sand and muddy sand is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Intertidal sand and muddy sand in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of intertidal sand and muddy sand in the biogeographic region are maintained.

Intertidal sand and muddy sand is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Emergence regime changes (sea level) - regional/national	H	L
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Physical removal (extraction of substratum)	M	L
Siltation rate changes (high)	M	L
Siltation rate changes (low)	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Temperature changes - regional/national	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Removal of non-target species (lethal)	NS-M	L
Removal of target species (lethal)	NS-M	L
Salinity changes - local	L	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	L	H
Surface abrasion: damage to seabed surface features	L	H
Temperature changes - local	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices*

Intertidal mud: Maintain in favourable condition

Intertidal mud is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Intertidal mud in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of intertidal mud in the biogeographic region are maintained such that the feature makes its contribution to the network.

Intertidal mud is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Emergence regime changes (sea level) - regional/national	H	L
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	M-H	H
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Removal of non-target species (lethal)	M	M
Temperature changes - regional/national	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L-H
Removal of target species (lethal)	NS-M	L-H
Salinity changes - local	L	H
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	L	H
Siltation rate changes (high)	L	H
Structural abrasion/penetration: Structural damage to seabed >25mm	L	H
Temperature changes - local	L	H

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Intertidal mud: Recover to reference condition

Intertidal mud is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Intertidal mud to reference condition by 2020, and maintain thereafter, such that the:

- extent;
 - diversity;
 - community structure;
 - natural environmental quality; and
 - natural environmental processes
- representative of intertidal mud in the biogeographic region are recovered such that the feature makes its contribution to the network.

Intertidal mud is sensitive to the pressures listed below.

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Emergence regime changes (sea level) - regional/national	H	L
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	M-H	H
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Removal of non-target species (lethal)	M	M
Temperature changes - regional/national	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L-H
Removal of target species (lethal)	NS-M	L-H
Salinity changes - local	L	H
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	L	H
Siltation rate changes (high)	L	H
Structural abrasion/penetration: Structural damage to seabed	L	H
>25mm		
Temperature changes - local	L	H

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Intertidal mixed sediment: Maintain in favourable condition

Intertidal mixed sediment is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Intertidal mixed sediments in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of Intertidal mixed sediments in the biogeographic region are maintained such that the feature makes its contribution to the network.

Intertidal mixed sediments is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Siltation rate changes (high)	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M-H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
Atmospheric climate change	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Removal of non-target species (lethal)	M	L
Siltation rate changes (low)	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Water clarity changes	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Removal of target species (lethal)	L-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Intertidal mixed sediments: Recover to reference condition

Intertidal mixed sediment is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Intertidal mixed sediments to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of Intertidal mixed sediments in the biogeographic region are recovered such that the feature makes its contribution to the network.

Intertidal mixed sediment is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Siltation rate changes (high)	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M-H	L
Structural abrasion/penetration: Structural damage to seabed	M-H	L
>25mm		
Atmospheric climate change	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Removal of non-target species (lethal)	M	L
Siltation rate changes (low)	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Water clarity changes	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Removal of target species (lethal)	L-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Coastal saltmarshes and saline reedbeds: Maintain in favourable condition

Coastal saltmarshes and saline reedbeds is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Coastal saltmarshes and saline reedbeds in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of Coastal saltmarshes and saline reedbeds in the biogeographic region are maintained such that the feature makes its contribution to the network.

Coastal saltmarshes and saline reedbeds are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	H
Physical removal (extraction of substratum)	H	H
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Emergence regime changes (sea level) - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	M
Siltation rate changes (high)	M	M
Structural abrasion/penetration: Structural damage to seabed >25mm	M	M
Surface abrasion: damage to seabed surface features	M	M
Temperature changes - regional/national	M	L
Water flow (tidal current) changes - local	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Removal of target species (lethal)	L	M
Siltation rate changes (low)	L	M

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺*Sensitivity and Confidence information extracted from national sensitivity matrices.*

Coastal saltmarsh and saline reedbeds: Recover to reference condition

The Coastal saltmarsh and saline reedbeds FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the Coastal saltmarsh and saline reedbeds to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of coastal saltmarsh in the biogeographic region are recovered, such that the feature makes its contribution to the network.

Coastal saltmarshes and saline reedbeds are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	H
Physical removal (extraction of substratum)	H	H
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Emergence regime changes (sea level) - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	M
Siltation rate changes (high)	M	M
Structural abrasion/penetration: Structural damage to seabed >25mm	M	M
Surface abrasion: damage to seabed surface features	M	M
Temperature changes - regional/national	M	L
Water flow (tidal & ocean current) changes - regional/national	M	L
Water flow (tidal current) changes - local	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Removal of target species (lethal)	L	M
Siltation rate changes (low)	L	M

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Intertidal sediments dominated by aquatic angiosperms: Recover to ref. condition

Intertidal sediments dominated by aquatic angiosperms is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Intertidal sediments dominated by aquatic angiosperms to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of intertidal sediments dominated by aquatic angiosperms in the biogeographic region are recovered, such that the feature makes its contribution to the network.

Intertidal sediments dominated by aquatic angiosperms are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Emergence regime changes (sea level) - regional/national	H	M
Physical loss (to land or freshwater habitat)	H	H
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	H
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	H
Structural abrasion/penetration: Structural damage to seabed	H	M
>25mm		
Introduction or spread of non-indigenous species & translocations (competition)	M-H	L
Siltation rate changes (high)	M-H	L
Siltation rate changes (low)	L-H	L
Water clarity changes	L-H	L-M
Atmospheric climate change	M	M
Nitrogen & phosphorus enrichment	M	M
Temperature changes - regional/national	M	M
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Emergence regime changes - local	L-M	M
Surface abrasion: damage to seabed surface features	L-M	L-M
Organic enrichment	NS-M	M
Physical change (to another seabed type)	NS-M	M
Water flow (tidal & ocean current) changes - regional/national	NS-M	H
Water flow (tidal current) changes - local	NS-M	H

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices*

Intertidal biogenic reefs: Maintain in favourable condition

Intertidal biogenic reefs is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Intertidal biogenic reefs in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of intertidal biogenic reefs in the biogeographic region are maintained such that the feature makes its contribution to the network.

Intertidal biogenic reefs are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	M-H	L
Removal of non-target species (lethal)	M-H	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M-H	L
Structural abrasion/penetration: Structural damage to seabed	M-H	L
>25mm		
Wave exposure changes - local	M-H	L
Wave exposure changes - regional/national	M-H	L
Emergence regime changes (sea level) - regional/national	L-H	L
Siltation rate changes (high)	L-H	L
Temperature changes - local	L-H	L
Physical change (to another seabed type)	NS-H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Temperature changes - regional/national	M	L
Surface abrasion: damage to seabed surface features	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Removal of target species (lethal)	NS-M	M
Water flow (tidal & ocean current) changes - regional/national	NS-M	L
Water flow (tidal current) changes - local	NS-M	L
Siltation rate changes (low)	NS-L	L
Water clarity changes	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

High energy infralittoral rock: Maintain in favourable condition

High energy infralittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the High energy infralittoral rock in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of high energy infralittoral rock in the biogeographic region are maintained such that the feature makes its contribution to the network.

High energy infralittoral rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	M-H	L
Physical removal (extraction of substratum)	M	L
Removal of non-target species (lethal)	M	L
Removal of target species (lethal)	M	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Water clarity changes	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

High energy infralittoral rock: Recover to favourable condition

High energy infralittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the High energy infralittoral rock to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of High energy infralittoral rock in the biogeographic region are recovered, such that the feature makes its contribution to the network.

High energy infralittoral rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	M-H	L
Physical removal (extraction of substratum)	M	L
Removal of non-target species (lethal)	M	L
Removal of target species (lethal)	M	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed	M	L
>25mm		
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Water clarity changes	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

High energy infralittoral rock: Recover to reference condition

High energy infralittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the High energy infralittoral rock to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of high energy infralittoral rock in the biogeographic region are recovered, such that the feature makes its contribution to the network.

High energy infralittoral rock is sensitive to the pressures listed below.

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	M-H	L
Physical removal (extraction of substratum)	M	L
Removal of non-target species (lethal)	M	L
Removal of target species (lethal)	M	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed	M	L
>25mm		
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Water clarity changes	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Moderate energy infralittoral rock: Maintain in favourable condition

Moderate energy infralittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Moderate energy infralittoral rock in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of Moderate energy infralittoral rock in the biogeographic region are maintained, such that the feature makes its contribution to the network.

Moderate energy infralittoral rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	M-H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Removal of non-target species (lethal)	M	L
Removal of target species (lethal)	M	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Water clarity changes	L-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Moderate energy infralittoral rock: Recover to favourable condition

Moderate energy infralittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Moderate energy infralittoral rock to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of moderate energy infralittoral rock in the biogeographic region are recovered, such that the feature makes its contribution to the network.

Moderate energy infralittoral rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	M-H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Removal of non-target species (lethal)	M	L
Removal of target species (lethal)	M	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Water clarity changes	L-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Moderate energy infralittoral rock: Recover to reference condition

Moderate energy infralittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Moderate energy infralittoral rock to reference condition by 2020, and maintain thereafter, such that the:

- extent;
 - diversity;
 - community structure;
 - natural environmental quality; and
 - natural environmental processes
- representative of moderate energy infralittoral rock in the biogeographic region are recovered, such that the feature makes its contribution to the network.

Moderate energy infralittoral rock is sensitive to the pressures listed below.

