

MORECAMBE BAY EUROPEAN MARINE SITE

Management Scheme

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Summary

Working alongside the Morecambe Bay Partnership, the management scheme has benefited from well established ties amongst local authority and government agency partners. English Nature has played the pivotal role in securing funding and employing able project officers to underpin the work. However, the scheme has required significant commitment of time and enthusiasm from officers in all the relevant authorities.

The relevant authorities have duties and obligations to conserve the interests of Morecambe Bay. This management scheme spells out how, by working together, that can be done.

It is easy, with a necessarily formal document such as this, to miss the excitement of what the work has been for. In Morecambe Bay we have perhaps the most important UK marine site, both for its habitat diversity and bird interest. Fascinating communities of plants and animals populate the bay. Subtidal boulder and cobble skewer habitats host communities of sponges and seasquirts. Brittlestars form a dense bed in the tideswept waters of the Walney Channel. The muds and sands of the Bay support fragile communities of piddocks and plants. The sheer scale of the Bay itself, with the largest intertidal mudflats and sandflats in the UK makes it special, and a magnet for internationally important waterfowl and seabird populations.

This management scheme first aims to explain clearly what the conservation interest is. That interest has already been formally defined in advice published by English Nature, which also describes any operations, which may harm the interests. This scheme reviews the operations and activities to assess possible effects; details existing management measures and proposes further management action.

This process has identified a series of issues that need to be addressed by the relevant authorities to ensure that the site is maintained in favourable condition. Some activities are known to have a significant impact on the interest features of the site, and management actions detailing methods for resolving these issues have been suggested and prioritised within a timetabled action plan. Key management issues on the site include water quality, management of saltmarsh grazing levels, management of coastal squeeze, and management of vehicular access. It is recognised that many other activities may have significant impacts and so further investigation and assessment of their effect upon the interests of the site is incorporated into the action plan.

As Morecambe Bay is used and managed by a wide range of organisations and user groups there are already plans and strategies in place that contain actions to positively manage activities within and around the site. Many of these directly or indirectly include measures which will safeguard nature conservation interests, and this management scheme document does not over-ride existing strategies, but offers further new management solutions to be incorporated into them and operate alongside the existing / ongoing measures.

The management scheme will ensure that interaction with the conservation interests of Morecambe Bay takes place in a more sustainable way and in particular it will:

- Maintain, restore and enhance the habitats and biodiversity of Morecambe Bay.
- Make people more aware of the rich wildlife within the Bay.
- Achieve greater recognition of the value of the natural environment to the local economy and social well-being.
- Gain a better understanding of the human impacts upon the Bay.

The management scheme is not intended to be an inflexible plan but a working strategy, which will be reviewed and modified to take into account changes in legislation and developments in knowledge and understanding of the sites issues. Currently other interest features within the site are being considered by the European Commission with the view of making them notified features for the site. If following the European Union's moderation process further interest features are added to this European marine site, the Regulation 33 advice will be amended accordingly, and this management scheme will need to be revised to reflect such changes.

MORECAMBE BAY EUROPEAN MARINE SITE

Management Scheme

1 Introduction

1.1 Introduction to the management scheme

Receiving the European status of Special Protection Area (SPA) and candidate Special Area of Conservation (SAC) is probably the most important thing that has happened for nature conservation in Morecambe Bay. In addition to its SPA and cSAC status, Morecambe Bay is also designated and subject to agreements under other conservation legislation (e.g. SSSIs notified under the Wildlife and Countryside Act 1981 and as a Ramsar Wetland of International Importance under the Ramsar Convention).

Much of the site is notified as a Site of Special Scientific Interest (SSSI), which already places legal duties and responsibility on bodies involved with its management. Any management measures required can usually be achieved through existing SSSI procedures. However, the SSSI boundary does not extend below mean low water in England, so management arrangements do not apply in the subtidal marine environment.

The Conservation (Natural Habitats, &c.) Regulations 1994 (the Habitats Regulations), resulting from the European Habitats Directive, place new and stronger responsibilities on relevant and competent authorities and agencies to work closely together to safeguard the nature conservation interests of designated sites. The Habitats Regulations also enable relevant authorities to establish a management scheme for European marine sites in order to deliver conservation measures and take appropriate steps to avoid deterioration of the natural habitats and species for which the sites have been designated.

The relevant authorities around Morecambe Bay have decided to prepare a management scheme. This document explains how the scheme is being developed for the European marine site and sets out the actions, which the relevant authorities will take to implement the scheme.

Central to the aim of this management scheme is the sustainable use of a living, working Bay. There is no intention to prevent all activities, only to identify and improve the management of those operations which are damaging, and where activities / operations are suspected of being damaging, to learn more about them so that any impacts can be minimised.

The scheme focuses upon the issues and actions, which fall within the responsibilities of local authorities and other statutory bodies. It identifies where existing plans and initiatives already deal with issues or will be amended to do so in future.

Section 1 introduces the Habitats and Birds Directives, the aims of the management scheme and the relevant authorities.

Section 2 describes the nature conservation interests for which the site has been designated and explains their importance.

Section 3 sets out the conservation objectives which need to be achieved to ensure the Bay is in favourable condition.

Section 4 provides guidance on the effects that activities can have on the nature conservation interests of the Bay.

Section 5 explains the links between the management scheme, Morecambe Bay Partnership and other plans and initiatives taking forward the sustainable management of the Bay.

Sections 6 & 7 - The relevant authorities review the activities for which they have responsibility within the Bay, against the conservation objectives. They have identified where these have, or may have, damaging effects on the site.

- Section 6 explains the review process and presents the conclusions of the reviews.
- Section 7 sets out the actions which relevant authorities propose to undertake to improve the sustainable management of the Bay.

The detailed reviews are available separately in Annexes 1-27 and provide supporting information for the management scheme document.

Section 8 - Glossary -explains terms used in the scheme - such as ‘relevant authority’, and gives a list of abbreviations

Section 9 contains a list of key references.

The scheme has been developed through the following key stages

- Management Group of relevant authorities established
- Morecambe Bay Partnership links established (Standing Conference is the advisory group)
- English Nature produce Regulation 33 advice in consultation with local and national experts
- English Nature draft the management scheme framework
- Relevant authorities review their own management measures as a series of Annexes
- English Nature assess these reviews against the Regulation 33 advice
- Relevant authorities amend their reviews where appropriate
- English Nature incorporate the reviews into a draft management scheme
- Relevant authorities agree the draft scheme
- Public consultation document prepared
- Public consultation
- Amendment of the management scheme
- Agreement/signing up to actions by relevant authorities
- Scheme implemented

1.2 The Habitats and Birds Directives

The European Habitats¹ and Birds² Directives are international obligations which set out a number of actions to be taken for nature conservation. The Habitats Directive aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements, and sets out measures to maintain or restore, natural habitats and species of European Union interest at favourable conservation status³. It also encourages the sustainable management of marine environments. 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 sufficient 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, and requires member states to take special measures to conserve the habitat of certain particularly rare species and of migratory species (article 4). The main mechanism used to protect the habitats and species listed in the Habitats and Birds Directives is the designation of conservation areas. In the case of the Habitats Directive these are Special Areas of Conservation (SACs) which support certain natural habitats or species, whereas sites classified under the Birds Directive are Special Protection Areas (SPA), which support wild birds of European Union interest. Sites selected under these two directives collectively form a network across the European Union called Natura 2000.

¹ Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora

² Council Directive 79/409/EEC on the Conservation of Wild Birds

³ A habitat or species is defined as being at favourable conservation status when its natural range and the areas it covers within that range are stable or increasing and the specific structure and functions which are necessary for its long term maintenance exist and are likely to continue to exist for the foreseeable future

The Habitats Regulations translate the Habitats Directive into UK law and charge relevant and competent authorities with new duties and powers.

1.3 Key duties and obligations - Implementation of Directive

This management scheme is aimed at assisting relevant authorities to fulfil duties and obligations, which are placed upon them by the Habitats Regulations, in particular the following

- Duties are placed on the Secretary of State and English Nature to exercise their nature conservation functions to secure compliance with the requirements of the Habitats Directive (Regulation 3(2)).
- Ministers and all relevant public authorities are required to exercise their functions relevant to marine conservation so as to secure compliance with the requirements of the Habitats Directive (Regulation 3 (3)).
- Ministers and all relevant public authorities are required in the exercise of any of their functions to have regard to the requirements of the Habitats Directive (Regulation 3(4)).

1.4 Protection of SAC and SPA interests

The Habitats Directive and Regulations apply a common protection regime to SACs and SPAs. Article 6(2) of the Directive requires member states to:

“take appropriate steps to avoid (in European sites) the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the sites have been designated, in so far as such disturbance could be significant in relation to the objectives of the Directive.”

Another important feature of the Directive is that it mentions the need to take account of the economic, cultural, social and recreational needs of local people when managing the site. A majority of the sites already chosen have been subject to human use for hundreds or thousands of years and the implications of the Directives on those patterns of use have to be considered as part of the whole management process.

1.5 Aims of the management scheme

This management scheme is being produced under Regulation 34 of the Habitats Regulations which states that:

“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 bylaws) shall be exercised so as to secure in relation to that site compliance with the requirements of the Habitats Directive.”(Regulation 34 (1))

The principle aim of the management scheme is to protect the European interest features represented within the site and to ensure that they are maintained in, or restored to, a favourable condition. It will help achieve this through ensuring that suitable management measures are in place. The management scheme has been developed voluntarily by the relevant authorities and provides a key mechanism through which they will meet their statutory requirements under the Habitats Regulations.

The objectives of the management scheme are to

- audit the existing management measures in place on Morecambe Bay
- identify gaps or inadequacies in management
- address those measures which fall within the responsibility of the relevant authorities
- identify where additional measures are needed and which are not the direct responsibility of relevant authorities
- identify additional measures needed to promote interpretation and raise awareness of the natural environment of Morecambe Bay and its sustainable use.

The management scheme is only one of a series of duties and powers introduced by the Habitats Regulations and through which favourable condition will be achieved. The scheme will highlight links to these other duties, in particular:

- Regulation 21: the duty on English Nature to review its existing consents
- Regulations 48 & 49: the duty placed on competent authorities to not permit development or give any consent, permission or other authorisation for operations that will adversely affect the integrity of the European site unless there are imperative reasons of overriding public interest
- Regulations 50 & 51: the duty placed on competent authorities to review existing decisions and consents.

Morecambe Bay has a wide range of management initiatives already in place and this scheme does not replace or duplicate any such plans or the measures within them. This scheme draws actions from existing plans e.g. County and District Council Structure and Local Plans and Local Environment Agency Plans, plus further actions identified in a series of meetings with the relevant authorities and others.

The conservation objectives and advice on operations provided by English Nature as required by Regulation 33 of the Habitats Regulations (called the Regulation 33 advice in this scheme) define favourable condition and provide advice on operations, which may cause deterioration or disturbance. A more detailed technical document detailing English Nature's Regulation 33 advice is available and should be used in parallel with this management scheme (Reference: Morecambe Bay European marine site, English Nature's advice given under Regulation 33(2) of the Conservation (Natural Habitats &c.) Regulations 1994).

1.6 Relevant authorities responsible for the site

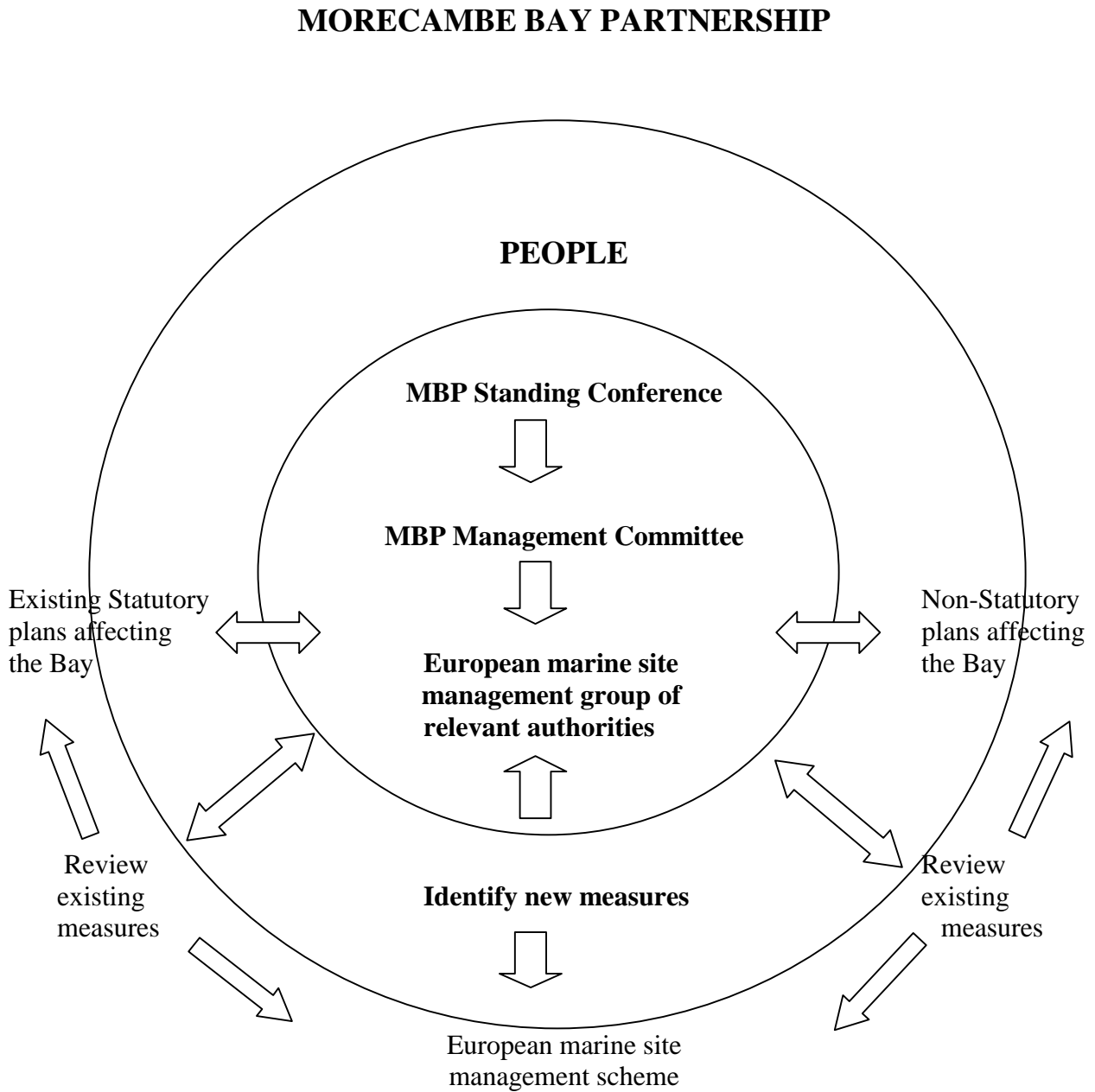
There are 13 relevant authorities around Morecambe Bay European marine site. See Annex A.

These authorities are equal members of the Morecambe Bay European marine site management group. Cumbria County Council provide the chair and English Nature has provided a project officer to facilitate the development of the management scheme. This group has no powers but serves to ensure that all relevant authorities contribute to develop and implement the scheme. Each relevant authority has to meet its duties under the Habitats Regulations.

The Standing Conference of the Morecambe Bay Partnership acts as the formal advisory group to the European marine site management group.

See Figure 1 for diagram of links between the Morecambe Bay Partnership and the European marine site management group.

Figure 1. Integration between the Morecambe Bay Partnership and other management groups and plans in Morecambe Bay.



2 Site description and reasons for designation

The text contained within this section of the management scheme is taken directly from, but does not replace, chapters 2, 3 and 4 of the Regulation 33 advice package for Morecambe Bay European marine site as issued by English Nature on 14th January 2000.

2.1 Special Area of Conservation

Morecambe Bay qualifies as a Special Area of Conservation for the following Annex I habitats as listed in the EU Habitats Directive

- Large shallow inlets and bays
- Mudflats and sandflats not covered by seawater at low tide (*Referred to in this document as intertidal mudflats and sandflats*)
- Glasswort *Salicornia spp.* and other annuals colonising mud and sand. (*Referred to in this document as pioneer saltmarsh*)
- Atlantic salt meadows *Glauco-Puccinellietalia* (*Referred to in this document as saltmarsh*).

The Morecambe Bay SAC also qualifies for the Annex I habitat coastal vegetated shingle. However, this occurs above the highest astronomical tide, and is outside of the European marine site, and is therefore not included within this document. Objectives to maintain coastal vegetated shingle in favourable condition are found within English Nature's conservation objectives 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.

2.2 Importance of SAC qualifying interests

2.2.1 Large shallow inlets and bays

Morecambe Bay is the second largest embayment in the UK, after the Wash. At low water, large areas of intertidal sandflats are exposed, with small areas of mudflat, particularly in the upper reaches of the adjoining estuaries. The sediments of the Bay are mobile and support a range of habitat and community types, from those typical of open coasts, where the sand is constantly on the move, to more sheltered areas where the sediment is less disturbed allowing more stable communities to develop. The diversity and composition of biological communities that occur in or on the sediments of Morecambe Bay are influenced by a number of key ecological factors. These include the hydrophysical regime (tides, waves and currents), the nutrient levels, temperature, oxygen levels, salinity and the composition of the substrate (Elliot *et al.*, 1998). The Bay is also important as a fish nursery area and is an important habitat for migratory fish species such as salmon *Salmo salar*, sea trout *Salmo trutta* and eels *Anguilla anguilla* (Potts & Swaby, 1993).

2.2.1.1 Key sub-features

Intertidal boulder and cobble skear communities

Although the Bay is principally a region of soft sediments there are important areas of exposed boulder and cobble skears, which provide an important habitat for a range of marine organisms and thus contribute to the structure of the Bay. The boulder and cobble areas are mainly colonised by mussel beds *Mytilus edulis* and associated species (Woombs, 1997) and there are also extensive reefs of the nationally scarce honeycomb worm *Sabellaria alveolata* colonising the boulder and cobble skears off Morecambe (Woombs, 1997).

Subtidal boulder and cobble skear communities

The wave sheltered subtidal boulder and cobble skear sites in the Walney Channel are particularly important as they provide a habitat for a nationally scarce assemblage of cushion sponges, hydroids and sea squirts which thrive in these tide-swept waters (George, 1992; Cook, 1998). The subtidal boulder and cobble areas are also densely colonised by mussel beds *Mytilus edulis* and associated species (Woombs, 1997).

Brittlestar bed communities

The tideswept waters of the Walney Channel are inhabited by a dense bed of brittlestars *Ophiothrix fragilis* (George, 1992) which are a key structural component of the area and may play an important role in local carbon and nutrient cycles. Brittlestar beds are a major concentration of biomass and provide food for a range of fish species.

Intertidal boulder clay communities

Exposed lower shore outcrops of boulder clay around the Bay provide a habitat for colonies of piddocks *Barnea candida*, which are a nationally rare species of bivalve (Woombs, 1997). These communities are fragile and contribute to the diversity of the Bay and the European marine site.

Coastal lagoon communities

Coastal lagoons are bodies of water, natural or artificial, partially separated from the adjacent sea. The coastal lagoons at south Walney contain soft sediments which support the macrophyte *Potamogeton pectinatus* and a range of other plant and animal species. These communities are fragile and contribute to the diversity of Morecambe Bay European marine site.

Intertidal mudflat and sandflat communities

Intertidal mudflat and sandflat communities form a large proportion and an important part of the site. They are classified in the Habitats Directive as an interest feature in their own right and are therefore described separately below. **See section 2.2.2**

Pioneer saltmarsh communities

Pioneer saltmarsh communities play an important role in the functioning of the site. They are classified in the Habitats Directive as an interest feature in their own right and are therefore described separately below. **See section 2.2.3**

Saltmarsh communities

Saltmarsh communities provide an important habitat within Morecambe Bay. They are also classified in the Habitats Directive as an interest feature in their own right and are therefore described separately below. **See section 2.2.4**

2.2.2 Intertidal mudflats and sandflats

Morecambe Bay represents the largest single area of continuous intertidal mudflats and sandflats in the UK and includes the best example of muddy sandflats on the west coast (Brown *et al.*, 1997). At low water, large areas of sandflats are exposed and these range from the mobile fine sands of the outer Bay to more sheltered sands in the inner areas. With increasing shelter in the Bay's five adjoining estuaries, finer sediments settle out and these form extensive mudflats, supporting a particularly rich and diverse range of infaunal species.

2.2.2.1 Key sub-features

Sand communities

Animal communities living within the sandy sediments over the central part of the Bay include high numbers of polychaete worms such as lugworm *Arenicola marina* and molluscs such as the Baltic tellin *Macoma balthica* and the edible cockle *Cerastoderma edule*. In more exposed areas with more mobile sand the communities are less diverse and include amphipods *Bathyporeia spp.* and the isopod *Eurydice pulchra* (Anderson, 1972; Adams, 1987; Rostron, 1992). The sand communities provide a rich feeding ground for internationally important populations of waterfowl, which overwinter in the Bay.

Mud communities

Towards the mouths of the estuaries feeding into the Bay, the salinity decreases and the sediment is finer. Muddy sediments support a high biomass of ragworm *Hediste diversicolor* and peppery furrow shell *Scrobicularia plana* and higher up the estuaries in lower salinity, ragworms and the burrowing amphipod *Corophium volutator* (Anderson, 1972; Adams, 1987; Rostron, 1992). The mud communities provide a rich feeding ground for internationally important populations of waterfowl, which feed in the Bay.

