

Duddon Estuary European Marine Site Management Scheme



Issued December 2002

Acknowledgements

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- The Duddon Estuary Partnership for its time and efforts spent in promoting the scheme and assisting its development through links with partners and local groups
- Ken Hopper for the front cover photograph and for allowing its use.

Executive Summary

In the UK, the designation of European marine sites is a key measure in meeting the requirements of European Union's Habitats Directive. The Duddon Estuary European marine site consists of the Duddon Estuary Special Protection Area (first submitted to the European Commission for consideration in January 1994) and a portion of the Morecambe Bay candidate Special Area of Conservation (first submitted to the European Commission for consideration in May 1999). Since that time considerable work has been undertaken by a range of organisations and individuals, culminating in the production of an agreed management scheme for the site.

The Management Scheme for the Duddon Estuary has been drawn together by the eleven relevant authorities present within the site, with ongoing input from the advisory group (the Duddon Estuary Partnership), and consultation with owners, occupiers, interested parties, and the wider public.

The purpose of the management scheme is to ensure that human activities are managed in ways that are compatible with the wildlife features of the site, ensuring that the current management measures are sufficient to meet the conservation goals for the area, and identifying areas where further actions are required.

The management scheme outlines the conservation interest of the site, utilising English Nature's published Regulation 33 advice for the Duddon Estuary European marine site, which also describes the operations which are potentially harmful to the wildlife interest. The scheme then identifies and quantifies current activities within and around the site, indicating their respective impacts on the features of conservation interest and providing a statement of existing and then future management for each. In those instances where our current knowledge is lacking the scheme seeks to address these gaps through investigative studies.

Implementation of the management scheme will require a partnership based approach, with the relevant authorities working closely with the advisory group, local organisations and other parties. It is envisaged that the scheme will become a working document, involving constant review and revision as our understanding of the site's condition, recreational usage and natural estuarine processes evolves and improves.

The evolving plan will be sufficiently robust in order to adapt to future pressures on the site and to sustainably manage the Duddon Estuary, securing its future as an invaluable resource for generations to come.

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Conservation Officer, English Nature

December 2002

DUDDON ESTUARY EUROPEAN MARINE SITE

MANAGEMENT SCHEME

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1 Introduction

The European and International importance of the Duddon Estuary is reflected by its designation as a Special Protection Area (SPA) under the Birds Directive (the ‘Council Directive 79/409/EEC on the Conservation of Wild Birds’), and as a Ramsar site under the Convention on Wetlands of International Importance. Under UK legislation the Duddon Estuary is also designated as a Site of Special Scientific Interest (SSSI), under the Wildlife and Countryside Act as amended by the Countryside and Rights of Way Act 2000. The Morecambe Bay component of the Duddon Estuary has European status as a candidate Special Area of Conservation (cSAC), under the Habitats Directive (the ‘Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna).

The designation of the Site of Special Scientific Interest imposes legal duties and responsibilities on bodies involved with its management under the Wildlife and Countryside Act as amended by the Countryside and Rights of Way Act 2000. However, as the SSSI boundary does not extend beyond mean low water in England, management agreements cease to apply in the subtidal marine environment.

The Habitats Directive is transposed into UK law as the Conservation (Natural Habitats, &c.) Regulations 1994, hereafter referred to as “the Habitats Regulations.” These, along with Planning Policy Guidance: Nature Conservation (PPG9), produced by the Department of the Environment (DoE), set out the requirements imposed on local planning authorities and statutory undertakers.



The Management Scheme for the Duddon Estuary European marine site (including the Duddon Estuary SPA and part of the Morecambe Bay cSAC) has been developed voluntarily in response to the new and stronger responsibilities on authorities and agencies to work closely together to safeguard the nature conservation interests of designated sites laid down in the UK Habitats Regulations. The Relevant Authorities and the Duddon Estuary Partnership have played a pivotal role in the development of the management scheme and will be vital in ensuring its success.

The management scheme is designed to complement existing management measures and initiatives within the site to ensure that the features of conservation interest are maintained in favourable condition. Its role is to ensure that management measures are sufficient to meet conservation targets, establish missing areas and address those needs. For example, existing management initiatives include the Duddon Estuary Strategy, a Partnership for Progress Report, County and District Council Strategies and Plans and Environment Agency Plans.

1.1 The Habitats Directive, the Birds Directive and the Conservation (Natural Habitats &c.) Regulations

Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora is commonly known as the Habitats Directive. The Directive converts the Bern Convention on European Wildlife and Natural Habitats into European law and ensures that the European Community is able to fulfil related commitments made at the 1992 Rio Earth Summit.

Implementation of the Habitats Directive requires the conservation of specific wildlife or habitat features. This is achieved principally through the designation and protection of a network of sites across the EC. The network is collectively known as Natura 2000. It includes Special Areas of Conservation (SACs), classified under the Habitats Directive, and Special Protection Areas (SPAs) classified under the Birds Directive. The area within these sites that lies below the highest astronomical tide (HAT) and is covered continuously or intermittently by tidal waters, or any part of the sea up to the seaward limit of territorial waters, is known as a **European marine site (EMS)**.

The Habitats Directive aims to contribute to the conservation of biodiversity by requiring member states to take measures to maintain or restore certain natural habitats and wild species at favourable conservation status in the community, giving effect to both site and species protection objectives.

The Birds Directive applies to birds, their eggs, nests and habitats. It provides for the protection, management and control of all species of naturally occurring wild birds in the European territory of member states. Article 1 requires member states to take adequate measures to preserve a sufficient diversity of habitats for all species of wild birds naturally occurring within their territories (articles 2 & 3) in order to maintain populations at ecologically and scientifically sound levels. It also requires member states to take special measures to conserve the habitat of certain particularly rare species and of migratory species.

As the statutory nature conservation agency, English Nature has a duty to advise the relevant authorities of a European marine site of the conservation objectives and those operations likely to cause deterioration or disturbance to the interest features of the site. This information is produced in the form of a “Regulation 33 package” as defined by **Regulation 33 (2)** of the Habitats Regulations.

The Regulation 33 package for the Duddon Estuary SPA was issued on 25 May 2001 and the Regulation 33 Package for the Morecambe Bay cSAC and SPA was issued on 14 January 2000.

The Habitats Regulations also make provisions for the development of management schemes for European marine sites (**Regulation 34**). Such management schemes, if deemed appropriate, rely upon the successful cooperation of both relevant and, where appropriate, competent authorities to develop and deliver appropriate actions to maintain favourable condition of the interest features of the site.

1.2 Why both the Duddon Estuary and Morecambe Bay European marine sites?

There are two designations that cover the Morecambe Bay site; Morecambe Bay SPA and Morecambe Bay cSAC, but for ease of reference these are collectively called Morecambe Bay European marine site.

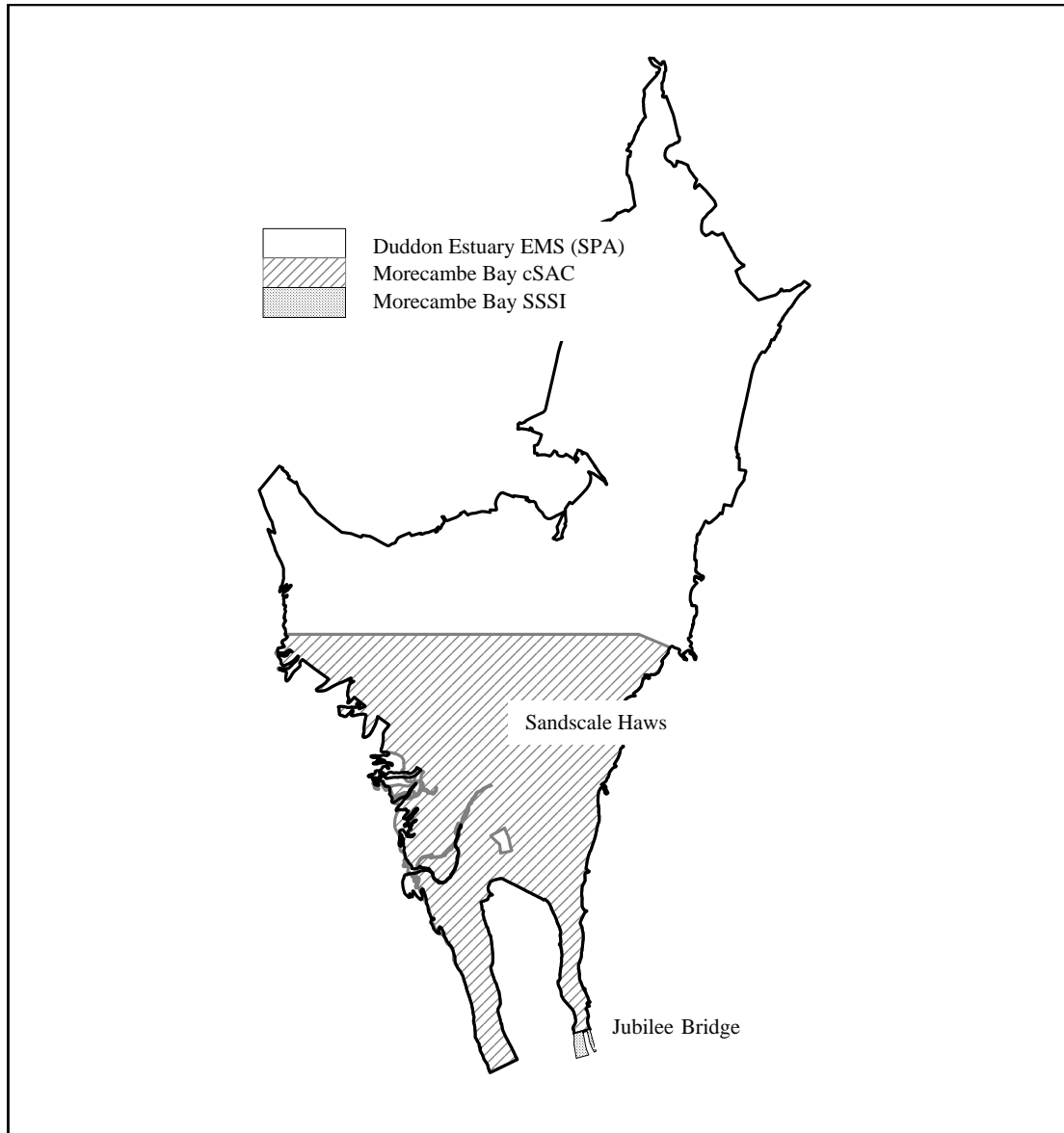


Fig 1 Diagram illustrating the relationship between the Duddon Estuary and Morecambe Bay designated sites.

The Duddon Estuary SPA is a European marine site in its own right. However, the Morecambe Bay cSAC European marine site overlaps its boundary in the area between Jubilee Bridge at Barrow-in-Furness and Sandscale Haws (see map). As with Morecambe Bay, the Duddon Estuary is simply referred to as one European marine site despite being made up of 2 individual sites.

Both the Duddon Estuary and Morecambe Bay have active, successful partnerships already in place. It is acknowledged that the involvement of these Partnerships in developing and delivery of management schemes for the European marine sites is vital. It was therefore deemed appropriate to confine the physical area covered by the relevant management schemes to the jurisdiction of the existing partnerships. The Habitat Regulations (Regulation 34(2)) also specify that only one management scheme may be made for each European marine site.

To this end, the Morecambe Bay management scheme (issued 2 April 2001) covers the Morecambe Bay European marine site including the Morecambe Bay SPA and the Morecambe Bay cSAC to the northerly limit of Jubilee Bridge.

This document, the Duddon Estuary European marine site Management Scheme, therefore includes the entire Duddon Estuary SPA and the area of the Morecambe Bay cSAC that lies to the north of Jubilee Bridge.

1.3 The aims of this Management Scheme

The Habitats Regulations place the following responsibilities on every competent authority:

“ In relation to marine areas any competent authority having functions relevant to marine conservation shall exercise those functions so as to secure compliance with the requirements of the Habitats Directive.” Regulation 3(3)

“...every competent authority, in the exercise of any of their functions, shall have regard to the requirements of the Habitats Directive so far as they may be affected by the exercise of those functions.” Regulation 3(4)

On the Duddon Estuary the relevant authorities have chosen to develop a management scheme, under Regulation 34 of the Habitats Regulations, through which the requirements of the Directive will be met in carrying out their functions. The regulation states:

“ The relevant authorities, or any of them, may, establish for a European marine site a management scheme under which their functions (including any power to make byelaws) shall be exercised so as to secure in relation to that site compliance with the requirements of the Habitats Directive.” Regulation 34(1)

The role of the management scheme is to ensure that both existing and future management measures are sufficient to meet the conservation requirements of the European designated features (under Regulation 33 (2) of the Habitats Regulations 1994), and to highlight any gaps where additional management actions may be required. Should such management gaps be identified, a partnership approach involving the relevant authorities, advisory groups and stakeholders, will seek to work together in developing appropriate additional management measures.

The management scheme is concerned with ensuring the sustainable use of a living, working coast. It is recognised that the Duddon Estuary has hosted a multitude of human activities throughout recent history, and that the high conservation value of the site today reflects past management. This management scheme will address those activities, which

are known to be damaging to the wildlife or habitats of the estuary. It is hoped that through dialogue with relevant parties, a voluntary solution can be reached. Only when a voluntary approach is unsuccessful, will other management methods be introduced such as local authority byelaws or the use of the Countryside and Rights of Way (CROW) Act by English Nature.

The management scheme is designed to evolve with increases in our understanding of the ecological processes within the estuary and with changes in human activities and management. It is proposed therefore, that the scheme will be regularly updated.