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	M-H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Removal of non-target species (lethal)	M	L
Removal of target species (lethal)	M	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Water clarity changes	L-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices*

Low energy infralittoral rock: Maintain in favourable condition

Low energy infralittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Low energy infralittoral rock in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of low energy infralittoral rock in the biogeographic region are maintained such that the feature makes its contribution to the network.

Low energy infralittoral rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical change (to another seabed type)	M-H	L
Removal of target species (lethal)	M-H	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M-H	L
Siltation rate changes (high)	M-H	L
Structural abrasion/penetration: Structural damage to seabed	M-H	L
>25mm		
Water clarity changes	L-H	L
Physical removal (extraction of substratum)	M	L
Removal of non-target species (lethal)	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Siltation rate changes (low)	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Low energy infralittoral rock: Recover to reference condition

Low energy infralittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Low energy infralittoral rock to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of low energy infralittoral rock in the biogeographic region are recovered such that the feature makes its contribution to the network.

Low energy infralittoral rock is sensitive to the pressures listed below.

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical change (to another seabed type)	M-H	L
Removal of target species (lethal)	M-H	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M-H	L
Siltation rate changes (high)	M-H	L
Structural abrasion/penetration: Structural damage to seabed	M-H	L
>25mm		
Water clarity changes	L-H	L
Physical removal (extraction of substratum)	M	L
Removal of non-target species (lethal)	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Siltation rate changes (low)	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

High energy circalittoral rock: Maintain in favourable condition

High energy circalittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the High energy circalittoral rock in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of High energy circalittoral rock in the biogeographic region are maintained such that the feature makes its contribution to the network.

High energy circalittoral rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Salinity changes - local	H	L
Physical change (to another seabed type)	M-H	L
Physical removal (extraction of substratum)	M-H	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M-H	L
Siltation rate changes (high)	M-H	L
Siltation rate changes (low)	M-H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
Surface abrasion: damage to seabed surface features	M-H	L
Temperature changes - local	NS-H	L
Water clarity changes	NS-H	L
Removal of non-target species (lethal)	M	L
Removal of target species (lethal)	M	M
Temperature changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

High energy circalittoral rock: Recover to favourable condition

High energy circalittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the High energy circalittoral rock to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of high energy circalittoral rock in the biogeographic region are recovered such that the feature makes its contribution to the network.

High energy circalittoral rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Salinity changes - local	H	L
Physical change (to another seabed type)	M-H	L
Physical removal (extraction of substratum)	M-H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M-H	L
Siltation rate changes (high)	M-H	L
Siltation rate changes (low)	M-H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
Surface abrasion: damage to seabed surface features	M-H	L
Temperature changes - local	NS-H	L
Water clarity changes	NS-H	L
Removal of non-target species (lethal)	M	L
Removal of target species (lethal)	M	M
Temperature changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

High energy circalittoral rock: Recover to reference condition

High energy circalittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the High energy circalittoral rock to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of high energy circalittoral rock in the biogeographic region are recovered such that the feature makes its contribution to the network.

High energy circalittoral rock is sensitive to the pressures listed below.

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Salinity changes - local	H	L
Physical change (to another seabed type)	M-H	L
Physical removal (extraction of substratum)	M-H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M-H	L
Siltation rate changes (high)	M-H	L
Siltation rate changes (low)	M-H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
Surface abrasion: damage to seabed surface features	M-H	L
Temperature changes - local	NS-H	L
Water clarity changes	NS-H	L
Removal of non-target species (lethal)	M	L
Removal of target species (lethal)	M	M
Temperature changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Moderate energy circalittoral rock: Maintain in favourable condition

Moderate energy circalittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Moderate energy circalittoral rock in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of moderate energy circalittoral rock in the biogeographic region are maintained such that the feature makes its contribution to the network.

Moderate energy circalittoral rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical change (to another seabed type)	M-H	L
Physical removal (extraction of substratum)	M-H	L
Removal of non-target species (lethal)	M-H	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤ 25 mm	M-H	L
Siltation rate changes (high)	M-H	L
Structural abrasion/penetration: Structural damage to seabed > 25 mm	M-H	L
Salinity changes - local	L-H	L
Surface abrasion: damage to seabed surface features	L-H	L
Siltation rate changes (low)	NS-H	L
Temperature changes - local	NS-H	L
Water clarity changes	NS-H	L
Temperature changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	L-M	L
Removal of target species (lethal)	NS-M	H
Wave exposure changes - local	NS-M	L
Wave exposure changes - regional/national	NS-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Moderate energy circalittoral rock: Recover to favourable condition

Moderate energy circalittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Moderate energy circalittoral rock to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of moderate energy circalittoral rock in the biogeographic region are recovered such that the feature makes its contribution to the network.

Moderate energy circalittoral rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical change (to another seabed type)	M-H	L
Physical removal (extraction of substratum)	M-H	L
Removal of non-target species (lethal)	M-H	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M-H	L
Siltation rate changes (high)	M-H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
Salinity changes - local	L-H	L
Surface abrasion: damage to seabed surface features	L-H	L
Siltation rate changes (low)	NS-H	L
Temperature changes - local	NS-H	L
Water clarity changes	NS-H	L
Temperature changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	L-M	L
Removal of target species (lethal)	NS-M	H
Wave exposure changes - local	NS-M	L
Wave exposure changes - regional/national	NS-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Moderate energy circalittoral rock: Recover to reference condition

Moderate energy circalittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Moderate energy circalittoral rock to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of moderate energy circalittoral rock in the biogeographic region are recovered such that the feature makes its contribution to the network.

Moderate energy circalittoral rock is sensitive to the pressures listed below.

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical change (to another seabed type)	M-H	L
Physical removal (extraction of substratum)	M-H	L
Removal of non-target species (lethal)	M-H	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M-H	L
Siltation rate changes (high)	M-H	L
Structural abrasion/penetration: Structural damage to seabed	M-H	L
>25mm		
Salinity changes - local	L-H	L
Surface abrasion: damage to seabed surface features	L-H	L
Siltation rate changes (low)	NS-H	L
Temperature changes - local	NS-H	L
Water clarity changes	NS-H	L
Temperature changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	L-M	L
Removal of target species (lethal)	NS-M	H
Wave exposure changes - local	NS-M	L
Wave exposure changes - regional/national	NS-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Low energy circalittoral rock: Maintain in favourable condition

Low energy circalittoral rock is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the low energy circalittoral rock in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of low energy circalittoral rock in the biogeographic region are maintained such that the feature makes its contribution to the network.

Low energy circalittoral rock is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Removal of non-target species (lethal)	L-H	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Siltation rate changes (high)	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Water clarity changes	M	L
Salinity changes - local	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Siltation rate changes (low)	NS-M	L
Water flow (tidal & ocean current) changes - regional/national	NS-L	L
Water flow (tidal current) changes - local	NS-L	L
Wave exposure changes - local	NS-L	L
Wave exposure changes - regional/national	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal coarse sediment: Maintain in favourable condition

Subtidal coarse sediment is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Subtidal coarse sediment in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal coarse sediment in the biogeographic region are maintained such that the feature makes its contribution to the network.

Subtidal coarse sediment is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	L-H	L
Surface abrasion: damage to seabed surface features	NS-H	L
Physical change (to another seabed type)	M	L
Salinity changes - local	L-M	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	L-M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Removal of non-target species (lethal)	NS-M	L
Siltation rate changes (high)	NS-M	L
Siltation rate changes (low)	NS-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal coarse sediment: Recover to favourable condition

Subtidal coarse sediment is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Subtidal coarse sediment to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal coarse sediment in the biogeographic region are recovered.

Subtidal coarse sediment is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	L-H	L
Surface abrasion: damage to seabed surface features	NS-H	L
Physical change (to another seabed type)	M	L
Salinity changes - local	L-M	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	L-M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Removal of non-target species (lethal)	NS-M	L
Siltation rate changes (high)	NS-M	L
Siltation rate changes (low)	NS-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal coarse sediment: Recover to reference condition

Subtidal coarse sediment is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Subtidal coarse sediment to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal coarse sediment in the biogeographic region are recovered such that the feature makes its contribution to the network.

Subtidal coarse sediment is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	L-H	L
Surface abrasion: damage to seabed surface features	NS-H	L
Physical change (to another seabed type)	M	L
Salinity changes - local	L-M	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	L-M	L
Structural abrasion/penetration: Structural damage to seabed	L-M	L
>25mm		
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Removal of non-target species (lethal)	NS-M	L
Siltation rate changes (high)	NS-M	L
Siltation rate changes (low)	NS-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal sand: Maintain in favourable condition

Subtidal sand is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Subtidal sand in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal sand in the biogeographic region are maintained such that the feature makes its contribution to the network.

Subtidal sand is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	H	L
Physical removal (extraction of substratum)	L-H	M
Siltation rate changes (low)	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	L-M	L-M
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Removal of non-target species (lethal)	NS-M	H
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	NS-M	L
Surface abrasion: damage to seabed surface features	NS-M	L
Water flow (tidal & ocean current) changes - regional/national	NS-L	L
Water flow (tidal current) changes - local	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal sand: Recover to favourable condition

Subtidal sand is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Subtidal sand to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal sand in the biogeographic region are recovered such that the feature makes its contribution to the network.

Subtidal sand is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	H	L
Physical removal (extraction of substratum)	L-H	M
Siltation rate changes (low)	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	L-M	L-M
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Removal of non-target species (lethal)	NS-M	H
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	NS-M	L
Surface abrasion: damage to seabed surface features	NS-M	L
Water flow (tidal & ocean current) changes - regional/national	NS-L	L
Water flow (tidal current) changes - local	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal sand: Recover to reference condition

Subtidal sand is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Subtidal sand to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal sand in the biogeographic region are recovered such that the feature makes its contribution to the network.