Eelgrass bed communities

An important feature of the intertidal mudflats and sandflats are the eelgrass beds *Zostera angustifolia* and *Zostera noltii* in the Walney Channel. Eelgrass beds are nationally rare (Stewart *et al.*, 1994) and this is the only example of this habitat in northwest England. Eelgrass beds are an important habitat as they provide important spawning, nursery and refuge areas for fish. They also help to stabilise the sediment, contribute to primary productivity and are an important food source for overwintering wildfowl (Davison & Hughes, 1998).

2.2.3 Pioneer saltmarsh

Glasswort *Salicornia spp.* communities

Pioneer saltmarsh covers extensive areas in Morecambe Bay and is dominated by glasswort *Salicornia spp.* Glasswort marsh occurs along the coastline of the Bay, forming a key stage in the transition from the extensive intertidal sand and mudflats to the distinctive saltmarsh of the site.

2.2.4 Saltmarsh

Morecambe Bay was chosen as being characteristic of saltmarshes in northwest England demonstrating large areas of closely grazed upper marsh (Brown *et al.*, 1997). Grazing by domestic stock has been particularly significant in determining the structure and species composition of the habitat type and in determining its relative value for plants, invertebrates and wintering or breeding waterfowl. A wide range of saltmarsh community types is represented in Morecambe Bay and the saltmarsh covers large areas, especially where there has been little or no enclosure on the landward side. In the upper levels of the saltmarsh there are also important transitional habitats from saltmarsh to freshwater and grassland vegetation.

This habitat makes a vital contribution to the structure and function of the Morecambe Bay system. Saltmarshes and mudflats form two elements of an interconnected and dynamic system, which is able to interact with the physical processes operating within the Bay.

2.2.4.1 Key sub-features

Low marsh communities

The lower levels of the saltmarsh, landward of the pioneer zone of glasswort *Salicornia*, experience a great number of tidal inundations, usually more than 360 a year. Because of this, the vegetation communities of the low marsh and low-mid marsh are often species poor, composed of plant species, which can withstand such conditions. Characterising species of this zone include extensive areas of saltmarsh grass *Puccinellia maritima* with smaller areas of sea purslane *Halimione portulacoides* in ungrazed areas.

Mid marsh communities

The mid marsh zone comprises a transition between low and upper marsh. As the number of tidal inundations becomes less frequent, the vegetation becomes more diverse with a more complex structure and a greater proportion of herbs. This zone is characteristically dominated by the saltmarsh grass/fescue *Puccinellia/Festuca* communities, of which over 1,000 ha occur in the Bay, and by smaller areas of saltmarsh rush *Juncus gerardii* community.

High marsh communities

At the upper levels of the marsh, tidal inundation only occurs on the highest spring tides and the vegetation reflects this with some species being restricted to this zone. The sea rush *Juncus maritimus* community is found in this zone and is more strongly represented in Morecambe Bay than elsewhere in England. Other important features of the higher saltmarsh communities include the saltmarsh flat-sedge *Blasmus rufus* and a few-flowered spike-rush *Eleocharis uniglumis* communities which are rare in Morecambe Bay (Burd, 1989).

Transitional high marsh communities

The higher marsh communities will grade into transitional communities at around extreme high water spring tide. Transitional communities are an important structural aspect of the upper saltmarsh. They may be freshwater transitional communities, such as the common reedbed *Phragmites australis*, common-club rush *Schoenoplectus tabernaemontanii* and sea club rush *Scirpus maritimus* communities, or grassland transitions include creeping bent *Agrostis stolonifera*, red fescue *Festuca rubra* and tall fescue *Festuca arundinacea* communities. Historically, where the upper saltmarshes have been truncated by sea walls, these habitats have been lost.

2.3 Special Protection Areas

Morecambe Bay also qualifies as a Special Protection Area for the following bird assemblages, as listed under the Birds Directive:

- Internationally important populations of regularly occurring Annex 1 species
- Internationally important assemblage of waterfowl and seabirds
- Internationally important populations of regularly occurring migratory species.

The Morecambe Bay SPA/Ramsar site was classified in October 1996, the citation for which was updated in 1997 and it is upon this citation that this advice is based. The site was extended in September 1999.

2.4 Importance of SPA qualifying interests

2.4.1 Importance of internationally important populations of the regularly occurring Annex 1 species

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, rare or vulnerable. Morecambe Bay is of importance for an internationally important population of breeding sandwich tern *Sterna sandvicensis*, a species listed on Annex 1.

2.4.1.1 Key sub-feature

Shingle areas

Sparsely vegetated shingle areas are an important nesting area for sandwich terns in the Bay. The main nesting areas are on Foulney and Walney Islands.

2.4.2 Importance of the internationally important assemblage of waterfowl and seabirds

The large areas of intertidal mudflats and sandflats in Morecambe Bay support dense populations of marine invertebrate species, which in turn provide a food source for large populations of waterfowl (wildfowl and waders). Morecambe Bay is one of the most important estuaries in the UK for wintering waterfowl regularly supporting over 20,000 birds (Cranswick *et al.*, 1995). During severe winter weather Morecambe Bay assumes even greater national and international importance as waterfowl arrive from other areas further inland, as they are attracted by the mild conditions and the abundant food resource. The Bay also supports an internationally important assemblage of breeding seabirds.

2.4.2.1 Key sub-features

Intertidal mudflat and sandflat communities

Intertidal mudflats on the site support high densities of invertebrates which are important as food for waterfowl. The high biomass of invertebrates includes species such as the Baltic tellin *Macoma balthica* (56,000 /m² max. recorded density), cockles *Cerastoderma edule*, mud snails *Hydrobia ulvae* (10,000 /m² max. recorded density), marine worms such as lugworms *Arenicola marina* and crustaceans such as *Corophium volutator* (9000 /m² max. recorded density). In general more sheltered areas with a relatively high silt content support a richer biomass than more exposed areas.

Intertidal and subtidal boulder and cobble skear communities

Boulder and cobble skears provide a hard substrate for a different range of prey species including dense beds of mussels. These areas are very important bird feeding habitats. Small mussels are eaten by knot, dunlin and turnstone and larger specimens are taken by oystercatchers and eider. The skear areas are also used as important mid-tide roosting areas.

Saltmarsh communities

Saltmarsh on the site provides important feeding, roosting and breeding areas for the Bay's bird life. The characteristic short sward height resulting from grazing pressure makes the saltmarsh an ideal 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.

Coastal lagoon communities

Coastal lagoons contain soft sediments which can support tasselweeds and charophytes as well as filamentous green and brown algae. They provide an important feeding and roosting habitat for waterfowl, marshland birds and seabirds. Cavendish Dock in the Walney Channel is of regional importance as the largest coastal lagoon in northwest England. The dock contains slightly brackish water, which is relatively warm because it receives cooling water discharges from the nearby power station.

It supports a rich growth of plants including beaked tasselweed *Ruppia maritima* and is an important site for feeding and roosting wildfowl and roosting waders. South Walney lagoons are also important for birds.

2.4.3 Importance of 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. As all these internationally important populations are included within the wintering waterfowl assemblage, and as they depend on the same marine habitats, they have been included in the conservation objective for the assemblage.

The key sub-features for the internationally important populations of regularly occurring migratory bird species are as for the wintering waterfowl and seabird assemblage.

Full details of the SAC and SPA interest features and their importance are set out in the Regulation 33 advice issued by English Nature.

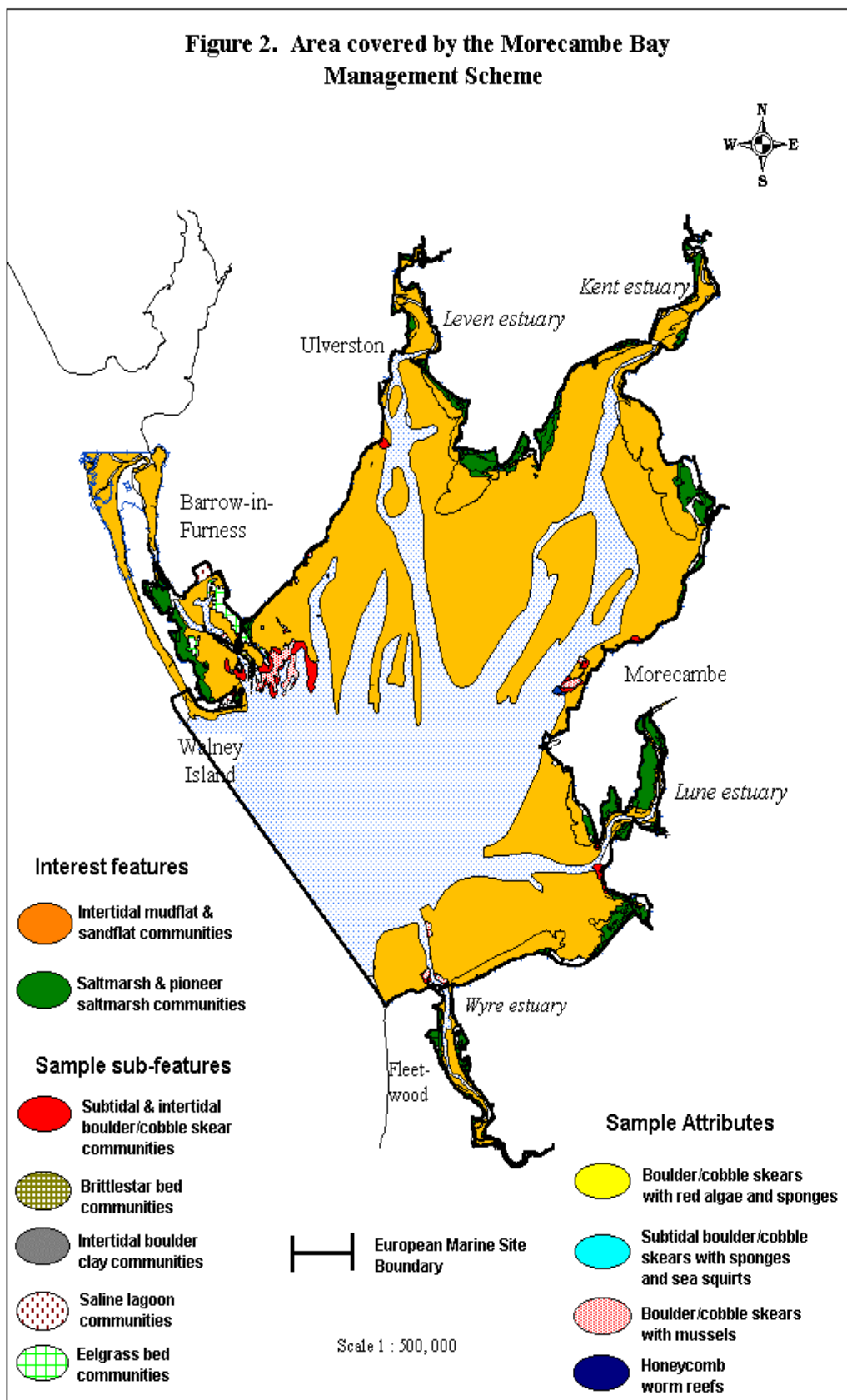
2.5 Morecambe Bay European marine sites boundary and management scheme area

There are two Morecambe Bay European marine sites, Morecambe Bay SPA and Morecambe Bay candidate SAC. The Morecambe Bay candidate SAC extends into and overlaps with the Duddon Estuary SSSI (which is itself an SPA and European marine site) to include the northern section of the Walney Channel, Scarth Bight and the shore of North Walney.

For practical management purposes and to tie in with the geographic coverage of the Duddon Estuary Partnership the parts of the Morecambe Bay candidate SAC European marine site which lie north of the Jubilee Bridge and are in the Duddon Estuary SSSI are excluded from this management scheme but will be included within the proposed Duddon Estuary European marine site scheme. Relevant authorities and English Nature will need to ensure that the Morecambe Bay cSAC interests are treated in a consistent manner across the two adjacent management schemes.

See Figure 2 for a map showing the area covered by the Morecambe Bay management scheme, the boundary of the Morecambe Bay European marine site and the location of the interest features within the site.

Figure 2. Area covered by the Morecambe Bay Management Scheme



3 Conservation objectives

English Nature is required by Regulation 33 (2) of the Habitat Regulations to advise all relevant authorities to the conservation objectives for the site. The role of the conservation objectives is to identify what needs to be achieved by all the relevant authorities in order to maintain the favourable condition of the site.

- They act as a starting point from which the management scheme can be developed
- They provide a basis for assessing what types of activities are likely to have a significant effect upon the interest features of the site
- They form the basis for determining the scope of “appropriate assessments” for plans and projects proposed within the site.

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 and for a more detailed explanation into the format and structure of these conservation objectives reference should be made to the advice package.

3.1 The conservation objectives for the large shallow inlets and bays

Subject to natural change, maintain the **large shallow inlets and bays** in favourable condition⁴, 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

3.2 The conservation objectives for the mudflats and sandflats not covered by seawater at low tide (intertidal mudflats and sandflats)

Subject to natural change, maintain the **mudflats and sandflats not covered by seawater at low tide (intertidal mudflats and sandflats)** in favourable condition⁴, in particular

- Mud communities
- Sand communities
- Eelgrass bed communities

3.3 The conservation objective for Glasswort *Salicornia spp* and other annuals colonising mud and sand (pioneer saltmarsh)

Subject to natural change, maintain the **Glasswort *Salicornia spp* and other annuals colonising mud and sand (pioneer saltmarsh)** in favourable condition⁴, in particular

- The glasswort *Salicornia spp* communities.

⁴ For a detailed definition of how to recognise favourable condition see table 2 in Regulation 33 advice (Section 6).

3.4 The conservation objectives for the Atlantic salt meadows *Glauco-Puccinellietalia* (saltmarsh)

Subject to natural change, maintain the **Atlantic salt meadows *Glauco-Puccinellietalia* (saltmarsh)** in favourable condition⁴, in particular

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

3.5 The conservation objectives for the SPA features are

Subject to natural change, to maintain in favourable condition⁴ the habitats of the **internationally important populations of regularly occurring bird species listed on Annex 1 of the Birds Directive**, in particular

- Shingle areas

(Numbers of birds using these habitats are given in Annex B)

Subject to natural change, to maintain in favourable condition⁴ the habitats of the **internationally important assemblage of waterfowl and seabirds and the internationally important populations of regularly occurring migratory species**, in particular

- Intertidal mudflat and sandflat communities
- Intertidal and subtidal boulder and cobble skear communities
- Saltmarsh communities
- Coastal lagoon communities

(Numbers of birds using these habitats are given in Annex B)

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.

4 Advice on operations

English Nature has a duty under Regulation 33 (2) (b) of the Habitats Regulations to advise other relevant authorities as to any operations, which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated.

4.1 Purpose of advice

The aim of this advice is to enable relevant authorities to direct and prioritise their work on the management of activities that pose the greatest potential threat to the favourable condition of interest features on the Morecambe Bay European marine site. The advice is linked to the conservation objectives for interest features. It has provided the basis for detailed discussions within the management group to develop the management scheme for the site. The Regulation 33 advice will inform, but is without prejudice to, any advice to be given subsequently under Regulation 48 or Regulation 50 on operations that qualify as plans or projects within the meaning of the Habitats Regulations.

To develop this advice on operations English Nature used a three step process involving

- an assessment of the **sensitivity** of the interest features or their sub-features to operations
- an assessment of the **exposure** to these operations
- a final assessment of **current vulnerability** to these operations; (the Regulation 33 assessment is included in Table 1).

All the assessments are derived using 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 knowledge and understanding of the marine environment. This process enables English Nature to identify to competent and relevant authorities those operations, which pose the most current threats to the favourable condition of the interest features on the European marine site.

For a more detailed explanation into the format and structure of this advice on operations refer to the Regulation 33 advice (Section 7) for the Morecambe Bay European marine site prepared by English Nature.

4.2 Summary of advice on operations

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

4.3 SAC interest features

4.3.1 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 Morecambe Bay 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
- 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.

4.3.2 Intertidal mudflats and sandflats

In pursuit of the conservation objective for the intertidal mudflats and sandflats, the relevant and competent authorities for Morecambe Bay 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
- 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.

4.3.3 Pioneer saltmarsh

In pursuit of the conservation objective for the pioneer saltmarsh, the relevant and competent authorities for Morecambe Bay 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
- Synthetic and/or non synthetic toxic contamination and/or radionuclides
- Translocation of species.

4.3.4 Saltmarsh

In pursuit of the conservation objective for the saltmarsh, the relevant and competent authorities for Morecambe Bay 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
- Synthetic and/or non synthetic toxic contamination and/or radionuclides
- Translocation of species.

4.4 SPA interest features

Sensitivity and vulnerability have been assessed in relation to the use of habitats by birds.

4.4.1 Annex 1 Bird Species

In pursuit of the conservation objective for habitats supporting internationally important populations of regularly occurring species listed on Annex 1 of the Birds Directive, the relevant and competent authorities for Morecambe Bay 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 habitats
- Physical damage from abrasion and or selective extraction
- Disturbance from noise and/or visual activities.

- Synthetic and/or non synthetic toxic contamination and/or radionuclides


4.4.2 Internationally important assemblages of waterfowl and seabirds including migratory species

In pursuit of the conservation objective for habitats supporting the internationally important assemblages of waterfowl and seabirds including internationally important populations of regularly occurring migratory species, the relevant and competent authorities for Morecambe Bay 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 habitats
- Physical damage from selective extraction
- Disturbance from noise and/or visual activities
- Nutrient and/or organic enrichment and/or changes in thermal regime
- Changes in salinity and turbidity
- Synthetic and/or non synthetic toxic contamination and/or radionuclides
- Biological disturbance through introduction of microbial pathogens and/or selective extraction of species for which the site has been selected or which form important food sources for such species.

Table 1. Assessment of the relative vulnerability of interest features and sub-features of Morecambe Bay European marine site to different categories of operations. Categories of operations to which the features or sub-features of the site are highly or moderately vulnerable are indicated by shading. Table also incorporates relative sensitivity scores used in part to derive vulnerability.

Key

	High vulnerability		High sensitivity
	Moderate vulnerability		Moderate sensitivity
			Low sensitivity
			No detectable sensitivity

This table has been copied from, but does not replace, Section 7 of the Regulation 33 advice package for Morecambe Bay European marine site.

Categories of operation which may cause deterioration or disturbance	Large shallow inlets & bays					Intertidal mudflats and sandflats		Pioneer saltmarsh	Saltmarsh
	<i>Intertidal & subtidal boulder & cobble & kear communities</i>	<i>Brittlestar beds</i>	<i>Intertidal mudflats & sandflats, Pioneer saltmarsh, and Saltmarsh</i>	<i>Intertidal boulder clay communities</i>	<i>Coastal lagoon communities</i>	<i>Mud and sand communities</i>	<i>Eelgrass bed communities</i>	<i>Glasswort communities</i>	<i>High, mid, low & transitional communities</i>
Physical loss									
Removal (e.g. harvesting, land claim)			(For information of the sensitivity and vulnerability of these sub-features see the individual assessments made elsewhere in this table).						
Smothering (e.g. by artificial structures, disposal of dredge spoil)									
Physical damage									
Siltation (e.g. run-off, channel dredging, outfalls)									

Categories of operation which may cause deterioration or disturbance	Large shallow inlets & bays					Intertidal mudflats and sandflats		Pioneer saltmarsh	Saltmarsh
	<i>Intertidal & subtidal boulder & cobble & skewar communities</i>	<i>Brittlestar beds</i>	<i>Intertidal mudflats & sandflats, Pioneer saltmarsh, and Saltmarsh</i>	<i>Intertidal boulder clay communities</i>	<i>Coastal lagoon communities</i>	<i>Mud and sand communities</i>	<i>Eelgrass bed communities</i>	<i>Glasswort communities</i>	<i>High, mid, low & transitional communities</i>
Abrasion (e.g. boating, anchoring, trampling).	●●●	●●	(For information of the sensitivity and vulnerability of these sub-features see the individual assessments made elsewhere in this table).	●●●	●●●	●●●	●●●●	●●●	●●●
Selective extraction (e.g. aggregate dredging, entanglement, turf cutting).	●●●●	●●●		●●●●	●●●●	●●●	●●●●	●●●	●●●
Non-physical disturbance									
Noise (e.g. boat activity)	●	●		●	●	●	●	●	●
Visual (e.g. recreational activity)	●	●		●	●	●	●	●	●
Toxic contamination									
Introduction of synthetic compounds (e.g. pesticides, antifoulants, PCBs)	●●●●	●●●●		●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
Introduction of non-synthetic compounds (e.g. heavy metals, hydrocarbons)	●●●	●●●		●●●	●●●	●●●	●●●	●●●	●●●
Introduction of radionuclides	●●●	●●●		●●●	●●●	●●●	●●●	●●●	●●●
Non-toxic contamination									
Nutrient enrichment (e.g. agricultural run-off, outfalls)	●●	●●	●●	●●	●●	●●●●	●●	●●	
Organic enrichment (e.g. mariculture, outfalls)	●●	●●	●●	●●	●●	●●●	●●	●●	
Changes in thermal regime (e.g. power stations)	●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●	

