

# HUMBER



## Management Scheme

Note: the definitive version of this document is  
available on our web site.  
[www.humberems.co.uk](http://www.humberems.co.uk)

Compiled by Chris J Manning

## HUMBER MANAGEMENT SCHEME

### **Contents**

1.0 Introduction to the Management Scheme .....	1
1.1 The Humber Estuary .....	1
1.2 The Legislation .....	1
1.3 The Legislative Framework .....	3
1.4 Introduction to the Management Scheme.....	4
1.5 The Management Scheme .....	5
2.0 Site Description and Reasons for Designation.....	7
2.1 Introduction .....	7
2.2 Humber Estuary European marine site boundary .....	8
2.3 Key Interest Features of the Humber Estuary European marine site.....	9
2.4 Habitats .....	9
2.4.1 Estuary .....	9
2.4.2 Coastal Lagoons .....	10
2.4.3 Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> ) .....	11
2.4.4 <i>Salicornia</i> and other annuals colonising mud and sand (pioneer saltmarsh).....	11
2.4.5 Mudflats and sandflats not covered by seawater at low tide .....	12
2.4.6 Sandbanks which are slightly covered by seawater all the time.....	12
2.4.7 Tidal reedbeds .....	13
2.4.8 Unvegetated sand and shingle .....	13
2.5 Species .....	14
2.5.1 River Lamprey <i>Lampetra fluviatilis</i> .....	14
2.5.2 Sea Lamprey <i>Petromyzon marinus</i> .....	14
2.5.3 Internationally important populations of regularly occurring Annex I species ....	15
2.5.4 Internationally important populations of regularly occurring migratory species:	15
2.5.5 Internationally important assemblage of waterfowl.....	16
2.5.6 Internationally important wetland, hosting an assemblage of threatened coastal and wetland invertebrates .....	17
2.5.7 Internationally important wetland, supporting a breeding colony of grey seals...	17
3.0 Conservation Objectives for Humber Estuary European marine site Interest Features.....	18
3.1 Introduction .....	18
3.2 The Conservation Objectives for the Humber Estuary European marine site.....	18
4.0 Advice on Operations .....	21
4.1 Introduction .....	21
4.2 Format of Advice.....	21
4.3 Operations Advice .....	21
4.4 Plan and Projects .....	22
4.5 Review of Existing Consents .....	22
5.0 Human Activities in and around the Humber Estuary .....	23
5.1 Introduction .....	23
5.2 Detail of Human Activities .....	23
6.0 Action Plan for the Humber Estuary European marine site.....	24
6.1 Introduction .....	24
6.2 Internal and External Factors .....	24
6.3 Future Management .....	24
6.4 Relevant Authorities Management .....	25
6.5 Management Actions – undertaken with the help of the Humber Advisory Group .....	26
7.0 Reporting and review programmes .....	27
7.1 Introduction .....	27
7.2 Monitoring .....	27
7.2.1 Condition Monitoring .....	27
7.2.2 Compliance monitoring.....	28
7.3 Review of Management .....	28
7.4 Reporting and Review Programmes .....	28
Bibliography .....	29

## HUMBER MANAGEMENT SCHEME

Glossary.....	30
Abbreviations and Acronyms .....	33
Common name – Taxonomic name .....	35

### Annexes

		<i>Management Actions</i>	
Contents List for Annexes & Document Control			
A	Fisheries	A 1	— A 12
B	Flood Defence & Land Drainage	B 1	— B 11
<i>Industry, Water and Waste Management</i>			
C	Water Resources	C 1	— C 2
D	Water Quality	D 1	— D 13
<i>Land Use</i>			
E	High Tide Roosts	E 1	— E 1
F	Saltmarsh Management	F 1	— F 5
G	Recreation & Tourism	G 1	— G 17
H	Science & Education	H 1	— H 17
I	Shipping & Navigation	I 1	— I 20
J	Ministry of Defence	J 1	— J 108

### Appendices

Appendix I	Relevant Authorities' Terms of Reference
Appendix II	Relevant/Competent Authorities' Contact Details
Appendix III	Relevant Authorities Area of Jurisdiction, Roles and Responsibilities
Appendix IV	Humber Advisory Group Terms of Reference
Appendix V	Humber Advisory Group Membership

### List of Boxes

- Relevant Authorities for the Humber Estuary European marine site
- Key sub-features of the Estuary
- Key sub-features of the Atlantic salt meadows
- Key sub-features of the *Salicornia* and other annuals colonising mud and sand
- Key sub-features of the mudflats and sandflats not covered by seawater at low tide
- Key sub-features of the sandbanks, which are slightly covered by seawater all the time
- Key sub-features for the regularly occurring Annex I species:
- Key sub-features for the migratory species:
- Key sub-features for the assemblage of waterfowl:
- Key sub-features for threatened coastal and wetland invertebrates:
- Key sub-features for the breeding colony of grey seals:
- Extract from Favourable Condition monitoring table
- Categories of Operations – that may cause deterioration
- Extract from Favourable Condition monitoring table