Subtidal sand is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	H	L
Physical removal (extraction of substratum)	L-H	M
Siltation rate changes (low)	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	L-M	L-M
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Removal of non-target species (lethal)	NS-M	H
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	NS-M	L
Surface abrasion: damage to seabed surface features	NS-M	L
Water flow (tidal & ocean current) changes - regional/national	NS-L	L
Water flow (tidal current) changes - local	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal mud: Maintain in favourable condition

Subtidal mud is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Subtidal mud in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of Subtidal mud in the biogeographic region are maintained such that the feature makes its contribution to the network.

Subtidal mud is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Organic enrichment	NS-H	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Removal of non-target species (lethal)	M	L-H
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M	L
Siltation rate changes (high)	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Surface abrasion: damage to seabed surface features	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Removal of target species (lethal)	NS-M	L-H
Siltation rate changes (low)	NS-L	L
Water flow (tidal & ocean current) changes - regional/national	NS-L	L
Water flow (tidal current) changes - local	NS-L	L
Wave exposure changes - local	NS-L	L
Wave exposure changes - regional/national	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal mud: Recover to favourable condition

Subtidal mud is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Subtidal mud to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal mud in the biogeographic region are recovered such that the feature makes its contribution to the network.

Subtidal mud is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Organic enrichment	NS-H	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Removal of non-target species (lethal)	M	L-H
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Siltation rate changes (high)	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Surface abrasion: damage to seabed surface features	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Removal of target species (lethal)	NS-M	L-H
Siltation rate changes (low)	NS-L	L
Water flow (tidal & ocean current) changes - regional/national	NS-L	L
Water flow (tidal current) changes - local	NS-L	L
Wave exposure changes - local	NS-L	L
Wave exposure changes - regional/national	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal mud: Recover to reference condition

Subtidal mud is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Subtidal mud to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal mud in the biogeographic region are recovered such that the feature makes its contribution to the network.

Subtidal mud is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Organic enrichment	NS-H	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Removal of non-target species (lethal)	M	L-H
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M	L
Siltation rate changes (high)	M	L
Structural abrasion/penetration: Structural damage to seabed	M	L
>25mm		
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Salinity changes - local	L-M	L
Surface abrasion: damage to seabed surface features	L-M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
Removal of target species (lethal)	NS-M	L-H
Siltation rate changes (low)	NS-L	L
Water flow (tidal & ocean current) changes - regional/national	NS-L	L
Water flow (tidal current) changes - local	NS-L	L
Wave exposure changes - local	NS-L	L
Wave exposure changes - regional/national	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal mixed sediments: Maintain in favourable condition

Subtidal mixed sediments is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Subtidal mixed sediments in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal mixed sediments in the biogeographic region are maintained such that the feature makes its contribution to the network.

Subtidal mixed sediments is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	L
Structural abrasion/penetration: Structural damage to seabed	H	L
>25mm		
Introduction of microbial pathogens (disease)	NS-H	L
Salinity changes - local	NS-H	L
Removal of non-target species (lethal)	M	M
Siltation rate changes (high)	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	L-M	M
Water clarity changes	NS-M	L
Removal of target species (lethal)	L	M
Water flow (tidal & ocean current) changes - regional/national	NS-L	L
Water flow (tidal current) changes - local	NS-L	L
Wave exposure changes - local	NS-L	L
Wave exposure changes - regional/national	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal mixed sediments: Recover to favourable condition

Subtidal mixed sediments is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Subtidal mixed sediments to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal mixed sediments in the biogeographic region are recovered such that the feature makes its contribution to the network.

Subtidal mixed sediments are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	L
Introduction of microbial pathogens (disease)	NS-H	L
Salinity changes - local	NS-H	L
Removal of non-target species (lethal)	M	M
Siltation rate changes (high)	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	L-M	M
Water clarity changes	NS-M	L
Removal of target species (lethal)	L	M
Water flow (tidal & ocean current) changes - regional/national	NS-L	L
Water flow (tidal current) changes - local	NS-L	L
Wave exposure changes - local	NS-L	L
Wave exposure changes - regional/national	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal mixed sediments: Recover to reference condition

Subtidal mixed sediments is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Subtidal mixed sediments to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal mixed sediments in the biogeographic region are recovered such that the feature makes its contribution to the network.

Subtidal mixed sediments are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	L
Introduction of microbial pathogens (disease)	NS-H	L
Salinity changes - local	NS-H	L
Removal of non-target species (lethal)	M	M
Siltation rate changes (high)	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	L-M	M
Water clarity changes	NS-M	L
Removal of target species (lethal)	L	M
Water flow (tidal & ocean current) changes - regional/national	NS-L	L
Water flow (tidal current) changes - local	NS-L	L
Wave exposure changes - local	NS-L	L
Wave exposure changes - regional/national	NS-L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal macrophyte-dominated sediment: Maintain in favourable condition

Subtidal macrophyte-dominated sediment is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, maintain the Subtidal macrophyte-dominated sediment in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal macrophyte-dominated sediment in the biogeographic region are maintained such that the feature makes its contribution to the network.

Subtidal macrophyte-dominated sediment is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Introduction or spread of non-indigenous species & translocations (competition)	M-H	L
Physical change (to another seabed type)	M-H	L
Physical removal (extraction of substratum)	M-H	L
Siltation rate changes (high)	M-H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	L-H	L
Surface abrasion: damage to seabed surface features	L-H	L
Water clarity changes	L-H	L
Removal of non-target species (lethal)	NS-H	L
Removal of target species (lethal)	NS-H	L
Salinity changes - local	NS-H	L
Siltation rate changes (low)	NS-H	L
Temperature changes - local	NS-H	M
Temperature changes - regional/national	M	L
Organic enrichment	NS-M	L
Water flow (tidal & ocean current) changes - regional/national	NS-M	L
Water flow (tidal current) changes - local	NS-M	L
Wave exposure changes - local	NS-M	L
Wave exposure changes - regional/national	NS-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal macrophyte-dominated sediment: Recover to reference condition

Subtidal macrophyte-dominated sediment is a widespread broad-scale habitat that must be represented in the network to meet the ENG principles of representativity and adequacy. Subject to natural change, recover the Subtidal macrophyte-dominated sediment to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal macrophyte-dominated sediment in the biogeographic region are recovered such that the feature makes its contribution to the network.

Subtidal macrophyte-dominated sediment is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Introduction or spread of non-indigenous species & translocations (competition)	M-H	L
Physical change (to another seabed type)	M-H	L
Physical removal (extraction of substratum)	M-H	L
Siltation rate changes (high)	M-H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	L-H	L
Surface abrasion: damage to seabed surface features	L-H	L
Water clarity changes	L-H	L
Removal of non-target species (lethal)	NS-H	L
Removal of target species (lethal)	NS-H	L
Salinity changes - local	NS-H	L
Siltation rate changes (low)	NS-H	L
Temperature changes - local	NS-H	M
Temperature changes - regional/national	M	L
Organic enrichment	NS-M	L
Water flow (tidal & ocean current) changes - regional/national	NS-M	L
Water flow (tidal current) changes - local	NS-M	L
Wave exposure changes - local	NS-M	L
Wave exposure changes - regional/national	NS-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Deep-sea bed: Recover to favourable condition

Within the context of the nation MCZ project area, the Deep-sea bed broad-scale habitat is unique to the south-west region and therefore must be represented in the network in order to meet the ENG principle of representativity. Subject to natural change, recover the Deep-sea bed to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
 - diversity;
 - community structure;
 - natural environmental quality; and
 - natural environmental processes
- representative of deep-sea bed in the biogeographic region are recovered such that the feature makes its contribution to the network.

Deep-sea bed is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical removal (extraction of substratum)	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	L
Surface abrasion: damage to seabed surface features	H	L
Water flow (tidal & ocean current) changes - regional/national	H	L
Siltation rate changes (high)	L-H	L
Siltation rate changes (low)	L-H	L
Organic enrichment	NS-H	L
Removal of non-target species (lethal)	NS-H	L
Removal of target species (lethal)	NS-H	L
Temperature changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Deep-sea bed: Recover to reference condition

Within the context of the nation MCZ project area, the Deep-sea bed broad-scale habitat is unique to the south-west region and therefore must be represented in the network in order to meet the ENG principle of representativity. Subject to natural change, recover the Deep-sea bed to reference condition by 2020, and maintain thereafter, such that the:

- extent;
 - diversity;
 - community structure;
 - natural environmental quality; and
 - natural environmental processes
- representative of deep-sea bed in the biogeographic region are recovered such that the feature makes its contribution to the network.

Deep-sea bed is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical removal (extraction of substratum)	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	L
Surface abrasion: damage to seabed surface features	H	L
Water flow (tidal & ocean current) changes - regional/national	H	L
Siltation rate changes (high)	L-H	L
Siltation rate changes (low)	L-H	L
Organic enrichment	NS-H	L
Removal of non-target species (lethal)	NS-H	L
Removal of target species (lethal)	NS-H	L
Temperature changes - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Draft conservation objectives for habitat FOCI***Blue mussel beds (including intertidal beds on mixed and sandy sediments): Maintain in favourable condition***

The Blue Mussel beds (including intertidal beds on mixed and sandy sediments) FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the Blue Mussel beds (including intertidal beds on mixed and sandy sediments) in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of blue mussel beds (including intertidal beds on mixed and sandy sediments) in the biogeographic region are maintained such that the feature makes its contribution to the network.