Categories of operation which may cause deterioration or disturbance	Large shallow inlets & bays					Intertidal mudflats and sandflats		Pioneer saltmarsh	Saltmarsh
	<i>Intertidal & subtidal boulder & cobble & skew communities</i>	<i>Brittlestar beds</i>	<i>Intertidal mudflats & sandflats, Pioneer saltmarsh, and Saltmarsh</i>	<i>Intertidal boulder clay communities</i>	<i>Coastal lagoon communities</i>	<i>Mud and sand communities</i>	<i>Eelgrass bed communities</i>	<i>Glasswort communities</i>	<i>High, mid, low & transitional communities</i>
Changes in salinity (e.g. water abstraction, outfalls)	●●	●●		●●	●	●●	●●●	●●●	●
Changes in turbidity (e.g. run-off, dredging)	●●●	●●●		●●●	●●●	●●●	●●●	●●	●●
Biological disturbance									
Introduction of microbial pathogens	●●	●●	(For information of the sensitivity and vulnerability of these sub-features see the individual assessments made elsewhere in this table).	●●	●●	●●	●●	●	●
Introduction of non-native species & translocation	●●	●●		●●	●●	●●	●●●●	●●●	●●●
Selective extraction of species (e.g. bait digging, wildfowling, commercial & recreational fishing)	●●●	●●●		●●●●	●●●	●●●	●●●●	●●●	●●●

Categories of operation which may cause deterioration or disturbance	Internationally important populations of regularly occurring bird species listed on Annex 1 of the Birds Directive.		Internationally important assemblage of waterfowl and seabirds, including the internationally important populations of regularly occurring migratory species			
	<i>Shingle habitats</i>	<i>Intertidal mudflats and sandflats</i>	<i>Intertidal mudflat and sandflat communities</i>	<i>Intertidal and subtidal boulder and cobble skew communities</i>	<i>Saltmarsh communities</i>	<i>Coastal lagoon communities</i>
Physical loss						
Removal (e.g. harvesting, land claim)	●●●●	●●	●●●●	●●●●	●●●●	●●●●
Smothering (e.g. by artificial structures, disposal of dredge spoil)	●	●●	●●●	●●●	●●●●	●●
Physical damage						
Siltation (e.g. run-off, dredging, outfalls)	●	●●●	●●	●●	●●	●●
Abrasion (e.g. boating, anchoring, trampling).	●●●●	●●	●●	●●	●●	●●
Selective extraction (e.g. aggregate dredging, entanglement, turf cutting).	●●●●	●●	●●	●●	●●	●●●●
Non-physical disturbance						
Noise (e.g. boat activity)	●●●●	●●	●●●●	●●●●	●●●●	●●●●
Visual (e.g. recreational activity)	●●●●	●●	●●●●	●●●●	●●●●	●●●●
Toxic contamination						
Introduction of synthetic compounds (e.g. Pesticides, antifoulants, PCBs)	●	●●●●	●●●●	●●●●	●●●●	●●●●
Introduction of non-synthetic compounds (e.g. heavy metals, hydrocarbons)	●	●●●	●●●	●●●	●●●	●●●
Introduction of radionuclides	●●	●●●	●●●	●●●	●●●	●●●
Non-toxic contamination						
Nutrient enrichment (e.g. agricultural run-off, outfalls)	●●●	●●	●●●	●●●●	●●	●●●●

Categories of operation which may cause deterioration or disturbance	Internationally important populations of regularly occurring bird species listed on Annex 1 of the Birds Directive.		Internationally important assemblage of waterfowl and seabirds, including the internationally important populations of regularly occurring migratory species			
	<i>Shingle habitats</i>	<i>Intertidal mudflats and sandflats</i>	<i>Intertidal mudflat and sandflat communities</i>	<i>Intertidal and subtidal boulder and cobble skew communities</i>	<i>Saltmarsh communities</i>	<i>Coastal lagoon communities</i>
Organic enrichment (e.g. mariculture, outfalls)	●	●●	●●●	●●●●	●●	●●●●
Changes in thermal regime (e.g. outfalls, power stations)	●	●●	●●	●●	●●	●●●●
Changes in salinity (e.g. water abstraction, outfalls)	●	●●	●●	●	●	●●●
Changes in turbidity (e.g. run-off, dredging)	●	●●●	●●	●●	●●	●●
Biological disturbance						
Introduction of microbial pathogens	●	●●	●●	●●	●●	●●
Introduction of non-native species & translocation	●	●●	●●	●●	●●	●●
Selective extraction of species (e.g. bait digging, wildfowling, commercial & recreational fishing)	●	●●●	●●●	●●●	●●●	●●●●

English Nature's advice on operations is derived from an assessment combining relative sensitivity of the features or sub-features with information on human usage of the site, to identify relative vulnerability to categories of operations. In accordance with Government policy guidance this advice is provided in the light of current activities and patterns of usage at the site. It is important therefore that future consideration of this advice by relevant authorities, and others, takes account of changes in the usage patterns at the site. In contrast, the sensitivity of interest features, or sub-features, is relatively stable with alterations reflecting improvement in our scientific knowledge and understanding. To this end, information on sensitivity has been included in this table to assist the management and advisory groups with the future management of the site.

5 Human activities, aspirations and objectives

5.1 Introduction

Morecambe Bay is used and managed by a wide range of organisations and user groups. There are various plans and strategies in place to manage activities within and around Morecambe Bay and these directly or indirectly include measures which will safeguard nature conservation interests. Many of the issues and actions required to ensure the sustainable management and future of the Morecambe Bay European marine site have been identified already in other plans, including the Morecambe Bay Strategy, the Arnsdale/Silverdale AONB Planning and Management Strategy, the Lake District National Park Management Plan, the County Council and District Council Structure and Local Plans, Shoreline Management Plans and the Local Environment Agency Plans.

This scheme, where appropriate, makes reference to such strategies and takes account of timetabled actions from agreed programmes, such as those contained in United Utilities Asset Management Plan 3 e.g. improvements to United Utilities infrastructure i.e. treatment systems, to provide improved water quality, is programmed on a 5 year schedule agreed between the Water company, EA and OFWAT. According to this timetable improvements are made.

Where there is a wide range of different activities and interest groups there is usually a need for mutual awareness and co-ordination to reduce possible conflicts of interest and objectives. This has been recognised as a particular need in coastal areas and coastal partnerships have developed to stimulate and facilitate constructive engagement between different interests. The Morecambe Bay Partnership fulfils such a role within Morecambe Bay.

5.2 The Morecambe Bay Partnership

The Morecambe Bay Partnership seeks to bring together many different interests for the good of the Bay. The Morecambe Bay Partnership aims to

- sustain our local communities, build a strong economy and ensure a healthy environment and, to these ends, involve public, private and voluntary bodies in the work of the Partnership.

The objectives of the Morecambe Bay Partnership are to

- establish a framework which encourages a process of local management through co-operation, improved dialogue and communication;
- allow the many different interests around the Bay to share their expertise and knowledge and ensure co-ordination in their work;
- promote social and economic well being for the Bay's communities;
- minimise conflict and improve understanding between groups;
- provide a lead in sustaining the distinctive natural and man-made features of Morecambe Bay for future generations.

This management scheme is prepared in the same spirit and seeks to effect the statutory and regulatory obligations, which flow from the European marine site status of the Bay in ways that as far as possible build upon the aims and objectives of the Morecambe Bay Strategy and Partnership. Through working closely with the Morecambe Bay Partnership during the development, consultation, launch and implementation of the management scheme it is intended to take account of users' views as fully as possible and develop wide support for the scheme and its action plan.

The Morecambe Bay Partnership website at www.morecambabay.org.uk provides more information about the work of the Partnership and its current activities.

6 Review of site management

6.1 The review process

The review process (Figure 3), which was agreed by the relevant authorities, is listed as follows

1. a list of operations/activities taking place in Morecambe Bay was prepared and grouped by broad category (Table 2)
2. representatives from the relevant authorities agreed to review those operations/activities, which fell within their area of responsibility or expertise. Other operations/activities were reviewed by volunteers
3. each review of a broad category of operations/activities forms a separate annex to the management scheme (Annexes 1-27)
4. a standard format was used for the reviews (Annex E). This was developed from the Countryside Management System for management planning and is similar to that used for the Cardigan Bay management scheme. For each operation/activity or group of these, the review
 - describes the activity
 - describes the present management and management objectives of the activity and any management aimed at safeguarding nature conservation interest
 - describes the nature of the potential effect of the activity on the feature
 - assesses the scale of natural changes and the possible effects of operations/activities outside of the site boundary
 - assesses the nature of the operation/activity or natural process and assigns it to a management option ('F list' - Table 3) category
 - sets out any measures already in place or new measures proposed to address the effects of the operation/activity or natural process
 - each review has been subject to assessment by English Nature to check that in English Nature's opinion the reviews are consistent with the Regulation 33 advice
 - the conclusions of the reviews once amended/agreed have been summarised into a single table (Table 4) in the management scheme.

6.2 Review results

The individual agreed reviews are included as Annexes 1-27 of the management scheme. The assessments and management objectives are brought together in Table 4.

Figure.3 The Review Process

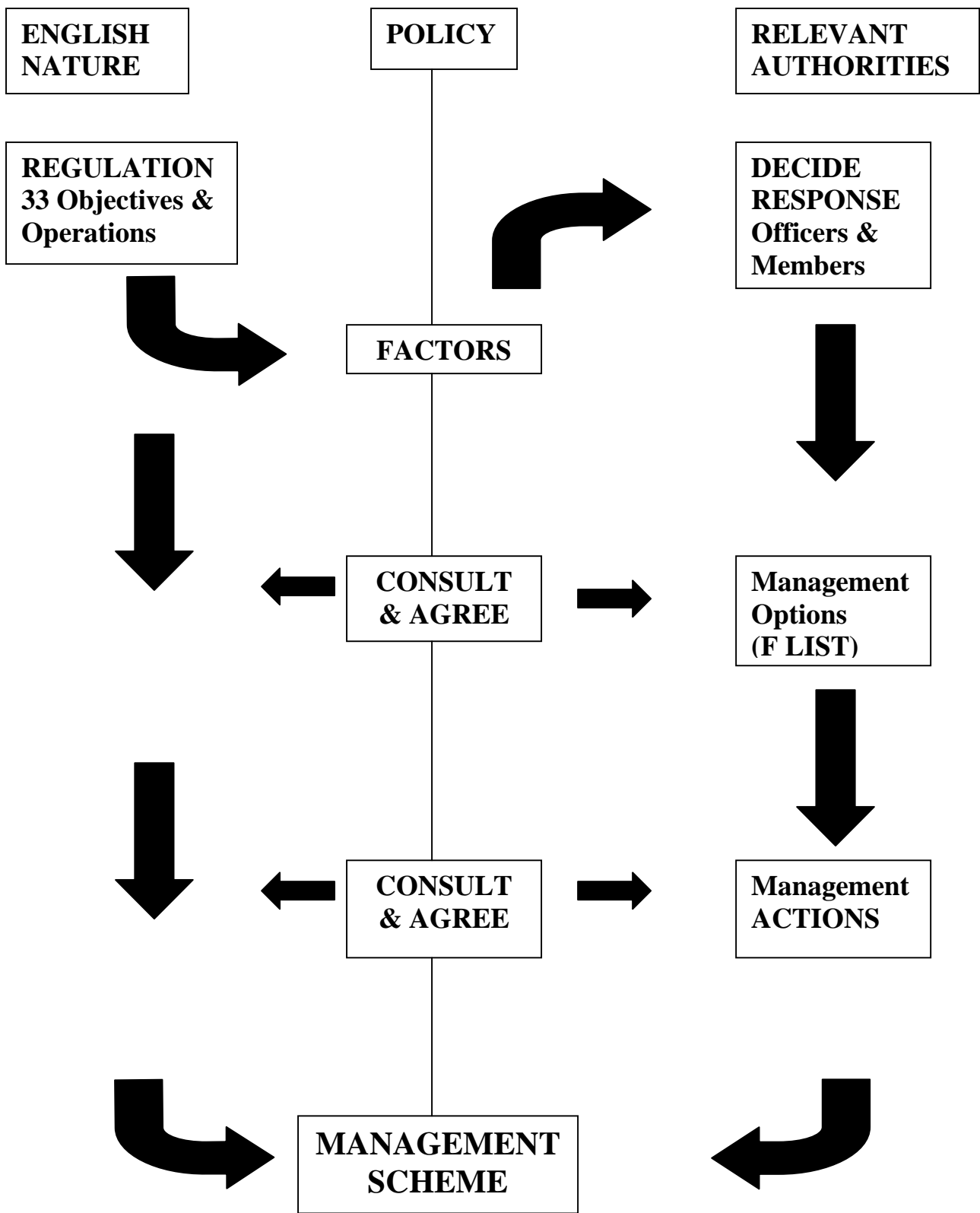


Table 2. Summary of operations/activities on Morecambe Bay used for the review of existing management.

Annex No.	Category	Activity	Relevant authority lead
1	Agriculture	Changes in land use	English Nature (C. Lumb)
2		Saltmarsh management	English Nature (C. Lumb)
3	Aquaculture	Oyster and Mussel cultivation	NW&NWSFC (J. Andrews)
4	Archaeology (marine & terrestrial)	Archaeological (marine & terrestrial) studies and protection	Lancashire County Council (J. Lynch)
5	Catchment management	Contaminated land	Lancaster City Council (J. Inman)
6		Freshwater abstraction	UU plc (A. Chester)
7		Pollution of coast - Oil & marine litter	Cumbria County Council
8		Run off - agricultural discharges	EA (S. Garner)
9		Sewage discharge	UU plc (A. Chester)
10		Liquid waste discharges (Consented)	EA (E. Mycock)
11	Coast protection and flood defence	- Construction of new works to reduce rates of erosion and instances of flooding. - Maintenance of existing works. - Execution of emergency works to maintain integrity of coastal defences following storm damage and / or damage arising from other causes.	Lancaster City Council - Engineering Services.
12	Coastal development	Barrages	Cumbria County Council (J. Hetherington)
13		Coastal land use and development	Cumbria County Council (J. Hetherington)
14		Waste disposal on land	Cumb/Lancs County Council (J. Hetherington)
15	Collection	- Bait collection - worms & crabs - Gathering of curios and plants	NW&NWSFC (J. Andrews)
16	Deposits at sea	Artificial reefs	MAFF (G. Bowles)
17		The disposal of capital and maintenance dredgings	MAFF (G. Bowles)
18	Energy industries	Alternative energy (e.g wind, tidal)	Cumbria/Lancs County
19		Electricity generation	Cumbria/Lancs County
20		Oil & gas	Cumbria/Lancs County
21	Fishing	- Cockling, Musseling & Shrimping - Trawling / Dredging / Static Gear - Angling - Migratory Fish - Access by vehicles	NW&NWSFC (J. Andrews)

Annex No.	Category	Activity	Relevant authority lead
22	Mineral exploitation	Coastal quarrying	Lancs County Council (J. Lynch)
23		Marine minerals	Lancs County Council (J. Lynch)
24	Recreation	Land, sea and aerial based activities	NW&NWSFC (J. Andrews)
25	Science & education	Sample collection and research work	English Nature (N. Fletcher)
26	Shipping & navigation	Dock, Port and Marina Development	Cumbria/Lancs County Council (J. Hetherington) ABP (S. Young)
27	Tourism	- Leisure activities - Camping - Festivals	Lancaster City (J. Trotman)

Table 3 Explanation of 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 7.8 of this document for an explanation of the F6 plans and projects option.

	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.

Table 4 Summary of the reviews of operations/activities, their management and management objectives

KEY: - RA = Relevant Authority (**Bold Text**)

CA = Competent Authority

Man. opt = Management option.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Agriculture							
1.	1. Land claim from the estuaries	Various	LPA MAFF EN EA	Planning System	Likely to be continuing to affect estuary form and function Loss and damage to upper shore saltmarsh and saltwater / land transitional habitats. Loss of coastal habitat which may not be replaced by further accretion Increase coastal squeeze Loss of feeding / roosting areas for waterfowl.	F5	1.1 Strongly resist further land claim. 1.2 Press for Coastal Habitat Management Plan (CHaMP) to be required and prepared for Morecambe Bay. 1.3 Develop Habitat Action Plan and Species Action Plan targets for Morecambe Bay, using national Habitat & Species Action Plan targets, combined with local requirements and opportunities, ensuring that they integrate with CHaMP requirements. 1.4 Take full account of the CHaMP and biodiversity targets in relevant plans.
1.	2. Drainage and agricultural improvement of coastal grazing marsh		EN MAFF	Wildlife & Countryside Act consents mechanism does not apply outside of SSSI's. Positive management schemes available. E.g WES	Reduction in roosting and feeding areas for wading birds. Loss of breeding areas for seabirds. May increase feeding habitat for some grazing ducks and geese.	F5	1.5 Identify coastal grazing marshes which are important as feeding and roosting areas for birds. 1.6 Seek opportunities to restore former areas of coastal grazing marsh.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Agriculture continued							
2.	1. Grazing of saltmarshes	Majority of marshes at varied levels	EN, MAFF	Wildlife & Countryside Act consents not effective at influencing within SSSI's; positive management schemes available e.g. Countryside Stewardship, Wildlife Enhancement Schemes	<p>Grazing of previously ungrazed marshes can lead to loss of plant diversity.</p> <p>Overgrazing of grazed marshes can reduce food source for birds.</p> <p>No grazing can result in the dominance of competitive plant species, with the loss of other plants like <i>Atriplex longipies</i>.</p> <p>Tall growth of saltmarsh can reduce the suitability of feeding / roosting areas.</p>	F5	<p>2.1.1. Review grazing levels, vegetation condition and waterfowl use.</p> <p>2.1.2 Seek to ensure saltmarshes are grazed appropriately for wildlife.</p>
2.	2. Supplementary feeding	Localised on some upper marshes	EN	Wildlife & Countryside Act consents not effective at influencing within SSSI's; positive management schemes available e.g. Countryside Stewardship, Wildlife Enhancement Schemes.	<p>Loss or damage to saltmarsh vegetation from trampling, overgrazing and localised enrichment</p> <p>Supplementary feeding is often associated with overgrazing.</p> <p>Loss of feeding / roosting areas for waterfowl and seabirds.</p>	F5	2.2. Seek cessation of stock feeding on saltmarshes.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Agriculture continued							
2.	3a. Cutting of sea rush	Occurs on some upper marshes e.g Kent Estuary	EN LPA	Wildlife & Countryside Act consents not effective; positive management schemes available e.g. Countryside Stewardship, Wildlife Enhancement Schemes	Reduction in sea rush <i>Juncus maritimus</i> which is a characteristic and important species that also provides cover for breeding & nesting birds.	F5	2.3.1 Identify and agree appropriate management regime for sea rush on each saltmarsh.
	3b. Control of <i>Spartina</i>	Localised on some marshes and intertidal flats			Main concerns about control measures = Disturbance of birds over large areas, restriction of mature saltmarsh development, destabilisation of sediments, unknown effects from release of nutrients from resuspended saltmarsh sediments.		2.3.2 Avoid management of <i>Spartina</i> which is likely to lead to conflict with saltmarsh conservation objectives. 2.3.3 Identify whether management of <i>Spartina</i> is needed for nature conservation purposes (eg to safeguard Eelgrass beds).
2.	4. Modification of saltmarsh structure	Localised on many marshes	LPA, MAFF, EN EA	<p>TCPA, FEPA, Wildlife & Countryside Act; positive management schemes available e.g. Countryside Stewardship, WES</p> <p>Third Party land drainage consents authorised by EA.</p> <p>Environmental Impact Assessment of agencies flood defence works on saltmarshes</p>	<p>Drainage or infilling of pans, access tracks, groynes etc can lead to loss of features, vegetation and diversity and affect saltmarsh functioning.</p> <p>Loss of feeding / roosting areas for waterfowl.</p>	F5	<p>2.4.1. Avoid significant modification of saltmarsh structure, features and functioning.</p> <p>2.4.2. Restore saltmarsh structure, features and functioning to a favourable condition.</p> <p>2.4.3. EA to avoid further damage to saltmarsh features and functioning.</p>

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Agriculture continued							
2.	5. Turf cutting	Locally intensive on some marshes Turf cutting is a long established activity at a small number of sites around Morecambe Bay.	EN	Wildlife & Countryside Act consents; positive management schemes available e.g. Countryside Stewardship, Wildlife Enhancement Schemes	Turf cutting and the fertilisation/herbicide treatment often associated can lead to loss of plant diversity. It may increase habitat diversity for waders. Regenerating turf cutting can provide a habitat for a range of otherwise restricted species (such as <i>Sagina maritima</i> and bryophytes like <i>Pottia hiemii</i>). Turf cutting plays a positive role in supplying material for ecological restoration of coastal sites. There is also the value of open substrate for recolonisation by annual species such as <i>Spergularia</i> and <i>Glaux</i> .	F3	2.5 Ensure that operations are not damaging the interests of the site.
2.	6. Burning of material on saltmarshes	Localised on some upper marshes	EN, EA	Wildlife & Countryside Act consents not effective; positive management schemes available e.g. Countryside Stewardship, Wildlife Enhancement Schemes	Burning of drift wood and other wrack on the upper marsh can lead to loss of marsh vegetation and diversity. Destruction of invertebrate habitat.	F3	2.6 Ensure that burning of drift on saltmarshes is not damaging the interests of the site.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Aquaculture							
3	1. Oyster cultivation.	Hatchery operations use the saline lagoons on South Walney. On-growing on trestles takes place on the lower shore at Roosebeck, Barrow.	MAFF	MAFF licence the cultivation & movement of shellfish & non-native species.	Biological disturbance to intertidal and lagoon communities through introduction of / management for non-native species.	F3	3.1 Ensure that oyster on-growing operations do not have an adverse effect. 3.2. Identify and promote measures needed to safeguard or restore nature conservation interests and consider how these can be integrated into hatchery and lagoon management.
			EN	Consents under Wildlife & Countryside Act	Vehicular access and human disturbance of feeding / roosting waterfowl during trestle operations at Roosebeck.		
				Reworking and restoration of saline lagoons as part of mineral extraction is regulated by planning permission and conditions.			
			DETR	DETR licence construction of trestles on the foreshore.	Hardening and loss of intertidal mud and sandflats by on-growing operations on trestles, leading to a reduction in bird feeding areas.		
Saline lagoon management = 1. Competitor control. 2. Management of salinity regime within lagoons. 3. Inoculation of lagoons with algae.	Physical, chemical and biological modification to saline lagoon system at S. Walney for growing plankton and supplying water to the rearing tanks, can lead to possible changes in lagoon community species composition. Saline lagoons are an interest feature of the site.						