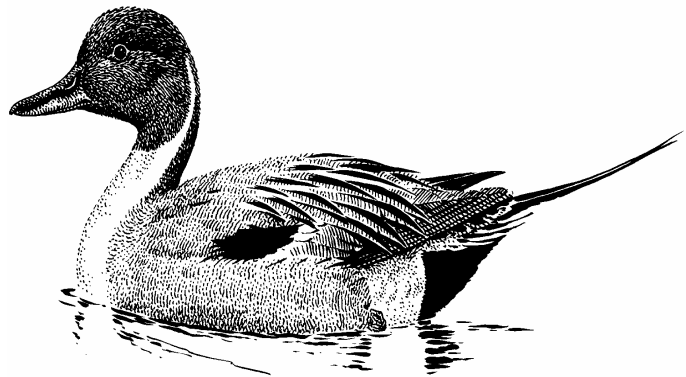
1.4 Relevant Authorities and Competent Authorities

In describing the responsibilities for the management of European marine sites, the Habitats Regulations refer to the terms ‘competent authority’ and ‘relevant authority’. The expression ‘competent authority’ includes any Minister, government department, public or statutory undertaker, public body of any description or person holding a public office. The term ‘relevant authority’ identifies those competent authorities with local powers or functions, which have, or could have, an impact on the marine area within or adjacent to the European marine site. All relevant authorities are also competent authorities. Regulations 5 & 6 of the Habitats Regulations give these definitions in full.

Relevant authorities also need to have regard to adjacent European interests that might be affected by activities taking place within or adjacent to the European site. These are areas occurring above the highest astronomical tide. There are two such features within the Duddon Estuary, which are outside the EMS:

Coastal lagoon communities –

Hodbarrow lagoon is important for migratory bird species, important assemblages of waterfowl and breeding Sandwich terns (*Sterna sandvicensis*). The lagoon contains soft sediments supporting tassel weeds, charophytes and filamentous green and brown algae that provide an important feeding habitat for waterfowl.



As this lagoon is situated above the highest astronomical tide it is not included as a key feature for the European marine site.

Slag banks – Areas of slag bank are also important breeding and nesting areas for sandwich terns in the Duddon Estuary. The main concentrations of these are around Millom and Askham.

1.5 The Management Group and Advisory Group

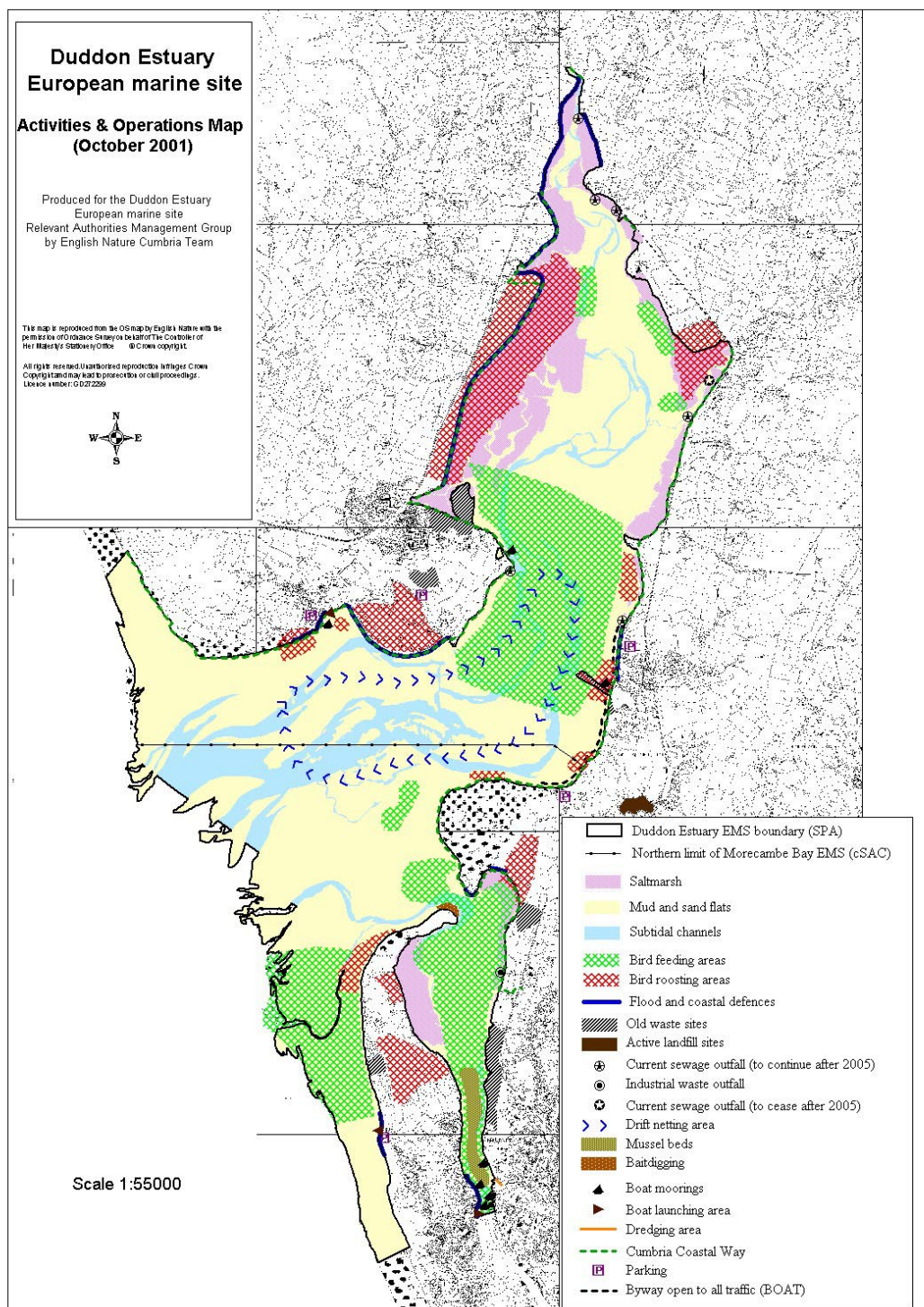
There are 11 relevant authorities that have jurisdiction on or around the Duddon Estuary European marine site (listed in Annex A). These make up the Duddon Estuary European marine site Management Group. This group is a representative body and ensures all relevant authorities are involved in the process of developing the management scheme. Each relevant authority must have due regard for the Habitats Directive in undertaking their functions and duties.

In addition to the relevant authority management group, the Duddon Estuary Partnership acts as the advisory group for the management scheme.

In order to gather information during the production of this management scheme a wider awareness-raising exercise was carried out. This involved articles in the local press, posters and flyers in towns and villages around the Estuary, a public meeting and a mail shot asking local people to comment on any issues of concern that would benefit from management actions.

Following Page:

Figure 2 Duddon Estuary European Marine Site Activities & Operations Map.



2 Qualifying Habitats and Species of Duddon Estuary European Marine Site

2.1 Site description and reasons for designation

The following text is taken from, but does not replace, chapters 2 and 3 of the Regulation 33 package for the Duddon Estuary, as issued by English Nature on 25 May 2001.

Interest features of the European marine site

As stated previously, the Duddon Estuary European marine site includes Duddon Estuary SPA and parts of the Morecambe Bay cSAC. Morecambe Bay cSAC also qualifies for the Annex 1 habitat, coastal vegetated shingle. However this occurs above the highest astronomical tide (HAT), and therefore is not covered by the scope of this document. Objectives to maintain coastal vegetated shingle in favourable condition are found within English Nature's conservation objective for the relevant SSSI within the SAC boundary and will be dealt with through procedures outlined in the Conservation (Natural Habitats &c.) Regulations 1994. Relevant authorities need to have regard to such adjacent European interests, as they might be affected by activities taking place within, or adjacent to the European marine site.

SPA qualifying species and cSAC qualifying habitats occurring within the European marine site are referred to as interest features. Sub-features (habitats) are identified to highlight the ecologically important components of the European marine site for each interest feature.

2.2 Qualifying species under the EU Birds Directive

The SPA component of the site was selected for three interest features:

The Duddon Estuary SPA qualifies under Article 4.1 of the EU Birds Directive in that it supports:

- **Internationally important populations of regularly occurring Annex 1 species** (Sandwich tern, *Sterna sandvicensis*):

It also qualifies under Article 4.2 of the EU Birds Directive in that it supports:

- **Internationally important populations of regularly occurring migratory bird species:**

Several of the species included in the wintering waterfowl assemblage also occur in internationally important numbers, and thus qualify for SPA status in their own right. These species are listed in Table 1. As all these internationally important populations are included within the wintering waterfowl assemblage, and depend on the same marine habitats, they have been included in the conservation objective for the assemblage.

- **An internationally important assemblage of waterfowl:**

The Duddon Estuary is one of the most important estuaries in the UK for wintering waterfowl, regularly supporting over 20,000 birds (Cranswick *et al.*, 1992). During severe winter weather the Duddon Estuary assumes even greater national and international importance as waterfowl arrive from other areas further inland, attracted by the mild conditions and the abundant food resource.

2.3 Qualifying habitats under the EU Habitats Directive

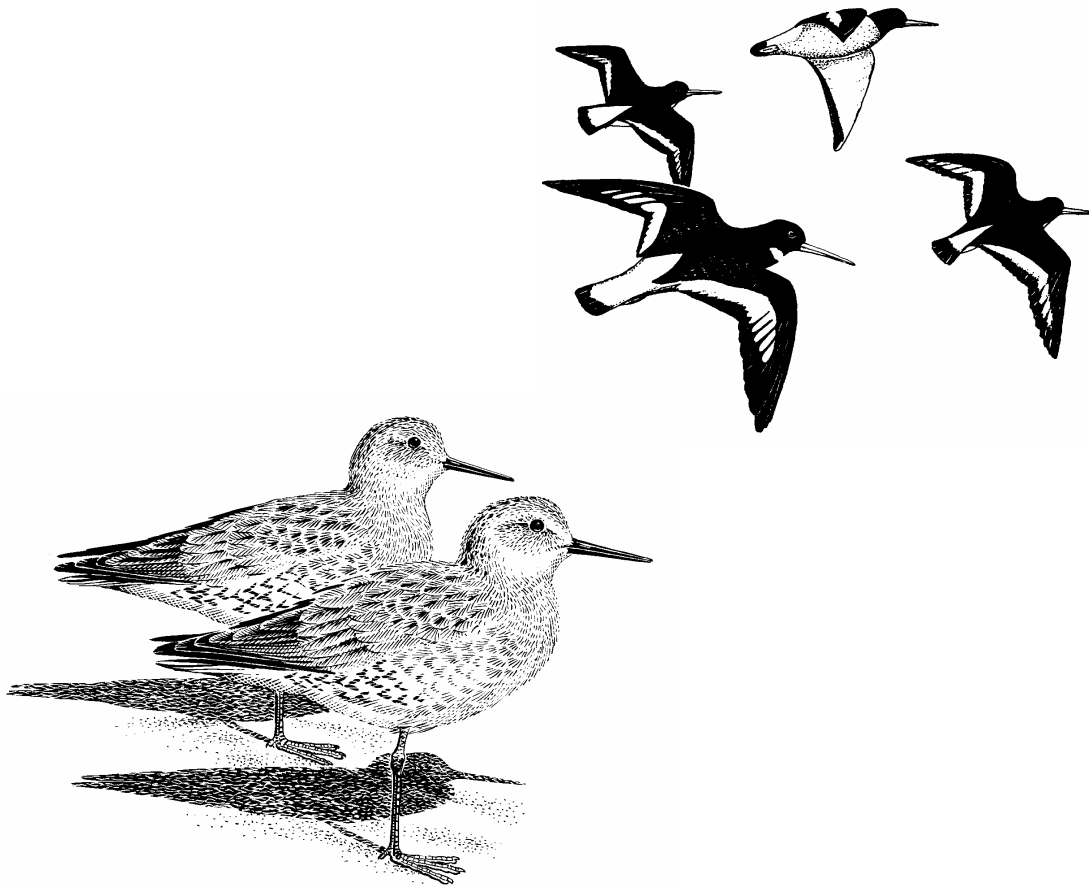
The Morecambe Bay cSAC component of the site was selected for 4 interest features shown below. These are Annex 1 habitats (occurring below highest astronomical tide) as listed in the EU Habitats Directive:

The features relevant to the Duddon Estuary are described in detail below.