### List of Diagrams

- The Legislative Framework
- Humber Estuary European marine site boundary

### List of Tables

- 5.1 Human Activities researched by the Relevant Authorities' in conjunction with the Humber Advisory Group during the development of the Management Scheme.
- 6.1 Assessment of Activity and the Management Options
- 6.5 Management Actions – undertaken with the Humber Advisory Group

## HUMBER MANAGEMENT SCHEME

### **Executive Summary**

The Humber Estuary is one of the UK's largest estuaries. It is surrounded by much high-grade agricultural land plus large urban and industrial areas. The ports and wharves handle 14% of the country's international trade. Wildlife on the Humber includes large numbers of waterfowl, along with seals, a variety of fish species and marine and coastal habitats of international importance. Protection is provided by the European Union's Habitats and Birds Directives, which are transposed into UK law by the Habitats Regulations 1994. In addition, the Humber Estuary is designated as a Ramsar site, under the Convention on Wetlands of International Importance. This Management Scheme is designed to secure compliance with these Regulations.

This Scheme is produced by a partnership of the 34 "Relevant Authorities" that have a statutory role in the management of the Humber Estuary. It incorporates English Nature's advice designed to maintain the habitats and species of the estuary in favourable condition. The work is supported by the Humber Advisory Group, which consists of and liaises with a wide range of interest groups.

Detailed study was undertaken on over 100 activities taking place in or around the Humber Estuary, in order to compile this comprehensive Management Scheme. These include, water resources and quality, shipping and navigation, fishing, management of high tide roosts, saltmarsh management, recreation and tourism, land drainage and the sea defences needed to provide a safe environment for the homes of some 300,000 people living on the floodplain.

This Management Scheme details these studies and the proposed Management Actions required to ensure the conservation features remain in favourable condition, the appropriate Management Action depends on the effect of the activity on the Humber. This scheme will be reviewed annually and revised as conditions change, and as new information from surveillance, monitoring and research becomes available. The Scheme does not include plans or proposed new projects, nor the impacts of authorised effluent discharges and water abstraction as these are covered by separate provisions given in the Habitats Regulations.

## HUMBER MANAGEMENT SCHEME

### **Acknowledgements**

The Relevant Authorities would like to thank Emma Giles, the first Humber Project Officer who undertook all the initial work and completed the foundation document, which laid out the principles on which this Management Scheme is based and started the research stage. Representatives of the 34 “Relevant Authorities” who have contributed to, and guided this work.

In addition members of the Humber Advisory Group both for supporting the Relevant Authorities in this work, and for their substantial contribution to the research undertaken for this Management Scheme.

Pictures were supplied by, Associated British Ports, BP Chemicals Ltd, English Nature (Paul Glendell & Tim Kohler), Environment Agency, Graham Catley, Ministry of Defence, North East Sea Fisheries Committee and North Lincolnshire Council.

### **Contact details**

The Manager for the Humber Management Scheme can be contacted at: Humber Management Scheme, Humber INCA, Waters' Edge Visitors Centre, Maltkiln Road, Barton upon Humber, North Lincolnshire, DN18 5JR. Tel: 01652 631520 Fax 01652631524  
e-mail: [info@humberems.co.uk](mailto:info@humberems.co.uk) [www.humberems.co.uk](http://www.humberems.co.uk)

## **1.0 Introduction to the Management Scheme**

### **1.1 The Humber Estuary**

The Humber Estuary is one of the largest estuaries in the UK, draining over one fifth of the total land surface of England. It provides the largest single output of fresh water from the UK into the North Sea. Economic activity is significant around the Humber where 300,000 people live, and work alongside industrial complexes such as chemical works, oil refineries and power stations. In addition, the estuary based port complexes handle some 14% of the UK's international trade. Flood defences are necessary around most of the estuary's floodplain where thousands of people live and work. Centuries of land claim and "coastal squeeze" where intertidal habitats are squeezed between rising sea levels and hard sea defences have reduced the amount of intertidal habitat in the estuary.

The estuary has a brown appearance due to the high turbidity, which leads many to think it is dirty. However, the Humber is a healthy estuary whose importance for nature conservation is reflected in the number and extent of its nature reserves and national and international designations.

The Humber Estuary supports an impressive array of wildlife and natural habitats, from saltmarsh and samphire beds to subtidal sandbanks and many species of fish, including the primitive river and sea lamprey. The waters of the estuary are heavily laden with sediment, which is derived from marine and riverine sources, and the eroding boulder clay of the Holderness coast. This sediment maintains extensive intertidal flats, and forms mud and sand bars that create semi-permanent islands. Along the shores, sand dunes and lagoons can be found, and as salinity decreases upstream, extensive areas of reedbed fringe the estuary. At low tide, vast expanses of mud flats and sand are exposed. These are an important habitat for millions of invertebrates that provide a food source for many other species. Birds are a well known feature of the Humber with many species of international importance using the estuary.

### **1.2 The Legislation**

The European Union Habitats<sup>1</sup> and Birds<sup>2</sup> Directives set out a number of actions to be taken for nature conservation.