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Aquaculture continued							
3.	2. Mussel cultivation	Previously undertaken on an experiment basis in the Bay at a small number of sites. (3 most recently)	NW& NW SFC EN	SFC Byelaw. Future operations may require a consent under the Wildlife & Countryside Act and NW&NW SFC may manage through a Several Order.	Physical loss (smothering) of existing wildlife habitats on boulder and cobble skears Dredging of seed mussels may impact upon the subtidal scars and species which feed upon the seed mussels, through physical damage to species assemblages by abrasion and a reduction in food supply for bird species who eat small mussels Bird disturbance associated with accessing, managing & harvesting of intertidal mussel beds.	F3	3.3 If mussel cultivation is proposed on anything other than an experimental basis it may be managed through a Fishery Order, with an associated management plan. This may need an appropriate assessment.
Archaeology (marine & terrestrial)							
4.	1. Archaeological evaluation and excavation	Low	EH LA	Ancient Monuments & Archaeological Areas Act 1979	Change in habitat e.g physical damage to saltmarsh habitat from excavation of archaeological site.	F6	4.1 Competent Authority (English Heritage) to review known interest, and ensure nature conservation interests are taken into account.
4.	2. Promotion of archaeological sites	Low	LA	Planning (Listed Buildings & Conservation Areas) Act 1990	Disturbance by visitors to bird interests.	F6	4.2 Assess potential impact of any proposals for increased access / interpretation, and ensure nature conservation interests are taken into account.
4.	3. Conservation of earthworks & built remains	Low	EH EA LA	Planning Policy Guidance Notes 15 & 16.	Loss/ damage to interest features - Physical loss of saltmarsh due to removal during excavation work	F6	4.3 Competent Authority (English Heritage) to assess any conservation plans or projects when works proposed, and ensure nature conservation interests are taken into account.
4.	4. Contamination through historic industry (ironworking, salt production etc)	Low (Bay wide)	LA EA EN	Planning Policy Guidance Notes 15 & 16.	Contamination of adjacent habitats from toxic/non-toxic compounds. Contaminated (brown field) land e.g slag banks from former ironworks, salt production etc may develop a characteristic & valuable wildlife interest e.g roosting & breeding sites for bird species.	F6	4.4 Identify all contaminated sites and the risks or opportunities presented to the nature conservation interest.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Catchment management							
5.	Leachate from contaminated land into the Bay	Low (bay-wide)	LA EA	Ongoing identification of the nature and extent of environmental risk and implementation of appropriate remediation approaches. Use of enforcement process also available.	Pollution of estuarine and coastal waters, damage to marine flora and fauna. Precise impacts are linked to quantity and depend on the nature and extent of pollution and its location, intensity, dispersion and dilution	F3	5.1 Surveillance. Appropriate systems for measurement and monitoring should be put in place for every site.
5.	Works that may create a pathway for contaminant movement from source to the Bay	Low	LA EA	Planning control EA Waste management 1991 Water Resources Act Finance control	Pollution of estuarine and coastal waters, damage to marine flora and fauna. Precise impacts are linked to quantity and depend on the nature and extent of pollution and its location, intensity, dispersion and dilution	F6	5.2 Apply Habitats Regulations 48-53 on a site specific basis and enforce pollution legislation.
6.	Major freshwater abstractions.	Rivers Leven, Lune and Wyre Low Intermittent abstraction depending on demand and weather	EA UU plc	Compliance with individual consent conditions is maintained. Ensure downstream residual flow is maintained before abstracting	Lack of dilution, increase in salinity of estuarine waters leading to a change in plant and animal species composition and food availability. Over-abstraction can affect estuarine habitats by reducing river flows. Changes in estuarine inputs can affect coastal processes including the balance of energy between ebb and flood tides.	F3	6.1 Apply Habitats Regulations 48-52.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Catchment management continued							
7.	1. Coastal oil pollution	Potential to be bay - wide	LPA (takes the lead) HA EA EN MCA	Legislation to prevent discharge of oily wastes to the marine environment e.g (MARPOL 73/78) County Councils and Port Authorities have Coastal Pollution Emergency Plans. Oil & gas companies need to comply with Merchant Shipping Regulations & the Offshore Petroleum & Pipelines Assessment of Environmental Effects Regulations 1998. OPRC plans required by ports and offshore operators.	Oiling / killing of seabirds, waders and wildfowl and marine mammals. Loss of feeding habitats. Smothering of shingle, sand dune and saltmarsh vegetation. Damage to rocky scar habitats, intertidal sediments and wildlife through smothering and toxic contamination. Damage resulting from inappropriate or insensitive clean - up action e.g. abrasion and trampling of habitat caused by vehicular access onto saltmarsh, loss of habitat due to the removal of oiled sand or shingle.	F3 / F5	7.1 Ensure that all oil spill plans are in place, up to date and can be acted on in an emergency. 7.2 Ensure relevant sections of “Good Practice Guidelines for Ports & Harbours, operating within or near UK Marine Sites” are in place for Morecambe Bay ports and docks. 7.3 Ensure that a comprehensive booming strategy has been prepared for Morecambe Bay.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Catchment management continued							
7.	2. Marine litter	Localised heavy accumulation Widespread lighter deposits.	LA EN EA	Port Authorities have Waste Management Plans Measures are in place to reduce dumping at sea e.g. MARPOL Special areas for garbage. UU plc / EA has educational role - "bag it / bin it" type campaigns.	Maiming / killing of wildlife by ingestion or entanglement of / in litter e.g. birds. Damage to strandline wildlife habitats on the shore from smothering effects of litter. Inappropriate or insensitive clean up can result in significant damage to interest features e.g Disturbance to birds from clean up teams and vehicles, trampling of saltmarsh and strandline habitats.	F3 / F5	7.4 Review extent of the litter problem and review control / clean up measures that are in place around the Bay. 7.5 English Nature, Environment Agency and Local Authority to reach agreement on methods of disposal of tidal wrack.
8.	1. Agricultural pollution (acute)	Catchment wide Currently not relevant	EA	Control of Pollution (Silage, slurry and agricultural fuel oils) Regulations 1991 Codes of Good Agricultural Practice Ground Water Regulations 1998.	The discharge 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 receiving estuary (if in sufficient quantity). Consequent effect on bird feeding habitats and food availability.	F3	8.1 Ensure monitoring systems are set up to detect pollution and enforce legislation.
8.	2. Agricultural pollution (incident)	Catchment wide One-off incidents	EA	Education of / talks given to farming groups.	As above, dependent on the size, type and location of the spill.	F3	8.2 Ensure systems are in place to respond to incidents. Enforcement actions taken as required.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Catchment management continued							
8.	3. Nutrient enrichment (diffuse agricultural run-off)	Catchment wide Low (Only part of total nutrient budget entering site)	MAFF EA	Education of / talks given to farming groups. Farmers are encouraged to have a waste management plan. Countryside Stewardship Scheme Sustainable Rivers Project.	An increase in nutrients to the system could result in accelerated growth rate of ephemeral algae which could lead to a change in species composition, die back of algae can lead to impacts on dissolved oxygen within the system. Can lead to greater species abundance of infauna therefore more food for birds, but is an artificial situation.	F3	8.3.1 Aim to gain better understanding of the diffuse catchment generated component of the total nutrient budget entering the Bay. 8.3.2 Review the water quality of Morecambe Bay and its monitoring programme and identify any changes which need to be made to the programme. 8.4 Educate farmers to ensure 'Good Agricultural Practice'.
8.	4. Increased sediment discharge into Morecambe Bay	Rivers entering Morecambe Bay	EA	Education of / talks given to farming and other interest groups. Information booklet "understanding riverbank erosion" published by EA	Increased sedimentation within the Bay. Blanketing effects	F3	8.5 Aim to gain a greater understanding of fluvial processes.
9.	1. Discharge of treated sewage effluent and settled storm sewage from existing WwTWs.	Catchment wide. Medium intensity but with potential localised impact.	UU plc EA	Water Resources Act. 1991 Environmental Protection Act 1990 Environment Act 1995 Water Industry Act 1991	Breakdown of organic matter may result in local dissolved oxygen depletion Nutrient enrichment Turbidity Possibility for blanketing of habitats Increased food availability for birds.	F3 F6 (new works)	9.1.1 Operate to achieve required discharge standards. 9.1.2 Review standards and issue discharge consents. 9.1.3 Define and agree any required improvements. 9.1.4 Deliver agreed programmed improvements in treatment.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Catchment management continued							
9.	2. Satisfactory & unsatisfactory storm sewage overflows and emergency overflows	Catchment wide. High intensity	UU plc EA	1991 Water Resources Act. 1990 Environmental Protection Act 1995 Environment Act Water Industry Act 1991	Breakdown of organic matter may result in dissolved oxygen depletion Nutrient enrichment Turbidity Possibility for blanketing of habitats Increased food availability for birds.	F5 F6 (new works)	9.2.1 Operate and maintain overflows in accordance with good management practice. 9.2.2 Deliver agreed programme to reduce the number of overflows and frequency of their operation.
9.	3. Trade effluent discharges to sewer	Low	UU plc EA	1991 Water Resources Act. 1990 Environmental Protection Act 1995 Environment Act Water Industry Act 1991	Direct toxic effects Bio-accumulation	F3 F6 (new works)	9.3.1 Establish standards. Issue discharge consents Ensure compliance Take enforcement action where necessary Operate to reduce impact on process and from residues. 9.3.2 Ensure consents are put in place for discharges of dangerous substances via the consenting process. Enforce consents appropriately.
9.	4. First time sewerage	Low	EA DC UU plc	1991 Water Resources Act. 1990 Environmental Protection Act 1995 Environment Act Water Industry Act 1991	Breakdown of organic matter may result in dissolved oxygen depletion Nutrient enrichment Turbidity Blanketing of habitats Increased food availability for birds.	F3 F6 (new works)	9.4 Identify and promote solutions in previously un-sewered areas.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Catchment management continued							
9.	5. Tankered wastes through WwTWs	Low	EA Waste Haulier UU plc	1991 Water Resources Act. 1990 Environmental Protection Act 1995 Environment Act Water Industry Act 1991	Direct toxic effects Bio-accumulation	F3 F6 (new works)	9.5.1 Provide suitable disposal options for tankered wastes. 9.5.2 Comply with Waste Regulations.
10.	1. Organic / inorganic nutrient discharges	Various throughout the Bay	EA EN	EA consents conditions	Increasing production above natural level	F5	10.1 Keep organic / inorganic nutrient loading to lowest practicable level - seek to achieve BATNEEC and EC Directive compliance (Urban Waste Water Treatment and Bathing Waters Directives). 10.1.2 English Nature and Environment Agency to identify the nutrients that are of concern and define target levels.
10.	2. Toxic discharges	Localised	EA	EA consents conditions 1991 Water Resources Act. 1990 Environmental Protection Act 1995 Environment Act Dangerous Substances Regulations / Directive	Direct toxicity to living organisms.	F5	10.2.1 Ensure conformity to best available information, usually Environmental Quality Standards. 10.2.2 Minimal levels of potentially cumulative materials.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Coast protection and flood defence							
11.	1. Coastal defences	Over discrete lengths of shoreline around Morecambe Bay Locally high	LPA EA	Being reviewed by SMP Planning Policy Guidance No.20 MAFF Flood and Coast Defence Strategy influences grant aid.	Changes to estuarine and coastal habitats and species, disruption of coastal processes, increased coastal squeeze. Changes to international and national designated nature conservation sites. Loss of feeding and roosting areas for waterfowl and seabirds.	F3 / F5	11.1.1 Secure funding for and implement priority strategic and monitoring studies. 11.1.2 Keep SMP under review including ensuring that it takes full account of the implications of climate change. 11.1.3 Continue monitoring of the River Winster training wall. 11.1.4 Prepare Coast Strategy Plans for coastal defence proposals which may affect wider areas, to ensure that coastal processes and the environment are safeguarded. 11.1.5 Press for Coastal Habitat Management Plan (CHaMP) to be required and prepared for Morecambe Bay, to identify coast protection and flood defence measures which need to be taken to fulfil obligations under the Habitats Regulations. 11.1.6 Development plans need to include policies and proposals which prevent or remove development from land at risk of erosion or flooding over the next 30-100 years.
11	New coastal protection and flood defence proposals		LPA EA	Planning legislation and development plans.		F6	11.1.7 Assess proposed works as a plan or project under the Habitats Regulations, using the improved information base.
11.	2. Estuarine flood defences	Locally high	EA	The Lune Estuary is included within the Morecambe Bay SMP. A separate SMP is being prepared for the Kent Estuary. It is planned to include the Leven in future. The Wyre also needs to be addressed.	Loss/damage of estuarine and coastal habitats and species, disruption of coastal processes, increased coastal squeeze. Loss and damage to international and national designated nature conservation sites. Loss of feeding and roosting areas for waterfowl and seabirds.	F5	11.2 Ensure that all parts of Morecambe Bay are brought within Shoreline Management Plans as soon as possible. 11.3 Ensure that a Coastal Habitat Management Plan is prepared for Morecambe Bay. 11.4 Identify how to ensure that there is a strong community participation in the SMP and CHaMP processes and ownership of the actions proposed. 11.5 EA to determine consents. 11.6 Assess new capital and substantial maintenance works as a plan or project under the Habitats Regulations. 11.7 Review existing maintenance programmes.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Coastal development							
12.	Barrage construction	None currently proposed.	LPA	Would need permissions or consents under TCPA, FEPA etc	Major adverse effect on site integrity is inevitable.	F6	12.1 Assess any proposals as plans or projects under the Habitats Regulations.
13.	1. Industrial development	Low	LPA	Planning legislation and development plans Habitats Regulations Wildlife & Countryside Act 1981	Loss or damage to habitats and feeding / roosting areas for waterfowl and seabirds through removal and smothering. Disturbance to birds. Increased risk of accidental pollution or controlled discharges. Possible changes to coastal processes.	F6	13.1.1 To prevent the loss, damage or disturbance of interest features and species within the Bay from industrial pollution. 13.1.2 To ensure that development within land adjacent to the European marine site and at risk of coastal flooding or erosion over the next 30-100 years does not conflict with obligations under the Habitats Regulations.
13.	2. Port Development	Low	HA DETR (Ports Div.) MAFF	Planning regulation, consent under Coast Protection Act.	Channel dredging, Barrow, Heysham and Fleetwood Loss or damage to habitats and feeding / roosting areas for waterfowl and seabirds through removal and smothering.	F6	13.2 DETR to review all existing consents. 13.2.1 To ensure that development within land adjacent to the European marine site and at risk of coastal flooding or erosion over the next 30-100 years does not conflict with obligations under the Habitats Regulations.
13.	3. Housing development	Low	LPA	Planning legislation Development plans	Disturbance to birds from increased recreational activity. Loss or damage to land adjacent to the European marine site used as roosting / feeding sites for internationally important bird populations.	F6	13.3 To prevent the loss, damage or disturbance of interest features and species within the Bay from housing development.
13.	4. Minerals	Low	CC DETR CEC	Planning regulations Cumbria and Lancashire Minerals and Waste Local Plans.	Removal of sand and shingle from the coastal zone can lead to loss and damage of coastal habitats and affect current or future shoreline management. Loss of nesting habitat for terns and roosting waterfowl.	F6	13.4 Ensure that mineral extraction does not damage coastal processes and habitats. Assess as a plan or project if development proposals arise.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Coastal development continued							
13.	5. Waste Disposal	Low	CC EA	Planning regulations Waste licensing	Disturbance to birds. Loss or damage to land adjacent to the European marine site used as roosting / feeding sites for internationally important bird populations.	F6	13.5 Ensure that waste disposal does not damage coastal processes and habitats Assess as a plan or project if development proposals arise.
13.	6. Recreation / Tourism	Low Localised	DC	Planning regulations	Damage or disturbance of interest features, including trampling of habitats and bird disturbance.	F6	13.6 Prevent the loss, damage, or disturbance of interest features and species within the Bay from recreation and tourism pursuits and activities.
14.	Landfilling of waste	3 sites within Lancashire & 1 in Cumbria that are in the general area of the EMS:- Cotestones Salt Ayre Jameson Rd (Fleetwood) South Walney	LCC CCC EA	Regulated by the County Councils through the Town & Country Planning System. E.g. LSP, LMWLP, CMWP and C&LDJSP EA issue licences covering operational and post closure management of sites.	Possible water pollution from leachate. Disturbance to coastal processes through associated coast protection works. Loss or damage to coastal interest features, directly or as a consequence of coast protection works. Increased food availability can result in un-naturally high populations of gulls. This can impact on other interest features as it may raise the level of predation on the eggs and chicks of other birds.	F6	14.1 Identify how the coastline can be managed sustainably to take account of current and historic landfill sites.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Collection							
15.	1. Bait (worms)	Widespread but localised Low intensity	EN LA in respect of hazards to public health and safety.	Any person can gather a small number for their own use, but it is illegal to gather worms for commercial purposes without the landowner's permission. In some parts of the Bay bait digging is subject to byelaw control.	Removal of species, affecting mud & sand, & boulder and cobble skears through selective extraction. Physical damage or disturbance to mud & sand, & boulder and cobble skear habitats through trench digging & surface trampling. Change in composition of mud and sand and boulder and cobble skear communities. Disturbance of birds and removal of / reduction in their prey species (worms).	F3	15.1 Ensure the scale of activity is monitored to trigger a review if it is thought likely to become significantly damaging.
15.	2. Bait (shore crabs)	Distribution and intensity not well known. Walney Channel has substantial levels of activity.	NW & NW SFC EN	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 permission of the landowner.	Removal of bait species affecting boulder and cobble skears and mud and sand through selective extraction. Placing of crab shelters on the shore (pipes, sheets etc) to aid harvesting can damage habitats and increase the numbers of crabs removed. Disturbance (boulder turning) affecting boulder and cobble skears / reef interest features. Disturbance of birds.	F3	15.2 Review the distribution, intensity and impact of this activity on skears around Morecambe Bay, priority being on the Walney Channel
15.	3. Collection of curios	Negligible	EN	Landowner may require consent from EN	Abrasion (trampling) of intertidal areas.	F3	15.3 Ensure the collection of curios is non - damaging and is consented where necessary.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Collection continued							
15.	4. Collection of plants	Samphire (<i>Salicornia spp.</i>) gathered at low intensity, for personal use.	EN	Landowner requires consent from EN before giving permission.	Removal from pioneer saltmarsh Abrasion (trampling) of pioneer saltmarsh. Selective extraction from pioneer saltmarsh. Disturbance of waterfowl or seabirds if widespread.	F3	15.4 Ensure the harvesting of plants is non - damaging and consented.
Deposits at sea							
16.	Construction of artificial reefs	Currently no proposals	DETR	FEPA Licence DETR Consent	Loss or damage to habitats. Effects on coastal processes. Pollution from materials used in construction.	F6	16.1 Avoid damage to coastal processes, habitats and species from construction of artificial reefs.
17.	Disposal of dredged material at designated sites.	Various	MAFF	Surveillance monitoring of disposal site Bathymetric surveys	Smothering of intertidal habitats by dredge spoil. Shallowing of disposal site	F3	17.1 Aim to gain greater understanding of the impact of disposal of dredgings, in terms of sediment movement.
Energy industries							
18.	Renewable energy	None at present within site.	DETR MAFF	Government Review Procedures Habitats Regulations	Depends upon the type of scheme proposed and its location.	F6	18.1 Ensure relevant authorities are aware of relevant Offshore Development Regulatory Framework and opportunities to comment on proposals.
19.	1. Cooling water outflow	Heysham High	EA	Integrated Pollution Control Procedures	Enhanced water temperature locally increasing productivity. Biocides possibly affecting biota locally.	F3	19.1 Review and ensure compliance with consents.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Energy industries continued							
19.	2. Radioactive effluent discharges	All sources Low Level	EA	Regulated by radioactive substances consent procedures	All features have moderate sensitivity to radionuclides. Radioactive material adsorbs onto the surface of sediments, including the finest sediments.	F3	19.2 Continue to improve the quality of effluent discharges where appropriate.
19.	3. Underground storage of liquefied gas	Roosecote	EA	Integrated Pollution Control Procedures	Potential effects of spillage of toxic products.	F3	19.3 Review and ensure compliance with consents.
19.	4. Development of new electricity generation	None proposed	Central Gov. DTI LPA	Electricity Act 1989 Habitats Regulations	Unknown - Site specific	F6	19.4 Local Planning Authority to maintain current services and where possible make improvements.
19	5. Operation of Roosecote Power station Cavendish Dock	Barrow Locally high	EA EN	Integrated Pollution Control Procedures.	Interest of SPA dependent upon continuing thermal discharge and environmentally sensitive management of discharges and the site.	F5	19.5 Ongoing implementation, development and review of agreed management plan by Lakeland Power Achieve increased flushing of Cavendish Dock with saline water to increase salinity and increase favourable condition. Reduce nutrient inputs to Cavendish Dock from Mill Beck.
20.	1. Disposal of spoil around drilling platforms	Currently no proposals within EMS	DTI DETR EN	Consents for the location of offshore installations	Acute contamination of the seabed under and around drilling rigs.	F6	20.1 Ensure that disposal of spoil does not prevent the wildlife interests achieving favourable condition.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Energy industries continued							
20.	2. Oil extraction	No oil production in / close to Morecambe Bay.	DTI DETR	Consents for production Offshore Petroleum & Pipelines Assessment of Environmental Effects Regulations 1998.	Potential for oil spills. Damage or disturbance through spills or laying associated pipelines.		20.2 Ensure the extraction of oil or gas does not prevent the wildlife interests achieving favourable condition.
20.	3. Natural gas production	High gas production outside of Morecambe Bay EMS in Morecambe Gas Field.	DTI DETR EN LPA		Spillage of condensate unlikely to affect site. Spillage of diesel might affect birds.	F3	20.3 Ensure that damage to the site is avoided.
20.	4. Exploration and development of oil and gas	No proposals within the site.	DTI DETR CC EN	Environmental Impact Assessment Habitats Regulations Policy frameworks to consider planning applications	Damage or disturbance of habitat in area of the well head and associated pipelines. Risk of pollution / toxic contamination.	F6	20.4 Ensure that damage to the site is avoided from oil and gas exploration and development and nearshore / offshore renewable energy developments.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Fishing							
21.	1. Cockling	Locally intensive - on cockle beds that can support commercial fishing.	NW & NW SFC MAFF EN	Managed under Sea Fisheries Acts / byelaws.	Cockles are a characteristic feature of the interest feature - harvesting could damage this interest. Removal of prey species, disturbance (digging) and selective extraction affecting mud and sand. Disturbance affecting birds.	F3	21.1 Ensure that cockle harvesting operations in Morecambe Bay are undertaken in a fisheries and ecologically sustainable way.
21.	2. Musseling a) Harvesting by hand. b) Harvesting by dredging for re-laying outside of Morecambe Bay.	Locally intensive - on mussel skears at North Wharfe, Heysham and Walney / Foulney.	NW & NW SFC MAFF	Managed under Sea Fisheries Acts / byelaws.	Mussels are a characteristic feature of the interest feature - harvesting could damage this interest. Physical damage or disturbance to skears and mussel beds from selective extraction & dredging. Physical disturbance of mud & sand from vehicle trampling. Disturbance to birds during harvesting and removal of prey species for birds and fish.	F3 / F5	21.2 Ensure that the mussel fishery within Morecambe Bay is undertaken in a fisheries and ecologically sustainable way.
21.	3. Shrimping	Locally intensive in channels in the sandy parts of the Bay.	NW & NW SFC MAFF	Managed under Sea Fisheries Acts / byelaws.	Removal of prey species and disturbance affecting the large bay interest feature and intertidal mud/sand flats.	F3	1.3 Ensure that shrimping does not prevent the wildlife interests achieving favourable condition.
21.	4. Trawling / Dredging	Very little trawling in the Bay. Mostly concentrated in the outer parts.	NW & NW SFC MAFF	Managed under Sea Fisheries Acts / byelaws.	Removal of species, disturbance and harvesting of fish affect the large bay interest feature.	F3	21.4 Ensure that trawling / dredging does not prevent the wildlife interests achieving favourable condition.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Fishing continued							
21.	5. Static gear (net and long lines)	Long lines are set on the shore through out the Bay. Wide range of species targeted.	NW & NW SFC MAFF	Managed under Sea Fisheries Acts / byelaws.	Removal of species, disturbance and harvesting of fish affect the large bay interest feature.	F3	21.5 Ensure that static gear fishing does not prevent the wildlife interests achieving favourable condition.
21.	6. Angling	Popular in the Bay from both shore and boats. Peak activity in summer months.	NW & NW SFC MAFF	Managed under Sea Fisheries Acts / byelaws.	Removal of species, disturbance of birds and harvesting of fish affect the large bay interest feature. Potential for injury or death of marine species, particularly birds, from entanglement in discarded lines and fish hooks.	F3	21.6 Ensure that angling does not prevent the wildlife interests achieving favourable condition.
21.	7. Migratory fish	Intertidal areas	EA	Salmon and Freshwater Fisheries Act 1975. Net limitation order and rod licence.	Removal of species. Possible disturbance to birds as a result of migratory fishing practices.	F3	21.7 Achieve the sustainable management of the fishery.
21.	8. Access by vehicles	Locally intensive on mussel skears.	LA EN	Access permissions required from foreshore landowners; consent required from EN, accept where Public Right of Way.	Abrasion (trampling) affecting intertidal saltmarsh and shingle interest features. Disturbance of birds.	F3	21.8 Ensure that access to fisheries does not result in significant damage or disturbance to wildlife interests.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Mineral exploitation							
22.	Coastal quarrying	None at present within Lancashire	LA	Extractions regulated by Town & Country Planning Acts Structure Plans Minerals & Waste Local Plans	Destruction / removal of habitat	F6	Assess any new proposals for coastal quarrying as plans or projects under the Habitats Regulations.
		Shingle extraction from South Walney coastal lagoons	CCC	Planning permission has attached Section 106 agreement	Removal of shingle deposits and associated habitats. Modification of existing saline lagoon system. Indirect (noise) and visual disturbance (movement of machinery and people) of bird populations.	F5	22.1.1 Ensure that South Walney coastal lagoon site is satisfactorily restored.
23.	Exploitation of marine minerals	Landing of marine aggregates worked from the Morecambe Bay area at Heysham	CEC DETR MAFF EN EA	Production licences	Damage or loss of areas of marine habitat. Damage to coastal processes.	F6	23.1 To ensure that exploitation of marine minerals does not prevent the wildlife interests achieving favourable condition.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Recreation							
24.	Land Based: 1. Birdwatching	General and at Nature Reserves (including use of nature trails)	LA EN BBC NT	Public access allowed on foot	Disturbance of saltmarsh Disturbance to birds.	F3	24.1.1 Support increased bird watching which takes place in a sensitive manner. Encourage recording of bird numbers and distribution around Morecambe Bay.
24.	2. Cross Bay Walks	General seasonal (100+ walkers at a time)	LA EN	Queens Guide organises and leads groups.	Disturbance of saltmarsh Disturbance to birds	F3	24.1.2 Ensure that walks continue to be undertaken in an environmentally sensitive manner.
24.	3. Vehicles, quad, mountain and motor bikes	General (medium to low) Intensive locally	LA EN RSPB	Longstanding public access onto the beach for cars, bikes etc. Cleansing by Wyre BC Beach access for cars now stopped at Hest Bank	Physical damage to saltmarsh and mud and sand. Disturbance of wildlife. Possible disturbance of birds at spring/autumn low tides.	F3 / F5	24.1.3 To stop unauthorised 4 wheel drive access on to the shores. Ensure that authorised access on to the shore does not result in significant damage or disturbance to wildlife features.
24.	4. Wildfowling	General	EN	Management plans agreed between wildfowling associations, BASC and EN.	Physical damage to saltmarsh. Disturbance to birds	F3	24.1.4 Ensure that wildfowling management plans contain appropriate measures to safeguard or restore favourable condition.
24.	5. Camping	Occasional / Low	EN	RSPB control	Disturbance to birds.	F3	24.1.5 Ensure that camping does not prevent the wildlife interests achieving favourable condition.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Recreation continued							
24.	6. Horse riding	Bolton - le-Sands Hest Bank	LA	No active management.	Possible disturbance to birds at spring / autumn low tides. Physical damage to saltmarsh and mud and sand. Trampling and creation of unofficial footpaths on saltmarshes	F3	24.1.6 Ensure that horse riding activities does not prevent the wildlife interests achieving favourable condition.
24.	7. Walking (including dog walking)	General (including Cumbria and Lancashire Coastal Way) Medium	LA EN LCC CCC SLDC	Signing managed by Local Authorities	Localised physical damage to saltmarshes and mud and sand. Footpath severely affected by weathering wind and tide in places Possible disturbance to birds at breeding, feeding and roosting sites. Trampling and creation of unofficial footpaths on saltmarshes	F3 / F5	24.1.7 Ensure that public access does not result in significant damage or disturbance to wildlife habitats and species. Identify and address disturbance problems caused by dog walking.
24.	Water Based: 1. Boat Angling	General and Launch sites Heysham (Club) (Medium)	NW & NW SFC MAFF LA EN	Coastguard Agency Use of trailers to launch boats monitored by City Council	Minimal effect on foreshore at low tide from abrasion and trampling.	F3	24.2.1 Ensure that boat angling does not prevent the wildlife interests achieving favourable condition.
24.	2. Canoeing	General Arnside (Low)	LA EN	Coastguard Agency	Disturbance to birds if close to breeding or roosting sites. Localised physical damage to saltmarshes and mud and sand.	F3	24.2.2 Ensure that canoeing does not prevent the wildlife interests achieving favourable condition.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Recreation continued							
24.	3. Dinghy Sailing	Arnside Wyre Estuary Walney Channel	LA EN HA in harbour areas	Managed through representative bodies, RYA, local clubs etc. Coastguard Agency Powers of Direction & other Byelaws	Disturbance to birds Localised physical damage to saltmarshes and mud and sand.	F3	24.2.3 Ensure that dinghy sailing does not prevent the wildlife interests achieving favourable condition.
24.	4. Diving	Walney Channel	HA in harbour areas	Powers of Direction & other Byelaws Code of conduct	Damage to sponge communities in the Walney Channel.	F3	24.2.4 Ensure that diving does not prevent the wildlife interests achieving favourable condition.
24.	5. Jet skiing	Lune Estuary Wyre Estuary	LA EN HA in harbour areas	Yacht Club and Borough Council operate main slipways. Ad hoc user group with code of conduct Coastguard agency Powers of Direction & other Byelaws	Disturbance to birds Disturbance of saltmarsh and river mud at low tide.	F3	24.2.5 Ensure that jet skiing does not prevent the wildlife interests achieving favourable condition.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Recreation continued							
24.	6. Motor cruising	Fleetwood dock Morecambe Walney Channel (+ Roa Island) Glasson Dock	LA EN HA in harbour areas	Byelaws and promenade supervision Coastguard agency Powers of Direction & other Byelaws	Disturbance to birds	F3	24.2.6 Ensure that motor cruising does not prevent the wildlife interests achieving favourable condition.
24.	7. Power boating and water skiing	Lune Estuary Wyre Estuary (Medium)	LA EN HA in harbour areas	Byelaws enforced through Promenade supervisor User Group Meetings Yacht Club and Wyre BC. <i>Ad hoc</i> user group with code of conduct. Coastguard agency Powers of Direction & other Byelaws	Disturbance to birds Disturbance of saltmarsh and river mud at low tides.	F3	24.2.7 Ensure that power boating and water skiing does not prevent the wildlife interests achieving favourable condition.
24.	8. Shore angling	General (low all year round)	LA EN	Lancaster City Council, Tourism Service, Promenade Supervisor AONB office cleans up debris	Disturbance and removal of species. Potential for injury or death of marine species, particularly birds, from entanglement in discarded lines and fish hooks.	F3	24.2.8 Ensure that shore angling does not prevent the wildlife interests achieving favourable condition.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Recreation continued							
24.	9. Wind surfing	General Low	LA EN Private Sailing Club RSPB	Interim Promenade and Foreshore management Plan 1996. Morecambe Bay User Group. Maritime & Coastguard Agency	Possible disturbance of birds at spring / autumn low tides. Localised physical damage to saltmarshes and mud and sand.	F3	24.2.9 Ensure that wind surfing does not prevent the wildlife interests achieving favourable condition.
24.	10. Yachting	Fleetwood and Glasson Docks Morecambe and Heysham (low but all year round) Wyre Estuary (Medium)	LA EN HA in harbour areas	Interim Promenade and Foreshore Management Plan 1996. Vehicle access to slipways limited by permit. Yacht Club and Wyre BC operate main slips. <i>Ad hoc</i> user group with code of conduct. Powers of Direction & other Byelaws	Disturbance of birds Disturbance of saltmarsh and river mud at low tide.	F3	24.2.10 Ensure that yachting does not prevent the wildlife interests achieving favourable condition.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Recreation continued							
24.	11. Hovercraft	(Occasional) Pilling Sands (Flook Hall) Wyre & Lune Estuaries Flookburgh to Ulverston	MCA	Light sports hovercraft are regulated by the Hovercraft Club of Great Britain with the consent of the MCA. North West Branch has a Voluntary Code of Practice.	Indirect (noise) and visual disturbance (movement of hovercraft and people) of bird populations if close to breeding or roosting sites. Localised physical damage to saltmarshes and mud and sand.	F3	24.2.11 Ensure that hovercrafting does not prevent the wildlife interests achieving favourable condition.
24.	Aerial Recreation: 1. Microlights & helicopter joy flights	Cockerham Sands / Flook Hall (Medium) Central Pier	LA	Microlight club- Locally agreed Voluntary Code of Practice. Referred to in planning permission for Tarn Farm landing area.	Disturbance of birds and wildlife.	F3	24.3 Ensure that microlighting and helicopter flights do not prevent the wildlife interests achieving favourable condition.
Science and education							
25.	Sample collection	Medium and localised	EN MAFF	Consultation and consent under Wildlife and Countryside Act necessary where involves large scale sampling Organiser applies to MAFF for a licence	Saltmarsh and pioneer saltmarsh, boulder and cobble skears - physical damage to habitat from trampling Boulder and cobble skears - removal of species if frequent and on a large scale. Possible disturbance of birds.	F3	25.1 Ensure that collection or sampling for research or education purposes does not cause significant effects.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Shipping and navigation							
26.	1. Dredging (maintenance)	Regular	MAFF DETR (Ports Div.) HA EN advises	Operational practice to limit overspill Deposits made at approved sites Beneficial use of dredged material.	Turbidity - increase in sediment in water column. Seabed disturbance in navigation channels	F3	26.1 Aim to gain greater understanding of the impact of maintenance dredging on the interest features of the site. Ensure the maintenance dredging does not prevent the wildlife interests achieving favourable condition. Review information on associated disposal activities.
26.	2. Dredging (capital)	Infrequent	MAFF HA DETR (Ports Div.) EN advises	EIS Beneficial use of dredged material	Removal of Habitat Increased Turbidity - increase in sediment in the water column leading to possible contamination of sensitive intertidal / subtidal habitats.	F5 / F6	26.2 Ensure that new proposals for capital dredging do not prevent the wildlife interests from achieving favourable condition. DETR review of consents.
26.	3. Anchorages	Variable	HA EN	Specially allocated areas	Localised seabed disturbance.	F3	26.3 Ensure that anchorages do not prevent the wildlife interests from achieving favourable condition.
26.	4. Moorings	Various locations but little change	HA EN advises	Some areas are designated and controlled by HA, others by private landowners	Localised seabed disturbance	F3	26.4 Ensure that moorings are not laid within wildlife habitats sensitive to damage e.g. <i>Zostera</i> beds, and do not prevent the wildlife interests from achieving favourable condition.
26.	5. Oil spills (Tier 2)	Infrequent	HA in harbour limits LA on shore MCA off-shore EA may attend	OPRC Oil Spill Response Plans National Contingency Plan	Oil damage to environment and species from smothering of habitats and toxic contamination. Can be significant to birds through toxic effect of oiling.	F5	26.5 Ensure that all oil spill plans are in place, up to date, effective, and regularly tested.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Shipping and navigation continued							
26.	6. Oil spills in enclosed docks	Infrequent	HA LA EN MCA EA may attend	In- house harbour authority Oil Spill Response Plans under the OPRC Convention	Oil damage to environment and species from smothering of habitats and toxic contamination.	F3	26.6 Ensure that all oil spill plans are in place, up to date, effective, and regularly tested.
26.	7. Ship generated waste	Variable	HA within harbour areas. MCA outside harbour areas.	Waste Management Plans and Facilities	Damage to species e.g. entanglement in fishing nets. Damage to landscape and amenity values.	F3 / F5	26.7 Review extent of the problem and review control / clean up measures that are in place around the Bay.
26	8. Shipbuilding	Variable and localised	DETR EA MAFF EN LPA HA	Monitoring of activities Compliance with legislation	Intermittent disturbance of birds and habitats in intertidal areas.	F3 / F6	26.8 To continue to develop best practice for ship building operations.
26.	9. Salvage	Very infrequent	HA in harbour area. MCA outside harbour	Usually by owner or insurers National Contingency Plan	Pollution risk to habitats and birds from substances released from damaged vessels e.g diesel oil. (Pollution risk would trigger other action).	F5	26.9 To ensure contingency plans are in place to address salvage operations that may result in increased risk of damage to the EMS.
26.	10. Safety of Navigation	On-going	HA	Dredging as required. Navigational instructions. Provision of navigation aids. Port Marine Safety Code	See 'Dredging'	F3	26.10 Ensure that navigational operations do not prevent the wildlife interests achieving favourable condition.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Shipping and navigation continued							
26.	11. Port Development	None proposed	HA LA DETR	Coast Protection Act Local Planning Authority Guidelines.	Loss or damage to coastal habitats. Disturbance to birds. Loss or damage to habitats used by feeding, breeding and roosting birds. Changes in coastal processes.	F6	26.11 Ensure that port developments do not prevent the wildlife interests achieving favourable condition.
26.	12. Marina development	None proposed	HA LA DETR	Coast Protection Act Local Planning Authority Guidelines.	Loss or damage to coastal habitats. Disturbance to birds. Loss or damage to habitats used by feeding, breeding and roosting birds. Changes in coastal processes	F6	26.12 Ensure that marina developments do not prevent the wildlife interests achieving favourable condition.
26.	13. Managing dock water levels	On going	HA	Management Plan agreed in principle but operational constraints prevent this being achieved in practice.	Modification of salinity regime in Cavendish Dock, Barrow, affects the wildlife interests.	F5	26.13 Achieve increase flushing of Cavendish Dock with saline water to increase salinity and increase favourable condition.
Tourism							
27.	1. Motor cruising	Morecambe (3 or 4 in mid summer)	Lancaster CC LA	Byelaws Promenade Supervisor	Disturbance to birds	F3	27.1 Ensure motor cruising does not significantly affect the wildlife interests.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Tourism continued							
27.	2. Beach cleaning / management	General Seasonal	BBC WBC Lancaster CC EN	Car Parking close to beaches. Aspirations to attain 'clean beach' awards. Cleansing by Wyre Borough Council Promenade Supervisor Lifeguards Daily cleansing in summer Dog fouling byelaws	Disturbance of breeding birds. Damage to shingle and sand dune habitats and wildlife. Removal of natural strandline material which can affect natural processes.	F3	27.2 Ensure that beach management programmes include necessary safeguards for wildlife interests.
27.	3. Local interest - cockling and shrimping - Piel Island Ferry	Flookburgh (Seasonal) Mainly seasonal Tidal	SLDC BBC	Managed under Sea Fisheries Acts / byelaws.	Removal of prey species, disturbance (digging) and selective extraction affecting mud and sand. Disturbance affecting birds.	F2	27.3.1 See Fisheries Annex 21
27.	4. Coastal footpaths	Lancashire and Cumbria (Moderate + increasing use)	SLDC LCC CCC EN	Signing managed by the Local Authorities.	Localised physical damage to saltmarshes and mud and sand. Footpath severely affected by weathering wind and tide in places Possible disturbance to birds at breeding, feeding and roosting sites.	F3	27.4 Ensure that public access does not result in significant damage or disturbance to wildlife habitats and species.
27.	5. Camping	Low	EN	RSPB allow limited camping	Localised damage to saltmarsh vegetation Possible disturbance to birds	F3	27.5 Ensure that camping does not prevent the wildlife interests achieving favourable condition.