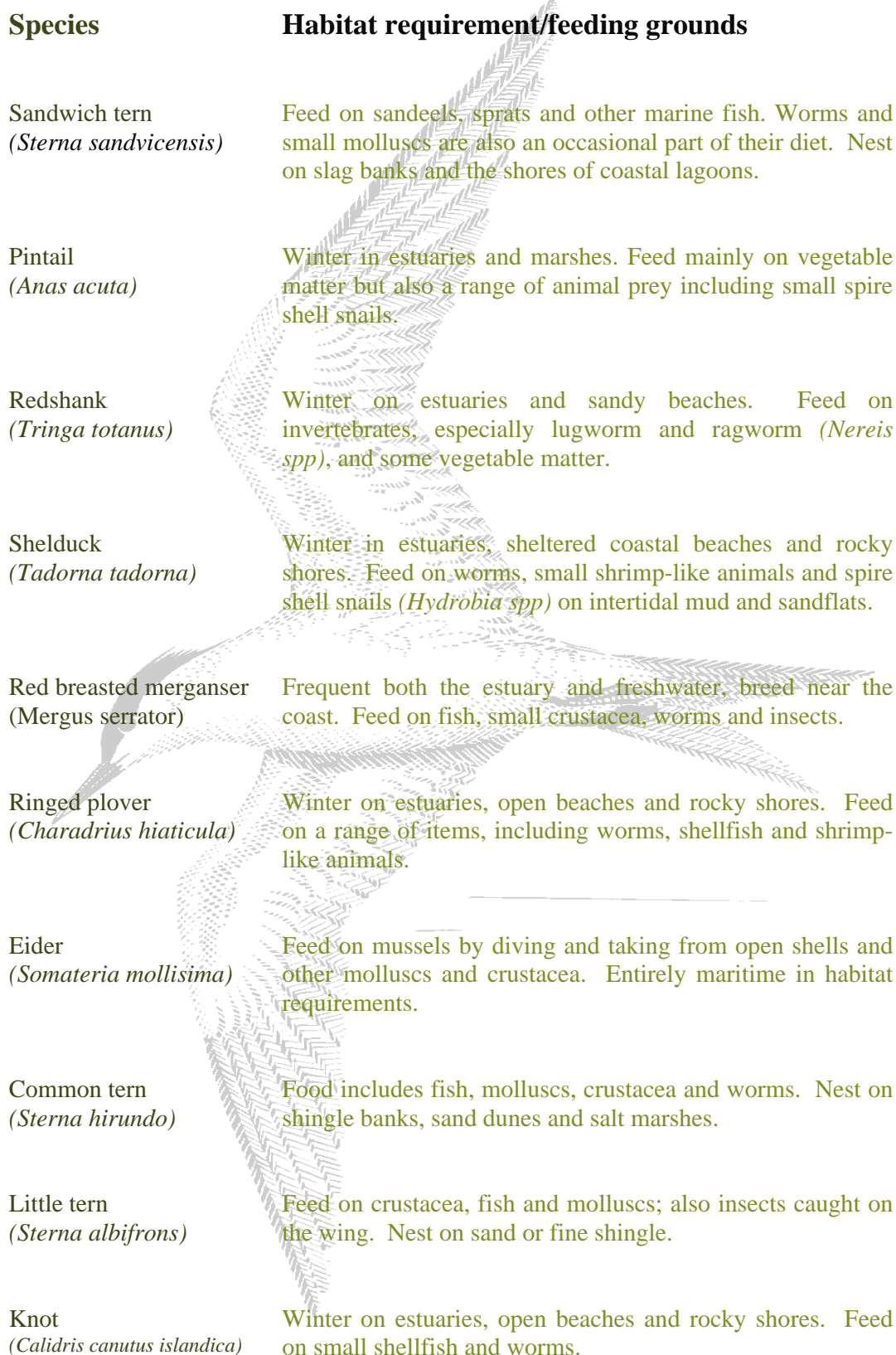
- **Large shallow inlets and bays** – The Walney Channel, including the entrance to the Duddon Estuary is an integral part of the Morecambe Bay cSAC large shallow inlet and bay interest feature. The Channel provides a pathway for tidal waters to enter and leave the estuarine systems of Morecambe Bay and the adjoining Duddon Estuary. The reduced wave action in the Walney Channel has enabled the establishment of a rich variety of marine habitats including intertidal and subtidal boulder and cobble skew communities.
- **Mudflats and sandflats not covered by seawater at low tide** (referred to in this document as intertidal mud and sandflats). The sediments of the Bay are mobile and in sheltered areas such as the Duddon Estuary more stable community types can develop. Intertidal mudflat and sandflat communities in the Duddon Estuary support high densities of invertebrates that are important as food for waterfowl. The high biomass of invertebrates includes species such as the Baltic tellin (*Macoma balthica*), cockles (*Cerastoderma edule*), mud snails (*Hydrobia ulvae*), marine worms, such as lugworms (*Arenicola marina*) and crustaceans, such as *Corophium volutator*. In general more sheltered areas with relatively high silt content support a richer biomass than more exposed areas.
- **Glasswort *Salicornia* spp and other annuals colonising mud and sand** (referred to in this document as pioneer saltmarsh). Pioneer saltmarsh communities play an important part in the functioning of the site. It is dominated by glasswort *Salicornia* spp. This forms a key stage in the transition from the intertidal sand and mudflats to the distinctive saltmarsh of the Estuary.
- **Atlantic salt meadows *Glauco-Puccinellietalia*** (Referred to in this document as saltmarsh). *See below.*

The Duddon Estuary component of the Morecambe Bay cSAC includes the following sub-features:

- **Shallow coastal waters.** Sandwich terns feed on marine fish, particularly sandeels (*Ammodytes spp*) and sprats (*Sprattus sprattus*). Food availability is essential for maintaining the population of sandwich terns in this SPA. The shallow coastal waters provide an important feeding habitat.
- **Intertidal and subtidal boulder and cobble skewer communities.** These provide a hard substrate for a different range of prey species including dense mussel (*Mytilus edulis*) beds. These areas are particularly important feeding habitats, especially for knot (*Calidris canutus islandica*). They also provide important mid tide roosting sites for redshank (*Tringa totanus*).
- **Saltmarsh communities.** The majority of the saltmarsh areas within the Duddon Estuary European marine site are grazed although there are numerous smaller areas of ungrazed marsh. A wide range of saltmarsh communities are represented on the site, providing important feeding and roosting areas for pintail (*Anas acuta*) and redshank (*Tringa tetanus*). The characteristic short sward height resulting from grazing makes the saltmarsh an important habitat for roosting and feeding birds. On high spring tides thousands of wading birds concentrate on roost sites on the upper levels of the saltmarsh.



2.4 Habitat requirements of birds found on the Duddon Estuary



Species	Habitat requirement/feeding grounds
Sandwich tern (<i>Sterna sandvicensis</i>)	Feed on sandeels, sprats and other marine fish. Worms and small molluscs are also an occasional part of their diet. Nest on slag banks and the shores of coastal lagoons.
Pintail (<i>Anas acuta</i>)	Winter in estuaries and marshes. Feed mainly on vegetable matter but also a range of animal prey including small spire shell snails.
Redshank (<i>Tringa totanus</i>)	Winter on estuaries and sandy beaches. Feed on invertebrates, especially lugworm and ragworm (<i>Nereis spp</i>), and some vegetable matter.
Shelduck (<i>Tadorna tadorna</i>)	Winter in estuaries, sheltered coastal beaches and rocky shores. Feed on worms, small shrimp-like animals and spire shell snails (<i>Hydrobia spp</i>) on intertidal mud and sandflats.
Red breasted merganser (<i>Mergus serrator</i>)	Frequent both the estuary and freshwater, breed near the coast. Feed on fish, small crustacea, worms and insects.
Ringed plover (<i>Charadrius hiaticula</i>)	Winter on estuaries, open beaches and rocky shores. Feed on a range of items, including worms, shellfish and shrimp-like animals.
Eider (<i>Somateria mollissima</i>)	Feed on mussels by diving and taking from open shells and other molluscs and crustacea. Entirely maritime in habitat requirements.
Common tern (<i>Sterna hirundo</i>)	Food includes fish, molluscs, crustacea and worms. Nest on shingle banks, sand dunes and salt marshes.
Little tern (<i>Sterna albigrons</i>)	Feed on crustacea, fish and molluscs; also insects caught on the wing. Nest on sand or fine shingle.
Knot (<i>Calidris canutus islandica</i>)	Winter on estuaries, open beaches and rocky shores. Feed on small shellfish and worms.



Oystercatcher (<i>Haematopus ostralegus</i>)	Winter in estuaries, open beaches and rocky shores. Feed mainly on cockles and mussels but also worms.
Grey plover (<i>Pluvialis squatarola</i>)	Winter on estuaries and sheltered coasts. Feed on shellfish and worms in intertidal areas.
Sanderling (<i>Calidris alba</i>)	Winter on sandy estuaries, open coastline and rocky shores. Feed on worms, small molluscs, sandhoppers (<i>Gammarus spp</i>) and other crustacea.
Dunlin (<i>Calidris ferruginea</i>)	Winter on estuaries and coastal beaches. Feed on an abundance of worms, shellfish and small shrimp-like animals.
Curlew (<i>Numenius arquata</i>)	Winter on estuaries, saltmarsh and coastal farmland. Feed on invertebrates in mudflats, including crabs, worms and clams.
Peregrine (<i>Falco peregrinus</i>)	Winter on site, preferring open, marshy country. Prey on birds taken mainly on the wing. Some mammals up to the size of rabbits are also taken.
Merlin (<i>Falco columbarius</i>)	Winter on site favouring low-lying open country. Prey on small birds and occasionally small mammals and insects.
Short-eared owl (<i>Asio flammeus</i>)	Winter on site, favour open country such as marshes and sand dunes. Feed on small mammals and birds, occasionally taking insects.

Table 1 Populations of bird species qualifying under the Birds Directive using the Duddon Estuary European marine site at the time the SPA was classified

Internationally important populations of regularly occurring Annex 1 species

Species	Population (5 yr mean)*
Sandwich tern	210 pairs 1.5% Great Britain (1988 – 1992)

* Bird numbers from: JNCC, Seabirds and Cetaceans Branch, Aberdeen & Birds in Cumbria (1987 to 1991)

Internationally important populations of regularly occurring migratory bird species

Species	Population (5 yr peak mean for 1992/93 – 1996/97)*
Pintail	1,273 birds 1.8% North West Europe
Knot	3,603 birds 2.3% East Atlantic Flyway
Redshank	1,517 birds 1.0% East Atlantic Flyway

* Bird numbers from: Cranswick, P.A., Kirby, J.S., & Waters, R.J. (1992) The Wetland Bird Survey 1991 – 1992. Wildfowl and wader counts BTO/WWT/RSPB/JNCC

An internationally important assemblage of waterfowl

Importance	Population (5 yr peak mean for 1992/94 – 1996/97)*
The Duddon Estuary supports large populations of wintering waterfowl	31,505 birds wintering

* Bird numbers from: Cranswick, P.A., Kirby, J.S., & Waters, R.J. (1992) The Wetland Bird Survey 1991 – 1992. Wildfowl and wader counts BTO/WWT/RSPB/JNCC

- SPA citation (1998) held on Register of European marine sites for Great Britain

Note: Bird numbers are currently being reviewed by the Joint Nature Conservation Council as part of the UK SPA Network review. The above citation may no longer be a correct representation of the SPA interest of the site.

3 Conservation Objectives

The species listed in Annex 1 of the Birds Directive are the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. Species listed on Annex 1 are in danger of extinction, or are rare or vulnerable. Annex 1 species that regularly occur at levels over 1% of the national population meet the SPA qualifying criteria. The Duddon Estuary supports internationally important populations of sandwich tern (*Sterna sandvicensis*), a species listed on Annex 1 that meets the qualifying criteria by being rare and/or vulnerable.

The text contained within this section of the Management Scheme is taken directly from but does not replace, Chapter 4 of the Regulation 33 advice package for Duddon Estuary European marine site. For a more detailed explanation into the format and structure of these conservation objectives reference should be made to the advice package.

The Conservation Objective for the internationally important populations of regularly occurring Annex 1 Bird Species (sandwich tern) is as follows:

Subject to natural change, maintain in favourable condition* the habitats for the internationally important populations of the regularly occurring Annex 1 bird species, under the Birds Directive, in particular:

- **Shallow coastal waters**

Numbers of bird species using these habitats are given in Table 1

The Conservation Objective for the internationally important populations of regularly occurring migratory bird species are as follows:

Subject to natural change, maintain in favourable condition* the habitats for the internationally important populations of regularly occurring migratory bird species, under the Birds Directive, in particular:

- **Intertidal mudflat and sandflat communities**
- **Intertidal and subtidal boulder & cobble skear communities**
- **Saltmarsh communities**

Numbers of bird species using these habitats are given in Table 1

* For a detailed definition of how to recognise favourable condition see Table 2 in Regulation 33 Advice (Section 5)

The Conservation Objective for the internationally important wintering waterfowl assemblage are as follows:

Subject to natural change, maintain in favourable condition* the habitats for the internationally important assemblage of waterfowl under the Birds Directive, in particular:

- **Intertidal mudflat and sandflat communities**
- **Intertidal and subtidal boulder & cobble skear communities**
- **Saltmarsh communities**

Numbers of bird species using these habitats are given in Table 1

The text contained within this section of the Management Scheme is taken directly from but does not replace, Chapter 5 of the Regulation 33 advice package for Morecambe Bay European marine site. For a more detailed explanation into the format and structure of these conservation objectives reference should be made to the advice package.

The Conservation Objective for the large shallow inlets and bays are as follows:

Subject to natural change, maintain the large shallow inlets and bays in favourable condition*, in particular:

- **Intertidal boulder and cobble skear communities**
- **Subtidal boulder and cobble skear communities**
- **Brittlestar bed communities**
- **Intertidal boulder clay communities**
- **Coastal lagoon communities**
- **Intertidal mudflat and sandflat communities**
- **Pioneer saltmarsh communities**
- **Saltmarsh communities**

* For a detailed definition of how to recognise favourable condition see Table 2 in Regulation 33 Advice (Section 5)

The Conservation Objective for intertidal mudflats and sandflats not covered by seawater at low tide (intertidal mudflats and sandflats) are as follows:

Subject to natural change, maintain the mudflats and sandflats not covered by seawater at low tide (intertidal mudflats and sandflats) in favourable condition*, in particular:

- **Mud communities**
- **Sand communities**
- **Eelgrass bed communities**

The Conservation Objective for Glasswort *Salicornia spp* and other annuals colonising mud and sand (pioneer saltmarsh) are as follows:

Subject to natural change, maintain the Glasswort *Salicornia spp* and other annuals colonising mud and sand (pioneer saltmarsh) in favourable condition*, in particular:

- **The glasswort *Salicornia spp* communities**

The Conservation Objective for the Atlantic salt meadows *Glauco-Puccinellietalia* (saltmarsh) are as follows:

Subject to natural change, to maintain the Atlantic salt meadows *Glauco-Puccinellietalia* (saltmarsh) in favourable condition*, in particular:

- **Low marsh communities**
- **Mid marsh communities**
- **High marsh communities**
- **Transitional high marsh communities**

Note: These SPA conservation objectives focus on habitat condition in recognition that bird populations may change as a reflection of national or international trends or events. Annual counts for qualifying species will be used by English Nature, in the context of five year peak means, together with available information on UK population and distribution trends, to assess whether this SPA is continuing to make an appropriate contribution to the Favourable Conservation Status of the species across Europe.

* For a detailed definition of how to recognise favourable condition see Table 2 in Regulation 33 Advice (Section 5)

4. Advice on operations

Under Regulation 33(2)(b) of the Habitats Regulations English Nature has an obligation to provide advice to other relevant authorities on any operations that may cause deterioration of natural habitats or the habitats of species, or disturbance to species for which the site has been designated.

4.1 Process and purpose of advice

English Nature uses three stages of assessment to develop advice on operations

- the sensitivity of the interest features or their sub-features to the operations,
- the exposure of the interest features or their sub-features to these operations, and
- the current vulnerability of the interest features or their sub-features to these operations.

All the scores of relative sensitivity, exposure and vulnerability are derived using the best available scientific information and informed scientific interpretation and judgement. The process uses sufficiently coarse categorisation to minimise uncertainty in information, reflecting the current state of our knowledge and understanding of the marine environment.