Habitats Directive      The main aim of the Habitats Directive is to promote the maintenance of biodiversity, whilst also supporting the principle of sustainable development. In particular, it requires Member States to take measures to maintain or restore certain natural habitats and wild species at favourable conservation status in the Community, giving effect to both site and species protection objectives. One of the ways in which Member States are expected to achieve this aim is through the designation and protection of a series of sites known as Special Areas of Conservation (SAC). Special Areas of Conservation are designated to protect certain habitats and species of European importance.

---

<sup>1</sup> Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna (more commonly known as the Habitats Directive)

<sup>2</sup> Council Directive 79/409/EEC on the Conservation of Wild Birds (more commonly known as the Birds Directive)

## HUMBER MANAGEMENT SCHEME

**Birds Directive**            The Birds Directive aims to protect wild birds and their habitats, and gives Member States the power and responsibility to designate Special Protection Areas (SPA) to protect birds that are considered rare or vulnerable within the European Community as well as regularly occurring migratory birds.

The Ramsar Convention<sup>3</sup> on “Wetlands of International Importance, especially as Waterfowl Habitats” aims to stem the loss and progressive encroachment on wetlands through the designation of ‘Ramsar sites’. In accordance with Government guidance,<sup>4</sup> Ramsar Sites must be given the same consideration as European sites when considering plans and projects that may affect them.

**Ramsar Convention**        The broad objectives are to stem the loss and progressive encroachment on wetlands now and in the future through the designation of Ramsar sites. A habitat can qualify as a Ramsar site for its representation of a wetland, for supporting wetland plant or animal species or for its role in supporting internationally important waterfowl. In the UK, Ramsar sites are often coincident with SPA sites designated under the Birds Directive.

In February 2004, English Nature merged several of the SSSIs on the Humber to create the Humber Estuary SSSI and enlarged the area proposed for designation to include the entire estuary and associated features of interest from the limit of saline intrusion on the rivers Ouse and Trent to the mouth of the Estuary. All owner/occupiers and statutory bodies were consulted. Unresolved objections and representations were considered by English Nature's Council when making their decision as to whether to confirm, modify or withdraw all or part of the Humber Estuary SSSI.

This management scheme covers the marine components of the pSAC, SPA, pSPA, Ramsar and pRamsar and will be updated in the future to reflect any subsequent changes to the boundaries or features of these.

