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MAIA WORKSHOPS

Marine protected areas in the Atlantic arc

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# Fisheries Management Measures Workshops

MAIA Workshops

## Stanton Banks, UK Offshore Site of Community Importance

October 2011

Glasgow, UK

## Haig Fras, UK Offshore Site of Community Importance

November 2011

Rennes, France

## Burrowed Mud Workshop

August 2012

Glasgow, UK

JNCC
Joint Nature Conservation Committee



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# Management of fisheries in Marine Protected Areas containing burrowed mud habitats workshop minutes

**2nd August 2012 - 5 Atlantic Quay, 150 Broomielaw, Glasgow**

**JNCC – 05 September 2012**

## Introduction and aim of the workshop

Thirty people from scientific, fisheries and policy background (see annex 3) attended this fisheries management measure workshop. The aims of which was to discuss how to approach putting in place fisheries management measures for the conservation of biodiversity in burrowed mud habitats whilst taking into account fisheries activities on mud habitats.

The workshop commenced by a series of presentations on:

- The biology of mud; the species living within such habitats, variations between individual sites and the sensitivity of species living within such habitats.
- The value of mud habitats to the fishing industry. Here a member of the Anglo North Irish Fish Producers Organisation (ANIFPO), presented: information on how fishing in the Irish sea has changed over the years; collaborative work they have been carrying out with Seafish and other researchers to monitor *Nephrop* abundance; and how the closure of fishing through Marine Protected Areas (MPAs) in the Irish sea would cause displacement of their current activities into other areas. The monetary value of these fisheries was also presented.
- The impacts of fishing gear on burrowed mud habitats, derived from analysis of best-available scientific literature[1] by JNCC, Natural England and Scottish Natural Heritage (SNH). The policy drivers behind the need to protect mud habitats were also described.

Following these introductory presentations, the participants were divided into four groups to discuss: favourable condition for burrowed mud habitat; information requirements; and management tools. A number of questions were posed to stimulate discussion of these topics. Each group made a note of the main points that arose from their discussions and at the end of each of the three discussion sessions, main points were summarised to the whole workshop. The questions and the main points that were recorded from the group discussions are listed in Annex 1.

[1] JNCC and Natural England advice on the impacts of fisheries on the habitats that will be afforded protection by MCZs. 2011; http://jncc.defra.gov.uk/page-4884; and JNCC and SNH. 2012. Scottish MPA fisheries management guidance. Unpublished.

**Conclusion**

Reoccurring themes raised within the different working group and key points to take into consideration when identifying possible fisheries management measures for burrowed mud habitats have been outlined below:

Reoccurring themes raised:

- Site and feature conservation objectives need to be better defined to see what is appropriate to help inform management measures.
- Adaptive management (study the effects of an appropriate management measure, and learn from those studies to (where necessary) change and improve the measure) is key given the relatively low knowledge of the habitat and of the effects of fishing gear on the habitat.
- Biological and socio-economic impacts from displacement should be assessed and taken into consideration in deciding on appropriate management measures. High levels of displacement should be avoided.
- Site specific management options will be essential to meet the needs of the varying habitats and biotopes and different levels of vulnerability.
- Management options relating to seasonality and vulnerable periods for seapens and other burrowing mega fauna communities should be researched, with the possibility of rolling closures.
- Management will need to be site specific since different sites will have different biotopes and levels of activities and therefore different levels of vulnerability.
- There needs to be more use of existing fisheries management measures when developing management measures for MPAs.

Key points raised:

- In assessing the individual impact and benefits for an MPA, wider network analysis on the costs and benefits must be taken into consideration.
- It was noted on numerous occasions that there seemed to be insufficient evidence to set precise conservation objectives and to introduce management measures.
- Sufficient time should be taken to ensure that the right decisions are made and further evidence is collected[2].
- Different stakeholder sectors can have a large effect on government decisions. Government need to weigh up the influence of the different sectors.
- MPAs may not be the only way of achieving conservation objectives and the effects on the fishing industry could be disproportionately great. There is evidence that some marine habitats are not in good condition, however there is uncertainty to what is causing the problems.
- Often it is stated that MPAs can support fish stock recovery and conservation; however there is little evidence of this and the two issues should be uncoupled.