Blue Mussel beds (including intertidal beds on mixed and sandy sediments) are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	M
Physical removal (extraction of substratum)	M	L
Removal of non-target species (lethal)	M	H
Removal of target species (lethal)	M	H
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Emergence regime changes (sea level) - regional/national	L	L
Siltation rate changes (low)	L	M
Temperature changes - local	L	L
Water clarity changes	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Blue mussel beds (including intertidal beds on mixed and sandy sediments): Recover to reference condition

The Blue Mussel beds (including intertidal beds on mixed and sandy sediments) FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the Blue Mussel beds (including intertidal beds on mixed and sandy sediments) to reference condition by 2020, and maintain thereafter, such that the:

- extent;
 - diversity;
 - community structure;
 - natural environmental quality; and
 - natural environmental processes
- representative of blue mussel beds (including intertidal beds on mixed and sandy sediments) in the biogeographic region are recovered such that the feature makes its contribution to the network.

Blue Mussel beds (including intertidal beds on mixed and sandy sediments) are sensitive to the pressures:.

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	M
Physical removal (extraction of substratum)	M	L
Removal of non-target species (lethal)	M	H
Removal of target species (lethal)	M	H
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Emergence regime changes (sea level) - regional/national	L	L
Siltation rate changes (low)	L	M
Temperature changes - local	L	L
Water clarity changes	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Cold-water coral reefs: Recover to favourable condition

Within the context of the national MCZ project area, the Cold-water coral reef FOCI habitat is unique to the south-west region and therefore must be represented in the network in order to meet the ENG principle of representativity. Subject to natural change, recover the Cold-water coral reefs to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
 - diversity;
 - community structure;
 - natural environmental quality; and
 - natural environmental processes
- representative of cold-water coral reefs in the biogeographic region are recovered such that the feature makes its contribution to the network.

Cold-water coral reefs are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Organic enrichment	H	L
Physical change (to another seabed type)	H	H
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	H
Removal of non-target species (lethal)	H	H
Salinity changes - local	H	H
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	H
Siltation rate changes (high)	H	H
Siltation rate changes (low)	H	H
Structural abrasion/penetration: Structural damage to seabed >25mm	H	H
Surface abrasion: damage to seabed surface features	H	H
Temperature changes - local	H	L-H
Water flow (tidal & ocean current) changes - regional/national	H	L
Water flow (tidal current) changes - local	H	M
Temperature changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Cold water coral reefs: Recover to reference condition

Within the context of the national MCZ project area, the Cold-water coral reef FOCI habitat is unique to the south-west region and therefore must be represented in the network in order to meet the ENG principle of representativity. Subject to natural change, recover the Cold-water coral reefs to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of cold-water coral reefs in the biogeographic region are recovered such that the feature makes its contribution to the network.

Cold-water coral reefs are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Organic enrichment	H	L
Physical change (to another seabed type)	H	H
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	H
Removal of non-target species (lethal)	H	H
Salinity changes - local	H	H
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	H
Siltation rate changes (high)	H	H
Siltation rate changes (low)	H	H
Structural abrasion/penetration: Structural damage to seabed	H	H
>25mm		
Surface abrasion: damage to seabed surface features	H	H
Temperature changes - local	H	L-H
Water flow (tidal & ocean current) changes - regional/national	H	L
Water flow (tidal current) changes - local	H	M
Temperature changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Estuarine rocky habitats: Maintain in favourable condition

The Estuarine rocky habitats FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the Estuarine rocky habitats in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of estuarine rocky habitats in the biogeographic region are maintained such that the feature makes its contribution to the network.

Estuarine rocky habitats are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Emergence regime changes (sea level) - regional/national	H	L
Introduction or spread of non-indigenous species & translocations (competition)	H	L
Physical loss (to land or freshwater habitat)	H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Introduction of microbial pathogens (disease)	M	L
Physical change (to another seabed type)	M	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Temperature changes - regional/national	M	L
Removal of target species (lethal)	L	L
Salinity changes - local	L	L
Siltation rate changes (high)	L	L
Temperature changes - local	L	M

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Estuarine rocky habitats: Recover to reference condition

The Estuarine rocky habitats FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the Estuarine rocky habitats to reference condition by 2020, and maintain thereafter, such that the:

- extent;
 - diversity;
 - community structure;
 - natural environmental quality; and
 - natural environmental processes
- representative of estuarine rocky habitats in the biogeographic region are recovered such that the feature makes its contribution to the network.

Estuarine rocky habitats are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Emergence regime changes (sea level) - regional/national	H	L
Introduction or spread of non-indigenous species & translocations (competition)	H	L
Physical loss (to land or freshwater habitat)	H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Introduction of microbial pathogens (disease)	M	L
Physical change (to another seabed type)	M	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed	M	L
>25mm		
Temperature changes - regional/national	M	L
Removal of target species (lethal)	L	L
Salinity changes - local	L	L
Siltation rate changes (high)	L	L
Temperature changes - local	L	M

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Fragile sponge and anthozoan communities on subtidal rocky habitats: Maintain in favourable condition

The Fragile sponge & anthozoan communities on subtidal rocky habitats FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the Fragile sponge & anthozoan communities on subtidal rocky habitats in favourable condition, such that the:

- extent;
 - diversity;
 - community structure;
 - natural environmental quality; and
 - natural environmental processes
- representative of fragile sponge & anthozoan communities on subtidal rocky habitats in the biogeographic region are maintained such that the feature makes its contribution to the network.

Fragile sponge & anthozoan communities on subtidal rocky habitats are sensitive to the pressures:

	<i>Sensitivity*</i>	<i>Confidence*</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Removal of non-target species (lethal)	H	L
Salinity changes - local	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	L
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed	H	L
>25mm		
Surface abrasion: damage to seabed surface features	H	L-H
Introduction or spread of non-indigenous species & translocations (competition)	M-H	L
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Water flow (tidal & ocean current) changes - regional/national	M	L
Water flow (tidal current) changes - local	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

* *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Fragile sponge and anthozoan communities on subtidal rocky habitats: Recover to favourable condition

The Fragile sponge & anthozoan communities on subtidal rocky habitats FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the Fragile sponge & anthozoan communities on subtidal rocky habitats to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of fragile sponge&anthozoan communities on subtidal rocky habitats in the biogeographic region are recovered such that the feature makes its contribution to the network.

Fragile sponge & anthozoan communities on subtidal rocky habitats is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Removal of non-target species (lethal)	H	L
Salinity changes - local	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	L
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed		
>25mm		
Surface abrasion: damage to seabed surface features	H	L-H
Introduction or spread of non-indigenous species & translocations (competition)	M-H	L
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Water flow (tidal & ocean current) changes - regional/national	M	L
Water flow (tidal current) changes - local	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Fragile sponge and anthozoan communities on subtidal rocky habitats: Recover to reference condition

The Fragile sponge & anthozoan communities on subtidal rocky habitats FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the Fragile sponge & anthozoan communities on subtidal rocky habitats to reference condition by 2020, and maintain thereafter, such that the:

- extent;
 - diversity;
 - community structure;
 - natural environmental quality; and
 - natural environmental processes
- representative of fragile sponge & anthozoan communities on subtidal rocky habitats in the biogeographic region are recovered such that the feature makes its contribution to the network.

Fragile sponge & anthozoan communities on subtidal rocky habitats are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Removal of non-target species (lethal)	H	L
Salinity changes - local	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	L
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed		
>25mm		
Surface abrasion: damage to seabed surface features	H	L-H
Introduction or spread of non-indigenous species & translocations (competition)	M-H	L
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Water flow (tidal & ocean current) changes - regional/national	M	L
Water flow (tidal current) changes - local	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Intertidal under boulder communities: Maintain in favourable condition

The Intertidal under boulder communities FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the Intertidal under boulder communities in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of intertidal under boulder communities in the biogeographic region are maintained such that the feature makes its contribution to the network.

Intertidal under boulder communities are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	L
Emergence regime changes (sea level) - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Removal of target species (lethal)	M	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Siltation rate changes (high)	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - regional/national	M	L
Emergence regime changes - local	L	L
Salinity changes - local	L	L
Siltation rate changes (low)	L	L
Temperature changes - local	L	L
Water flow (tidal current) changes - local	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Maerl beds: Maintain in favourable condition

The Maerl beds FOCI is listed in the ENG as a feature that has to be represented in the network.

Subject to natural change, maintain the Maerl beds in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of maerl beds in the biogeographic region are maintained such that the feature makes its contribution to the network.

Maerl beds are sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Introduction or spread of non-indigenous species & translocations (competition)	H	L
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	H
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	L
Removal of target species (lethal)	H	L
Salinity changes - local	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	M
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M-H
Surface abrasion: damage to seabed surface features	H	L
Temperature changes - local	H	L
Water clarity changes	H	L
Atmospheric climate change	M	L
Temperature changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Maerl beds: Recover to reference condition

The Maerl beds FOCI is listed in the ENG as a feature that has to be represented in the network.

Subject to natural change, recover the Maerl beds to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of maerl beds in the biogeographic region are recovered such that the feature makes its contribution to the network.

Maerl beds are sensitive to the pressures listed below.

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Introduction or spread of non-indigenous species & translocations (competition)	H	L
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	H
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	L
Removal of target species (lethal)	H	L
Salinity changes - local	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	M
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed	H	M-H
>25mm		
Surface abrasion: damage to seabed surface features	H	L
Temperature changes - local	H	L
Water clarity changes	H	L
Atmospheric climate change	M	L
Temperature changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Mud habitats in deep water: Maintain in favourable condition

The Mud habitats in deep water FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the Mud habitats in deep water in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of mud habitats in deep water in the biogeographic region are maintained such that the feature makes its contribution to the network.