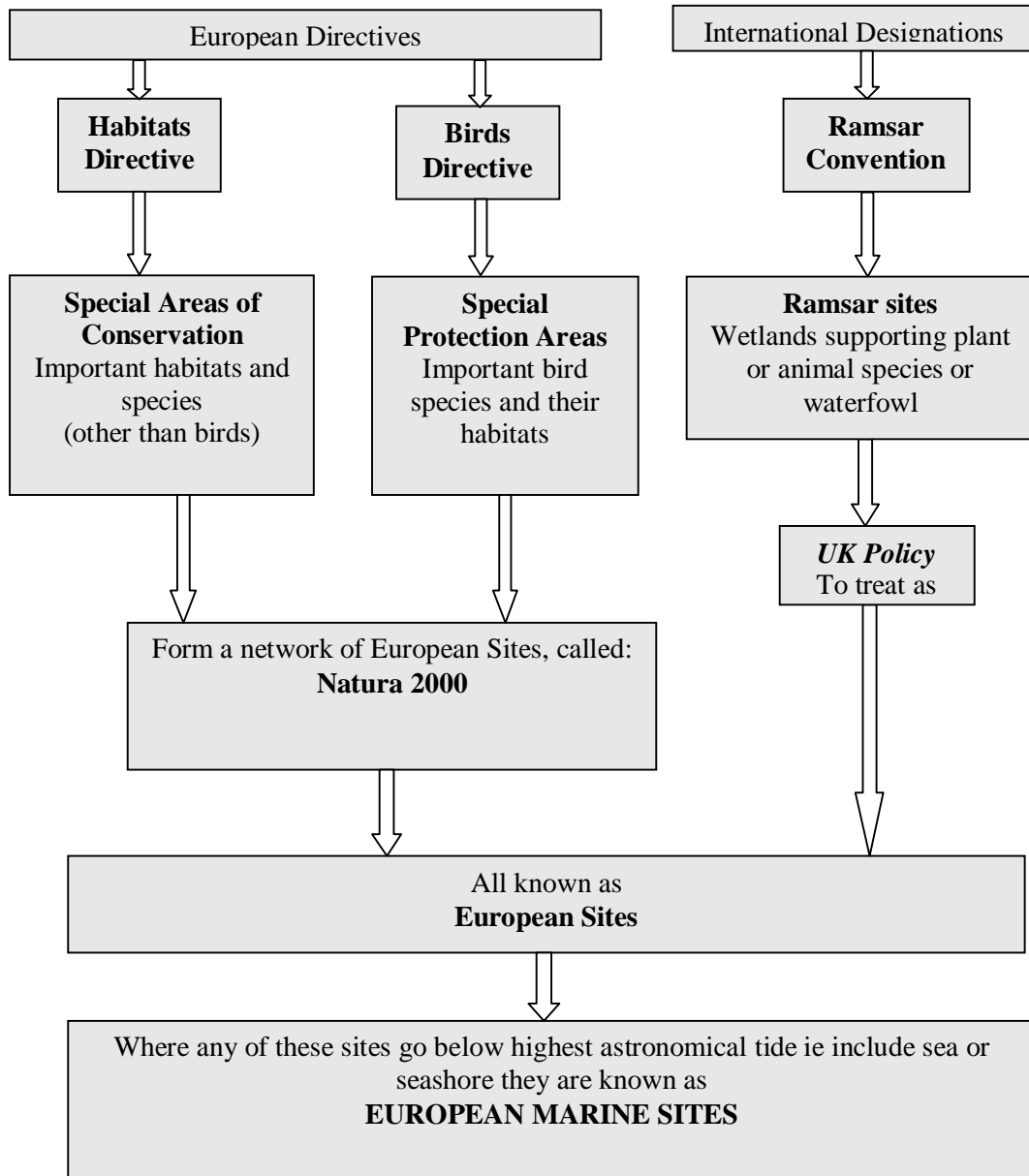
---

<sup>3</sup> Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention), 1971

<sup>4</sup> Planning Policy Guidance (PPG9) and the DETR statement Ramsar Sites in England (November 2000)

### 1.3 The Legislative Framework

Terrestrial and marine sites selected under the Habitats and Birds Directives are known as European sites and collectively form a network across the European Community called Natura 2000. European sites that are covered (continuously or intermittently) by tidal waters are known as European marine sites. Therefore, the term European marine site is defined to mean any pSAC, SPA, or part of those sites that consists of marine areas. In accordance with Government guidance, Ramsar Sites must be given the same consideration as European sites.



## HUMBER MANAGEMENT SCHEME

### 1.4 Introduction to the Management Scheme

The UK transposed the Habitats Directive into law by passing the Habitats Regulations<sup>5</sup>. These Regulations introduce a series of new responsibilities for Competent and Relevant Authorities, and make provision (Regulation 34) for the Relevant Authorities to establish a Management Scheme for a European marine site.

The Habitats Regulations use the terms Competent Authorities and Relevant Authorities to describe statutory bodies to which the Regulations apply.

**Competent Authority** Includes any statutory body or public office exercising legislative powers whether on land or at sea.

**Relevant Authority** Identifies certain of the competent authorities with local powers or functions which have, or could have, an impact on the marine area within or adjacent to a European marine site. Therefore, all Relevant Authorities are also Competent Authorities.

Regulation 5 of the Habitats Regulations lists those bodies that can be Relevant Authorities

- (a) a nature conservation body;
- (b) a county council, district council, London borough council, etc;
- (c) the National Rivers Authority\*, a water undertaker or sewerage undertaker, or an internal drainage board (IDB);
- (d) a navigation authority within the meaning of the Water Resources Act 1991;
- (e) a harbour authority within the meaning of the Harbours Act 1964;
- (f) a lighthouse authority;
- (g) a river purification board or a district salmon fishery board\*\*;
- (h) a local fisheries committee constituted under the Sea Fisheries Regulation Act 1966 or any authority exercising the powers of such a committee”.

\* the Environment Agency is the successor to the NRA.

\*\* Scotland only

In addition, the Habitats Regulations (Reg 3(3)) places a responsibility on every Competent Authority that “*in relation to marine areas any Competent Authority having functions relevant to marine conservation shall exercise those functions so as to secure compliance with the requirements of the Habitats Directive*”. The Regulations (Reg 3(4)) also state “*...every Competent Authority in the exercise of any of their functions shall have regard to the requirements of the Habitats Directive so far as they may be affected by the exercise of those functions*”.

---

<sup>5</sup> Conservation (Natural Habitats & c.) Regulations 1994

## HUMBER MANAGEMENT SCHEME

### **Relevant Authorities for the Humber Estuary European marine site**

<b>Navigation/Harbour Authorities</b>	<b>Internal Drainage Boards</b>
Associated British Ports	Ancholme
Associated Petroleum Terminals (Immingham) Ltd	Dempster
British Waterways Board	Garthorpe
Crude Oil Terminals (Humber) Ltd	Goole and Airmyn
Humber Sea Terminals Ltd	Goole Fields
	Isle of Axholme
<b>Local Authorities</b>	Lindsey Marsh
East Lindsey District Council	Lower Ouse
East Riding of Yorkshire Council	Market Weighton
Kingston upon Hull City Council	North East Lindsey
Lincolnshire County Council	Ottringham
North East Lincolnshire Council	Preston
North Lincolnshire Council	Reedness and Swinefleet
	Scunthorpe
<b>Other Authorities</b>	Skeffling
Anglian Water Services	Thorngumbald
Eastern Sea Fisheries Joint Committee	
English Nature	
Environment Agency	
Ministry of Defence	
North Eastern Sea Fisheries Committee	
Yorkshire Water Services	

The Relevant Authorities Terms of Reference are attached (Appendix I), together with a list of the current membership (Appendix II), and their Area of Jurisdiction, Role and Responsibilities (Appendix III).