For further information on the format and structure of this advice refer to chapter 6 of the Regulation 33 advice package for the Duddon Estuary European marine site.

4.2 Summary of advice on operations

The text contained within this section is taken directly from but does not replace chapter 6 of the Regulation 33 advice package for the Duddon Estuary European marine site, and chapter 7 of the Regulation 33 advice package for Morecambe Bay European marine site.



4.3 SPA interest features

4.3.1 Internationally important populations of regularly occurring Annex 1 species

In pursuit of the conservation objective for the “habitats supporting internationally important populations of regularly occurring Annex 1 species”, the relevant and competent authorities for the Duddon Estuary European marine site are advised to manage their remit such that they do not result on deterioration of the habitat of species, or significant disturbance to habitats or species for which the site has been selected, through any of the following:

- Physical loss resulting from removal of habitats
- Toxic contamination caused by the introduction of synthetic compounds
- Toxic contamination caused by the introduction of non-synthetic compounds
- Non-toxic contamination caused by changes in nutrient loading
- Biological disturbance resulting from the introduction of microbial pathogens
- Biological disturbance resulting from selective extraction of species
- Non-toxic contamination caused by changes in organic loading

4.3.2 An international assemblage of waterfowl, including internationally important populations of regularly occurring migratory species

In pursuit of the conservation objective for the “habitats supporting an international assemblage of waterfowl, including internationally important populations of regularly occurring migratory species”, the relevant and competent authorities for the Duddon Estuary European marine site are advised to manage their remit such that they do not result on deterioration of the habitat of species, or significant disturbance to habitats or species for which the site has been selected, through any of the following:

- Physical loss resulting from removal of habitats
- Physical damage resulting from abrasion of habitats
- Non-physical noise disturbance
- Non-physical visual disturbance
- Toxic contamination caused by the introduction of synthetic compounds
- Toxic contamination caused by the introduction of non-synthetic compounds
- Non-toxic contamination caused by changes in nutrient loading
- Non-toxic contamination caused by changes in organic loading
- Biological disturbance resulting from the introduction of microbial pathogens
- Biological disturbance resulting from the selective extraction of species

4.4 cSAC interest features

4.4.1 Large shallow inlets and bays

In pursuit of the conservation objective for the large shallow inlets and bays, the relevant and competent authorities for the Duddon Estuary European marine site are advised to manage human activities within their remit such that they do not result in deterioration or disturbance to habitats or species, for which the site has been selected, through any of the following:

- Removal and/or smothering of embayment habitats
- Physical damage resulting from siltation, abrasion and/or selective extraction
- Increased synthetic, non-synthetic toxic and/or radionuclide contamination
- Nutrient and/or organic enrichment
- Increases in turbidity
- Biological disturbance through the introduction of microbial pathogens, introduction of non-native species and/or selective extraction of species for which the site has been selected or which form important food sources for such species

4.4.2 Intertidal mudflats and sandflats

In pursuit of the conservation objective for the intertidal mudflats and sandflats, the relevant and competent authorities for the Duddon Estuary European marine site are advised to manage human activities within their remit such that they do not result in deterioration or disturbance to habitats or species, for which the site has been selected, through any of the following:

- Removal and/or smothering of intertidal mudflats and sandflats
- Physical damage resulting from siltation and /or abrasion and/or selective extraction
- Increased synthetic, non-synthetic toxic and/or radionuclide contamination
- Nutrient and/or organic enrichment
- Increases in turbidity
- Biological disturbance through the introduction of non-native species, microbial pathogens and/or selective extraction of species for which the site has been selected or which form important food sources for such species.

4.4.3 Pioneer saltmarsh

In pursuit of the conservation objective for the pioneer saltmarsh, the relevant and competent authorities for the Duddon Estuary European marine site are advised to manage human activities within their remit such that they do not result in deterioration or disturbance to habitats or species, for which the site has been selected, through any of the following:

- Removal of pioneer saltmarsh habitats
- Physical damage resulting from abrasion
- Increased synthetic and/or non-synthetic toxic contamination and/or radionuclides
- Translocation of species

4.4.4 Saltmarsh

In pursuit of the conservation objective for the saltmarsh, the relevant and competent authorities for the Duddon Estuary European marine site are advised to manage human activities within their remit such that they do not result in deterioration or disturbance to habitats or species, for which the site has been selected, through any of the following:

- Removal of saltmarsh habitats
- Physical damage resulting from abrasion and/or selective extraction
- Increased synthetic and/or non-synthetic toxic contamination and/or radionuclides
- Translocation of species

Table 2 Activities and operations which may require management to safeguard the European marine site Interest Features

Based on Table 3 of Regulation 33 package for Duddon Estuary and Morecambe Bay European marine sites.

Operations marked with a ✓ indicate those features that are considered to be highly or moderately vulnerable to the effects of the operation

Activity	Categories of possible damage or deterioration	SPA Features		cSAC Features			
		Internationally important populations of regularly occurring Annex1 species	Internationally important assemblage of waterfowl including internationally important populations of regularly occurring migratory bird species	Large shallow inlets and bays	Intertidal mudflats and sandflats	Pioneer saltmarsh	Saltmarsh
Coastal development							
Coastal defence	Removal	✓	✓	✓	✓	✓	✓
Flood defence	Removal	✓	✓	✓	✓	✓	✓
Maintenance of coastal and flooding defence works, WWTW etc.	Removal	✓	✓	✓	✓	✓	✓
	Abrasion		✓	✓	✓	✓	✓
	Noise and visual disturbance		✓				
Building/ construction work on shore	Removal	✓	✓	✓	✓	✓	✓
	Abrasion		✓	✓	✓	✓	✓
	Noise and visual disturbance		✓				

Activity	Categories of possible damage or deterioration	SPA Features		cSAC Features			
		Internationally important populations of regularly occurring Annex1 species	Internationally important assemblage of waterfowl including internationally important populations of regularly occurring migratory bird species	Large shallow inlets and bays	Intertidal mudflats and sandflats	Pioneer saltmarsh	Saltmarsh
Off shore construction (e.g. wind farms)	Removal	✓	✓	✓	✓	✓	✓
	Introduction of synthetic compounds	✓	✓	✓	✓	✓	✓
	Introduction of non-synthetic compounds	✓	✓	✓	✓	✓	✓
	Noise and visual disturbance	✓	✓				
Mineral extraction							
Oil and gas exploration	Introduction of synthetic compounds	✓	✓	✓	✓	✓	✓
	Introduction of non-synthetic compounds	✓	✓	✓	✓	✓	✓
	Removal	✓	✓	✓	✓	✓	✓
Water Quality							
Agricultural run off (diffuse pollution)	Changes in nutrient loading	✓	✓	✓	✓		
	Changes in organic loading	✓	✓	✓	✓		
Agricultural pollution (acute)	Changes in nutrient loading	✓	✓	✓	✓		
	Changes in organic loading	✓	✓	✓	✓		
	Introduction of synthetic compounds	✓	✓	✓	✓	✓	✓

Activity	Categories of possible damage or deterioration	SPA Features		cSAC Features			
		Internationally important populations of regularly occurring Annex1 species	Internationally important assemblage of waterfowl including internationally important populations of regularly occurring migratory bird species	Large shallow inlets and bays	Intertidal mudflats and sandflats	Pioneer saltmarsh	Saltmarsh
	Introduction of non-synthetic compounds	✓	✓	✓	✓	✓	✓
Agricultural pollution (incident)	Changes in nutrient loading	✓	✓	✓	✓		
	Changes in organic loading	✓	✓	✓	✓		
	Introduction of synthetic compounds	✓	✓	✓	✓	✓	✓
	Introduction of non-synthetic compounds	✓	✓	✓	✓	✓	✓
Discharge of sewage effluent	Changes in nutrient loading	✓	✓	✓	✓		
	Changes in organic loading	✓	✓	✓	✓		
	Introduction of microbial pathogens	✓	✓	✓	✓		
Discharge of industrial effluent	Introduction of synthetic compounds	✓	✓	✓	✓	✓	✓
	Introduction of non-synthetic compounds	✓	✓	✓	✓	✓	✓
Contaminated land	Introduction of synthetic compounds	✓	✓	✓	✓	✓	✓
	Introduction of non-synthetic compounds	✓	✓	✓	✓	✓	✓

Activity	Categories of possible damage or deterioration	SPA Features		cSAC Features			
		Internationally important populations of regularly occurring Annex1 species	Internationally important assemblage of waterfowl including internationally important populations of regularly occurring migratory bird species	Large shallow inlets and bays	Intertidal mudflats and sandflats	Pioneer saltmarsh	Saltmarsh
Shipping and Navigation							
Maintenance dredging	Smothering			✓	✓		
	Introduction of synthetic compounds	✓	✓	✓	✓	✓	✓
	Introduction of non-synthetic compounds	✓	✓	✓	✓	✓	✓
	Noise and visual disturbance		✓				
Vessel launching	Introduction of synthetic compounds	✓	✓	✓	✓	✓	✓
Inshore fisheries							
Shore and boat based angling	Noise and visual disturbance		✓				
Drift netting	Noise and visual disturbance		✓				
Mussel gathering	Noise and visual disturbance		✓				
	Selective extraction		✓	✓	✓		
Recreation							
Land based (including Intertidal) 4WD access	Abrasion		✓	✓	✓	✓	✓
	Noise and visual disturbance		✓				

Activity	Categories of possible damage or deterioration	SPA Features		cSAC Features			
		Internationally important populations of regularly occurring Annex1 species	Internationally important assemblage of waterfowl including internationally important populations of regularly occurring migratory bird species	Large shallow inlets and bays	Intertidal mudflats and sandflats	Pioneer saltmarsh	Saltmarsh
Dog walking	Noise and visual disturbance		✓				
Bird watching	Noise and visual disturbance		✓				
Water based recreation	Noise and visual disturbance		✓				
	Abrasion of habitats		✓	✓	✓	✓	✓
Wildfowling	Noise and visual disturbance		✓				
Angling	Noise and visual disturbance						
	Selective extraction of species	✓	✓				
Low flying aircraft	Noise and visual disturbance		✓				
Other							
Grazing saltmarsh	Removal		✓	✓		✓	✓
	Abrasion		✓				
Bait Digging	Removal		✓	✓	✓	✓	✓
	Abrasion		✓	✓	✓	✓	
	Noise and/or visual disturbance		✓				

5. Managing Activities

Many of the processes or projects, either current or planned, within the European marine site are subject to gaining the consents or permission of a competent authority before they can proceed or continue. The Habitats Regulations state that where such consents are given with the potential to have a significant effect upon a European site, full consideration must be given to the provisions of the Habitats Directive.

This document deals mainly with on-going activities on the Duddon Estuary European marine site.

5.1 Determination of significant effect.

The advice given in this section is not a complete guide to the assessment procedure. Further advice should be sought as appropriate.

Competent authorities are encouraged to consult English Nature and to take account as to whether completion of a project with consent would be likely to have a significant effect on the European Site and/or whether it would be directly connected with or necessary to the management of the site. Development issues will generally be resolved on a case by case basis and many of the relevant authorities and other interested organisations will be consulted as part of the normal planning procedures or as part of a statutory consultation except where the proposal lies outside local planning authority jurisdiction. The first step in this process should be the test for judging whether a proposal will have a likely significant effect under the Habitats Regulations. This test should be based upon the following principles:

- The competent authority must carry out the test of likely significant effect.
- The test of likely significant effect is independent of and should occur prior to the “appropriate assessment” process if an appropriate assessment is required.
- Consideration of likely significant effect has practical and legal ramifications and must be based upon sound judgement and bear scientific or expert scrutiny.
- Judgements must only be made in relation to the interest features for which the site was designated or associated conservation objectives.
- Proposals deemed to have no “significant effect” may proceed immediately but reasons for this conclusion must be recorded.
- If a clear judgement cannot be reached using the all readily available information, or when the results are inconclusive, then an appropriate assessment must be carried out.

5.2 Appropriate Assessment

The purpose of regulation 48 of the Habitats Regulations is to ensure that the integrity of a European Site is not adversely affected by a plan or project. Plans or projects are considered in terms of likely significance either alone or in combination with other plans or projects. Thus an appropriate assessment is carried out when a plan or project;

- alone is likely to have a significant effect;
- alone is not likely to have a significant effect but in combination with other plans or projects is likely to have a significant effect;
- the proposal is not directly connected to the management of the site for nature conservation;
- an appropriate assessment will be required.

The process for carrying out the appropriate assessment is not specified in the Habitats Regulations, but should assess in a scientifically robust manner the potential impact of the proposal on the features for which the site was selected as being of European importance.

The key steps to be taken by a competent authority with regard to “appropriate assessment” are as follows¹:

1. English Nature must be consulted to contribute to identifying any adverse impacts on the integrity of the site (Reg 48(3)). The competent authority must have regard to any comments made by English Nature.
2. The general public may be consulted – if considered necessary
3. The applicant must provide any information that might reasonably be required, to allow assessment of the application.
4. The potential effects of the proposal on the habitats and species of international importance should be clearly identified and how those effects are likely to affect the sites conservation objectives.
5. It must be decided whether the plan or project, as proposed, would adversely affect the integrity of the site in the light of the conservation objectives.
6. The competent authority should consider the manner in which the plan or project is proposed to be carried out, and determine whether it could be modified, or whether conditions or restrictions could be imposed, so as to avoid adverse effects upon the integrity of the site.
7. The competent authority must decide whether the proposal, as modified by conditions or restrictions, would adversely affect the integrity of the site.

The competent authority should record the assessment and notify English Nature of the conclusion.

¹ Based upon English Nature’s Habitats Regulations guidance note 1, 1997

5.3 Explanation of the management options – the ‘F list’

Factors are natural processes and human activities that have the potential to adversely affect features of European marine sites. The following table identifies the types of response to any factor, appropriate to different circumstances. Reference should also be made to section 6.7 of this document for an explanation of the F6 plans and projects option.