Delegates agreed that the workshop had been useful in allowing detailed discussions and in widening everyone's knowledge from policy, science and fisheries stand points.

[2] Refer to Annex 1; Information requirements for more information.

## Annex 1: key points discussed within the working group sessions

Note, the questions outlined were identified to facilitate discussions and not all points captured directly respond to the proposed questions.

| | Group discussion point | Key points raised |
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| **1** | **Favourable condition for burrowed mud habitat** | |
| **1.1** | **What level of fisheries impact is acceptable to conserve burrowed mud habitats in?** | Better understanding of actual and possible conditions of mud in different areas is needed. It is difficult to describe base levels, benchmarks and targets without this information.<br>In areas where the site is not in pristine condition, lower levels of ambition may be needed. |
| | | Habitats have different levels of recovery time and past activities will influence this.<br>There is a need to understand how long something takes to recover and what condition we want the habitat to be in if not in pristine condition.<br>Similarly there is a need to have a better understanding of the impacts of individual gears. |
| | | Is there a relationship between *Nephrops* population health and the health of the habitat? |
| **1.2** | **Will this be sufficient to meet the all legislative and policy requirements? If not, what else will be required?** | *No specific discussion points were raised under this specific question.* |
| **1.3** | **What other factors should be taken into account when setting conservation objectives for the habitat?** | There is a lot of data available on stocks and by-catch. If this is collected in the right format it could be used to support conservation measures [not quite the same as objectives].<br>Cumulative impacts should be taken into consideration and not just from the fishing industry but other industries. |
| **1.4** | **Who should be involved in the decision making process?** | Those who make the decisions and who influence the decisions should be considered.<br>How this information is disseminated to the general public and those who will be affected should also be taken into consideration.<br>Setting targets requires participation by all stakeholders, viz: ecologists, fishermen and their representatives, fisheries and environmental scientists, gear technologists, economists, and |

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| | | managers. |
| **2** | **Information requirements** | |
| **2.1** | **What scientific information will be needed to understand the scale of impact from different fishing methods on burrowed mud habitat?** | More information is needed on temporal and spatial information, interaction between fisheries activities and benthic communities.<br><br>Better understanding of the relationship between changes in *Nephrops* burrow density with fishing intensities.<br><br>More understanding and development of methods to reduce effects of fishing gear and whether reducing impact of fishing gear has an effect on yields, fuel consumption and discards.<br><br>More evidence on the impacts from pot/creel fisheries is needed. |
| | | More detailed information on pressures on the habitat and the location of fine scale habitats is needed. Fishers can provide further information over and above modelled data from e.g. plotters.<br><br>To be able to manage burrowed mud habitats appropriately a base line is required where we may need to understand more about the life history and dynamics of the ecologically sensitive species (especially their reproductive, dispersal, and settlement phases), as well as their likely response to environmental variations and trends, including climate change.<br><br>More use of existing information is needed. Information can be used from log book data and data on trawling activity. |
| | | Need for better studies on understanding of effects of different fishing gears (including size, engine power, gear dimension and configuration), cumulative impacts and the state of the habitats and their recovery times.<br><br>There are a few studies on a few different gear types but this does not include the full range of gear types.<br><br>Information from experimental closures could be useful in gaining a better understanding of gear effects. |
| | | Different sampling techniques can bias the results, scientists tend to use the same type of sampling technique, this could be diversified. |