Mud habitats in deep water are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Organic enrichment	H	M
Physical change (to another seabed type)	H	L
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	H
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	M
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M
Temperature changes - regional/national	M	L
Removal of target species (lethal)	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Mud Habitats in Deep Water: Recover to favourable condition

The Mud Habitats in Deep Water FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the Mud habitats in deep water to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of mud habitats in deep water in the biogeographic region are recovered such that the feature makes its contribution to the network.

Mud habitats in deep water is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Organic enrichment	H	M
Physical change (to another seabed type)	H	L
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	H
Shallow abrasion/penetration: damage to seabed surface and penetration $\leq 25\text{mm}$	H	M
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed $> 25\text{mm}$	H	M
Temperature changes - regional/national	M	L
Removal of target species (lethal)	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Mud Habitats in Deep Water: Recover to reference condition

The Mud Habitats in Deep Water FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the Mud habitats in deep water to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of mud habitats in deep water in the biogeographic region are recovered such that the feature makes its contribution to the network.

Mud habitats in deep water are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Organic enrichment	H	M
Physical change (to another seabed type)	H	L
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	H
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	M
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed	H	M
>25mm		
Temperature changes - regional/national	M	L
Removal of target species (lethal)	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Peat and clay exposures: Maintain in favourable condition

Peat and clay exposures are a FOCI habitat that must be represented in the network to meet the ENG principles. Subject to natural change, maintain the peat and clay exposures in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes

representative of peat and clay exposures in the biogeographic region are maintained such that the feature makes its contribution to the network.

Peat and clay exposures are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Emergence regime changes (sea level) - regional/national	H	L
Physical change (to another seabed type)	H	H
Physical loss (to land or freshwater habitat)	H	H
Atmospheric climate change	M	L
Temperature changes - regional/national	M	L
Emergence regime changes - local	L	L
Physical removal (extraction of substratum)	L	M
Removal of non-target species (lethal)	L	L
Siltation rate changes (high)	L	M
Structural abrasion/penetration: Structural damage to seabed >25mm	L	M
Wave exposure changes - local	L	L
Wave exposure changes - regional/national	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺*Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Sabellaria alveolata* reefs: Maintain in favourable condition**

The *Sabellaria alveolata* reefs FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Sabellaria alveolata* reefs in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of *Sabellaria alveolata* reefs in the biogeographic region are maintained such that the feature makes its contribution to the network.

Sabellaria alveolata reefs are sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Removal of non-target species (lethal)	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	L
Temperature changes - local	H	M
Wave exposure changes - local	H	L
Wave exposure changes - regional/national	H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Emergence regime changes (sea level) - regional/national	M	L
Temperature changes - regional/national	M	L
Water flow (tidal current) changes - local	M	L
Siltation rate changes (high)	L	L
Surface abrasion: damage to seabed surface features	L	H

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Sabellaria alveolata* reefs: Recover to reference condition**

The *Sabellaria alveolata* reefs FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Sabellaria alveolata* reefs to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of *Sabellaria alveolata* reefs in the biogeographic region are recovered such that the feature makes its contribution to the network.

Sabellaria alveolata reefs are sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Removal of non-target species (lethal)	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	L
Structural abrasion/penetration: Structural damage to seabed	H	L
>25mm		
Temperature changes - local	H	M
Wave exposure changes - local	H	L
Wave exposure changes - regional/national	H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Emergence regime changes (sea level) - regional/national	M	L
Temperature changes - regional/national	M	L
Water flow (tidal current) changes - local	M	L
Siltation rate changes (high)	L	L
Surface abrasion: damage to seabed surface features	L	H

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Seagrass beds: Maintain in favourable condition

The Seagrass beds FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the Seagrass beds in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of seagrass beds in the biogeographic region are maintained such that the feature makes its contribution to the network.

Seagrass beds are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Emergence regime changes (sea level) - regional/national	H	M
Physical loss (to land or freshwater habitat)	H	H
Physical removal (extraction of substratum)	H	L-H
Removal of non-target species (lethal)	H	H
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	H
Structural abrasion/penetration: Structural damage to seabed >25mm	H	L-H
Introduction or spread of non-indigenous species & translocations (competition)	M-H	L-M
Siltation rate changes (high)	M-H	L
Siltation rate changes (low)	L-H	L
Water clarity changes	L-H	L-M
Atmospheric climate change	M	M
Nitrogen & phosphorus enrichment	M	M
Physical change (to another seabed type)	M	L
Temperature changes - regional/national	M	M
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Emergence regime changes - local	L-M	M
Surface abrasion: damage to seabed surface features	L-M	L-M
Organic enrichment	NS-M	M
Water flow (tidal & ocean current) changes - regional/national	NS-M	H
Water flow (tidal current) changes - local	NS-M	H

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Seagrass beds: Recover to favourable condition

The Seagrass beds FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the Seagrass beds to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of seagrass beds in the biogeographic region are recovered such that the feature makes its contribution to the network.

Seagrass beds are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Emergence regime changes (sea level) - regional/national	H	M
Physical loss (to land or freshwater habitat)	H	H
Physical removal (extraction of substratum)	H	L-H
Removal of non-target species (lethal)	H	H
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	H
Structural abrasion/penetration: Structural damage to seabed		
>25mm	H	L-H
Introduction or spread of non-indigenous species & translocations (competition)	M-H	L-M
Siltation rate changes (high)	M-H	L
Siltation rate changes (low)	L-H	L
Water clarity changes	L-H	L-M
Atmospheric climate change	M	M
Nitrogen & phosphorus enrichment	M	M
Physical change (to another seabed type)	M	L
Temperature changes - regional/national	M	M
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Emergence regime changes - local	L-M	M
Surface abrasion: damage to seabed surface features	L-M	L-M
Organic enrichment	NS-M	M
Water flow (tidal & ocean current) changes - regional/national	NS-M	H
Water flow (tidal current) changes - local	NS-M	H

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Seagrass beds: Recover to reference condition

The Seagrass beds FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the Seagrass beds to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of seagrass beds in the biogeographic region are recovered such that the feature makes its contribution to the network.

Seagrass beds are sensitive to the pressures:

	<i>Sensitivity*</i>	<i>Confidence*</i>
Emergence regime changes (sea level) - regional/national	H	M
Physical loss (to land or freshwater habitat)	H	H
Physical removal (extraction of substratum)	H	L-H
Removal of non-target species (lethal)	H	H
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	H
Structural abrasion/penetration: Structural damage to seabed >25mm	H	L-H
Introduction or spread of non-indigenous species & translocations (competition)	M-H	L-M
Siltation rate changes (high)	M-H	L
Siltation rate changes (low)	L-H	L
Water clarity changes	L-H	L-M
Atmospheric climate change	M	M
Nitrogen & phosphorus enrichment	M	M
Physical change (to another seabed type)	M	L
Temperature changes - regional/national	M	M
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Emergence regime changes - local	L-M	M
Surface abrasion: damage to seabed surface features	L-M	L-M
Organic enrichment	NS-M	M
Water flow (tidal & ocean current) changes - regional/national	NS-M	H
Water flow (tidal current) changes - local	NS-M	H

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

* *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Sheltered muddy gravels: Maintain in favourable condition

The Sheltered muddy gravels FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the Sheltered muddy gravels in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of sheltered muddy gravels in the biogeographic region are maintained such that the feature makes its contribution to the network.

Sheltered muddy gravels are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Siltation rate changes (high)	H	M
Atmospheric climate change	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Removal of non-target species (lethal)	M	M
Removal of target species (lethal)	M	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	M
Siltation rate changes (low)	M	M
Structural abrasion/penetration: Structural damage to seabed >25mm	M	M
Surface abrasion: damage to seabed surface features	M	M
Temperature changes - regional/national	M	L
Water clarity changes	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Sheltered muddy gravels: Recover to reference condition

The Sheltered muddy gravels FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the sheltered muddy gravels to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of sheltered muddy gravels in the biogeographic region are recovered such that the feature makes its contribution to the network.

Sheltered muddy gravels are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Siltation rate changes (high)	H	M
Atmospheric climate change	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Removal of non-target species (lethal)	M	M
Removal of target species (lethal)	M	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	M
Siltation rate changes (low)	M	M
Structural abrasion/penetration: Structural damage to seabed >25mm	M	M
Surface abrasion: damage to seabed surface features	M	M
Temperature changes - regional/national	M	L
Water clarity changes	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal Chalk: Recover to favourable condition

The Subtidal chalk FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the Subtidal chalk to favourable condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal chalk in the biogeographic region are recovered such that the feature makes its contribution to the network.

Subtidal chalk is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	H
Physical loss (to land or freshwater habitat)	H	H
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical removal (extraction of substratum)	M	M
Siltation rate changes (high)	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	M
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Water clarity changes	NS-M	M
Organic enrichment	L	L
Removal of non-target species (lethal)	L	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	L	L
Siltation rate changes (low)	L	H
Surface abrasion: damage to seabed surface features	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Subtidal Chalk: Recover to reference condition

The Subtidal chalk FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the Subtidal chalk to reference condition by 2020, and maintain thereafter, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of subtidal chalk in the biogeographic region are recovered such that the feature makes its contribution to the network.