Annex	Activity	Intensity & location	RA & CA	Existing management	Nature of the possible effect on feature	Man opt.	Management objectives
Tourism continued							
27.	6. Festivals	Leighton Hall (2 days a year) Morecambe (Medium)	Lancaster CC	Landowner Concentration of mass visitor activity on central Morecambe area.	Possible disturbance to birds and trampling of foreshore habitats by large visitor numbers. Noise from music and three firework shows.	F3	27.6 Ensure that seafront festivals do not prevent the wildlife interests achieving favourable condition.

7 Action plan for the European marine site

7.1 Introduction

This section sets out the programme of actions to be undertaken by the relevant authorities and the management group to ensure that the site is maintained in or restored to favourable condition as required by the conservation objectives. The actions fall into two categories.

7.2 Actions arising from the review of existing management

The management objectives identified by relevant authorities and set out in Table 4 have been incorporated into a detailed and timetabled action plan 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.

7.3 Other actions needed

As well as the actions arising from the review of existing management there is also a need for general promotional and educational work e.g.

- promotion of the management scheme
- raising awareness of the importance and conservation management requirements of Morecambe Bay
- promoting wise and sustainable use of the Bay
- training of relevant and competent authorities in the application of the Habitats Regulations within Morecambe Bay

These actions are included as a separate section in the action plan Table 5.

7.4 Monitoring programme

Two types of monitoring need to be undertaken on the Morecambe Bay 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. See Table 6 for an example of the condition monitoring programme that is planned for Morecambe Bay.

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 measures the mechanisms by which they will ensure that the measures are put in place and are effective.

7.5 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.

7.6 Review of the action plan

It is intended that the management group will review the action plan annually and report back on progress to the Standing Conference. 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 a six monthly basis. The reviews will give details of achievements against the action plan targets and information to facilitate the production of an annual report.

7.7 Review of the management scheme

It is intended that the scheme will be reviewed at least once during the European Union reporting cycle (six years) The first review date will be April 2004. It may be necessary to update the review annexes more frequently as more information becomes available.