Table 3 Explanation of the management options – the ‘F list’

	Judgement	Management option
F1	Factor is a natural process	Surveillance
F2	There is no known mechanism for the activity to affect the feature, and no evidence that it is having an effect.	Not considered further
F3	There is a known mechanism for the activity to have an effect, but insufficient information to suggest that it is having a significant effect at present.	Obtain further information on activity and / or site condition
F4	There is evidence of a significant effect but the activity and/or mechanism is unknown.	Investigative studies / trial management including operational limits
F5	There is evidence to suggest that an activity is having or could have a significant effect and the mechanism is known.	Implement management measures (voluntary or statutory), with operational limits as appropriate.
F6	The activity constitutes a plan or project.	Apply Habitats Regulations Maintain audit trail on decisions.

Management Actions

Table 4 (following pages) identifies the management actions which are required to be undertaken by relevant authorities (and where relevant other parties) in order to achieve favourable condition. Column 8 specifies the timescales for each identified action. The timescales begin with the launch of the first version of the finalised management plan and are subdivided as follows:

Short term Up to 2 years
Medium term up to 5 years
Long term up to 10 years
Ongoing will require constant action

Duddon Estuary European marine site Management Scheme

Table 4 Management Actions Table

KEY: -
Timescale

RA = Relevant Authority
O = Ongoing

(**bold = Lead Authority**)
S = Short term

Man. Opt = Management Option
M = Medium term L = Long term

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
Coastal Development								
1. Coastal/flood defence	Localised areas throughout EMS, please refer to map (Figure 2)	Shoreline Management Plan (SMP) Planning Policy Guidance No. 20	Removal of estuarine and coastal habitats and species. Changes in sedimentation process, which can exacerbate habitat loss. Loss of bird feeding and roosting areas.	1.1	Ensure compliance with current Shoreline Management Plan (SMP), to be reviewed in 2005/6	LA	O	F5
				1.2	Review SMP to consider EMS interest features (review due in 2005/6)	LA EN, EA	S /M	F3
				1.3	Monitor changes in coastal processes (as part of SMP). Review through Review of Consents (RoC) process.	LA EN, EA	O	F3
				1.4	Review existing maintenance programmes for flood/coastal defence to take account of EMS interest features (to commence 2002, In conjunction with action 2.1).	EA, LA	S	F5
2. Maintenance of coastal and flooding defence works, WWTW etc.	Localised areas throughout EMS, please refer to map (Figure 2)	Maintenance work requires appropriate assessment Routine maintenance reviewed internally (LA/EA/UU) Requirement to comply with Regulation 48 of the Habitats Regulations. ²	Removal and/or Abrasion to habitats and species may occur depending on scale of work and equipment used. Maintenance work can cause noise and/ or visual disturbance to roosting and feeding birds	2.1	Review procedures/programme for routine maintenance of structures, in conjunction with action 1.4.	EA, LA, UU	S	F6
				2.2	Ensure that all coastal protection and flood defence works comply with the Habitats Regulations.	EA, LA	O	F6

² and all other permissions or authorisations that may be required.

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
3. Building/construction work on shore	Landward limits of EMS	Planning Legislation	May result in Removal and/or abrasion to feeding and/ or roosting habitats within or adjacent to EMS	3.1	Ensure European marine site (and other conservation designations) are covered sufficiently within Local Plans, and within CCC's Cumbria Coastal Statement– to be included in ongoing reviews if not already covered in plans.	LA CCC	S/ O	F5 / F6
		Development plans County & District Council Structure and Local Plans Requirement to comply with Regulation 48 of the Habitats Regulations. ²	Noise and visual disturbance to birds may result during and after construction.	3.2	Ensure that all coastal protection, harbour development and flood defence works comply with the Habitats Regulations.	LA	O	
4. Off-shore Construction (i.e. wind farms)	Unconfirmed	Crown Estate permission required for use of the sea bed Requirement to comply with Regulation 48 of the Habitat Regulations ²	Seabed anchoring, unknown impacts upon sediment processes and wave regime, which may result in removal by erosion. Risk of the introduction of synthetic and non-synthetic compounds from chemical/oil spills leading to damage to birds and habitats. Potential noise and visual disturbance and disruption of bird migration routes and feeding terns.	4.1	Ensure that new and extant developments which may potentially impact upon the site are subject to appropriate assessments and environmental assessments.	DTI Crown Estate	O	F6
Mineral Extraction								

² and all other permissions or authorisations that may be required.

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
5. Oil and gas exploration	Proposed	Permits and licenses for oil exploration are issued by DTI. Should likely significant effect be determined, the proposed license will be subject to an appropriate assessment.	Risk of the introduction of synthetic and non-synthetic compounds from chemical /oil spills leading to damage to birds and habitats.	5.1	The issuing of further licenses will be subject to the Habitat Regulations and an audit trail will be managed accordingly.	DTI EN	O	F6
		Environmental Impact Assessment	Sea bed anchoring, unknown impacts upon sediment processes and wave regime, but may result in removal by erosion.	5.2	Ensure that oil spill contingency plans are in place and up to date. (Please see activity code 13.1 for a detailed breakdown on relevant authority responsibilities)	ABP MCA CCC LA EA	S	F3/ F5
		OPRC. Oil Spill Response Plans. National Contingency Plan.		5.3	Test and review suitability/effectiveness of oil spill contingency plans	CCC	S/O	F3/ F5

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
Water Quality								
6. Agricultural run- off (diffuse pollution)	Throughout the EMS	Education / talks given to farming groups encouraging environmentally sustainable farming practices	An increase in nutrient and/or organic loading to the system could result in accelerated growth of ephemeral algae, which could lead to a change in habitat and species composition. Die back of algae can lead to impacts on dissolved oxygen within the system. Can lead to greater species abundance of infauna but is an artificial situation.	6.1	Identify contributions of diffuse agricultural pollution to the EMS as part of DEFRA’s strategic review of diffuse water pollution from agriculture, launched June 2002.	DEFRA EA	S/M	F3
		Farmers encouraged to have a waste management plan and to follow codes of good practice		6.2	Develop & implement a programme to reduce diffuse inputs to the European marine site through the Water Framework Directive.	DEFRA, EA (partners include: FBAS, EN, NFU, FWAG) DEFRA	S/M	F4
		Routine biological and chemical monitoring of the major rivers entering the EMS (EA)		6.3			O	F3
		Countryside Stewardship Scheme/ Wildlife Enhancement Scheme (RDS/EN)		6.4	Promote Countryside Stewardship Scheme.	DEFRA, EA	S/M	F3
		Designate Nitrate Vulnerable Zones.		6.5	Promote environmentally sustainable farming practices. Maintain existing control measures including routine chemical and biological monitoring.	EA	O	F5

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
7. Agricultural pollution (acute)	Throughout the EMS	Control of Pollution (silage, slurry and agricultural fuel oils) Regulations 1991	The discharge of synthetic or non synthetic compounds in the form of silage liquor, sheep dip or slurry into a freshwater system draining into the site could cause impacts and damage to the invertebrate fauna and fish stocks in the estuary (if in sufficient quantity) An increase in nutrient and/or organic loading into the system could result in accelerated growth of ephemeral algae, which could lead to a change in habitat and species composition.	7.1	Develop & implement a strategy for reducing inputs to the European marine site through the Water Framework Directive.	DEFRA EA (partners include: FBAS, EN, NFU, FWAG)	S	F4
		Ground Water Regulations 1998		7.2	Promote environmentally sustainable farming practices.	DEFRA, EA (partners include: FBAS, EN, NFU, FWAG)	S/M	
		Codes of good agricultural practice (EA)		7.3	Promote this aspect/issue with the Countryside Stewardship Scheme.	DEFRA EA (partners include: FBAS, EN, NFU, FWAG)	O	
		EA discharge consents are currently being reviewed under Review of Consents (Regulation 50 Habitats Regulations)		7.4	Carryout Groundwater Regulations authorisation visits.	EA	O	
8. Agricultural pollution (incident)	Throughout the EMS	Education / talks given to farming groups. Encourage environmentally sustainable farming practices.	As above. Dependant on the size, type and location of spill	8.1	As above (see actions specified under activities 6 & 7).	DEFRA EA (partners include: FBAS, EN, NFU, FWAG)	S/M	F3 / F4
	One-off incidents	Powers to examine incidents (EA)						

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
9. Discharge of sewage effluent	Localised areas throughout EMS, please refer to map (Figure 2)	Review of Consents process under Reg 50 of Habitat Regulation.	An increase in nutrient and/or organic loading to the system could result in accelerated growth of ephemeral algae, which could lead to a change in habitat and species composition. Die back of algae can lead to impacts on dissolved oxygen within the system. Can lead to greater species abundance of infauna but is an artificial situation	9.1	Current research being undertaken by CCW, EN & EA to study the relationship between birds and organic nutrient levels, the overall effects on the ecosystem and thereby the effects of the improvement programme under the UWWT and BW Directives (being done at a national level).	EN, EA, CCW	S/M	F3
		Ongoing process of improvement to existing and new wastewater treatment works under UWWTD and BWD. Due to be complete December 2005		9.2	Comply with discharge consents including Review of Consents			
		Maintain effluent standards (UU)		9.3	Maintain existing control measures and improve standards by consent review where appropriate.			
		Control of industrial discharges to sewer (UU)		9.4	Deliver agreed programme (AMP3/4) to improve effluent standards and reduce the number of storm sewage overflows and frequency of their operation.			
		Water Resources Act 1991 consents	Those effects stated under 10. Direct discharges of industrial effluent (see below) also apply here.					

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
10. Direct Discharge of industrial effluent	Localised areas throughout EMS, please refer to map (Figure 2)	Pollution Prevention and Control Regulations (2000) Review of Consents process (EA) Maintain operating and effluent standards.	Heavy metals and other synthetic and non-synthetic compounds can accumulate in sediments and settle into the estuarine system through the process of flocculation. Heavy metals tend to be more soluble in a marine environment and are therefore more readily available for uptake by plants and animals. Build-up of contaminants in the food chain may have consequences on the general health and physiology of birds and their prey	10.1	Continue to improve the quality of effluent discharging where appropriate e.g. Secondary treatment at Kimberly-Clark - improvements agreed with the company (effluent standards in line with UU upgrades).	EA	O	F3 / F5
				10.2	Discharge standards to be maintained. Environment Agency to review all consents under the Habitats Regulations. Subject to outcome of the review current, procedures to continue.	EA	O	F5
				10.3	Ensure future improvements are in line with IPPC implementation schedule	EA	O	F5
11. Contaminated land	Localised areas throughout EMS, please refer to map (Figure 2) – note that some old sites are currently unknown)	Environmental Protection Act (1990) Part IIa Active and recently completed sites are managed and monitored (LA, EA)	Heavy metals and other synthetic and non-synthetic compounds can accumulate in sediments and settle into the estuarine system through the process of flocculation. Heavy metals tend to be more soluble in a marine environment and are therefore more readily available for uptake by plants and animals. Build-up of contaminants in the food chain may have consequences on the general health and physiology of birds and their prey	11.1	Compile a base-line site register of contaminated land; identify those sites contaminating or at a risk of contaminating the estuary. Review of Consents (RoC) will determine data available.	LA, EA	S/M	F3
				11.2	Authorities to assist District Councils in consultation process under EPA Part IIa	LA, CCC	S/M	F3

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
Shipping and Navigation								
12. Maintenance Dredging	Barrow Dock Museum	Compliance with Regulation 48 of the Habitat Regulations ²	Possible smothering of mussel beds and sand and mud flats following disposal of dredge spoil.	12.1	Ensure maintenance dredging does not prevent the conservation interests achieving favourable condition by adhering to good practice guidelines for maintenance operations.	ABP	S/M	F6
	Infrequent	License required under FEPA for disposal at sea.	Possible release of synthetic and non-synthetic contaminants into estuarine waters from disturbed sediment. Likely noise and visual disturbance to birds during dredging operation	12.2	Gain greater understanding of the impacts of dredging by maintaining a Watching Brief (monitor dredging & associated disposal activities and cross reference with site condition monitoring to study the impact of the activities). Ensure that if dredging activity threatens features appropriate action is taken.	ABP	S/M	F3
				12.3	DEFRA to review existing consents under Regulation 50 of the Habitats Regulations.	DEFRA	O	F6
13. Oil Spills and Chemical Contamination	Throughout the EMS	HA and LA for small inshore oil spills. HA and CCC for moderate spills. HA, CCC and MCA for larger and offshore incidents. EA may attend. OPRC. Oil Spill Response Plans. National Contingency Plan.	Oil damage to habitats and species from smothering and toxic contamination. Can be significant to birds through the toxic effects of oiling	13.1	Ensure that oil spill contingency plans are in place and up to date. (Please see adjacent entry in column 3 for a detailed breakdown on relevant authority responsibilities)	LA CCC ABP MCA EA	S/O	F3/ F5

² and all other permissions or authorisations that may be required.