### **1.5 The Management Scheme**

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

Government guidance states that this is: *“to set the framework within which activities will be managed, either voluntarily or through regulation, so as to achieve the conservation objectives [of the site]. Where new regulation is needed, the measures may be based entirely upon the existing powers of the relevant authorities if they are capable of being used to achieve the objectives of designation. In other cases, relevant authorities may need to consider seeking changes to the ways in which their existing statutory jurisdiction is applied using the established procedures for that purpose.”* (DETR, para. 3.18)<sup>6</sup>

<sup>6</sup> DEPARTMENT OF THE ENVIRONMENT TRANSPORT AND THE REGIONS (DETR). 1998. European marine sites in England and Wales: A guide to the Conservation (Natural Habitats & c.) Regulations 1994 and to the Preparation and Application of Management Schemes.

## HUMBER MANAGEMENT SCHEME

The DETR guidance also advises that: “*Although Regulation 34 states that relevant authorities, “or any of them,” may create a management scheme, there can be only one management scheme for each site. This means in practice that the management scheme should be developed and agreed by all the relevant authorities whose functions affect the area. No relevant authority will have precedence or powers over any of the others. However, if there are no pre-existing consultation mechanisms between relevant authorities, it may be desirable for one of the relevant authorities to take the lead in order to initiate, and if necessary co-ordinate, the process of developing a management scheme.*” (para. 3.20)<sup>7</sup>

There are 34 Relevant Authorities that have jurisdiction on or around the Humber Estuary, and they are equal members of the Humber Estuary Relevant Authorities Group (HERAG). The Relevant Authorities have agreed to prepare a single Management Scheme for the Humber Estuary European marine site to guide the exercise of their functions in order to secure compliance with the Habitats Directive. This involves taking appropriate steps to avoid deterioration of natural habitats or the habitats of species, or disturbance to species for which the site has been designated. UK legislation also requires conservation objectives to be established by English Nature for the Humber Estuary European marine site, this “Regulation 33” advice provides the conservation objectives on which this Management Scheme is based.

Around the Humber, there is already a considerable amount of consultation taking place between interest groups and individual Relevant Authorities. To build further upon this relationship, a structured advisory group that gives strategic advice to the HERAG was formed, called the Humber Advisory Group. The Humber Advisory Group<sup>8</sup> works in support of HERAG but also aims to be proactive wherever possible. HAG’s Terms of Reference are attached (Appendix IV) together with a list of the current membership (Appendix V).

The Management Scheme is concerned with ensuring the sustainable use of the Humber Estuary. It will not stop people using the Humber and many activities will not be affected. There is no intention to exclude human activities, such as recreation. Any new management measures will only be introduced if current activities are likely to damage the wildlife, this may for instance involve dialogue between the Relevant Authorities and the clubs or individuals undertaking the activity. The aim will be to prevent damage occurring through voluntary measures, such as codes of practice.

The main aim of the Humber Management Scheme can be stated simply as:

“subject to natural change, maintain the favourable condition of the site through the sustainable management of activities”

---

<sup>7</sup> DEPARTMENT OF THE ENVIRONMENT TRANSPORT AND THE REGIONS (DETR). 1998. European marine sites in England and Wales: A guide to the Conservation (Natural Habitats & c.) Regulations 1994 and to the Preparation and Application of Management Schemes.

<sup>8</sup> DETR guidance emphasises that “*Although only relevant authorities have the statutory responsibility for establishing the management scheme, it is essential that owners and occupiers, right holders, local interests, user groups and conservation groups should be encouraged to participate in the process of developing the management scheme at the earliest opportunity. The management group should ... meet periodically to consult with representatives from such interest groups in one or more advisory groups.*” (DETR, 1998, para 4.4). The DETR guidance defines ‘advisory group’ as “*the body of representatives from local interests, user groups and conservation groups, formed to advise the management group*”. (DETR, 1998 Box 6, page 15).

## **2.0 Site Description and Reasons for Designation**

### **2.1 Introduction**

The Humber Estuary European marine site comprises marine components of three separate designations. These are; the Humber Estuary possible Special Area of Conservation (pSAC), the Humber Estuary Special Protection Area (SPA)<sup>9</sup>, and the Humber Estuary Ramsar site.

The Relevant Authorities have agreed to prepare a single Management Scheme for the Humber Estuary European marine site that includes the marine components of the pSAC and the Phase 1 and 2 of the SPA and Ramsar site designations. Work commenced on the scheme in 2000.

A number of features of interest occur within each of the three designations but fall outside of the boundary of the Humber Estuary European marine site because they occur above highest astronomical tide. However, the Relevant Authorities need to take account of these features as they may be affected by activities taking place within the European marine site. Specific conservation objectives for these habitats and species are identified within English Nature's conservation objectives for the relevant SSSIs, they will not be considered in the Management Scheme.