7.8 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 which 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. Action plan

KEY: **RA = Relevant authority (bold text)** CA = Competent authority
Priorities:- P1= Highest P2 = Medium P3 = Lowest

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Agriculture				
1.1 Strongly resist further land claim.	LPA MAFF EN EA	Achieve through the planning system, including existing local plans and policies, Habitats Regulations, and implementation of the Lancashire Structure Plan 1991 - 2006 (particularly Policy 20).	P1	Ongoing
1.2 Press for Coastal Habitat Management Plan (CHaMP) to be required and prepared for Morecambe Bay.		Under MAFF's High Level Targets EN will identify those European marine sites requiring CHaMPs. CHaMP will identify requirements and opportunities to reverse previous land claim where this is necessary to restore coastal processes, wildlife habitats and natural features to a favourable condition, and will identify coast protection and flood defence measures which will need to be taken to fulfil obligations under the Habitats Regulations.	P1 P1	By December 2000 Subject to confirmation that CHaMP will be prepared. Programme for preparation to be agreed between EN EA and LPA's
1.3 Develop Habitat Action Plan and Species Action Plan targets for Morecambe Bay, using national Habitat & Species Action Plan targets, combined with local requirements and opportunities, ensuring that they integrate with ChaMP requirements.		Agree framework for developing biodiversity targets with Morecambe Bay Partnership. Run pilot Biodiversity Action Plan project in Morecambe Bay. Using current information on bird distribution, plus additional surveys if required, to identify key habitats to inform CHaMPs and SMPs.	P1 P1	2001 / 2002 Initiate in 2001 / 2002 Ongoing
1.4 Take full account of the CHaMP and biodiversity targets in relevant plans.		Review and revise the Morecambe Bay & Kent Estuary Shoreline Management Plans, Coast Defence Strategies and individual coast protection and flood defence schemes.	P1	Ongoing, formal review SMPs proposed every 5 years.

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Agriculture continued				
1.5 Identify coastal grazing marshes which are important as feeding and roosting areas for birds.	EN MAFF	EN to identify and map the areas within and adjacent to the site which are important for maintaining bird numbers.	P1	2001 / 2002
1.6 Seek opportunities to restore former areas of coastal grazing marsh.		Link to CHaMP / Biodiversity Action Plan targets. Restoration of grazing marsh should not be in areas identified for managed realignment or where maintenance of sea defences may lead to coastal squeeze. Identify suitable areas through the SMP.	P1	As plans developed
2.1.1. Review grazing levels, vegetation condition and waterfowl use.	EN MAFF	EN to undertake review of grazing levels, vegetation condition and waterfowl use (especially high tide roosts) in liaison with landowners.	P1	2001 / 2002
2.1.2 Seek to ensure saltmarshes are grazed appropriately for wildlife.		EN to pursue other actions / mechanisms needed to achieve appropriate grazing management on saltmarshes by encouraging further uptake of EN's Coastal Wildlife Enhancement Schemes by landowners.	P1	Ongoing
2.2. Seek cessation of stock feeding on saltmarshes.	EN	EN to promote through Wildlife Enhancement Scheme and EN's review of consents under Regulation 21 of the Habitats Regulations.	P1	Ongoing, linked to formal review of consents.
2.3.1 Identify and agree appropriate management regime for sea rush on each saltmarsh.	EN LPA	EN to promote through Wildlife Enhancement Scheme and EN's review of consents under Regulation 21 of the Habitats Regulations.	P1	Ongoing, linked to formal review of consents.
2.3.2 Avoid management of <i>Spartina</i> which is likely to lead to conflict with saltmarsh conservation objectives.		Saltmarsh conservation objectives to be fully taken into account when considering implementation of control measures for <i>Spartina</i> . E.g. Rotoburying, hand pulling, use of herbicides etc. Ensure that <i>Spartina</i> control measures do not prevent the wildlife interests achieving favourable condition.	P1	Ongoing
2.3.3 Identify whether management of <i>Spartina</i> is needed for nature conservation purposes (eg to safeguard Eelgrass beds).		Ongoing work with British Gas Hydrocarbon Resources to monitor the Eelgrass beds in the European marine site.	P1	Ongoing
		Identify the need for controlling <i>Spartina</i> in areas adjacent to seagrass beds. To include work around Slitch Bay (Foulney Island) where pulling of the <i>Spartina</i> will be considered where it is threatening to invade the seagrass beds.	P1	2001 / 2002

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Agriculture continued				
2.4.1. Avoid significant modification of saltmarsh structure, features and functioning.	EN EA MAFF LPA	EN to promote through Wildlife Enhancement Scheme and EN's review of consents under Regulation 21 of the Habitats Regulations.	P1	Ongoing, linked to formal review of consents.
2.4.2. Restore saltmarsh structure, features and functioning to a favourable condition.		EN to identify other actions / mechanisms needed to restore saltmarsh features to a favourable condition, including through the SMP.	P1	Ongoing
2.4.3. EA to avoid further damage to saltmarsh features and functioning.		EA to pursue this through flood defence schemes and by identifying opportunities to restore this through LEAP / SMP/ Coast Strategies and individual schemes.	P1	Ongoing
2.5 Ensure that operations are not damaging the interests of the site.	EN	EN to assess historic and present extent of turf cutting and review vegetation condition and waterfowl use as part of their review of consents under Regulation 21 of the Habitats Regulations.	P2	2001 / 2002
2.6 Ensure that burning of drift on saltmarshes is not damaging the interests of the site.	EN EA	EN / EA to assess jointly the scale of burning of drift on saltmarshes and the potential impact of this activity. Under the Habitats Regulations the EA have a responsibility to review current operations.		2001 / 2002 By March 2010
Aquaculture				
3.1 Ensure that oyster on-growing operations do not have an adverse effect.	EN MAFF DETR	Present level of oyster trestles is not thought to be causing an adverse effect on integrity through habitat modification or disturbance to species. Any increase in number of trestles would be considered as a plan or project, and may need to be subject to an appropriate assessment.		No current proposals

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Aquaculture continued				
3.2. Identify and promote measures needed to safeguard or restore nature conservation interests and consider how these can be integrated into hatchery and lagoon management.	EN MAFF DETR	Joint study agreed with hatchery owner, landowner and CWT, to undertake a detailed audit of the nature conservation interests of the saline lagoons, and review existing management.	P1	Study commissioned by EN in 2000 / 2001
3.3 If mussel cultivation is proposed on anything other than an experimental basis it may be managed through a Fishery Order, with an associated management plan. This may need an appropriate assessment.	NW & NW SFC EN	Proposals for mussel cultivation will need to be assessed as a plan or project. An appropriate assessment may be needed taking account of the complete activity, including access, dredging and harvesting requirements.		No current proposals.
Archaeology (marine and terrestrial)				
4.1 Competent Authority (English Heritage) to review known interest, and ensure nature conservation interests are taken into account.	LA EH	Literature review. Mapping and comparison with marine and SPA interest	P2	Initial study 2001, then monitor with field survey
4.2 Assess potential impact of any proposals for increased access / interpretation, and ensure nature conservation interests are taken into account.	LA	Desk study - review % visitor interest	P3	As proposed
4.3 Competent Authority (English Heritage) to assess any conservation plans or projects when works proposed, and ensure nature conservation interests are taken into account.	EH EA LA	Literature review. Mapping and comparison with marine interest	P2	Initial study 2001, then monitor with field survey

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Archaeology (marine and terrestrial) continued				
4.4 Identify all contaminated sites and the risks or opportunities presented to the nature conservation interest.	LA EA EN	LAs, EA, EN to review contaminated land and the nature conservation implications of it through a desk study to establish sites and effects	P3	2003
Catchment management				
5.1 Surveillance. Appropriate systems for measurement and monitoring should be put in place for every site.	LA EA	Set up and undertake a measurement and monitoring programme or inspections of contaminated sites.		To be determined for every site.
5.2 Apply Habitats Regulations 48-53 on a site specific basis and enforce pollution legislation.	LA EA	Relevant Authorities to set up internal consultation process and continue enforcement as at present.	P1	Site specific and ongoing.
6.1 Apply Habitats Regulations 48-52.	EA UU plc	Under the Habitats Regulations the EA have a responsibility to review current abstraction licences.	P1	Ongoing - but review by March 2010
7.1 Ensure that all oil spill plans are in place, up to date and can be acted on in an emergency.	LPA HA EA EN	Review and revise the County Coastal Pollution Emergency Plan including the coastal sensitivity maps and schedules to take account of: <ul style="list-style-type: none"> the survey and mapping work that has been done on European marine sites the Regulation 33 advice packages published by English Nature developments in response measures and capabilities the additional responsibilities of competent authorities to safeguard European sites 	P1	Propose to undertake with Cumbria County Council in 2001/ 2002
	MCA	Test the contingency plans on a regular basis especially for European marine sites. A more effective method of information collation e.g. electronic format should be considered.	P1	Propose test of County Plans in 2001 / 2002 following completion of above review. Bi-annual thereafter.

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Catchment management continued				
7.2 Ensure relevant sections of "Good Practice Guidelines for Ports & Harbours, operating within or near UK Marine Sites" are in place for Morecambe Bay ports and docks.	LPA HA EA EN	Port Authorities have a duty under the Merchant Shipping Regulations 1998 to have Pollution Contingency Plans in place covering their area of jurisdiction. Existing plans have recently been reviewed to comply with the Regulations.	P1	Ongoing
7.3 Ensure that a comprehensive booming strategy has been prepared for Morecambe Bay.	MCA	Ensure appropriate measures for booming have been built into contingency plans and tested on the ground.	P1	Review 2001 / 2002
7.4 Review extent of the litter problem and review control / clean up measures that are in place around the Bay.	LA EN	LA's to review scale of problem and existing measures and put in place any additional measures needed, in liaison with EN. LA's and EN to press for stronger control measures at Irish Sea Level, including through NW Coastal Forum.	P1 P2	2001 / 2002 Ongoing
7.5 English Nature, Environment Agency and Local Authority to reach agreement on methods of disposal of tidal wrack.	EA	EA actions are related to two key areas: 1) Control litter from UCSOs and sewage discharges by ensuring they have adequate settlement and screening. 2) Control of fly - tipping. EA involved with flood defence embankments. Permissive power. Defence of vegetation on flood banks and preservation of its integrity.	P2 P2	Ongoing Ongoing
8.1 Ensure monitoring systems are set up to detect pollution and enforce legislation.	EA	Continued monitoring of the situation by the Environment Agency and enforcement action to be taken as appropriate. Groundwater Regulations site visits are planned from 2001 / 2004	P1 P1	Ongoing 2001 / 2004
8.2 Ensure systems are in place to respond to incidents. Enforcement actions taken as required.	EA	Existing procedures are already in place within the Environment Agency and are subject to periodic review. Education and catchment campaigns are undertaken in areas with identified problems e.g. sheep dip.	P1	Ongoing.

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Catchment management continued				
8.3.1 Aim to gain better understanding of the diffuse catchment generated component of the total nutrient budget entering the Bay	MAFF EA	Desk top study using existing data. Total nutrient budget entering the Bay will have to be investigated by EA as part of the discharge consent review under the Habitats Regulations A full examination of the long term trends in nutrient status and the ecological and sedimentation effects on the Bay by the national expert science community is needed.	P2	Consent review completed by 2010 Encourage scientific community to undertake work
8.3.2 Review the water quality of Morecambe Bay and its monitoring programme and identify any changes which need to be made to the programme.		A review of the water quality of Morecambe Bay has been commissioned jointly by EN/ EA / UU plc. The review will identify the present status of the Bay and any trends in water quality. It will also assess the contributions from rivers, industrial discharges and the wider Irish Sea. This will help inform the review of consents to be undertaken by the EA and will help identify any other actions that need to be taken.		Completed (Report received July 2000)
8.4 Educate farmers to ensure 'Good Agricultural Practice'.	EA	Target areas suitable for agri-environment schemes to reduce fertiliser use.	P1	Ongoing
8.5 Aim to gain a greater understanding of fluvial processes	EA	Assess fluvial processes if / when the opportunity arises. A review of fluvial processes in the Lune catchment has been commissioned by the EA. This was undertaken by Lancaster University.		Ongoing Completed Jan 1999
9.1.1 Operate to achieve required discharge standards	UU plc	Existing assets are operated to ensure that Discharge Consent Conditions are adhered to.	P1	Ongoing
9.1.2 Review standards and issue discharge consents	EA	EA to review all consents under the Habitats Regulations. Discharges from assets are monitored for compliance by the EA to a regular random programme. Enforcement action follows contravention of consent standards. Appropriate Quality Objectives and Standards for the receiving watercourses are set by the EA. EA issue advice on "Appropriate Treatment" required and issue Discharge Consents to maintain those standards	P1 P1 P1	By March 2010 Ongoing Ongoing in response to changes in legislation and development programmes.

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Catchment management continued				
9.1.3 Define and agree any required improvements	UU plc EA OFWAT	A joint agreement on the extent and priority of individual schemes of improvement is adopted and translated into programmes for action and approved expenditure plans.	P1	Ongoing
9.1.4 Deliver agreed programmed improvements in treatment.	UU plc	The current programme of improvements, Asset Management Plan 3, is being implemented to provide enhanced treatment systems to match the higher standards required by changes in regulations affecting the receiving waters of the site. Regulations include UWWTD and Bathing Waters Directive.	P1-3	2000 - 2005
9.2.1 Operate and maintain overflows in accordance with good management practice.	UU plc	All existing underground and surface assets are monitored and maintained to ensure that discharges only take place in times of need and not at times when they should not.	P1	Ongoing
	EA	Discharges from assets are monitored for compliance by the EA to a regular random programme. Enforcement action follows contravention of consent standards.	P1	Ongoing
9.2.2 Deliver agreed programme to reduce the number of overflows and frequency of their operation.	UU plc	Asset Management Plan 3 will significantly reduce the number and the frequency of operation of these overflows by diverting flows to enhanced treatment or providing flow attenuation.	P1	2000 - 2005
9.3.1 Establish standards. Issue discharge consents Ensure compliance Take enforcement action where necessary Operate to reduce impact on process and from residues	UU plc EA	Current Trade Effluent policies, procedures and levels of monitoring to be maintained in order to protect both the treatment processes and the environment.	P1	Ongoing
		WwTWs and Sludge Disposal Operations to continue in order to reduce the impact of incoming trade wastes.		Ongoing
		There is provision for UU plc to amend / review trade effluent consents in line with EA final effluent / water quality standards		Ongoing
9.3.2 Ensure consents are put in place for discharges of dangerous substances via the consenting process. Enforce consents appropriately.				Ongoing

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Catchment management continued				
9.4 Identify and promote solutions in previously un-sewered areas.	DC	DC and / or EA identify areas causing problems	P1	Ongoing
	EA	Maintenance of existing systems is encouraged at all times. EA to consent under the Habitats Regulations.		By March 2010
	UU plc	United Utilities (consultant) to identify the best engineered and most economic solution.		
9.5.1 Provide suitable disposal options for tankered wastes	UU plc	Identify available capacity at United Utilities WwTWs and provide tanker reception facilities. Operate works to comply with current consent and licence requirements.	P1	Ongoing
	EA	EA to review all consents under the Habitats Regulations. Subject to outcome of the review current procedures to continue. Ensure there are no significant effects on the interests of the site.	P1	By March 2010
9.5.2 Comply with Waste Regs.	UU plc	Test and monitor wastes for suitability, and approve the discharges	P1	Ongoing
	EA	Licence hauliers who operate in the area. Licence WwTWs identified for waste reception and treatment. Monitor and audit operating procedures.	P1	Ongoing
	Waste Carrier	Operate within Waste Carrier Licence requirements.	P1	Ongoing
10.1 Keep organic / inorganic nutrient loading to lowest practicable level - seek to achieve BATNEEC and EC Directive compliance (Urban Waste Water Treatment and Bathing Waters Directives).	EA	EA to review discharge consents under the Habitats Regulations. Subject to outcome of the review current procedures to continue.	P1	Ongoing – by March 2010

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Catchment management continued				
10.1.2 English Nature and Environment Agency to identify the nutrients that are of concern and define target levels.	EN / EA	Establish which nutrients are of concern in terms of nutrient loading e.g. P and N and define desirable target levels. This work is to be incorporated into the review of the Regulation 33 favourable condition tables for Morecambe Bay. The review will be informed by additional studies such as the review of water quality commissioned by EN / EA / UU plc (see section 8.3.2 above).	P1	Ongoing
		Assess the potential effect of nutrient / organic inputs on availability of bird prey species and thus numbers and distribution of SPA birds - Survey benthic fauna and establish baselines (especially in areas affected by discharges).	P1	Ongoing
10.2.1 Ensure conformity to best available information, usually Environmental Quality Standards.	EA	Under the Habitats Regulations the Environment Agency have a responsibility to review Discharge Consents. The EA works to the available statutory and non-statutory EQs, its dangerous substances policy (which it will apply to WWTW discharges to protect EQS) and no deterioration.	P1	By March 2010
10.2.2 Minimal levels of potentially cumulative materials.		Seek to achieve BATNEEC. Ensure compliance with EQs or better where available. If EQs is not available then the EA's Ecotox Service will derive a standard. 'Guidelines for managing water quality impacts within UK European marine sites' need to be referred to when making decisions regarding the requirement for stricter limits than EQS in some cases, especially if there is a risk of accumulation in sediments.	P1	Ongoing
Coast protection and flood defence				
11.1.1 Secure funding for and implement priority strategic and monitoring studies.	LPA EA	Identified by the present Shoreline Management Plan Proposals submitted to MAFF from SMP recommendations - decision awaited.	P1	Ongoing
11.1.2 Keep SMP under review including ensuring that it takes full account of the implications of climate change.		Review taking account of Government Guidelines to be issued towards the end of 2000		Formal revision by 2004
11.1.3 Continue monitoring of the River Winster training wall.		Continue monitoring to assess its impact upon coastal processes, determine further actions needed, and review / implement.	P2	Ongoing

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Coast protection and flood defence continued				
11.1.4 Prepare Coast Strategy Plans for coastal defence proposals which may affect wider areas, to ensure that coastal processes and the environment are safeguarded.	LPA EA	A Coast Strategy for the west coast of Walney Island has now started. Morecambe Coastal strategy is in place and currently under review. Coastal Strategy needs of the Bay identified in the SMP.	P1	2000 to 2010
11.1.5 Press for Coastal Habitat Management Plan (CHaMP) to be required and prepared for Morecambe Bay, to identify coast protection and flood defence measures which need to be taken to fulfil obligations under the Habitats Regulations.		Subject to confirmation that CHaMP is needed for Morecambe Bay, LPA / EA to prepare CHaMP through the SMP Steering Group and with public consultation.	P1	Timetable to be agreed.
11.1.6 Development Plans need to include policies and proposals which prevent or remove development from land at risk of erosion or flooding over the next 30-100 years.		Details of SMP to be made available to relevant Planning Authorities. Development plans to integrate with SMP preferred options and CHaMP measures which need to be implemented. This may include land adjacent to the European marine site.	P1	Ongoing
11.1.7 Assess proposed works as a plan or project under the Habitats Regulations, using the improved information base.	LPA EA	Proposals considered when they arise and may require an appropriate assessment under the Habitats Regulations.		Individual timetable for each proposal.
11.2 Ensure that all parts of Morecambe Bay are brought within Shoreline Management Plans as soon as possible.	EA	EA to identify programme for completing SMP's for estuary components of Morecambe Bay.	P1	2000 / 2001
11.3 Ensure that a Coastal Habitat Management Plan is prepared for Morecambe Bay.	EN	This will identify the measures which need to be taken through the SMP, coastal strategies and individual schemes to meet obligations under the Habitats Regulations.	P1	EN to consider case

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Coast protection and flood defence continued				
11.4 Identify how to ensure that there is a strong community participation in the SMP and CHaMP processes and ownership of the actions proposed.	EN EA	Morecambe Bay SMP Steering Group to review process and guidance and identify good practice to be adopted	P2	2001 / 2002
11.5 EA to determine consents		EA review consents under Regulation 48 and 49 of the Habitats regulations.	P1	By March 2010
11.6 Assess new capital and substantial maintenance works as a plan or project under the Habitats Regulations.		Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.		Individual timetable for each proposal
11.7 Review existing maintenance programmes.		EA to review its existing maintenance programmes against its obligations under the Habitats Regulations.		By March 2010
Coastal development				
12.1 Assess any proposals as plans or projects under the Habitats Regulations.	LPA	Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.		Individual timetable for each proposal
13.1.1 To prevent the loss, damage or disturbance of interest features and species within the Bay. 13.1.2 To ensure that development within land adjacent to the European marine site and at risk of coastal flooding or erosion over the next 30-100 years does not conflict with obligations under the Habitats Regulations.	LPA	Local Planning Authorities to carry out a review of extant planning permissions under Regulation 55 of the Habitats Regulations. Review Habitats Regulations in respect of Shoreline Management, favourable condition and climate change. Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.		Individual timetable for each proposal.