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
Inshore Fisheries								
14. Drift Netting	Deepest part of EMS at high water Occasional netting, around Duddon Bar in CSFC’s area. All other areas are under the jurisdiction of the NW&NWSF C	Permits required for all drift netting between 1 st May and 30 th November e.g. not just commercial fishing.	Noise and Visual disturbance to feeding, roosting and nesting birds.	14.1	Identify scale/location of drift netting within or adjacent to EMS.	CSFC, NW& NWSFC	S/M	F3
				14.2	Monitor the effects of drift netting to ascertain whether or not this is an issue.	CSFC, NW& NWSFC	M	F3
15. Mussel gathering by hand	Walney channel, other isolated areas No gathering takes place in CSFC’s area of jurisdiction	Managed under Sea Fisheries Acts / Byelaws	Collection at low tide may result in noise and visual disturbance to bird species. Selective extraction of excessive quantities of mussels can have negative effects both on the species composition of intertidal boulder and cobble skears and food availability of bird species	15.1	Identify scale and location of mussel gathering within or adjacent to EMS and assess any correlation with bird disturbance.	NW& NWSFC	S/M	F3
				15.2	Using tested modelling techniques currently being researched by EN, CEH & NW & NWSFC investigate the effects of excessive mussel removal on dependant bird species.	EN, NW& NWSFC	M	F3

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
Recreation								
16. Water based recreation	Occurs throughout the site. Particularly in Walney Channel and vicinity of car parks and access points	Mostly unregulated HA in harbour areas – Powers of Direction and other Byelaws. Anchorages – areas specially allocated by the HA . Moorings – some areas are designated and controlled by ABP , others by Private Landowners.	Abrasion to habitats i.e. boulder and cobble skears, saltmarsh and mud and sand flats by landing, anchoring of craft Vehicular/craft access often conflicts with bird roosting and feeding areas. Can result in noise and visual disturbance to nesting, feeding and roosting birds.	16.1	Assess scale of water based recreation/ boat moorings and implications for damage to features and sub-features and address identified problems. Utilise the outputs from general recreational survey 26.1.	LA, ABP EN	S/M	F3
				16.2	Identify and assess any physical damage attributed to water-based recreation during routine monitoring of the site and from the output of recreational survey 26.1. If damage discovered or suspected then action 16.5 undertaken.	EN	S	F3
				16.3	DEP to develop and promote a “seashore code” through liaison with the local authorities, which aims to reduce the risk of noise/ visual disturbance.	EN, DEP , RSPB, NT LA, CCC	S	F3
				16.4	Increase interpretation of EMS features with Duddon Estuary Partnership	EN, DEP , RSPB, NT LA, CCC	S/M	F3
				16.5	If identified as a future requirement by recreational survey 26.1, develop a zoning policy for water-based recreation, to reduce disturbance in key waterfowl feeding and roosting areas.	LA , ABP	M	F3

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
17. Oil Spills and Chemical Contamination from Recreational Craft	Throughout the EMS	HA and LA for small inshore oil spills. HA and CCC for moderate spills. HA, CCC and MCA for larger and offshore incidents. EA may attend. OPRC. Oil Spill Response Plans. National Contingency Plan.	Oil damage to habitats and species from smothering and toxic contamination. Can be significant to birds through the toxic effects of oiling	17.1	Ensure that oil spill contingency plans are in place and up to date. (Please see adjacent entry in column 3 for a detailed breakdown on relevant authority responsibilities)	LA, CCC, ABP, MCA, EA	S/O	F3/ F5
18. Low flying aircraft	From North Walney Airfield	None	Aircraft taking off/landing from North Walney may cause noise and /or visual disturbance	18.1	Assess scale of disturbance from aircraft through wider recreational survey 26.1 and dialogue with the flying clubs and CAA.	EN, CAA	S/M	F3
19. Wildfowling	Around estuary	Consents required from EN. Permission required from landowners. BASC and local club guidelines.	Removal of bird species and noise and/or visual disturbance.	19.1	Assess scale and impact of wildfowling upon conservation interests.	EN	S/M	F3/ F5
		Consents to be reviewed under RoC process		19.2	Wildfowling to be reviewed where appropriate through English Nature's Review of Consents.	EN	O	F6
20. Recreational angling	Around estuary	Managed under Sea Fisheries Acts / Byelaws. Local club rules Voluntary Sea Angler's Code (DEP)	Noise and/or visual disturbance to feeding nesting or roosting bird species	20.1	Assess scale and impact of angling upon conservation interests by looking at fishing effort and site condition.	EN/DEP	S/M	F3

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
21. Dog walking	Throughout EMS	Information signs are in place at “hotspots”. A number of Public Rights of Way (administered by the Cumbria County Council) cross the Duddon Estuary. At this stage the assumption is that these do not offer a threat to the special interest of the site.	Uncontrolled dogs can cause noise and/or visual disturbance to feeding, roosting or nesting bird species. Regular disturbance may force birds to change sites within the EMS or disperse to alternative locations.	21.1	Increase awareness and voluntary control through the provision of notice boards / leaflets publicising the dangers of disturbance to wildlife by dogs. Targeted approach dependant on the outcomes of recreational survey 26.1	LA DEP, NT CCC	M	F5
				21.2	DEP to develop and promote a “seashore code” through liaison with the local authorities, which aims to reduce the risk of noise/ visual disturbance.		S	
				21.3	Assess scale and impact of dog walking activity - to be undertaken as part of wider recreational survey 26.1		S/M	
22. Bird watching	Throughout EMS	Nature reserve guidance where applicable	Noise and/or visual disturbance to nesting roosting or feeding birds by birdwatchers (depending on numbers)	22.1	Increase interpretation of EMS features with Duddon Estuary Partnership	LA, DEP EN	S/M	F3
				22.2	DEP to develop and promote a “seashore code” through liaison with the local authorities, which aims to reduce the risk of noise/ visual disturbance.		S	
				22.3	Assess scale and impact of bird watching - to be undertaken as part of wider recreational survey 26.1		S/M	

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
23. Land based (including Intertidal) 4WD recreation	Throughout the site	Unregulated If unregulated 4WD usage is identified as being at a level causing detriment to the interest features of the site, it may be possible to use a Traffic Regulation Order to restrict use of the existing BOAT (Byway Open to All Traffic) along the Askham shore.	Abrasion to intertidal habitats as a result of vehicular access. Can damage habitats and reduce suitability of sites for nesting roosting and feeding birds Noise and/or visual disturbance to birds. Continued disturbance may force birds to change sites within the EMS or disperse to alternative locations	23.1	EN condition monitoring and recreational survey 26.1 to quantify effects. If effects identified then further assessment of scale of vehicular access and impacts to habitats and implications for conservation interests to be made through a study of site/habitat usage (including unauthorised access).	EN, LA, CCC	S	F3
				23.2	DEP to develop and promote a “seashore code” through liaison with the local authorities, which aims to reduce the risk of noise/ visual disturbance.	DEP, LA, EN,	S	F3
				23.3	Increase interpretation of EMS features with Duddon Estuary Partnership	DEP, LA EN, CCC	S/M	F3
				23.4	Review Highway Authorities maintenance programme (including district councils input to access points and car parks).	CCC LA’s	M	F3
Others								
24. Saltmarsh grazing	Most saltmarsh area	EN Consents (to be reviewed under RoC process)	Appropriate grazing regimes required for roosting and feeding birds	24.1	Promote Countryside Stewardship Scheme	DEFRA, EN	O	F6
		SSSI management agreements	Poaching of saltmarsh creeks by livestock can lead to abrasion and removal of habitat. Overgrazing leads to reduction in floristic diversity. Loss of saltmarsh habitat can result in a reduction of bird feeding and roosting habitat	24.2	EN to pursue mechanisms needed to achieve appropriate grazing management on marshes by promoting and encouraging uptake of Wildlife Enhancement Schemes.	EN	O	F6
				24.3	Liaison with farmers undertaking saltmarsh grazing.	EN, DEFRA	S	F6

Activity	Location	Existing Management (Agency responsible)	Nature of possible effect on interest feature	Management Actions		RA/ Others	Time scale	Man. Opt
				No.	Action			
25. Bait Digging	On the foreshore, particularly around the southerly area of the Estuary.	Voluntary Sea Anglers Code (DEP) Worms – Any person can gather a small number for their own use, but it is illegal to gather worms for commercial purposes without the landowners’ permission. Shore Crabs – No fisheries regulations currently apply to shore crab fishing. Shore crabs are sea fish, and can be gathered for private or commercial use from the shore by any person. Do not require the permission of the landowner.	Abrasion and/or removal of habitats when accessing foreshore with 4WD vehicles. Damage to sediment structure and infauna (depending on scale of operation). Possible noise and/or visual disturbance to feeding birds when accessing/ digging for bait	25.1	Assess extent of bait-digging in EMS	EN, DEP	S/O	F3
				25.2	Identify management measures if the nature and scale of the activity is likely to become significantly damaging.	EN, DEP	M	F3 / F5
Additional Actions								
26. Overview of Recreational activities	Occurs throughout the site.	Mostly unregulated Some local club rules and voluntary codes are followed	Noise and/or visual disturbance to feeding nesting or roosting bird species Repeated disturbance may force birds to change sites within the EMS or disperse to alternative locations	26.1	Conduct an investigation into the scale and impacts of all the types of recreational activity that take place in and around the Duddon Estuary.	EN	S/M	F3
				26.2	Should the recreational survey 26.1 identify it as necessary, investigate the trial application of voluntary codes / restrictions. Assess success before introducing by-laws.	LA DEP	M	F3 / F5

6 Relevant Authority Action plan for the European marine site

6.1 Introduction

This section sets out the programme of actions to be undertaken by the relevant authorities to ensure that the site is maintained in or restored to favourable condition as required by the conservation objectives.

6.2 Actions arising from the review of existing management

For clarity of interpretation the management actions identified by relevant authorities and set out in Table 4 have been incorporated into a detailed and timetabled action plan for each relevant authority in Table 5. It should be noted that within the action plan, where objectives are to “Ensure” the undertaking of the action lies with the identified Relevant Authority.

6.3 Monitoring programme

Two types of monitoring need to be undertaken on the Duddon Estuary European marine site

1. Condition monitoring of the interest features and their sub-features

This is primarily the responsibility of English Nature. It will be undertaken against the conservation objectives and supporting favourable condition table as set out in the Regulation 33 advice. Where other relevant authorities already, or are able to, undertake work which can contribute to condition monitoring, English Nature will seek to build this into the condition monitoring programme for the site.

2. Compliance monitoring of management measures

The action plan identifies existing measures and new management measures which need to be put in place to ensure that the European marine site is maintained in or restored to favourable condition. The relevant authorities will set out against each of these points the mechanisms by which they will ensure that the measures are put in place and are effective.

6.4 Management group & advisory group

It is intended that the above management structures (e.g. the management and advisory groups) be maintained. It is anticipated that the management group will meet at least annually to ensure that expeditious progress is made with implementing the action plan. It is important that activities and effects outside the site be kept under review. Links with the Morecambe Bay Partnership will be particularly important in this respect.

6.5 Review of the action plan

To ensure management measures are sufficient to maintain or restore favourable condition of the interest features and the actions are implemented, regular reporting on progress of

the action plan is required. To do this it is intended that the management group will review the action plan annually. The monitoring of implementation of the action plan and completion of timetabled actions will be achieved via a review form, completed by a representative of each relevant authority, on an annual basis. The reviews will give details of achievements against the action plan targets and information to facilitate the production of an annual report. The annual report will provide a platform from which new issues can be raised and addressed in the following year. Information on any new activities provided by relevant authorities will be used to direct the condition monitoring programme to focus on features likely to be affected by the activities. This input will help identify the need for new measures to maintain or restore favourable condition to the site's interest features.

6.6 Review of the management scheme

The European Union requires Member States to report every six years on the condition of designated habitats and species. It is intended that the management scheme will be fully reviewed at least once during the European Union six year reporting cycle. The first review date will be by 2008. This review will accommodate changes to:

- English Nature's Regulation 33 advice.
- The activities taking place across the site.
- Legal obligations by relevant authorities.

The review will require relevant authorities and advisory groups to assess the effectiveness, suggest further developments of management measures listed in the management scheme and action plan whilst taking account of the results of the condition monitoring programme.

Future review of the Regulation 33 advice will take into account information on changes in activities and patterns of usage of the site, and also improvements in scientific knowledge on the sensitivity of interest features.

6.7 Plans and projects

Activities, which form plans or projects, as defined in the Habitats Regulations, are noted as management option F6. These include activities that require planning permission or other forms of consent, and are included in this management scheme in order to put the activities into context, and to identify the related issues. The Habitats Regulations and Planning Policy Guidance No.9 on Nature Conservation set out clearly the procedures under which plans and projects should be considered. Although such proposals will not be addressed by the management scheme, the conservation objectives and the management scheme will inform consideration of proposed plans and projects.

Activities that do not fall within the plans and projects option are taken further within this management scheme, and the management actions to do this are shown in Table 5.

Table 5 Relevant Authority Action Plan

Bold action numbers indicates where the relevant authority is leading.
Timescale O = Ongoing S = Short term M = Medium term L = Long term

Name	Cross Reference	Management Action	Timescale
Associated British Ports	5.2/13.1/17.1	Ensure that Oil Spill Contingency Plans are in place and up to date. (Please see activity code 13 for a detailed breakdown on relevant authority responsibilities)	S/O
	12.1	Ensure maintenance dredging does not prevent the conservation interests achieving favourable condition by adhering to good practice guidelines for maintenance operations.	S/M
	12.2	Gain greater understanding of the impacts of dredging by maintaining a Watching Brief (monitor dredging & associated disposal activities and cross reference with site condition monitoring to study the impact of the activities) Ensure that if dredging activity threatens features appropriate action is taken.	S/M
	16.1	Assess scale of water based recreation/ boat moorings and implications for damage to features and sub-features and address identified problems. Utilise the outputs from general recreational survey 26.1	S/M
	16.5	If identified as a future requirement by recreational survey 26.1, develop a zoning policy for water-based recreation, to reduce disturbance in key waterfowl feeding and roosting areas.	M
Barrow Borough Council	1.1	Ensure compliance with current Shoreline Management Plan (SMP), to be reviewed in 2005/6	O
	1.2	Review SMP to consider EMS interest features (review due in 2005/6)	S/M
	1.3	Monitor changes in coastal processes (as part of SMP). Review through Review of Consents (RoC) process.	O
	1.4	Review existing maintenance programmes for flood/coastal defence to take account of EMS interest features (to commence 2002, in conjunction with action 2.1).	S
	2.1	Review procedures/programme for routine maintenance of structures, in conjunction with action 1.4.	S
	2.2	Ensure that all coastal protection and flood defence works comply with the Habitats Regulations.	O
	3.1		