---

<sup>9</sup> Both the Humber Estuary SPA and Ramsar site include areas classified in 1994 and additional areas proposed in February 2004, which continue to be progressed, by English Nature/Defra at the time of publication.

**2.2 Humber Estuary European marine site boundary**



The Humber Estuary European marine site boundary is an amalgamation of the marine components of the three designations. This map is reproduced from the OS map by English Nature with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office, © Crown copyright. All rights reserved. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Licence Number: GD272299.

### 2.3 Key Interest Features of the Humber Estuary European marine site

This section contains a précis of the features of the Humber Estuary European marine site drawn from English Nature's "The Humber Estuary European marine site, Interim Advice" given under Regulation 33(2) of the Conservation (Natural Habitats &c.) Regulations 1994. Full copies of the Regulation 33 advice may be obtained from English Nature (Appendix 2) or downloaded from our web site [www.humberems.co.uk](http://www.humberems.co.uk).

### 2.4 Habitats

Habitats protected under the Humber Estuary European marine site designation are:

- Estuary<sup>1</sup>
- Coastal lagoons<sup>1&2</sup>
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)<sup>1&2</sup>
- *Salicornia* and other annuals colonising mud and sand (pioneer saltmarsh)<sup>1&2</sup>
- Mudflats and sandflats not covered by seawater at low tide<sup>1&2</sup>
- Sandbanks which are slightly covered by seawater all the time<sup>1</sup>
- Tidal reedbeds<sup>2</sup>
- Unvegetated sand and shingle<sup>2</sup>

#### 2.4.1 Estuary

The Humber Estuary is the largest coastal plain estuary on the British North Sea and one of the largest estuaries in the UK. It receives run-off from around 20% of the total land surface of England and provides the largest single output of fresh water from Britain into the North Sea. The Humber is a macro-tidal estuary and extremely turbid with sediment entering the system primarily from the North Sea and the Holderness coastline with a small percentage entering from fluvial sources. Sediment transport is very important to the estuary, providing essential material to maintain intertidal mudflats, sandflats and saltmarsh that support populations of marine worms, molluscs and other invertebrates that in turn provide an abundant food source for fish and waterfowl.

Key sub-features of the Estuary:

Saltmarsh communities comprising

Atlantic salt meadows see 2.4.3\*

*Salicornia* and other annuals colonising mud and sand see 2.4.4\*

Intertidal mudflats and sandflats communities (Mudflats and sandflats not covered by seawater at low tide) see 2.4.5\*

Subtidal sediment communities – The subtidal habitats and their associated communities form an important component of the Humber's estuarine ecosystem. The bed of the estuary is mostly sandy, with some patches of gravel and glacial till grading into silty clay in the intertidal areas of the main body of the estuary. An exception is the outer part of the south bank, where the intertidal is sandy.

Sandbanks which are slightly covered by seawater all the time see 2.4.6\*

\*Classified in the Habitats Directive as interest features in their own right and described separately

<sup>1</sup> Special Area of Conservation - interest feature

<sup>2</sup> Special Protection Area - key sub-feature that needs to be maintained in favourable condition for the SPA bird species.

### **2.4.2 Coastal Lagoons**

Coastal lagoons are areas of shallow typically, brackish or salt water, wholly or partially separated from the sea, that retain a portion of their water at low tide. Lagoons are the UK's only maritime priority Biodiversity Action Plan habitat, and within the Humber Estuary European marine site examples include:

**Humberston Fitties**, with one main lagoon and four saltmarsh pools that dry out and become hypersaline during the summer. The biotic index places it as the third most important lagoon in Britain, and it is one of the most northerly sites in Europe for the lagoon sand shrimp *Gammarus insensibilis* that is entirely confined upon the alga *Chaetomorpha linum*.

**Northcoates Lagoon** comprises a high salinity silled lagoon and a moderate salinity percolation lagoon. The diverse species list reflects the progression from marine to brackish habitat, supporting lagoon specialists including the amphipod *Gammarus chevreuxi*, which is only known from a few lagoon sites in the UK, the lagoon slater *Idotea chelipes* and the lagoon mudsnails *Hydrobia acuta* and *Ventrosia ventrosa*, and a limited distribution of spiral tasselweed *Ruppia cirrhosa*.

**Read's Island** within this 60 hectare island are two lagoons. The lagoons were created in 1998 and total 12 hectares. The water levels are controlled by sluices and provide deep water in winter for feeding and roosting duck and shallow water in summer and autumn for breeding waterfowl. Read's island is important for breeding avocets with 50+ pairs (6% of the UK population) rearing over 100 young in the 2000 breeding season. The lagoons are also used by other waterfowl including pink-footed goose, teal and golden plover for both feeding and roosting.

### 2.4.3 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

The Humber's Atlantic salt meadows, also known as saltmarshes, consist of salt-tolerant vegetation that colonise intertidal sediments of mud and sand on the middle and upper reaches of saltmarshes in areas protected from strong wave action. There are an estimated 627ha of saltmarsh on the Humber, covering only 2% of the estuarine area, compared with a national average of 6%. This is largely due to historical losses from land claim. In the future coastal squeeze is likely to be the biggest threat to this habitat, unless replacement is provided.