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Coastal development continued				
<p>13.2 DETR to review all existing consents.</p> <p>13.2.1 To ensure that development within land adjacent to the European marine site and at risk of coastal flooding or erosion over the next 30-100 years does not conflict with obligations under the Habitats Regulations.</p>	<p>HA</p> <p>DETR (Ports Div.)</p> <p>MAFF</p>	<p>Under Regulation 50 of the Habitats Regulations DETR have a duty to review all existing consents.</p> <p>Review development plans and Shoreline Management Plans in respect of the Habitats Regulations, favourable condition and climate change.</p> <p>New developments constitute a plan or project. - Proposals considered when they arise.</p>		Individual timetable for each proposal
<p>13.3 To prevent the loss, damage or disturbance of interest features and species within the Bay from housing development.</p>	LPA	<p>Review development plans in respect of the Habitats Regulations.</p> <p>New developments constitute a Plan or Project. - Proposals considered when they arise.</p>		Individual timetable for each proposal
<p>13.4 Ensure that mineral extraction does not damage coastal processes and habitats.</p> <p>Assess as a plan or project if development proposals arise</p>	<p>CC</p> <p>DETR</p> <p>CEC</p>	<p>Constitutes a plan or project. Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.</p>		Individual timetable for each proposal
<p>13.5 Ensure that waste disposal does not damage coastal processes and habitats.</p> <p>Assess as a plan or project if development proposals arise.</p>	<p>CC</p> <p>EA</p>	<p>Constitutes a plan or project. Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.</p> <p>Existing waste management licences are up for review by the EA.</p>		<p>Individual timetable for each proposal</p> <p>Ongoing</p>
<p>13.6 Prevent the loss, damage, or disturbance of interest features and species within the Bay from recreation and tourism pursuits and activities.</p>	DC	<p>To be achieved through development plans and the planning system.</p> <p>New developments constitute a plan or project. Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.</p> <p>Encourage voluntary codes of conduct between the user groups in the Bay.</p>		<p>Individual timetable for each proposal</p> <p>Ongoing</p>

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Coastal development continued				
14.1 Identify how the coastline can be managed sustainably to take account of current and historic landfill sites.	EA CCC LCC	A Walney Coastal Strategy is being undertaken to identify how the Walney Island coastline can be managed sustainably, taking account of current and historic landfill sites on the island. Licences for the management of sites to be reviewed by the EA, including old sites.	P1	Strategy to be completed in 2001. Ongoing.
Collection				
15.1 Ensure the scale of activity is monitored to trigger a review if it is thought likely to become significantly damaging.	EN LA	EN to maintain a 'watching brief' to ensure that if activity of a nature and scale that is likely to become significantly damaging starts to occur it will be detected and appropriate action taken.	P3	Ongoing
15.2 Review the distribution, intensity and impact of this activity on skears around Morecambe Bay, priority being on the Walney Channel	NW & NW SFC EN	EN and NW & NW SFC to review the distribution, intensity and impact of this activity on skears around Morecambe Bay in liaison with landowners and local fishing clubs.	P1	Seek funding for study in 2002 / 2003
15.3 Ensure the collection of curios is non - damaging and is consented where necessary.	EN	None proposed at present.		
15.4 Ensure the harvesting of plants is non - damaging and consented.	EN	None proposed at present.		
Deposits at sea				
16.1 Avoid damage to coastal processes, habitats and species from construction of artificial reefs.	DETR	New developments constitute a plan or project. Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.		Individual timetable for each proposal

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Deposits at sea continued				
17.1 Aim to gain greater understanding of the impact of disposal of dredgings, in terms of sediment movement.	MAFF	Request MAFF to review the impacts of the disposal of dredgings on existing disposal sites, under the Habitats Regulations and to identify whether additional monitoring or other studies are required.		Ongoing
Energy industries				
18.1 Ensure relevant authorities are aware of relevant Offshore Development Regulatory Framework and opportunities to comment on proposals.	DETR MAFF	New developments constitute a plan or project. Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.		Individual timetable for each proposal
19.1 Review and ensure compliance with consents.	EA	Review consents under EA consents review and Regulations 48-52 of the Habitats regulations and ensure compliance.	P1	By March 2010
		Continue monitoring of Integrated Pollution Control Procedures.	P1	Ongoing
19.2 Continue to improve the quality of effluent discharges where appropriate.	EA	Enforcement of UK and European legislation. Review of consents under the Habitats Regulations Achievement of UK water quality standards.	P1 P1	Ongoing. By March 2010
19.3 Review and ensure compliance with consents.	EA	Review consents under EA consents review and Regulations 48-52 of the Habitats regulations and ensure compliance.	P1	By March 2010
		Continue monitoring of Integrated Pollution Control Procedures.	P1	Ongoing
19.4 Local Planning Authority to maintain current services and where possible make improvements.	Central Gov. DTI LPA	New developments constitute a plan or project. Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.	P1	Individual timetable for each proposal
		Development plan policies are in place to maintain and upgrade electricity services, whilst having regard for the environment.	P1	Ongoing.

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Energy industries continued				
19.5 Ongoing implementation, development and review of agreed management plan by Lakeland Power	EA EN	Quarterly monitoring reports. Annual review. Management Plan agreed between EA, EN and Lakeland Power and implemented by Lakeland.	P1	Ongoing.
Achieve increased flushing of Cavendish Dock with saline water to increase salinity and increase favourable condition.		Continue liaison with Associated British Ports	P1	Ongoing
Reduce nutrient inputs to Cavendish Dock from Mill Beck.		Continue to press for United Utilities to include appropriate treatment measures (under Asset Management Plan No.3). English Nature to provide advice on which nutrients need to be reduced and by what amount and give an indication of what the nutrient target level is.	P1	Ongoing
20.1 Ensure that disposal of spoil does not prevent the wildlife interests achieving favourable condition.	DTI DETR EN	New developments constitute a plan or project. - Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations. Oil or gas company would be required to prepare an Environmental Statement.	P1	Individual timetable for each proposal.
20.2 Ensure the extraction of oil or gas does not prevent the wildlife interests achieving favourable condition.	DTI DETR	New developments constitute a plan or project. - Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations. Oil or gas company would be required to prepare an Environmental Statement.	P1	Individual timetable for each proposal.
20.3 Ensure that damage to the site is avoided.	DTI DETR EN LPA's	New developments constitute a plan or project. - Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations. Oil or gas company would be required to prepare an Environmental Statement.	P1	Individual timetable for each proposal.
20.4 Ensure that damage to the site is avoided from oil and gas exploration and development and nearshore / offshore renewable energy developments.	DTI DETR EN CC	New developments constitute a plan or project. - Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations. Oil and gas companies are required to prepare Environmental Statements and Pollution Contingency Plans, to cover coastal and offshore pollution incidents, for approval by DTI in consultation with EN and others, prior to exploration and production activities.	P1	Individual timetable for each proposal

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Fishing				
21.1 Ensure that cockle harvesting operations in Morecambe Bay are undertaken in a fisheries and ecologically sustainable way.	NW & NW SFC MAFF EN	‘Watching brief’ - monitor fishing effort and cross reference with site condition monitoring. Ensure that if fishing activity threatens features appropriate action is taken. Ensure that there are no adverse effects on food availability for waterfowl. Establish baseline cockle abundance biomass needed to support SPA populations and a sustainable fishery, and if appropriate set minimum size taken and minimum stock levels to be maintained.	P1	Ongoing
21.2 Ensure that the mussel fishery within Morecambe Bay is undertaken in a fisheries and ecologically sustainable way.	NW & NW SFC EN MAFF	‘Watching brief’ - monitor fishing effort and cross reference with site condition monitoring. Ensure that if fishing activity threatens features appropriate action is taken. To assess environmental impact and sustainability of current mussel fisheries, undertake an investigative study - “Sustainable management of mussel beds in Morecambe Bay” - Joint study between EN and NW & NW SFC	P1 P1	Ongoing Started 2000 / 2001
21.3 Ensure that shrimping does not prevent the wildlife interests achieving favourable condition.	NW & NW SFC MAFF	‘Watching brief’ - monitor fishing effort and cross reference with site condition monitoring. Ensure that if fishing activity threatens features appropriate action is taken.	P1	Ongoing
21.4 Ensure that trawling / dredging does not prevent the wildlife interests achieving favourable condition.	NW & NW SFC MAFF	‘Watching brief’ - monitor fishing effort and cross reference with site condition monitoring. Ensure that if fishing activity threatens features appropriate action is taken.	P1	Ongoing
21.5 Ensure that static gear fishing does not prevent the wildlife interests achieving favourable condition.	NW & NW SFC MAFF	‘Watching brief’ - monitor fishing effort and cross reference with site condition monitoring. Ensure that if fishing activity threatens features appropriate action is taken.	P1	Ongoing
21.6 Ensure that angling does not prevent the wildlife interests achieving favourable condition.	NW & NW SFC MAFF	‘Watching brief’ - monitor fishing effort and cross reference with site condition monitoring. Ensure that if fishing activity threatens features appropriate action is taken.	P1	Ongoing

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Fishing continued				
21.7 Achieve the sustainable management of the fishery.	EA	Enforcement and implementation of local byelaws, net limitation orders etc. Review of existing consents.	P1	Ongoing.
21.8 Ensure that access to fisheries does not result in significant damage or disturbance to wildlife interests.	LA EN	'Watching brief' - monitor fishing effort and cross reference with site condition monitoring. Ensure that if fishing activity threatens features appropriate action is taken.	P1	Ongoing
Mineral exploitation				
22.1.1 Ensure that South Walney coastal lagoon site is satisfactorily restored.	CCC	Restoration of the site to be implemented according to the conditions attached to the planning permission and set out in the management plan for South Walney.	P1	Ongoing
Assess any new proposals for coastal quarrying as plans or projects under the Habitats Regulations.	LA	New developments constitute a plan or project. Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.	P2	Individual timetable for each proposal
23.1 To ensure that exploitation of marine minerals does not prevent the wildlife interests achieving favourable condition.	CEC DETR EN MAFF EA	New developments constitute a plan or project. Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.		Individual timetable for each proposal
Recreation				
24.1.1 Support increased bird watching which takes place in a sensitive manner.	LA EN NT BBC	EN to encourage, in liaison with landowners, CWT, NT, Morecambe Bay Partnership.	P2	Ongoing
Encourage recording of bird numbers and distribution around Morecambe Bay.		EN to liaise with WeBs counters	P1	2001 / 2002

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Recreation continued				
24.1.2 Ensure that walks continue to be undertaken in an environmentally sensitive manner.	LA EN	EN and LA to support and monitor and take appropriate action where problems become evident.	P2	Ongoing
24.1.3 To stop unauthorised 4 wheel drive access on to the shores. Ensure that authorised access on to the shore does not result in significant damage or disturbance to wildlife features.	LA EN RSPB	Ensure 'watching brief' is maintained; take action in liaison with landowners and other bodies where necessary.	P1	Ongoing
24.1.4 Ensure that wildfowling management plans contain appropriate measures to safeguard or restore favourable condition.	EN	Wildfowling management plans to be reviewed where appropriate, through EN's review of consents under the Habitats Regulations.	P1	Review of consents
24.1.5 Ensure that camping does not prevent the wildlife interests achieving favourable condition.	EN	Maintain 'watching brief'.	P3	Ongoing
24.1.6 Ensure that horse riding activities does not prevent the wildlife interests achieving favourable condition.	LA	Ensure 'watching brief' - action as appropriate.	P2	Ongoing
24.1.7 Ensure that public access does not result in significant damage or disturbance to wildlife habitats and species. Identify and address disturbance problems caused by dog walking.	LA EN LCC CCC SLDC	LA's to maintain 'watching brief'; action as appropriate in liaison with other bodies and landowners.	P2	Ongoing
		Monitoring of condition of coastal way / footpaths by responsible authority e.g. Lancashire Coastal Way by LCC and Cumbria Coastal Way by CCC.	P2	Ongoing
		Improve awareness and educate users of these sites through the provision of notice boards / leaflets publicising the dangers of disturbance to wildlife by dogs.	P1	Timescale to be agreed.

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Recreation continued				
24.2.1 Ensure that boat angling does not prevent the wildlife interests achieving favourable condition.	NW & NW SFC MAFF LA EN	Maintain 'watching brief' on areas where there is a risk of harm; identify and implement management measures if needed. Encourage relevant groups to participate in Morecambe Bay Partnership Sport & Recreation User Group.	P3	Ongoing Ongoing
24.2.2 - 24.3 (inclusive) Ensure that the following activities do not prevent the wildlife interests achieving favourable condition: Canoeing Dinghy sailing Diving Jet skiing Motor cruising Power boating & water skiing Shore angling Wind surfing Yachting Hovercrafting Microlighting & helicopter flights	LA EN HA within harbour limits	Maintain 'watching brief' on areas where there is a risk of harm; identify and implement management measures if needed. Encourage relevant groups to participate in Morecambe Bay Partnership Sport & Recreation User Group. Review existing potential sources of disturbance and ensure that key waterfowl feeding and roosting areas are free from all types of recreational disturbance. Where necessary take action to reduce disturbance through use of temporal and spatial zoning, changes to access routes, wardening on site, interpretation and information boards.	P3	Ongoing
Science and education				
25.1 Ensure that collection or sampling for research or education purposes does not cause significant effects.	EN MAFF	Carry out appropriate assessment for collection activities, if there is a potential for the activity to cause significant effect on the interest features. Surveillance, new sample collection activities to be subject to appropriate assessment if potential to cause significant effect.	P2	Ongoing

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Shipping and navigation				
<p>26.1 Aim to gain greater understanding of the impact of maintenance dredging on the interest features of the site.</p> <p>Ensure the maintenance dredging does not prevent the wildlife interests achieving favourable condition.</p> <p>Review information on associated disposal activities.</p>	<p>MAFF</p> <p>DETR (Ports Div.)</p> <p>HA</p> <p>EN statutory adviser</p>	<p>Develop good practice for maintenance operations, which may include Dredging Management Plans. These will aim to satisfy many requirements including EN's consents process and clarify the position when ports apply for new licences.</p>	P1	2001 / 2002
		<p>'Watching brief' - monitor dredging and associated disposal activities and cross reference with site condition monitoring to study the impact of the activities and provide information on the operations. Ensure that if dredging activity threatens features appropriate action is triggered.</p>	P1	Ongoing
		<p>DETR to review existing consents under Regulation 50 of the Habitats Regulations.</p>		
<p>26.2 Ensure that new proposals for capital dredging do not prevent the wildlife interests from achieving favourable condition.</p> <p>DETR review of consents.</p>	<p>MAFF</p> <p>DETR (Ports Div.)</p> <p>HA</p> <p>EN advises</p>	<p>Assess any new proposals for capital dredging as plans or projects under the Habitats Regulations.</p> <p>DETR to review existing consents under Regulation 50 of the Habitats Regulations.</p>	P1	Individual timetable for each proposal.
<p>26.3 Ensure that anchorages do not prevent the wildlife interests from achieving favourable condition.</p>	<p>HA</p> <p>EN advises</p>	<p>Gather information about the nature of possible effects. EN to work in liaison with Port Authorities and seabed owners to identify any areas of shore or seabed where there are potential conflicts.</p>	P2	2002 / 2003
		<p>Ensure anchoring only occurs in authorised and safe areas.</p> <p>It is the responsibility of the harbour authority to whom the management of these activities in harbour areas is assigned, to make sure that these conditions are met, after consultation with EN and others.</p>	P1	Ongoing

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Shipping and navigation continued				
26.4 Ensure that moorings are not laid within wildlife habitats sensitive to damage e.g <i>Zostera</i> beds, and do not prevent the wildlife interests from achieving favourable condition.	HA EN advises	<p>Ensure moorings are not sited in an area where they will create a hazard to the environment.</p> <p>EN to work in liaison with Port Authorities and seabed owners to identify any areas of shore or seabed where there are potential conflicts.</p> <p>It is the responsibility of the harbour authority to whom the management of these activities in harbour areas is assigned, to make sure that these conditions are met, after consultation with EN and others.</p>	P1 P2	Ongoing 2002 / 2003
26.5 Ensure that all oil spill plans are in place, up to date, effective, and regularly tested.	HA LA, EN MCA	<p>Keep contingency plans under review including MAFF derogation re. dispersant use; and further discussion of 'Booming Plans'. (Reference Annex 7 objectives).</p> <p>It is the responsibility of the ports in consultation with the MCA to deal with oil spill plans and their testing. The National Contingency Plan, approved by the Secretary of State, is the statutory plan which applies to the management of oil spills in all tidal waters and it overarches the port plans. Ports can be asked to provide verification that the statutory plans have been properly approved, exercised and updated.</p>	P1	Initiate review 2001 / 2002 Complete 2002 / 2003
26.6 Ensure that all oil spill plans are in place, up to date, effective, and regularly tested.	HA LA, EN MCA	<p>Ensure relevant sections of "Good Practice Guidelines for Ports & Harbours, operating within or near UK Marine Sites" are in place for Morecambe Bay ports and docks.</p> <p>It is the responsibility of the ports in consultation with the MCA to deal with oil spill plans and their testing. The harbour authority plan within port limits under the OPRC Convention, which is approved directly by the MCA, is the relevant statutory plan with regard to oil spills in enclosed docks. Ports can be asked to provide verification that the statutory plans have been properly approved, exercised and updated.</p>	P1	Initiate review 2000 / 2001 Complete 2001 / 2002
26.7 Review extent of the problem and review control / clean up measures that are in place around the Bay.	HA MCA	<p>Port authorities have a duty under the Merchant Shipping (Port Waste Reception Facilities) Regulations 1997 to have Waste Management Plans in place.</p> <p>Agree and put in place any additional measures needed.</p>	P2	Ongoing

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Shipping and navigation continued				
26.8 To continue to develop best practice for ship building operations.	DETR EA MAFF EN, HA LPA	New developments constitute a plan or project. Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.	P1	Individual timetable for each proposal
26.9 To ensure contingency plans are in place to address salvage operations that may result in increased risk of damage to the EMS.	HA MCA	Ensure that strategic contingency planning for salvage operations, which might affect the Bay, take account of its European marine site and SSSI status. These objectives are to be achieved via the implementation of plans that have been agreed at national level by competent authorities. In the case of salvage the established procedures are contained in the revised National Contingency Plan, which is supervised by the MCA and within which there exists appropriate mechanisms for consultation with EN.	P1	Ongoing
26.10 Ensure that navigational operations do not prevent the wildlife interests achieving favourable condition.	HA	'Watching brief' - monitor dredging and associated disposal activities. Ensure that if dredging activity threatens features appropriate action is triggered These objectives are to be achieved via the implementation of plans that have been agreed at national level by competent authorities. Safety of navigation issues are the subject of a new Port Marine Safety Code and it is for the harbour authorities to manage these aspects within harbour areas whilst having due regard to the needs of the environment and consulting relevant authorities and others as appropriate.		Ongoing
26.11 Ensure that port developments do not prevent the wildlife interests achieving favourable condition.	HA LA DETR	New developments constitute a plan or project. Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.		Individual timetable for each proposal
26.12 Ensure that marina developments do not prevent the wildlife interests achieving favourable condition.	HA LA DETR	New developments constitute a plan or project. Proposals considered when they arise and may need an appropriate assessment under the Habitats Regulations.		Individual timetable for each proposal

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Shipping and navigation continued				
26.13 Achieve increase flushing of Cavendish Dock with saline water to increase salinity and increase favourable condition.	HA	Continue liaison with Associated British Ports	P1	Ongoing
Tourism				
27.1 Ensure motor cruising does not significantly affect the wildlife interests.	LA	'Watching brief' on areas where there is a risk of harm; identify and implement management measures if needed.	P3	Ongoing
27.2 Ensure that beach management programmes include necessary safeguards for wildlife interests.	LA EN	Local Planning Authorities to review programmes in liaison with EN, under the Habitats Regulations.	P1	2001 / 2002
27.3.1 See Fisheries Annex 21	SLDC			
27.4 Ensure that public access does not result in significant damage or disturbance to wildlife habitats and species.	SLDC LCC CCC EN	'Watching brief'; action as appropriate Monitoring of condition of coastal way / footpaths by responsible authority e.g. Lancashire Coastal Way by LCC and Cumbria Coastal Way by CCC.	P1	Ongoing
27.5 Ensure that camping does not prevent the wildlife interests achieving favourable condition.	EN	EN to review any consents for camping under the Habitats Regulations.	P3	
27.6 Ensure that seafront festivals do not prevent the wildlife interests achieving favourable condition.	LA	'Watching brief'; action as appropriate	P3	Ongoing

Other Actions

Management objectives	RA & CA	Details of action	Priority (P1, P2, P3)	Timetable
Evaluating implications and opportunities of the Countryside and Rights Of Way Act 2000, in strengthening the Wildlife and Countryside Act 1981 and the protection given to Sites of Special Scientific Interest, to help implement the management scheme.	EN RAs		P1	2001
Promote wise and sustainable use of the Bay.	EN MBP	Where necessary establish user groups through existing network e.g. Morecambe Bay Partnership and Sport and Recreation User Group.	P1	Ongoing
Raising awareness of the importance and conservation management requirements of Morecambe Bay.	EN MBP RAs	Wildlife Interpretation and Promotion Strategy - this will be developed to identify how awareness of the Bay's wildlife resources can be raised, in a way which will ensure they are safeguarded and enhanced, whilst delivering social and economic benefits for the area.	P1	Develop proposals in 2001 / 2002 and implement subject to funding.

Table 6. Example of the condition monitoring programme planned for Morecambe Bay European marine site

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Baseline establishment	Low tide webs counts. Identify key feeding habitats Investigative survey of <i>Sabellaria spinulosa</i> distribution	Saltmarsh baseline survey				
Monitoring	Coastal lagoons ecological characterisation	Intertidal sediment and infauna - identify key areas. Morphological equilibrium - Bay estuaries	Intertidal skear community composition. Remote sensing in Walney Channel Sublittoral diving survey of Walney Channel. Eelgrass beds monitoring. Saltmarsh monitoring survey.	Aerial photography contribution		Intertidal skear community monitoring. Remote sensing in Walney Channel. Sublittoral diving survey of Walney Channel. Eelgrass beds monitoring.