Subtidal chalk is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	H
Physical loss (to land or freshwater habitat)	H	H
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical removal (extraction of substratum)	M	M
Siltation rate changes (high)	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	M
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Water clarity changes	NS-M	M
Organic enrichment	L	L
Removal of non-target species (lethal)	L	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	L	L
Siltation rate changes (low)	L	H
Surface abrasion: damage to seabed surface features	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Tide-swept channels: Maintain in favourable condition

The Tide-swept channels FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the Tide-swept channels in favourable condition, such that the:

- extent;
- diversity;
- community structure;
- natural environmental quality; and
- natural environmental processes representative of tide-swept channels in the biogeographic region are maintained such that the feature makes its contribution to the network.

Tide-swept channels are sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Physical change (to another seabed type)	H	H
Physical loss (to land or freshwater habitat)	H	H
Physical removal (extraction of substratum)	H	M
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M
Atmospheric climate change	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Removal of non-target species (lethal)	M	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	M
Surface abrasion: damage to seabed surface features	M	M
Temperature changes - regional/national	M	L
Siltation rate changes (high)	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Draft conservation objectives for benthic FOCI species

Padina pavonica: Maintain in favourable condition

The *Padina pavonica* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Padina pavonica* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Padina pavonica* in the biogeographic region are maintained such that the species makes its contribution to the network.

Padina pavonica is sensitive to the pressures:

	Sensitivity ⁺	Confidence ⁺
Emergence regime changes - local	H	L
Introduction or spread of non-indigenous species & translocations (competition)	H	L
Physical change (to another seabed type)	H	M
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	M
Salinity changes - local	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	M
Siltation rate changes (high)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M
Surface abrasion: damage to seabed surface features	H	M
Water clarity changes	H	L
Wave exposure changes - local	H	M
Atmospheric climate change	M	L
Salinity changes - regional/national	M	L
Siltation rate changes (low)	M	M
Water flow (tidal & ocean current) changes - regional/national	M	L
Water flow (tidal current) changes - local	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ Sensitivity and Confidence information extracted from national sensitivity matrices.

***Padina pavonica*: Recover to reference condition**

The *Padina pavonica* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Padina pavonica* to reference condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Padina pavonica* in the biogeographic region are recovered such that the species makes its contribution to the network.

Padina pavonica is sensitive to the pressures listed below.

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Emergence regime changes - local	H	L
Introduction or spread of non-indigenous species & translocations (competition)	H	L
Physical change (to another seabed type)	H	M
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	M
Salinity changes - local	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	M
Siltation rate changes (high)	H	L
Structural abrasion/penetration: Structural damage to seabed	H	M
>25mm		
Surface abrasion: damage to seabed surface features	H	M
Water clarity changes	H	L
Wave exposure changes - local	H	M
Atmospheric climate change	M	L
Salinity changes - regional/national	M	L
Siltation rate changes (low)	M	M
Water flow (tidal & ocean current) changes - regional/national	M	L
Water flow (tidal current) changes - local	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Cruoria cruoriaeformis*: Maintain in favourable condition**

The *Cruoria cruoriaeformis* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Cruoria cruoriaeformis* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Cruoria cruoriaeformis* in the biogeographic region are maintained such that the species makes its contribution to the network.

Cruoria cruoriaeformis is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Introduction or spread of non-indigenous species & translocations (competition)	H	L
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	H
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	L
Salinity changes - local	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	M
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M-H
Surface abrasion: damage to seabed surface features	H	L
Temperature changes - local	H	L
Water clarity changes	H	L
Atmospheric climate change	M	L
Temperature changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Cruoria cruoriaeformis*: Recover to reference condition**

The *Cruoria cruoriaeformis* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Cruoria cruoriaeformis* to reference condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes

representative of *Cruoria cruoriaeformis* in the biogeographic region are recovered such that the species makes its contribution to the network.

Cruoria cruoriaeformis is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Introduction or spread of non-indigenous species & translocations (competition)	H	L
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	H
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	L
Salinity changes - local	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	M
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M-H
Surface abrasion: damage to seabed surface features	H	L
Temperature changes - local	H	L
Water clarity changes	H	L
Atmospheric climate change	M	L
Temperature changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Grateloupia montagnei*: Recover to reference condition**

The *Grateloupia montagnei* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Grateloupia montagnei* to reference condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes

representative of *Grateloupia montagnei* in the biogeographic region are recovered such that the species makes its contribution to the network.

Grateloupia montagnei is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Salinity changes - local	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	L
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	L
Surface abrasion: damage to seabed surface features	H	L
Temperature changes - local	H	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Water clarity changes	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Lithothamnion corallioides: Recover to reference condition

The *Lithothamnion corallioides* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Lithothamnion corallioides* to reference condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Lithothamnion corallioides* in the biogeographic region are recovered such that the species makes its contribution to the network.

Lithothamnion corallioides is sensitive to the pressures listed below.

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Introduction or spread of non-indigenous species & translocations (competition)	H	L
Organic enrichment	H	L
Physical change (to another seabed type)	H	M
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	L
Removal of target species (lethal)	H	L
Salinity changes - local	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	M-H
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M-H
Surface abrasion: damage to seabed surface features	H	L
Temperature changes - local	H	L
Water clarity changes	H	L
Atmospheric climate change	M	L
Temperature changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Phymatolithon calcareum: Recover to reference condition

The *Phymatolithon calcareum* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Phymatolithon calcareum* to reference condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Phymatolithon calcareum* in the biogeographic region are recovered such that the species makes its contribution to the network.

Phymatolithon calcareum is sensitive to the pressures listed below.

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Introduction or spread of non-indigenous species & translocations (competition)	H	L
Organic enrichment	H	L
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	H
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	L
Removal of target species (lethal)	H	L
Salinity changes - local	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	M
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M-H
Surface abrasion: damage to seabed surface features	H	L
Temperature changes - local	H	L
Water clarity changes	H	L
Atmospheric climate change	M	L
Temperature changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Alkmaria romijni*: Maintain in favourable condition**

The *Alkmaria romijni* FOI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Alkmaria romijni* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes

representative of *Alkmaria romijni* in the biogeographic region are maintained such that the species makes its contribution to the network.

Alkmaria romijni is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical change (to another seabed type)	H	M
Physical loss (to land or freshwater habitat)	H	H
Physical removal (extraction of substratum)	H	L
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Water flow (tidal current) changes - local	H	L
Wave exposure changes - local	H	L
Wave exposure changes - regional/national	H	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed	M	L
>25mm		
Surface abrasion: damage to seabed surface features	M	L
Water clarity changes	M	L
Removal of non-target species (lethal)	L	L
Salinity changes - local	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Gobius cobitis: Maintain in favourable condition

Within the context of the national MCZ project area, *Gobius cobitis* is unique to the south-west region and therefore must be represented in the network in order to meet the ENG principle of representativity. Subject to natural change, maintain the *Gobius cobitis* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Gobius cobitis* in the biogeographic region are maintained such that the species makes its contribution to the network.

Gobius cobitis is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical loss (to land or freshwater habitat)	H	L
Atmospheric climate change	M	L
Death or injury by collision	M	L
Physical removal (extraction of substratum)	M	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Surface abrasion: damage to seabed surface features	M	L
Underwater noise	M	L
Barrier to species movement (behaviour, reproduction)	L	L
Salinity changes - local	L	L
Siltation rate changes (high)	L	L
Siltation rate changes (low)	L	L
Temperature changes - local	L	M
Water clarity changes	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Gobius couchi* : Maintain in favourable condition**

Within the context of the national MCZ project area, *Gobius couchi* is unique to the south-west region and therefore must be represented in the network in order to meet the ENG principle of representativity. Subject to natural change, maintain the *Gobius couchi* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Gobius couchi* in the biogeographic region are maintained such that the species makes its contribution to the network.

Gobius couchi is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical loss (to land or freshwater habitat)	H	L
Removal of non-target species (lethal)	H	L
Atmospheric climate change	M	L
Death or injury by collision	M	L
Physical removal (extraction of substratum)	M	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Surface abrasion: damage to seabed surface features	M	L
Underwater noise	M	L
Barrier to species movement (behaviour, reproduction)	L	L
Salinity changes - local	L	L
Siltation rate changes (high)	L	L
Siltation rate changes (low)	L	L
Temperature changes - local	L	M
Water clarity changes	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Hippocampus guttulatus: Maintain in favourable condition

The *Hippocampus guttulatus* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Hippocampus guttulatus* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Hippocampus guttulatus* in the biogeographic region are maintained such that the species makes its contribution to the network.

Hippocampus guttulatus is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Death or injury by collision	H	L
Physical loss (to land or freshwater habitat)	H	L
Removal of non-target species (lethal)	H	H
Barrier to species movement (behaviour, reproduction)	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Underwater noise	M	L
Water flow (tidal & ocean current) changes - regional/national	M	L
Water flow (tidal current) changes - local	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Hippocampus hippocampus: Maintain in favourable condition

The *Hippocampus hippocampus* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Hippocampus hippocampus* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Hippocampus hippocampus* in the biogeographic region are maintained such that the species makes its contribution to the network.

Hippocampus hippocampus is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Death or injury by collision	H	L
Physical loss (to land or freshwater habitat)	H	L
Removal of non-target species (lethal)	H	H
Barrier to species movement (behaviour, reproduction)	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Underwater noise	M	L
Water flow (tidal & ocean current) changes - regional/national	M	L
Water flow (tidal current) changes - local	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Hippocampus hippocampus: Recover to favourable condition

The *Hippocampus hippocampus* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Hippocampus hippocampus* to favourable condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Hippocampus hippocampus* in the biogeographic region are recovered such that the species makes its contribution to the network.