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| **2.2** | **What scientific information is required to identify when fisheries are being 'well managed'?** | What is well managed? This may mean something quite different for fisheries and conservationist. A link between state of habitat and state of fishery may be needed.<br>If we have a well managed habitat we need to be aware of the wider subsequent effects this may have i.e. societal effects, displacement effects, reduced economic benefits, etc. |
| | | Is best available evidence sufficient |
| **2.3** | **How can fishermen's knowledge be used?** | Lots of data has been recorded however, is it being used appropriately and is the data being collected in the right format?<br>Are cumulative impacts being investigated? Gear modifications to reduce impacts should be looked into. |
| **2.4** | **Who should be involved in the decision making process** | Wider society should be involved throughout decision making processes, however for research purposes more specific groups will be needed.<br>Fishermen should be involved in studies involving experimental designs, closures, mapping and monitoring. For offshore research the Regional Advisory Councils should also be involved. |
| **3** | **Management tools** | |
| **3.1** | **What management tools are available and how can they be applied within the context of the common fisheries policy?** | Adaptive management is essential and should change in time to inform monitoring targets.<br>As adaptive management measures are put in place so should the conservation objectives be flexible. |
| | | We need to have a better understanding of what a sustainable fishery is and from the conservation point of view, we need to have a better understanding of the link between the fishing industry and conservation objectives of the site. |
| | | For offshore areas all fisheries related management would have to go through the Common Fisheries Policy which at present is a slow, centralised and laborious process. A more regionalised approach would potentially provide a faster route to implement adaptive management. |
| | | In the South-West of England the Succor Fish project trialled out a fisheries management technology whereby under 15m vessels were equipped with VMS tracking data which record fishing activity on 1 minute basis alerting management authorities when vessels enter areas closed to fishing activities. If funding were available, this could be implemented in offshore waters. |
| | | Zoned management and/or seasonal closures seem to be a good option. Certain areas could be |

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| | | closed when species are more vulnerable at particular times of year or areas could be closed according to the emergence patterns of species which we are trying to protect.<br>Investigations into the seasonal way fisheries operate and whether this could support management to streamline and use existing procedures could be looked into. |
| | | What alternatives are there? Are mobile MPAs or crop rotation processes an option (experimented in New Caledonian Reef habitats)? Maybe the current method of protecting habitats is not the only way. |
| | | Co-location of MPAs and e.g. windfarms and other areas of spatial use restrictions seems to be a viable option given the increasing restrictions on the fishing sector. |
| **3.2** | **What research is required to help understand the management options for burrowed mud management and how might this research be established?** | Caution is needed when establishing management measures since people will be affected by them. They will need to be experimental at first so that they can be learned from and potentially adapted.<br>More effort could be made on the development of gear technologies to reduce their impact. |
| | | Further understanding on the basic biology of the habitats and their biotopes is needed in addition to the effects of climate change on habitats in conjunction with fishing gear impacts. There are a complex set of human and ecosystem interactions which need to be better understood. |
| **3.3** | **Will it be possible to maintain fisheries yields at current levels while ensuring conservation objectives are met?** | Displacement effects need to be well studied and whether this causes an increase in by-catch.<br>It will be necessary to see whether developments of gear technology affect catch.<br>The benefits of MPAs will need to be measured and compared with the costs in the short and long term. |
| **3.4** | **Who should be involved in the decision making process?** | The Statutory Nature Conservation Advisors and fishing industry should have some detailed discussions before management decisions are forwarded.<br>Local stakeholder groups should be involved and those who will be affected by the management measures of the site. |

## Annex 2: Relevant and ongoing studies discussed during the workshop

- In the Irish Sea, studies have been undertaken around Pieces Reef possible Special Area of Conservation (pSAC), on biotic and abiotic factors to help inform possible fisheries management strategies for the area. Studies have found that the scoured sediment could be supporting prosperous *Nephrops* fisheries around the site, yet scouring may influence community composition around the site (Callaway *et al,* 2009).
- In France, Ifremer have been undertaking research to study the impacts of different gear types and have developed 'jumper trawl doors' (Optipêche) to reduce this impact as well as lighter ground rope. Separately, in the Bay of Biscay Ifremer have received feedback from the fishing industry that no positive effect on the Nephrops fishery has been detected following a hake box closure. However, no scientific study has taken place on the effects of the closure.
- In the South West of England there is an ecosystem project where displacement scenario models are in progress based on VMS data.
- The Succor Fish project trialled VMS tracking devices for under 15m vessels to enable fishers to fish within sites whilst avoiding areas of higher protection.
- In an area 15-20 nm off the coast of Galicia (Spain), *Nephrops* were over fished and nearly disappeared (catch feel from 500tn to 30tn over the course of 20 years). Trawlers were subsequently forbidden to work within waters less than 100m deep. (Since closure of this area, there has been no noticeable recovery, however it is thought that fishing within the area still takes place.
- There's a recent and ongoing study led by the Marine Institute in Ireland (Power and Lordan, 2012) looking at the interactions of MPAs as a management tool for *Nephrops* fisheries and the overlap of the fishery and sea pen distributions. The study suggests that permanent closures to *Nephrops* fisheries may not be the optimal management option and conserving benthic habitats with low natural disturbance and low levels of fishing impact should be prioritised. More studies may be needed to better understand the interaction between *Nephrops* fishing activities and seapens.
- In Wales the Countryside Council for Wales (CCW) have developed a collaborative Project known as Fish Map Mon with various fishing groups. The project aims 'support the development of viable and sustainable fisheries in Wales as an integral part of coherent policies for safeguarding the environment'. For this project fishing effort data has been combined with existing knowledge of marine habitats and their sensitivities to various fishing activities.