The Humber's saltmarshes are dominated by common reed *Phragmites australis* and sea club-rush *Scirpus maritimus*, especially in the inner estuary where the water is less saline. Typical saltmarsh communities of pioneer marsh and low, mid and upper marsh communities are scarce, amounting to less than 1% of the total estuarine area. These areas are predominantly ungrazed and subsequently support a range of communities dominated by sea purslane *Atriplex portulacoides* and common saltmarsh grass *Puccinellia maritima* with frequent occurrence of sea aster *Aster tripolium* and sea lavender *Limonium vulgare*.

Key sub-features of the Atlantic salt meadows:

Low to mid marsh communities – These communities experience frequent tidal inundations, and are relatively species-poor, typified by salt tolerant (halophytic) plants such as common saltmarsh grass and sea purslane.

Mid to upper marsh communities – These communities experience fewer tidal inundations and support a more diverse vegetation dominated by the saltmarsh rush *Juncus gerardii* and saltmarsh grass/fescue communities *Puccinellia/Festuca*.

Transitional communities – These communities reflect the influence of fresh water and commonly comprise of sea couch grass *Elymus pycnanthus* and common reed tidal reedbeds.

### 2.4.4 *Salicornia* and other annuals colonising mud and sand (pioneer saltmarsh)

Pioneer saltmarsh plants such as *Salicornia*, known locally as samphire or glasswort are the first species to colonise the intertidal mud and sand flats that are protected from strong wave action. These species are found predominantly in the outer estuary with the largest concentration south east of Cleethorpes, forming a key stage in the transition from intertidal sand and mud flats to saltmarsh vegetation.

In the upper Humber, bare mud and sand are colonised by small amounts of common cordgrass *Spartina anglica* and where freshwater influence is greater, sea club-rush. Common cordgrass is a non-native species, which was first planted on the Humber in 1936.

Key sub-features of the *Salicornia* and other annuals colonising mud and sand:

*Salicornia* saltmarsh community – Samphire is the most extensive pioneer marsh community, forming a distinct zone sometimes hundreds of metres wide in the lower marsh.

Sea-blite *Suaeda maritima* community – Sea-blite is characteristic of open situations characteristically on gravelly mud on the lower marsh, forming mosaics with stands of samphire.

**2.4.5 Mudflats and sandflats not covered by seawater at low tide**  
(intertidal mudflats and sandflats)

Intertidal mudflats and sandflats are submerged at high tide and exposed at low tide, they form a major component of the Humber Estuary, which amounts to 4.5% of the total British resource. Areas such as the upper and mid-shore flats are highly productive, supporting a large number of invertebrates, with 180 species recorded at Spurn Bight alone. These provide an important food source for internationally important numbers of waterfowl and fish.

Key sub-features of the mudflats and sandflats not covered by seawater at low tide:

Intertidal gravel and sand communities – These occur where the wave action prevents the deposition of finer silt, they support high numbers of species such as polychaete worms, *Nephtys cirrosa* and *Scolelepis squamata*, amphipods crustaceans and the sand mason worm *Lanice conchilega* and cockle *Cerastoderma edule* beds.

Intertidal muddy sand communities – These occur particularly on more sheltered shores where sediment conditions are relatively stable and support populations of lugworm *Arenicola marina*, other polychaete worms and bivalve molluscs.

Intertidal mud communities – These form in the most sheltered areas of the estuary where silt has been deposited. They support communities that are often highly abundant, typically dominated by polychaete worms such as *Arenicola marina* and *Manayunkia aestuarina* and bivalve molluscs. The intertidal mud communities provide an important food source for many wading birds and also roosting and resting areas.

Eelgrass *Zostera* spp bed communities – Eelgrass beds are nationally rare and are an important habitat providing spawning, nursery and refuge areas for fish. The eelgrass beds stabilise the sediment and contribute to primary production.

The Humber also supports over 200ha of sand dune systems above highest astronomical tide and therefore outside the Humber Estuary European marine site boundary. However, the estuary's sandflats are their source material.

**2.4.6 Sandbanks which are slightly covered by seawater all the time**  
(subtidal sandbanks)

Subtidal sandbanks consist of sandy sediments that are permanently covered by shallow seawater, typically at depths of less than 20 metres, comprising distinct banks, which may arise from horizontal or sloping plains of sandy sediment. Where these areas of sandy sediment are closely associated with the banks, they are included within the interest feature. This habitat supports a range of invertebrate animals and seaweeds that colonise the seabed (epifauna) or which live in the seabed (infauna). The subtidal environment of the Humber is highly dynamic and varies according due to, sediment composition, salinity, sediment load, turbidity, dissolved oxygen and human impacts on water quality and dredging. The subtidal area of the Humber Estuary is over 16,800 ha or 55% of the total area of the estuary.