Hippocampus hippocampus is sensitive to the pressures:

	<i>Sensitivity⁺</i>	<i>Confidence⁺</i>
Death or injury by collision	H	L
Physical loss (to land or freshwater habitat)	H	L
Removal of non-target species (lethal)	H	H
Barrier to species movement (behaviour, reproduction)	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Surface abrasion: damage to seabed surface features	M	L
Temperature changes - local	M	L
Temperature changes - regional/national	M	L
Underwater noise	M	L
Water flow (tidal & ocean current) changes - regional/national	M	L
Water flow (tidal current) changes - local	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Victorella pavid*: Recover to reference condition**

Within the context of the national MCZ project area, *Victorella pavid* is unique to the south-west region and therefore must be represented in the network in order to meet the ENG principle of representativity. Subject to natural change, recover the *Victorella pavid* to reference condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Victorella pavid* in the biogeographic region are recovered such that the species makes its contribution to the network.

Victorella pavid is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical change (to another seabed type)	H	H
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	L
Siltation rate changes (high)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	L
Surface abrasion: damage to seabed surface features	H	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Siltation rate changes (low)	M	L
Removal of non-target species (lethal)	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices*

***Amphianthus dohrnii*: Maintain in favourable condition**

The *Amphianthus dohrnii* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Amphianthus dohrnii* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes

representative of *Amphianthus dohrnii* in the biogeographic region are maintained such that the species makes its contribution to the network.

Amphianthus dohrnii is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical change (to another seabed type)	H	M
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	M
Siltation rate changes (high)	H	M
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M
Surface abrasion: damage to seabed surface features	H	M
Temperature changes - local	H	L
Temperature changes - regional/national	H	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Salinity changes - local	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Amphianthus dohrnii* : Recover to reference condition**

The *Amphianthus dohrnii* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Amphianthus dohrnii* to reference condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes

representative of *Amphianthus dohrnii* in the biogeographic region are recovered such that the species makes its contribution to the network.

Amphianthus dohrnii is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical change (to another seabed type)	H	M
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	M
Siltation rate changes (high)	H	M
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M
Surface abrasion: damage to seabed surface features	H	M
Temperature changes - local	H	L
Temperature changes - regional/national	H	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Salinity changes - local	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Eunicella verrucosa: Maintain in favourable condition

The *Eunicella verrucosa* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Eunicella verrucosa* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes

representative of *Eunicella verrucosa* in the biogeographic region are maintained such that the species makes its contribution to the network.

Eunicella verrucosa is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical change (to another seabed type)	H	M
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	M
Siltation rate changes (high)	H	M
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M
Surface abrasion: damage to seabed surface features	H	M
Water clarity changes	H	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Eunicella verrucosa: Recover to favourable condition

The *Eunicella verrucosa* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Eunicella verrucosa* to favourable condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes

representative of *Eunicella verrucosa* in the biogeographic region are recovered such that the species makes its contribution to the network.

Eunicella verrucosa is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical change (to another seabed type)	H	M
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	M
Siltation rate changes (high)	H	M
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M
Surface abrasion: damage to seabed surface features	H	M
Water clarity changes	H	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Eunicella verrucosa*: Recover to reference condition**

The *Eunicella verrucosa* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Eunicella verrucosa* to reference condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes

representative of *Eunicella verrucosa* in the biogeographic region are recovered such that the species makes its contribution to the network.

Eunicella verrucosa is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical change (to another seabed type)	H	M
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	M
Siltation rate changes (high)	H	M
Siltation rate changes (low)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M
Surface abrasion: damage to seabed surface features	H	M
Water clarity changes	H	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Haliclystus auricula*: Maintain in favourable condition**

The *Haliclystus auricula* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Haliclystus auricula* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Haliclystus auricula* in the biogeographic region are maintained such that the species makes its contribution to the network.

Haliclystus auricula is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Emergence regime changes (sea level) - regional/national	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Removal of non-target species (lethal)	H	H
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	L
Surface abrasion: damage to seabed surface features	H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Temperature changes - regional/national	M	L
Water clarity changes	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Temperature changes - local	L	L
Water flow (tidal & ocean current) changes - regional/national	L	L
Water flow (tidal current) changes - local	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Haliclystus auricula*: Recover to reference condition**

The *Haliclystus auricula* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Haliclystus auricula* to reference condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Haliclystus auricula* in the biogeographic region are recovered such that the species makes its contribution to the network.

Haliclystus auricula is sensitive to the pressures listed below.

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Emergence regime changes (sea level) - regional/national	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Removal of non-target species (lethal)	H	H
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	L
Structural abrasion/penetration: Structural damage to seabed	H	L
>25mm		
Surface abrasion: damage to seabed surface features	H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Temperature changes - regional/national	M	L
Water clarity changes	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Temperature changes - local	L	L
Water flow (tidal & ocean current) changes - regional/national	L	L
Water flow (tidal current) changes - local	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Leptopsammia pruvoti*: Maintain in favourable condition**

The *Leptopsammia pruvoti* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Leptopsammia pruvoti* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Leptopsammia pruvoti* in the biogeographic region are maintained such that the species makes its contribution to the network.

Leptopsammia pruvoti is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical change (to another seabed type)	H	M
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	M
Salinity changes - local	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	M
Siltation rate changes (high)	H	M
Structural abrasion/penetration: Structural damage to seabed >25mm	H	M
Surface abrasion: damage to seabed surface features	H	M
Temperature changes - local	H	M
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Siltation rate changes (low)	M	M

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Leptopsammia pruvoti*: Recover to reference condition**

The *Leptopsammia pruvoti* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Leptopsammia pruvoti* to reference condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Leptopsammia pruvoti* in the biogeographic region are recovered such that the species makes its contribution to the network.

Leptopsammia pruvoti is sensitive to the pressures listed below.

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical change (to another seabed type)	H	M
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	M
Salinity changes - local	H	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	M
Siltation rate changes (high)	H	M
Structural abrasion/penetration: Structural damage to seabed	H	M
>25mm		
Surface abrasion: damage to seabed surface features	H	M
Temperature changes - local	H	M
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Siltation rate changes (low)	M	M

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Lucernariopsis campanulata: Maintain in favourable condition

The *Lucernariopsis campanulata* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Lucernariopsis campanulata* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Lucernariopsis campanulata* in the biogeographic region are maintained such that the species makes its contribution to the network.

Lucernariopsis campanulata is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Emergence regime changes (sea level) - regional/national	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Removal of non-target species (lethal)	H	H
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	L
Surface abrasion: damage to seabed surface features	H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Temperature changes - regional/national	M	L
Water clarity changes	M	L
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Temperature changes - local	L	L
Water flow (tidal & ocean current) changes - regional/national	L	L
Water flow (tidal current) changes - local	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Lucernariopsis cruxmelitensis*: Maintain in favourable condition**

The *Lucernariopsis cruxmelitensis* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Lucernariopsis cruxmelitensis* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Lucernariopsis cruxmelitensis* in the biogeographic region are maintained such that the species makes its contribution to the network.

Lucernariopsis cruxmelitensis is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical loss (to land or freshwater habitat)	H	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Siltation rate changes (high)	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Temperature changes - regional/national	M	L
Emergence regime changes - local	L	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	L	L
Surface abrasion: damage to seabed surface features	L	L
Temperature changes - local	L	L
Water clarity changes	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

***Lucernariopsis cruxmelitensis*: Recover to favourable condition**

The *Lucernariopsis cruxmelitensis* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Lucernariopsis cruxmelitensis* to favourable condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Lucernariopsis cruxmelitensis* in the biogeographic region are recovered such that the species makes its contribution to the network.

Lucernariopsis cruxmelitensis is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical loss (to land or freshwater habitat)	H	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L
Siltation rate changes (high)	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
Temperature changes - regional/national	M	L
Emergence regime changes - local	L	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	L	L
Surface abrasion: damage to seabed surface features	L	L
Temperature changes - local	L	L
Water clarity changes	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Palinurus elephas*: Maintain in favourable condition**

The *Palinurus elephas* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Palinurus elephas* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Palinurus elephas* in the biogeographic region are maintained such that the species makes its contribution to the network.

Palinurus elephas is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Genetic modification & translocation of indigenous species	H	L
Physical change (to another seabed type)	H	H
Physical loss (to land or freshwater habitat)	H	M
Physical removal (extraction of substratum)	H	H
Removal of target species (lethal)	H	M
Salinity changes - local	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	H
Structural abrasion/penetration: Structural damage to seabed >25mm	H	H
Organic enrichment	M	L
Siltation rate changes (high)	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Palinurus elephas*: Recover to favourable condition**

The *Palinurus elephas* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Palinurus elephas* to favourable condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Palinurus elephas* in the biogeographic region are recovered such that the species makes its contribution to the network.

Palinurus elephas is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Genetic modification & translocation of indigenous species	H	L
Physical change (to another seabed type)	H	H
Physical loss (to land or freshwater habitat)	H	M
Physical removal (extraction of substratum)	H	H
Removal of target species (lethal)	H	M
Salinity changes - local	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	H
Structural abrasion/penetration: Structural damage to seabed >25mm	H	H
Organic enrichment	M	L
Siltation rate changes (high)	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Palinurus elephas*: Recover to reference condition**

The *Palinurus elephas* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Palinurus elephas* to reference condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Palinurus elephas* in the biogeographic region are recovered such that the species makes its contribution to the network.