### Reference

Callaway, A., Smyth, J., Brown, C. J., Quinn, R., Service, M., Long, D. 2009. The impact of scour processes on a smothered reef system in the Irish Sea. Estuarine Coastal and Shelf Science. **84**: 409-418.

Power, J and Lordan. C. 2012. A review of the effects of bottom trawling on sediments; sea pens and burrowing megafauna biotope complexes. Marine Institute. Unpublished.

## Annex 3: Attendees

| Name | Organisation |
|---|---|
| Alan McCulla | Anglo-North Irish Fish Producers Organisation (ANIFPO) |
| Amandine Eynaudi | Agence des aires marines protégées – MAIA lead partner |
| Archie McFarlane | Clyde Fishermen's Association |
| Beth Stoker | Joint Nature Conservation Committee (JNCC) |
| Colin Bannister | Independent Scientist/Chairman of Shellfish Association Great Britain |
| Colm Lordan | Irish Marine Institute |
| Dale Rodmell | National Federation of Fishermen's Organisations |
| David Donnan | Scottish Natural Heritage |
| David Hill | Anglo-North Irish Fish Producers Organisation |
| David Ross | Scottish Environment Protection Agency (SEPA) |
| Dick James | Northern Ireland Fish Producers Organisation (NIFPO) |
| Helen Stevens | Natural England |
| John Hermes | Mallaig and Northwest Fishermen's Association |
| Jon Elson | Cefas |
| Jorge Ribo | Xunta de Galicia / MAIA Spanish partner |
| Lynda Allan | Marine Scotland Science |
| Mark Tasker | JNCC |
| Matt Service | Agriculture, Food and Environmental Science Division/ Agri-Food and Biosciences Institute (AFBI) |
| Bill Wiseman | Scottish White Fish Producers Association Limited |
| Natasha Lough | Countryside Council for Wales |
| Neil Wellum | Marine Management Organisation |
| Nolwenn Gace Rimaud | North West Waters Regional Advisory Council (NWWRAC)/ Les Pêcheurs de Bretagne |
| Patrick Stewart | Scottish Fishermen's Federation (SFF) |
| Paul Cook | Scottish Government (Marine Scotland) |
| Pim Visser | North Sea Regional Advisory Council (NSRAC)/ Dutch Fisheries Organisation |
| Sonia Mehault | Ifremer |
| Sophie Elliott | JNCC |
| Ted Breslin | Killybegs Fishermens Organisation / Federation of Irish Fishermen (FIF) |
| Thierry Guigue | Comité regional des Pêches Maritimes et des Elevages Marins (CRPMEM)/ Pêcheurs de Bretagne |
| Tom Blasdale | JNCC |

### Apologies

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| Marine Scotland Science | Clare Greathead |
| Scottish Western Isles Fisheries Association | Duncan McInnis |
| Environmental NGO | Euan Dunn |
| Marine Scotland Science | Helen Dobie |
| Department of Environment for Northern Ireland | Joe Breen |
| Department for Environment Food and Rural Affairs | Kathleen Cameron |
| Marine Scotland | Michael McLeod |