8 Glossary

8.1 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 I habitat type(s)	A natural habitat(s) listed in Annex I 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.
Annex V	The listing, in the Habitats Directive, of the animal and plant species whose taking in the wild and exploitation may be subject to management measures.
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.
BAP	Biodiversity Action Plan
Benthos	Those organisms attached to, or living on, in or near, the seabed, including that part which is exposed by tides.
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.
Biodiversity	The total variety of life on earth. This includes diversity within species, between species and of ecosystems.
Characteristic	Special to or especially abundant in a particular situation or biotope. Characteristic species should be immediately conspicuous and easily identified.
Circalittoral	The rocky subtidal zone below that which is dominated by algae (animal dominated subtidal zone)
Coastal protection	Measures to protect the land against erosion and encroachment by the sea. (supervisory role with LA in England)
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 English Nature advises that the species and/or habitats for which the site has been selected need to attain. Conservation objectives for European marine sites relate to the aims of the Habitats Directive.

Eulittoral	The main part of the intertidal zone characterised by limpets, barnacles, mussels, fucoid algae and with red algae often abundant on the lower part.
Epifauna	Benthic animals living on the seabed.
European marine site	A European site (SAC or SPA) which consists of, or in so far as it consists of, marine areas.
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	Measures to help prevent flooding from inland (fluvial) watercourses and includes “main-river” and ordinary watercourses. (EA - main river, LA’s - ordinary rivers)
Habitat	The place in which a plant or animal lives.
Habitats Directive	The abbreviated term for <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 this Directive to promote the conservation of certain habitats and species within the European Union.
Infauna	Benthic animals which live within the sediment.
Infralittoral	The subtidal zone in which upward facing rocks are dominated by erect algae, typically kelps.
Interest feature	A natural or semi-natural feature for which a European site as been selected. This includes any Habitats Directive Annex I habitat, or specific component of their fauna and flora, or any Annex II species and any population of a bird species for which and SPA has been designated under the Birds Directive. Any habitat of a species for which a site has been selected, or typical species of an Annex I habitat are also considered to be interest features.
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 marine site
Management scheme	The framework established by the relevant authorities at a European marine 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' (<i>qv</i>)
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 proposed development that is within 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 (5yr)	Morecambe Bay is broken down into count sectors. Over the winter months WeBs volunteers count all the birds which are visible within each sector. The yearly figures for each species in Morecambe Bay are then averaged over a five year period to give the 5yr peak mean count.
Ramsar Convention	The convention on Wetlands of International Importance especially as Waterfowl Habitat 1971. An intergovernmental treaty, which provides the framework for international co-operation for the conservation of wetland habitats.
Relevant authority	The specific competent authority which has powers or functions which have, or could have, an impact on the marine environment, within 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.
Sea defences	Measures to help prevent flooding from the sea (supervisory role with EA in England)
Sensitivity	The intolerance of a habitat, community or individual species to damage from an external force.
Subfeature	An ecologically important sub-division of an interest feature.
Tidal defences	Similar to sea defences and are measures to help prevent flooding from the sea but are above the Schedule 4 boundary as defined by the Coastal Protection Act 1949.
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

8.2 List of abbreviations

ABP	Associated British Ports
AMP3	Asset Management Plan (United Utilities)
AONB	Area of Outstanding Natural Beauty
BAP	Biodiversity Action Plan
BASC	British Association for Shooting and Conservation
BATNEEC	Best Available Technology Not Entailing Excessive Cost
BBC	Barrow Borough Council
BC	Borough Council
CA	Competent authority
CC	County Council
CCC	Cumbria County Council
CEC	Crown Estate Commissioners
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CHA	Competent harbour authority
CHaMP	Coastal Habitat Management Plan
C&LDJSP	Cumbria & Lake District Joint Structure Plan
CMWLP	Cumbria Minerals and Waste Local Plan
COGAP	Codes of Good Agricultural Practice (MAFF)
CROW	Countryside and Rights of Way Act 2000
CWT	Cumbria Wildlife Trust
DC	District Council
DETR	Department of the Environment, Transport & the Regions
DO	Dissolved oxygen
DTI	Department of Trade and Industry
EA	Environment Agency
EH	English Heritage
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMS	European marine site
EN	English Nature
EQS	Environmental Quality Standard
EU	European Union
FEPA	Food and Environment Protection Act 1985
FRCA	Farming and Rural Conservation Agency
HA	Harbour Authority
HAP	Habitat Action Plan
LA	Local authority
Lancaster CC	Lancaster City Council
LCC	Lancashire County Council
LEAP	Local Environment Agency Plan
LMWLP	Lancashire Minerals and Waste Local Plan
LPA	Local planning authority
LSP	Lancashire Structure Plan
MAFF	Ministry of Agriculture, Fisheries and Food
MCA	Maritime and Coastguard Agency
NT	National Trust
NW & NW SFC	North Western & North Wales Sea Fisheries Committee

OFWAT	Office of Water Services
OPRC	Oil Pollution Preparedness, Response and Co-operation
PPG20	Planning and Policy Guidance No.20 Coastal Planning
PA	Port Authority
RA	Relevant authority
RQO	River Quality Objectives
RSPB	Royal Society for the Protection of Birds
RYA	Royal Yachting Association
SAC	Special Area of Conservation
SAP	Species Action Plan
SLDC	South Lakeland District Council
SMP	Shoreline Management Plan
SPA	Special Protection Area
SSAFO	Control of Pollution (silage, slurry & agricultural fuel oils) Regulations
SSSI	Site of Special Scientific Interest
TCPA	Town and Country Planning Acts
UCSO's	Unsatisfactory Combined Sewer Overflows
UU plc	United Utilities (formerly North West Water (NWW))
UWWTD	Urban Waste Water Treatment Directive
WBC	Wyre Borough Council
WCA81	Wildlife and Countryside Act 1981
WeBs	Wetland Bird Survey
WES	Wildlife Enhancement Schemes
WwTWs	Waste water Treatment Works

9 References

- ADAMS, C. 1987. Invertebrates of the Intertidal zone. In: Robinson, N.A. & Pringle, A.W. (Eds) *Morecambe Bay: An assessment of present ecological knowledge*. Centre for North West Regional Studies / Morecambe Bay Study Group Lancaster University.
- ANDERSON, S. 1972. The Ecology of Morecambe Bay: Intertidal invertebrates and factors affecting their distribution. *Journal of Applied Ecology* 9:161-178.
- BROWN, A.E., BURN, A.J., HOPKINS, J.J. & WAY, S.F. 1997. *The Habitats Directive: selection of Special Areas of Conservation in the UK*. JNCC Report No. 270.
- BURD, F. (1989) The Saltmarsh Survey of Great Britain. An inventory of British Saltmarshes. Peterborough, NCC. *Research & Survey in Nature Conservation Series* No.17.
- COOK, B. 1998. *Sublittoral RoxAnn survey of tide-swept rocky scars in the Walney Channel*. Unpublished report by NW & NW SFC to English Nature, Cumbria Team.
- Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora
- Council Directive 79/409/EEC on the Conservation of Wild Birds
- CRANSWICK, P.A., WATERS, R.J., EVANS, J. & POLLITT, M.S. 1995. *The Wetland Bird Survey 1993-94: Wildfowl and Wader Counts*. BTO/WWT/RSPB/JNCC, Slimbridge.
- DAVISON, D.M. & HUGHES, D.J. 1998. *An overview of the dynamic and sensitivity characteristics of Zostera as relevant to the conservation management of marine SAC's*. SAMS Edinburgh.
- DETR & The Welsh Office. 1998. *European Marine Sites in England & Wales. A Guide to the Conservation (Natural Habitats &c.) Regulations 1994 and to the Preparation and Application of Management Schemes*. London.
- ELLIOT, M., NEDWELL, S., JONES, N.V., READ, S.J., CUTTS, N.D., & HEMINGWAY, K.L. 1998. *Intertidal sandbanks & mudflats & subtidal mobile sandbanks*. Scottish Association of Marine Sciences (UK Marine SACs Project), Oban, Scotland, UK
- English Nature. 2000. *Morecambe Bay European marine site. English Nature's advice given under Regulation 33(2) of the Conservation (Natural Habitats &c.) Regulations 1994*: English Nature 14 January 2000.
- EN, SNH, EHS (DOE (NI)), CCW, JNCC and SAMS. 1998. *Natura 2000: European marine sites: Guidance relating to statutory conservation objectives and operations which may cause deterioration or disturbance*. Peterborough, EN.
- GEORGE, J.D. 1992. *North Morecambe Project: Post reinstatement Ecological Survey, Autumn 1994*. A report for British Gas Exploration and Production Limited. The Natural History Museum, London and the British Trust for Ornithology, Thetford. Vol. 1., 110pp; Vol.2., 176pp.
- POTTS, G.W. AND SWABY, S.E. 1993. *Review of the status of estuarine fishes*. Report to English Nature.
- ROSTRON, D.R. 1992. Sublittoral benthic sediment communities of Morecambe Bay. *JNCC Committee Report No.47*, Marine Nature conservation review MNCR/SR/22.
- SNH, EN, EHS (DOE (NI)), CCW and JNCC. 1997. *Natura 2000: European marine sites: an introduction to management*. Perth, SNH.

STEWART, A., PEARMAN, D.A. AND PRESTON, C.D. 1994. *Scarce plants in Britain*. Published by JNCC Monkstone House, Peterborough. Printed by W. Lake, Birmingham. 515pp.

The Conservation (Natural Habitats, &c.) Regulations. 1994.

WOOMBS, M. 1997. *Intertidal survey of biotopes on rocky scars in Morecambe Bay*. Unpublished report by W. A. Marine & Environment to English Nature, Cumbria Team.

10 Annexes

10.1 Annex A Morecambe Bay European marine site - relevant authorities

The table below identifies relevant authorities and their responsibilities. It is the responsibility of a relevant authority to be aware of the interest features and sub-features and the conservation objectives for the site.

Relevant/Competent authority	Area of jurisdiction, roles and responsibilities (relating to specific regulations in the Habitats Regulations 1994)
<p>1. Cumbria County Council</p> <p>www.cumbria.gov.uk</p>	<p>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 and Waste Local Plan Mineral and Waste Planning Authority</p>
<p>2. Lancashire County Council</p> <p>www.lancashire.gov.uk</p>	<p>As above</p>
<p>3. North Western & North Wales Sea Fisheries Committee</p>	<p>Fisheries Regulation and enforcement Power to make byelaws</p>
<p>4. 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>5. Lancaster City Council</p> <p>www.lancaster.gov.uk</p>	<p>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 relations to land drainage act 1991 Elected local authority</p>
<p>6. South Lakeland District Council</p>	<p>As above</p>
<p>7. Wyre Borough Council</p> <p>www.wyrebc.gov.uk</p>	<p>As above</p>
<p>8. Barrow Borough Council</p> <p>www.barrowbc.gov.uk</p>	<p>As above</p>

9. Associated British Ports www.abports.co.uk	Operate Barrow and Fleetwood Docks, harbour authority
10. Heysham Port Authority	Operate Heysham Port
11. United Utilities (formerly North West Water) www.unitedutilities.com	Water and sewerage undertaker
12. English Nature www.english-nature.org.uk	Statutory advisors to government in natural heritage matters Power to enter into management agreements (Reg. 16-21, 25 and 89) Power to make byelaws (Reg. 28, 29, 31) Duty to provide advice on conservation objectives and operations for European marine sites (Reg 33) Duty to review consents (Reg 21, 27) Provide advice to relevant and competent authorities (Reg. 48-50, 61 and 62)
13. Lake District National Park Authority www.lake-district.gov.uk	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.

Two other bodies are represented on the group

MAFF www.maff.gov.uk	Responsible for sustainable exploitation and conservation of marine organisms and protection of the marine environment in waters surrounding England and Scotland. Minister has authority under several orders directly connected to sea fisheries and the marine environment.
Morecambe Bay Partnership www.morecambebay.org.uk	A voluntary partnership between the users and regulators of Morecambe Bay. The Partnership and its Strategy will: <ul style="list-style-type: none"> - provide a lead in sustaining the distinctive natural and man made features of Morecambe Bay for future generations - promote the social and economic well being of the Bay's communities - establish a framework to allow the many and varied interests in the Bay to share their expertise - promote a process of local management by encouraging dialogue and minimising conflicts.

10.2 Annex B Information on the populations of internationally important species of birds under the EU Birds Directive using the Morecambe Bay European marine site at the time the SPA was classified.

(This table has been copied from, but does not replace, Table 1 of the Regulation 33 advice package for Morecambe Bay European marine site.)

Internationally important populations of regularly occurring Annex 1 species.

Species	Population (5yr peak mean 1990/91 - 1994/5)*
Sandwich Tern <i>Sterna sandivensis</i>	934 birds

Internationally important populations of regularly occurring migratory bird species⁵.

Species	Population (5yr peak mean 1989/90 - 1993/4)*
Pink-footed Goose (<i>Anser brachyrhynchus</i>)	7,718 birds
Shelduck (<i>Tadorna tadorna</i>)	5,847 birds
Pintail (<i>Anas acuta</i>)	2,655 birds
Oystercatcher (<i>Haematopus ostralegus</i>)	54,439 birds
Grey Plover (<i>Pluvialis squatarola</i>)	1,600 birds
Knot (<i>Calidris canutus</i>)	29,036 birds
Dunlin (<i>Calidris alpina</i>)	59,629 birds
Bar-tailed Godwit (<i>Limosa lapponica</i>)	1,794 birds
Curlew (<i>Numenius arquata</i>)	12,465 birds
Redshank (<i>Tringa totanus</i>)	6,501 birds
Turnstone (<i>Arenaria interpres</i>)	1,739 birds
Ringed plover (<i>Charadrius hiaticula</i>)	934 birds

An internationally important assemblage of waterfowl and seabirds.

Importance	Population (5yr peak mean 1990/91 - 1994/5)*
Morecambe Bay supports large populations of wintering waterfowl.	224,726 individual birds.
Morecambe Bay supports large populations of breeding seabirds.	20,336 individual birds.

* SPA citation held on Register of European marine sites for GB.

⁵ Morecambe Bay is regularly used by 1% or more of the biogeographical population of a regularly occurring species (other than those listed on Annex 1) in any season (Cranswick et al 1995).

10.3 Annex C Relevant authority and management group members contact details

Table showing contact addresses for relevant authorities with key representatives from each.

Relevant authority	Address
Chair: John Hetherington, Cumbria County Council.	Community, Economy and Environment, Cumbria County Council, County Offices, Kendal, LA9 4RQ
Joyce Lynch, Lancashire County Council.	Environment Directorate, PO Box 9, Guild House, Cross Street, Preston, PR1 8RD
Jim Andrews, NW&NW Sea Fisheries Committee.	North Western & North Wales Sea Fisheries Committee, Lancaster University, Bailrigg, Lancaster, LA1 4YY
Ed Mycock, Environment Agency	Environment Agency, Dodd Way, Off Seedlee Road, Walton Summit, Bamber Bridge, Preston PR5 8BX
Steve Garner, Environment Agency	Environment Agency, Ghyll Mount, Gillan Way, Penrith 40 Business Park, Penrith, Cumbria CA11 9BP
Julian Inman, Lancaster City Council	Lancaster City Council, Palatine Hall, Dalton Square, Lancaster LA1 1PW
Mike Parker, MAFF	MAFF Fisheries Office, Bradley's Chambers, 26 London Road, Fleetwood FY7 6JG
Susannah Bleakley, Morecambe Bay Partnership	Morecambe Bay Partnership, 32 Market Place, Kendal, Cumbria LA9 4TN
Anna Mitchell, South Lakeland District Council	South Lakeland District Council, Economy and Development Group, South Lakeland House, Lowther Street, Kendal LA9 4DL
Colin Hirst, Wyre Borough Council	Wyre Borough Council, Planning Department, Wyre Civic Centre, Breck Road, Poulton-le-Fylde FY6 7PU
Captain Steven Young, Associated British Ports	Associated British Ports, Port Office, Ramsden Dock, Barrow-in-Furness LA14 2TW
Captain Graham Maclean, Heysham Port Authority	Heysham Port Ltd, North Quay, Heysham, Lancashire LA3 2XF
Helen Johnston and Chris Lumb, English Nature	English Nature, Cumbria Team, Juniper House, Murley Moss, Oxenholme Road, Kendal LA9 7RL
Nicola George, English Nature	English Nature, North West Team, Pier House, Wallgate, Wigan, Lancashire WN3 4AL
Bridget Turnbull-Brown, Barrow Borough Council	Barrow Borough Council, Town Hall, Barrow-in-Furness LA14 2LD
Alan Chester, United Utilities (formerly North West Water)	United Utilities Plc, Dawson House, Liverpool Rd, Great Sankey, Warrington, Cheshire, WA5 3LW
John Nash, Lake District National Park Authority	Lake District National Park Authority, Murley Moss, Oxenholme Road, Kendal LA9 4UG
Ron Eckersley, Lancaster City Council	City Engineer, Lancaster City Council, Morecambe Town Hall, Marine Road, Morecambe LA4 5AF

10.4 Annex D Appropriate Assessments

What is an “Appropriate Assessment”?

An appropriate assessment is the assessment of a plan or projects' implications on the conservation objectives of a European site. The scope and content of what constitutes an appropriate assessment will depend on the location, size and significance of the proposed project. The conclusions of the assessment should enable the competent authority to ascertain whether the proposal would adversely effect the integrity of the site.

When do you undertake an Appropriate Assessment?

Under Regulation 48(1) of the Habitats Regulations an appropriate assessment needs to be undertaken by the competent authority, before deciding to undertake, give consent, permission or authorisation for any plan or project which:

- is not directly connected with the management of the site for nature conservation or;
- is likely to have a significant effect on a European site, either alone or in combination with other plans and projects

Appropriate assessments are required by law for all European sites including pSPA and cSACs. Appropriate assessments are also required as a matter of government policy for listed Ramsar sites for the purpose of considering development proposals affecting them. Appropriate assessments should be carried out regardless of whether the plan or project requires planning permission or consents (e.g. for flood defence works).

The relevant authority must decide whether the proposal, or consented operation, would or is having an adverse effect on the integrity of the site in the light of its conservation objectives. The conservation will relate to maintaining or restoring the status of the habitats and/or species for which the site has been designated.

Likely significant effect

Determination of likely significance is intended to ensure that all relevant plans and projects likely to have a material effect on these sites are subject to an appropriate assessment. If the decision as to whether the development would have a significant effect on the site is inconclusive, on the information available, the competent authority should make a fuller assessment; in doing so they may ask the developer or other parties for more information.

Who undertakes the Appropriate Assessment?

The appropriate assessment must be undertaken by the competent authority. The developer or proposer of the plan or project is required to provide relevant information. EN must be consulted during the course of the assessment, but it is the duty of the competent authority to undertake the assessment itself. The appropriate assessment is not the same as an environmental assessment under the provisions of the various Environmental Assessment Regulations (1988-95).

10.5 Annex E

Representatives from the relevant authorities agreed to review those operations / activities, taking place within Morecambe Bay, which fell within their area of responsibility. The following format was developed from the Countryside Management System for management planning and was used to provide a standard template for the reviews. In this context the template aims to provide interpretation of sections within the annexes.

Guidance notes for management scheme contribution by relevant authorities

1 Description

1.1 Activity

General

This text is to set the scene: past use, present use and trends. Describes areas used for the activity, as well as detailing the social / economic value.

1.2 Management

General

Brief description of current and past management. Identifies the statutory bodies involved and the types of regulation applied to the activities.

Current management objectives

What objectives, if any, are the activities driven by i.e?

For the RNLI / Coastguard, this might be the objective of providing adequate safety cover for users of the sea.

disposal of dredged material is driven by the need for ports and harbours to provide safe navigation channels.

Current management for nature conservation

Does regulation of the activity already provide for the integration of nature conservation interests? This section gives details of what measures already exist to incorporate safeguards for conservation into current working practices. E.g. It is a legal requirement of the Food and Environment Act 1985 that alternatives to sea disposal of dredged material are looked at before a licence is considered. This includes the beneficial use of material for beach recharge, saltmarsh regeneration etc.

1.3 Further Information

Brief account of publications / literature / legislation relevant to the activity.

2 Factors

Note: Factors are natural processes and human activities that have the potential to adversely affect the wildlife features of European marine sites.

2.1 Factors arising from the activity

In what ways does the activity affect the features of the site?

Activity	Intensity & Location	Responsible authority	Existing management	Possible effect on feature	Effects
e.g. Industrial development	Low / Med / High	e.g. District Council	e.g. Habitats Regulations	e.g. Loss of habitat	Y / N

2.2 Internal Natural factors

This section considers the following types of question: Do natural factors also affect these features in a comparable way? Does this need to be taken into account in prescribing management?

E.g. Deposition of silt and sand on saltmarshes, as part of the natural accretion process, can affect the growth and availability of saltmarsh grasses to stock and waterfowl.

2.3 External factors

This section considers the following types of question: Are activities outside the boundary of the site also likely to affect features? Does this need to be taken into account for site management?

e.g. The fixing of saltmarshes by flood defence and coast protection structures reduces their ability to function naturally.

3 Future management

3.1 Rationale

Is there a gap between the current management of the activity and the degree of management needed to manage adverse factors? If so what are the suggestions for reducing this gap?

3.2 Management options

Using the 'F' list below, what general management approach should be adopted?

The following table identifies the types of response to any factor, appropriate to different circumstances.

	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

Judgements are likely to require periodic review and in the light of additional information becoming available from surveillance, monitoring and research studies.

3.3 Management action

Activity	Management option	Proposed management actions	Timetable
e.g. Coastal defence	e.g. F1 - F6	e.g. Monitoring programme	e.g. Ongoing