Palinurus elephas is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Genetic modification & translocation of indigenous species	H	L
Physical change (to another seabed type)	H	H
Physical loss (to land or freshwater habitat)	H	M
Physical removal (extraction of substratum)	H	H
Removal of target species (lethal)	H	M
Salinity changes - local	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	H
Structural abrasion/penetration: Structural damage to seabed	H	H
>25mm		
Organic enrichment	M	L
Siltation rate changes (high)	M	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Arctica islandica*: Maintain in favourable condition**

The *Arctica islandica* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Arctica islandica* in favourable condition, such that the:

- natural range;
 - habitat extent;
 - population structure;
 - population density;
 - size structure;
 - natural environmental quality; and
 - natural environmental processes
- representative of *Arctica islandica* in the biogeographic region are maintained such that the species makes its contribution to the network.

Arctica islandica is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	M
Removal of non-target species (lethal)	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	H	H
Siltation rate changes (high)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	H
Temperature changes - local	H	L
Wave exposure changes - local	M	L
Water flow (tidal & ocean current) changes - regional/national	L	L
Water flow (tidal current) changes - local	L	L
Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.		

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Ostrea edulis*: Maintain in favourable condition**

The *Ostrea edulis* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Ostrea edulis* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Ostrea edulis* in the biogeographic region are maintained such that the species makes its contribution to the network.

Ostrea edulis is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Introduction of microbial pathogens (disease)	H	M
Introduction or spread of non-indigenous species & translocations (competition)	H	L-M
Physical change (to another seabed type)	H	H
Physical loss (to land or freshwater habitat)	H	L
Removal of target species (lethal)	H	H
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Temperature changes - local	H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Physical removal (extraction of substratum)	M	M
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	M
Surface abrasion: damage to seabed surface features	M	L-M
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Salinity changes - local	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Ostrea edulis*: Recover to favourable condition**

The *Ostrea edulis* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Ostrea edulis* to favourable condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Ostrea edulis* in the biogeographic region are recovered such that the species makes its contribution to the network.

Ostrea edulis is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Introduction of microbial pathogens (disease)	H	M
Introduction or spread of non-indigenous species & translocations (competition)	H	L-M
Physical change (to another seabed type)	H	H
Physical loss (to land or freshwater habitat)	H	L
Removal of target species (lethal)	H	H
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Temperature changes - local	H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Physical removal (extraction of substratum)	M	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	M
Surface abrasion: damage to seabed surface features	M	L-M
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Salinity changes - local	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Ostrea edulis*: Recover to reference condition**

The *Ostrea edulis* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Ostrea edulis* to reference condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Ostrea edulis* in the biogeographic region are recovered such that the species makes its contribution to the network.

Ostrea edulis is sensitive to the pressures listed below.

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Introduction of microbial pathogens (disease)	H	M
Introduction or spread of non-indigenous species & translocations (competition)	H	L-M
Physical change (to another seabed type)	H	H
Physical loss (to land or freshwater habitat)	H	L
Removal of target species (lethal)	H	H
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Temperature changes - local	H	L
Atmospheric climate change	M	L
Emergence regime changes - local	M	L
Physical removal (extraction of substratum)	M	M
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	M	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M	M
Surface abrasion: damage to seabed surface features	M	L-M
Wave exposure changes - local	M	L
Wave exposure changes - regional/national	M	L
Salinity changes - local	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Paludinella littorina*: Maintain in favourable condition**

The *Paludinella littorina* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain the *Paludinella littorina* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Paludinella littorina* in the biogeographic region are maintained such that the species makes its contribution to the network.

Paludinella littorina is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Wave exposure changes - local	H	L
Wave exposure changes - regional/national	H	L
Atmospheric climate change	M	L
Temperature changes - local	M	L
Emergence regime changes - local	L	L
Salinity changes - local	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

***Tenellia adspersa* : Recover to reference condition**

The *Tenellia adspersa* FOCI is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, recover the *Tenellia adspersa* to reference condition by 2020, and maintain thereafter, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Tenellia adspersa* in the biogeographic region are recovered such that the species makes its contribution to the network.

Tenellia adspersa is sensitive to the pressures:

	<i>Sensitivity</i> ⁺	<i>Confidence</i> ⁺
Emergence regime changes - local	H	L
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	H	L
Siltation rate changes (low)	H	L
Atmospheric climate change	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L
Physical removal (extraction of substratum)	M	L
Shallow abrasion/penetration: damage to seabed surface and penetration		
≤25mm	L	L
Structural abrasion/penetration: Structural damage to seabed >25mm	L	L
Surface abrasion: damage to seabed surface features	L	L

Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

⁺ *Sensitivity and Confidence information extracted from national sensitivity matrices.*

Draft conservation objectives for geological and geomorphological features of importance

Haig Fras Rock Complex: maintain in favourable condition

The Haig Fras Rock Complex is listed in the ENG as a feature that should be represented in the network. Subject to natural change, maintain the Haig Fras Rock Complex in favourable condition, such that the:

- extent,
- component features,
- spatial distribution,
- integrity,
- size structure;
- natural environmental quality; and
- natural environmental processes

representative of the Haig Fras Rock Complex are maintained.

Human activities which causing pressures that this feature is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Celtic Sea Relict Sandbanks: maintain in favourable condition

The Celtic Sea Relict Sandbanks are listed in the ENG as a feature that should be represented in the network. Subject to natural change, maintain the Celtic Sea Relict Sandbanks in favourable condition, such that the:

- extent,
- component features,
- spatial distribution,
- integrity,
- size structure;
- natural environmental quality; and
- natural environmental processes

representative of the Celtic Sea Relict Sandbanks are maintained.

Human activities which causing pressures that this feature is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Portland Deep: maintain in favourable condition

The Portland Deep is listed in the ENG as a feature that should be represented in the network. Subject to natural change, maintain the Portland Deep in favourable condition, such that the:

- extent,
- component features,
- spatial distribution,
- integrity,
- size structure;
- natural environmental quality; and
- natural environmental processes

representative of the Portland Deep are maintained.

Human activities which causing pressures that this feature is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Draft conservation objectives for mobile FOCI

Anguilla anguilla: maintain in / recover to favourable condition

Anguilla anguilla is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain *Anguilla anguilla* in / recover it to favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Anguilla anguilla* in the biogeographic region are

maintained / recovered, such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Osmerus eperlanus: maintain in / recover to favourable condition

Osmerus eperlanus is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain *Osmerus eperlanus* in / recover it to favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Osmerus eperlanus* in the biogeographic region are

maintained / recovered, such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

***Raja undulata*: maintain in / recover to favourable condition**

Raja undulata is listed in the ENG as a feature that has to be represented in the network. Subject to natural change, maintain *Raja undulata* in / recover it to favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Raja undulata* in the biogeographic region are

maintained / recovered, such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Draft conservation objectives for non-ENG listed mobile species

***Gavia arctica*: maintain in favourable condition**

Gavia arctica is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Gavia arctica* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Gavia arctica* in the biogeographic region are maintained , such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

***Gavia immer*: maintain in favourable condition**

Gavia immer is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Gavia immer* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Gavia immer* in the biogeographic region are maintained , such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Podiceps cristatus: maintain in favourable condition

Podiceps cristatus is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Podiceps cristatus* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Podiceps cristatus* in the biogeographic region are maintained , such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Podiceps nigricollis: maintain in favourable condition

Podiceps nigricollis is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Podiceps nigricollis* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Podiceps nigricollis* in the biogeographic region are maintained , such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Podiceps grisegena: maintain in favourable condition

Podiceps grisegena is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Podiceps grisegena* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Podiceps grisegena* in the biogeographic region are maintained , such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Podiceps auritus: maintain in favourable condition

Podiceps auritus is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Podiceps auritus* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Podiceps auritus* in the biogeographic region are maintained , such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

***Uuria aalge*: maintain in favourable condition**

Uuria aalge is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Uuria aalge* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Uuria aalge* in the biogeographic region are maintained, such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

***Phocoena phocoena*: maintain in favourable condition**

Phocoena phocoena is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Phocoena phocoena* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Phocoena phocoena* in the biogeographic region are maintained, such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Cetorhinus maximus: maintain in favourable condition

Cetorhinus maximus is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Cetorhinus maximus* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Cetorhinus maximus* in the biogeographic region are maintained , such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Tursiops truncatus: maintain in favourable condition

Tursiops truncatus is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Tursiops truncatus* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Tursiops truncatus* in the biogeographic region are maintained , such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

***Fulmarus glacialis*: maintain in favourable condition**

Fulmarus glacialis is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Fulmarus glacialis* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Fulmarus glacialis* in the biogeographic region are maintained , such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

***Fratercula arctica*: maintain in favourable condition**

Fratercula arctica is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Fratercula arctica* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Fratercula arctica* in the biogeographic region are maintained , such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Alca torda: maintain in favourable condition

Alca torda is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Alca torda* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Alca torda* in the biogeographic region are maintained, such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Rissa tridactyla: maintain in favourable condition

Rissa tridactyla is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Rissa tridactyla* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Rissa tridactyla* in the biogeographic region are maintained, such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

***Puffinus puffinus*: maintain in favourable condition**

Puffinus puffinus is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Puffinus puffinus* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Puffinus puffinus* in the biogeographic region are maintained , such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

***Halichoerus grypus*: maintain in favourable condition**

Halichoerus grypus is a mobile species, for which the recommended site is an area of importance. Subject to natural change, maintain *Halichoerus grypus* in favourable condition, such that the:

- natural range;
- habitat extent;
- population structure;
- population density;
- size structure;
- natural environmental quality; and
- natural environmental processes representative of *Halichoerus grypus* in the biogeographic region are maintained , such that the species makes its contribution to the network.

Human activities which cause pressures that the species is sensitive to will need to be managed if they prevent the conservation objectives from being achieved to ensure the MCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.