Name	Cross Reference	Management Action	Timescale
Barrow Borough Council cont.	3.2	Ensure European marine site (and other conservation designations) are covered sufficiently within Local Plans, and within CCC's Cumbria Coastal Statement – to be included in ongoing reviews if not already covered in plans.	S
	5.2/13.1/ 17.1	Ensure that all coastal protection, harbour development and flood defence works comply with the Habitats Regulations.	O
	11.1	Ensure that oil spill contingency plans are in place and up to date. (Please see activity code 13 for a detailed breakdown on relevant authority responsibilities).	S/O
	11.2	Compile a base-line site register of contaminated land; identify those sites contaminating or at a risk of contaminating the estuary. Review of Consents will determine data available.	S/M
	16.1	Authorities to assist District Councils in consultation process under EPA part IIa	S/M
	16.3/21.2/ 22.2/ 23.2	Assess scale of water based recreation/ boat moorings and implications for damage to features and sub-features and address identified problems. Utilise the outputs from general recreational survey 26.1.	S/M
	16.4/ 22.1/23.3	DEP to develop and promote a “seashore code” through liaison with the local authorities, which aims to reduce the risk of noise/ visual disturbance.	S
	16.5	Increase interpretation of EMS features with Duddon Estuary Partnership	S/M
	21.1	If identified as a future requirement by recreational survey 26.1, develop a zoning policy for water-based recreation, to reduce disturbance in key waterfowl feeding and roosting areas.	M
	23.1	Increase awareness and voluntary control through the provision of notice boards / leaflets publicising the dangers of disturbance to wildlife by dogs. Targeted approach dependant on the outcomes of recreational survey 26.1	M
	23.4	EN condition monitoring and recreational survey 26.1 to quantify effects. If effects identified then further assessment of scale of vehicular access and impacts to habitats and implications for conservation interests to be made through a study of site/habitat usage (including unauthorised access).	S
	26.2	Review Highway Authorities maintenance programme (including district councils input to access points and car parks)	S/M
			S/M

Name	Cross Reference	Management Action	Timescale
Barrow Borough Council (cont)		Should the recreational survey 26.1 identify it as necessary, investigate the trial application of voluntary codes / restrictions. Assess success before introducing by-laws.	
Copeland Borough Council	1.1	Ensure compliance with current Shoreline Management Plan (SMP), to be reviewed in 2005/6	O
	1.2	Review SMP to consider EMS interest features (review due in 2005/6)	S/M
	1.3	Monitor changes in coastal processes (as part of SMP). Review through RoC process.	O
	1.4	Review existing maintenance programmes for flood/coastal defence to take account of EMS interest features (to commence 2002, in conjunction with action 2.1).	S
	2.1	Review procedures/programme for routine maintenance of structures, in conjunction with action 1.4.	S
	2.2	Ensure that all coastal protection and flood defence works comply with the Habitats Regulations.	O
	3.1	Ensure European marine site (and other conservation designations) are covered sufficiently within Local Plans, and within CCC's Cumbria Coastal Statement – to be included in ongoing reviews if not already covered in plans.	S
	3.2	Ensure that all coastal protection, harbour development and flood defence works comply with the Habitats Regulations.	O
	5.2/13.1/17.1	Ensure that oil spill contingency plans are in place and up to date. (Please see activity code 13 for a detailed breakdown on relevant authority responsibilities)	S/O
	11.1	Compile a base-line site register of contaminated land; identify those sites contaminating or at a risk of contaminating the estuary. Review of Consents will determine data available.	S/M
	11.2	Authorities to assist District Councils in consultation process under EPA Part IIa	S/M
	16.1	Assess scale of water based recreation/ boat moorings and implications for damage to features and sub-features and address identified problems. Utilise the outputs from general recreational survey 26.1	S/M
	16.3/21.2/22.2/23.2	DEP to develop and promote a "seashore code" through liaison with the local authorities, which aims to reduce the risk of noise/ visual disturbance.	S
	16.4/	Increase interpretation of EMS features with Duddon	S/M

Name	Cross Reference	Management Action	Timescale
Copeland Borough Council cont.	22.1/ 23.3	Estuary Partnership	
	16.5	If identified as a future requirement by recreational survey 26.1, develop a zoning policy for water-based recreation if required to reduce disturbance in key waterfowl feeding and roosting areas.	M
	21.1	Increase awareness and voluntary control through the provision of notice boards / leaflets publicising the dangers of disturbance to wildlife by dogs. Targeted approach dependant on the outcomes of recreational survey 26.1	M
	23.1	EN condition monitoring and recreational survey 26.1 to quantify effects. If effects identified then further assessment of scale of vehicular access and impacts to habitats and implications for conservation interests to be made through a study of site/habitat usage (including unauthorised access).	S
	23.4	Review Highway Authorities maintenance programme (including district councils input to access points and car parks)	S/M
	26.2	Should the recreational survey 26.1 identify it as necessary, investigate the trial application of voluntary codes / restrictions. Assess success before introducing by-laws.	S/M
Cumbria County Council	3.1	Ensure European marine site (and other conservation designations) are covered sufficiently within Local Plans, and within CCC's Cumbria Coastal Statement – to be included in ongoing reviews if not already covered in plans.	O
	5.2/ 13.1/ 17.1	Ensure that oil spill contingency plans are in place and up to date. (Please see activity code 13 for a detailed breakdown on relevant authority responsibilities)	S
	5.3	Test and review suitability/effectiveness of oil spill contingency plans	O
	11.2	Authorities to assist District Councils in consultation process under EPA Part IIa	S/M
	21.1	Increase awareness and voluntary control through the provision of notice boards / leaflets publicising the dangers of disturbance to wildlife by dogs. Targeted approach dependant on the outcomes of recreational survey 26.1	S
	21.2/22.2/ 23.2	DEP to develop and promote a “seashore code” through liaison with the local authorities, which aims to reduce the risk of noise/ visual disturbance.	S
	20.1/21.3	Increase interpretation of EMS features with Duddon Estuary Partnership	S/M
Cumbria County Council (cont)			

Name	Cross Reference	Management Action	Timescale
	23.1	EN condition monitoring and recreational survey 26.1 to quantify effects. If effects identified then further assessment of scale of vehicular access and impacts to habitats and implications for conservation interests to be made through a study of site/habitat usage (including unauthorised access).	M
	23.4	Review Highway Authorities maintenance programme (including district councils input to access points and car parks)	S/M
Cumbria Sea Fisheries Committee	14.1	Identify scale/location of drift netting within or adjacent to EMS	S/M
	14.2	Monitor the effects of drift netting to ascertain whether or not this is an issue.	
English Nature	1.2	Review Shoreline Management Plan to consider EMS interest features (review due in 2005/6)	S/M
	1.3	Monitor changes in coastal processes (as part of SMP). Review through RoC process.	O
	5.1	The issuing of further licenses will be subject to the Habitat Regulations and an audit trail will be managed accordingly.	O
	7.1	Develop and implement a strategy for reducing inputs to the European marine site through the Water Framework Directive.	S
	7.2	Promote environmentally sustainable farming practices.	S/M
	8.1	(see actions specified under activities 6 & 7).	S, S/M
	9.1	Current research being undertaken by CCW, EN & EA to study the relationship between birds and organic nutrient levels, the overall effects on the ecosystem and thereby the effects of the improvement programme under the UWWT and BW Directives (being done at a national level).	M
	15.2	Using tested modelling techniques currently being researched by EN, CEH & NW&NWSFC, investigate the effects of excessive mussel removal on dependant bird species.	O
	16.1	Assess scale of water based recreation/ boat moorings and implications for damage to features and sub-features and address identified problems. Utilise the outputs from general recreational survey 26.1	S/M
English Nature (cont)	15.1.2	Identify and assess any physical damage attributed to water-based recreation during routine monitoring of the site and from the output of recreational survey 26.1. If damage discovered or suspected then action	S

Name	Cross Reference	Management Action	Timescale
English Nature (cont)		16.5 undertaken.	
	16.3/21.2/ 22.2/23.2	DEP to develop and promote a “seashore code” through liaison with the local authorities, which aims to reduce the risk of noise/ visual disturbance.	S
	16.4/ 22.1/23.3	Increase interpretation of EMS features with Duddon Estuary Partnership	S/M
	18.1	Assess scale of disturbance from aircraft through wider recreational survey 26.1 and dialogue with the flying clubs and CAA.	S
	19.1	Assess scale and impact of wildfowling upon conservation interests.	S/M
	19.2	Wildfowling to be reviewed where appropriate through English Nature’s Review of Consents.	O
	20.1	Assess scale and impact of angling upon conservation interests by looking at fishing effort and site condition.	S/M
	21.3	Assess the scale and impact of dog walking – to be undertaken as part of wider recreational survey 26.1	S/M
	22.3	Assess the scale and impact of bird watching - to be undertaken as part of wider recreational survey 26.1	S/M
	23.1	EN condition monitoring and recreational survey 26.1 to quantify effects. If effects identified then further assessment of scale of vehicular access and impacts to habitats and implications for conservation interests to be made through a study of site/habitat usage (including unauthorised access).	S
	24.1	Promote Countryside Stewardship Scheme	O
	24.2	EN to pursue mechanisms needed to achieve appropriate grazing management on marshes by promoting and encouraging uptake of Wildlife Enhancement Schemes.	O
	24.3	Liaison with farmers undertaking saltmarsh grazing.	S
	25.1	Assess extent of bait digging in EMS	S/O
	25.2	Identify management measures if the nature and scale of the activity is likely to become significantly damaging.	M
	26.1	Conduct an investigation into the scale and impacts of all the types of recreational activity that take place in and around the Duddon Estuary.	S/M
	26.2	Should the recreational survey 26.1 identify it as necessary, investigate the trial application of	S/M

Name	Cross Reference	Management Action	Timescale
		voluntary codes / restrictions. Assess success before introducing by-laws.	
Environment Agency	1.2	Review SMP to consider EMS interest features (review due in 2005/6)	S/M
	1.3	Monitor changes in coastal processes (as part of SMP). Review through RoC process.	O
	1.4	Review existing maintenance programmes for flood/coastal defence to take account of EMS interest features (to commence 2002, in conjunction with action 2.1).	S
	2.1	Review procedures/programme for routine maintenance of structures, in conjunction with action 1.4.	S
	2.2	Ensure that all coastal protection and flood defence works comply with the Habitats Regulations.	O
	5.2/13.1/17.1	Ensure that oil spill contingency plans are in place and up to date. (Please see activity code 15.2 for a detailed breakdown on relevant authority responsibilities)	S
	6.1	Identify contributions of diffuse agricultural pollution to the EMS as part of DEFRA's strategic review of diffuse water pollution from agriculture, launched in June 2002.	S/M
	6.2	Work towards a strategy for reducing diffuse inputs to the EMS through the Water Framework Directive.	S/M
	6.4/7.2	Promote environmentally sustainable farming practices.	S/M
	6.5	Maintain existing control measures, including routine chemical and biological testing	O
	7.1	Develop & implement a strategy for reducing inputs to the European marine site through the Water Framework Directive.	S
	7.3	Promote this aspect/issue with the Countryside Stewardship Scheme	S/M
	7.4	Carryout Groundwater Regulations authorisation visits	O
	8.1	As above (see actions specified under activities 6 & 7).	S, S/M
	9.1	Current research being undertaken by CCW, EN & EA to study the relationship between birds and organic nutrient levels, the overall effects on the ecosystem and thereby the effects of the improvement programme under the UWWT and BW	S/M
Environment Agency (cont)			

Name	Cross Reference	Management Action	Timescale
	10.1	Directives (being done at a national level). Continue to improve the quality of effluent discharging where appropriate e.g. Secondary treatment at Kimberly – Clark - improvements agreed with the company (effluent standards in line with UU upgrades).	O
	10.2	Discharge standards to be maintained. Environment Agency to review all consents under the Habitats Regulations. Subject to outcome of the review, current procedures to continue.	O
	10.3	Ensure future improvements are in line with IPPC implementation schedule	O
	11.1	Compile a base-line site register of contaminated land; identify those sites contaminating or at a risk of contaminating the estuary. Review of Consents will determine data available.	S/M
Lake District National Park Authority	16.4/ 22.1/23.3	Increase interpretation of EMS features with Duddon Estuary Partnership	S/M
North Western & North Wales Sea Fisheries Committee	14.1	Identify scale/location of drift netting within or adjacent to EMS	S/M
	14.2	Monitor the effects of drift netting to ascertain whether or not this is an issue.	M
	15.1	Identify scale and location of mussel gathering within or adjacent to EMS and assess any correlation with bird disturbance.	S/M
	15.2	Using tested modelling techniques currently being researched by EN, CEH & NW&NWSFC, investigate the effects of excessive mussel removal on dependant bird species.	M
South Lakeland District Council	1.1	Ensure compliance with current Shoreline Management Plan, to be reviewed in 2005/6	O
	1.2	Review SMP to consider EMS interest features (review due in 2005/6)	S/M
	1.3	Monitor changes in coastal processes (as part of SMP). Review through RoC process.	O
	1.4	Review existing maintenance programmes for flood/coastal defence to take account of EMS interest features (to commence 2002, In conjunction with action 2.1).	S
SLDC (cont.)	2.1	Review procedures/programme for routine maintenance of structures, in conjunction with action	S

Name	Cross Reference	Management Action	Timescale
SLDC (cont.)		1.4.	
	2.2	Ensure that all coastal protection and flood defence works comply with the Habitats Regulations.	O
	3.1	Ensure European marine site (and other conservation designations) are covered sufficiently within Local Plans, and within CCC's Cumbria Coastal Statement– to be included in ongoing reviews if not already covered in plans.	S/O
	3.2	Ensure that all coastal protection, harbour development and flood defence works comply with the Habitats Regulations.	O
	5.2/ 13.1/ 17.1	Ensure that oil spill contingency plans are in place and up to date. (Please see activity code 13 for a detailed breakdown on relevant authority responsibilities).	S
	11.1	Compile a base-line site register of contaminated land; identify those sites contaminating or at a risk of contaminating the estuary. Review of Consents will determine data available.	S/M
	11.2	Authorities to assist District Councils in consultation process under EPA Part IIa	S/M
	16.1	Assess scale of water based recreation/ boat moorings and implications for damage to features and sub-features and address identified problems. Utilise the outputs from recreational survey 26.1. DEP to develop and promote a “seashore code” through liaison with the local authorities, which aims to reduce the risk of noise/ visual disturbance.	S/M
	16.3/21.2/ 22.2/23.2		S
	16.4/ 22.1/23.3	Increase interpretation of EMS features with Duddon Estuary Partnership	S/M
	16.5	If identified as a future requirement by recreational survey 26.1, develop a zoning policy for water-based recreation to reduce disturbance in key waterfowl feeding and roosting areas.	M
	21.1	Increase awareness and voluntary control through the provision of notice boards / leaflets publicising the dangers of disturbance to wildlife by dogs. Targeted approach dependant on the outcomes of recreational survey 26.1	M
	23.1	EN condition monitoring and recreational survey 26.1 to quantify effects. If effects identified then further assessment of the scale of vehicular access and impacts to habitats and implications for conservation interests to be made through a study of site/habitat usage (including unauthorised access).	S
	23.4	Review Highway Authorities maintenance	S/M

Name	Cross Reference	Management Action	Timescale
	26.2	programme (including district councils input to access points and car parks) Should the recreational survey 26.1 identify it as necessary, investigate the trial application of voluntary codes / restrictions. Assess success before introducing by-laws.	S/M
United Utilities	2.1	Review procedures/programme for routine maintenance of structures, in conjunction with action 1.4.	S
	9.2	Comply with discharge consents including Review of Consents	O
	9.3	Maintain existing control measures and improve standards by consent review where appropriate.	O
	9.4	Deliver agreed programme (AMP3/4) to improve effluent standards and reduce the number of storm sewage overflows and frequency of their operation	M
DEFRA	6.1	Identify contributions of diffuse agricultural pollution to the EMS as part of DEFRA's strategic review of diffuse water pollution from agriculture, launched in June 2002.	S/M
	6.2/ 7.1	Develop & implement a programme to reduce diffuse inputs to the European marine site through the Water Framework Directive.	O
	6.3/7.3/ 24.1	Promote Countryside Stewardship Scheme	S/M
	6.4/7.2	Promote environmentally sustainable farming practices.	S
	8.1	(See actions specified under activities 6 & 7).	Various
	12.3	DEFRA to review existing consents under Regulation 50 of the Habitats Regulations.	O
	24.3	Liase with farmers undertaking saltmarsh grazing.	O
DTI	5.1	The issuing of further licences will be subject to the Habitat Regulations and an audit trail will be managed accordingly	O

Name	Cross Reference	Management Action	Timescale
Duddon Estuary Partnership	16.3/21.2/22.2/23.2	DEP to develop and promote a “seashore code” through liaison with the local authorities, which aims to reduce the risk of noise/ visual disturbance.	S
	16.4/22.1/23.3	Increase interpretation of EMS features with Duddon Estuary Partnership	S/M
	20.1	Assess scale and impact of angling upon conservation interests by looking at fishing effort and site condition.	S/M
	21.1	Increase awareness and voluntary control through the provision of notice boards / leaflets publicising the dangers of disturbance to wildlife by dogs. Targeted approach dependant on the outcomes of recreational survey 26.1	M
	25.1	Assess extent of bait digging in EMS	S/O
	25.2	Identify management measures if the nature and scale of the activity is likely to become significantly damaging.	S/M
	26.2	Should the recreational survey 26.1 identify it as necessary, investigate the trial application of voluntary codes / restrictions. Assess success before introducing by-laws.	S/M
NT (in association with specified Relevant Authorities)	16.3/21.2/22.2/23.2	DEP to develop and promote a “seashore code” through liaison with the local authorities, which aims to reduce the risk of noise/ visual disturbance.	S
	16.4/22.1/23.3	Increase interpretation of EMS features with Duddon Estuary Partnership	S/M
	21.1	Increase awareness and voluntary control through the provision of notice boards / leaflets publicising the dangers of disturbance to wildlife by dogs. . Targeted approach dependant on the outcomes of recreational survey 26.1	M
RSPB (in association with specified Relevant Authorities)	16.3/21.2/22.2/23.2	DEP to develop and promote a “seashore code” through liaison with the local authorities, which aims to reduce the risk of noise/ visual disturbance.	S
	16.4/22.1/23.3	Increase interpretation of EMS features with Duddon Estuary Partnership	S/M
CAA (in association with EN)	18.1	Assess scale of disturbance from aircraft through wider recreational survey 26.1 and dialogue with the flying clubs and CAA.	S

Annex A

Duddon Estuary European marine site: relevant authorities

Relevant authorities have a responsibility to be aware of the interest features and sub-features and the conservation objectives for the site. The responsibilities of the relevant authorities are outlined in the table below.

Relevant/Competent authority	Area of jurisdiction, roles and responsibilities (relating to specific regulations in the Habitats Regulations 1994)
Association of British Ports www.abports.co.uk	Operate Barrow docks, harbour authority
Barrow Borough Council www.barrowbc.gov.uk	Local planning authority, grant planning permission under Reg 54 Coastal Defence in conjunction with the Environment Agency. Coast protection in relation to the Coast Protection Act 1949. Environmental Health Authority for shell fishery under food legislation. Preparation of local district plan. Determination of planning applications and development of land use within the district. Coastal defence in relation to land drainage act 1991. Elected as local authority.
Copeland Borough Council www.copelandbc.gov.uk	As above.
Cumbria County Council www.cumbria.gov.uk	Elected local government. Grant planning permission (Reg.54). Review planning permission (Reg.55). Approval under general development orders (Reg.62). Construction of improvements of highways (Reg.69). Structure plan. Strategic Planning Authority. Structure Plan and Minerals Waste Local Plan. Mineral and Waste Planning Authority.
Cumbria Sea Fisheries Committee www.nfsa.org.uk	Fisheries Regulation and enforcement. Power to make byelaws.

<p>English Nature</p> <p>www.english-nature.org.uk</p>	<p>Statutory advisors to government in natural heritage matters. Power to enter into management agreements (Reg. 16-21, 25 and 89).</p> <p>Power to make byelaws (Reg. 28, 29 and 31).</p> <p>Duty to review consents (Reg. 21 and 27).</p> <p>Duty to provide advice on conservation objectives and operations for European marine sites (Reg. 33).</p> <p>Provide advice to relevant and competent authorities (Reg.48-50, 61 and 62)</p>
<p>Environment Agency</p> <p>www.environment-agency.gov.uk</p>	<p>The EA is a non-departmental public body established by the Environment Act 1995. Seven main functions: Flood defence, water resources, pollution control, fisheries, navigation, recreation and conservation. Guiding legislation is the Environment Act 1995 and associated legislation. Power to make byelaws covering fisheries and land drainage activities. Competent and Relevant Authority under the Habitats Regulations and duty to review consents under the Habitats Regulations.</p>
<p>Lake District National Park Authority</p> <p>www.lake-district.gov.uk</p>	<p>Has a general power under the Environment Act 1995 (subject to specific constraints) to do anything which, in its opinion, facilitates or is conducive or incidental to the accomplishment of National Park purposes. Within the National Park the authority carries out all the planning functions which would otherwise be undertaken by the County and District Councils. These include the preparation and review of structure and local plans, and the control of development through planning applications.</p>
<p>North West & North Wales Sea Fisheries Committee</p> <p>www.nwnwsfc.org</p>	<p>Fisheries Regulation and enforcement.</p> <p>Power to make byelaws.</p>
<p>South Lakeland District Council</p> <p>A.mitchell@southlakeland.gov.uk</p>	<p>Local planning authority, grant planning permission under Reg 54 Coastal Defence in conjunction with the Environment Agency.</p> <p>Coast protection in relation to the Coast Protection Act 1949.</p> <p>Environmental Health Authority for shell fishery under food legislation.</p> <p>Preparation of local district plan.</p> <p>Determination of planning applications and development of land use within the district.</p> <p>Coastal defence in relation to land drainage act 1991.</p> <p>Elected as local authority.</p>
<p>United Utilities</p> <p>www.unitedutilities.com</p>	<p>Water and sewage undertaker.</p>

Annex B

Glossary

Terms used in the management scheme

Advisory Group	The body of representatives from local interests, user groups and conservation groups, formed to advise the management group
Annex 1 Bird species	The species listed on Annex 1 of the Birds Directive are the subject of special conservation measures concerning their habitat. These measures ensure the survival and reproduction of the birds in their area of distribution. Species listed on Annex 1 are in danger of extinction, rare or vulnerable.
Annex I habitat type(s)	A natural habitat (s) listed in Annex 1 of the Habitats Directive for which Special Areas of Conservation can be selected.
Annex II species	A species listed in Annex II of the Habitats Directive for which Special Areas of Conservation can be selected.
Assemblage	A collection of plants and/or animals characteristically associated with a particular environment.
Attribute	Characteristic of an interest feature/sub-feature which provides an indication of the condition of the feature or sub-feature to which it applies.
Biotope	The physical habitat with its biological community: a term which refers to the combination of physical environment and its distinctive assemblage of conspicuous species.
Characteristic	Special to, or especially abundant in a particular situation or biotope. Characteristic species should be immediately conspicuous and easily identified.
Coastal Protection	Measures taken to protect the land against erosion and encroachment of the sea.
Community	A group of organisms occurring in a particular environment, presumably interacting with each other and with the environment, and identifiable by means of ecological survey from other groups.

Competent Authority	Any Minister, government department, public or statutory undertaker, public body or person holding a public office that exercises legislative powers.
Conservation objective	A statement of the nature conservation aspirations for a site, expressed in terms of the favourable condition that we wish to see the species and/or habitats for which the site has been selected to attain. Conservation objectives for European marine sites relate to the aims of the Habitats Directive.
European marine site	A European site which consists of, or in so far as it consists of, areas covered intermittently or continuously by seawater.
European Site	A classified SPA, designated SAC, site of Community importance (a site selected as a candidate SAC, adopted by the European Commission but not yet designated), a candidate SAC (in England only) or a site hosting a priority species in respect of Article 5 of the Habitats directive applies.
Favourable Conservation status	A range of conditions for a natural habitat or species at which the sum of the influences acting upon that habitat or species are not adversely affecting its distribution, abundance, structure or function throughout the EC in the long term. The condition in which the habitat or species is capable of sustaining itself on a long-term basis.
Favourable condition	A range of conditions for a natural habitat or species at which the sum of the influences acting upon that habitat or species are not adversely affecting its distribution, abundance, structure or function within an individual Natura 2000 site in the long term. The condition in which the habitat or species is capable of sustaining itself on a long-term basis.
Flood Defence	Are measures to help prevent flooding from inland (fluvial) watercourses and includes ‘main rivers’ and ordinary watercourses. (EA – main river, LAs – ordinary rivers)
Habitat	The place in which a plant or animal lives.
Habitats Directive	The abbreviated term of <i>Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora</i> . It is the aim of the Directive to promote the conservation of certain habitats and species within the European Union.

Interest feature	A natural or semi-natural feature for which a European site has been selected. This includes any Habitats Directive Annex I habitat or any Annex II species and any population of a bird species for which an SPA has been designated under the Birds Directive.
Local Authority (LA)	Within this document, the term Local Authority refers to all relevant District Authorities and excludes the County Council
Maintain	The action required for an interest feature when it is considered to be in favourable condition.
Management group	The body of relevant authorities formed to manage the European site.
Management scheme	The framework established by the relevant authorities at a European site under which their functions are exercised to secure, in relation to that site, compliance with the requirements of the Habitats Directive.
Nationally scarce/rare	For marine purposes, these are regarded as species of limited national occurrence.
Natura 2000	The European network of protected sites established under the Birds Directive and the Habitats Directive.
Notable species	A species that is considered to be notable due to its importance as an indicator, and may also be of nature conservation importance, and which is unlikely to be a 'characteristic species'.
Operations which may cause deterioration or disturbance	Any activity or operation taking place within, adjacent to, or remote from a European marine site that has the potential to cause deterioration to the natural habitats for which the site was designated, or disturbance to the species and its habitats for which the site was designated.
Plan or project	Any plan or project that is in a relevant authority's function to control, or over which a competent authority has a statutory function to decide on applications for consents, authorisations, licences or permissions.
Peak mean counts (5 yr)	The Duddon Estuary is broken down into count sectors. Over winter months WeBs volunteers count all the birds which are visible within each sector. The yearly figures for each species in the Duddon Estuary are then averaged over a five year period to give the 5 yr peak mean.

Ramsar site	A site held on the list of wetlands of international importance, especially as habitats for wildfowl, under the Ramsar convention.
Relevant authority	The specific component authority which has powers or functions which have, or could have, an impact on the marine environment, or adjacent to, a European marine site.
Restore	The action required for an interest feature when it is not considered to be in a favourable condition.
Sensitivity	The intolerance of a habitat, community or individual species to damage from an external force.
Sub-feature	An ecologically important sub-division of an interest feature.
Vulnerability	The exposure of a habitat, community or individual of a species to an external factor to which it is sensitive.
WeBs	Wetland Bird Survey: a collaborative national surveillance scheme of the UK's waterfowl based on counts undertaken once per month outside of the breeding season.

Key to abbreviations

Relevant Authorities

ABP	Associated British Ports
BBC	Barrow Borough Council
CCC	Cumbria County Council
CCW	Countryside Council for Wales
CoBC	Copeland Borough Council
CSFC	Cumbria Sea Fisheries Committee
EA	Environment Agency
EN	English Nature
HA	Harbour Authority
LA	Local Authority
LDNPA	Lake District National Park Authority
NW & NWSFC	North Western & North Wales Sea Fisheries Committee
SLDC	South Lakeland District Council
UU	United Utilities

Partners – Competent Authorities

DEFRA	Department of Environment, Food and Rural Affairs
DoE	Department of the Environment
DTI	Department of Trade and Industry
MCA	Maritime and Coastguard Agency

Partners – Other Organisations

BASC	British Association for Shooting and Conservation
CAA	Civil Aviation Authority
DEP	Duddon Estuary Partnership
FRCA	Farming and Rural Conservation Agency
NT	National Trust
RSPB	Royal Society for the Protection of Birds

Timescale

O	Ongoing	will always require action
S	Short	up to 2 years
M	Medium	up to 5 years
L	long	up to 10 years

Other abbreviations

AMP3	Asset Management Plan (United Utilities)
BWD	Bathing Waters Directive
CA	Competent Authority
CAA	Civil Aviation Authority
CEH	Centre for Ecology and Hydrology
CROW	Countryside and Rights of Way Act 2000
EMS	European marine site
EPA	Environmental Protection Act 1990
FEPA	Food and Environment Protection Act 1985
IPPC	Integrated Pollution and Prevention Control
Man. Opt	Management Option
OPRC	Oil Pollution Preparedness, Response and Co-operation.
RA	Relevant Authority
RoC	Review of Consents process
SAC	Special Area of Conservation
SMP	Shoreline Management Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
UWWTD	Urban Waste Water Treatment Directive
WES	Wildlife Enhancement Schemes
WWTW	Waste Water Treatment Works