The seabed is mostly sandy supporting invertebrates such as polychaete worms, mysid shrimp and gammarid amphipod species that dominate the benthic community. The subtidal zone of the Humber Estuary also provides an important breeding, sheltering and nursery area for marine fish species, supporting about 15% of the east coast population of juvenile plaice and large numbers of juvenile sole. The Humber is also a spawning ground for species such as bass, and a migratory corridor for Atlantic salmon and sea trout.

Key sub-features of the Sandbanks which are slightly covered by seawater all the time

Invertebrate animals and seaweeds that colonise the seabed (epifauna) or which live in the seabed sediments (infauna), these include: worms, crustaceans, bivalve molluscs and echinoderms.

Shrimps, crabs and fish on the surface of the sand banks, these are often important nursery areas for fish, and feeding grounds for seabirds.

Communities of foliose seaweeds, hydroids, bryozoans and ascidians may form on coarse stable material, such as shells or stones.

The following are Special Protection Area habitats, and not previously described under the pSAC designation.

#### **2.4.7 Tidal reedbeds**

Tidal reedbeds<sup>10</sup> comprising stands of common reed *Phragmites australis* are found throughout the estuary. They exist as a fringe of varying width along the banks or as substantial reedbeds, such as at Blacktoft Sands, which is thought to be the second largest tidal reedbed in Britain. Broken stands of reed are also found along the north Lincolnshire coast.

#### **2.4.8 Unvegetated sand and shingle**

Unvegetated sand and shingle<sup>10</sup> are an important habitat for nesting little terns *Sterna albifrons* that prefer a shallow, sloping shoreline, only just above normal tide, to give maximum protection against flooding. Little terns nest at Easington lagoon and Donna Nook and they have attempted to nest at other sites.

---

<sup>10</sup> Special Protection Area - key sub-feature to be maintained in favourable condition for the SPA bird species.

## 2.5 Species

Species protected under the Humber Estuary European marine site designation are:

- River lamprey *Lampetra fluviatilis*<sup>11</sup>
- Sea lamprey *Petromyzon marinus*<sup>11</sup>

Waterfowl Internationally important populations of waterfowl:

- Regularly occurring Annex I species<sup>12</sup>
- Regularly occurring migratory species<sup>12</sup>
- Internationally important assemblage of waterfowl<sup>12</sup>

Internationally important wetland supporting:

- An assemblage of threatened coastal and wetland invertebrates\*<sup>13</sup>
- A breeding colony of grey seals\*<sup>13</sup>
- 20,000 or more waterfowl (equivalent to an assemblage of waterfowl\*<sup>13</sup>)
- 1% or more of the individuals in a population of one species or sub-species of waterfowl (equivalent to regularly occurring migratory species\*<sup>13</sup>)

### 2.5.1 River Lamprey *Lampetra fluviatilis*

Lamprey are one of the most primitive of all living vertebrate animals having a distinct mouth with no lower jaw, instead it is surrounded by a round sucker-like disc within which the adults have strong, rasping teeth. The adult river lamprey is around 40cm long with a weight of some 60g. The species is confined to Western Europe, migrating from the sea to spawn in gravel beds of many UK rivers. The larvae spend several years in gravel beds before metamorphosing and migrating downstream into estuaries where they feed for 1-2 years before migrating upstream to spawn in freshwater.

Data from power station fish impingement assessments indicate that river and sea lamprey are present in the Humber throughout the year, with mature adults spawning in the River Derwent and Ouse. Numbers of river lamprey have declined over the last 100 years and they are rare and threatened in some European countries. In the UK and the Humber Estuary they are, however, fairly widespread.

### 2.5.2 Sea Lamprey *Petromyzon marinus*

The sea lamprey is the largest lamprey species found in the UK reaching a length of up to 120cm and weighing up to 2.5kg. Sea lampreys are probably more highly migratory than other species of lamprey and appear to be particularly poor at ascending obstacles to migration. Like the river lamprey, data from power station fish impingement assessments indicate that they are present in the Humber throughout the year, with mature adults spawning in the River Derwent and Ouse.

The UK is one of the strongholds of the sea lamprey, which, although rare, and threatened in some European countries, and extinct in others, is fairly widespread in the UK.

---

<sup>11</sup> Special Area of Conservation

<sup>12</sup> Special Protection Area<sup>12</sup>

<sup>13</sup> Ramsar site

\* It should be noted that the Ramsar site boundary within the Humber Estuary European marine site is concurrent with the Special Protection Area boundary. The bird species so listed are thus covered by both designations and therefore the important habitats are identical.

### 2.5.3 Internationally important populations of regularly occurring Annex I species

The Humber supports internationally important populations of seven Annex I species. These are in danger of extinction, are rare, or are considered vulnerable within the European Union. Those that regularly occur at levels over 1% of the national population meet the qualifying criteria.

#### Annex I Bird Species

**Breeding species:**

Avocet *Recurvirostra avosetta*  
Little tern *Sterna albifrons*  
Marsh harrier *Circus aeruginosus*

**Wintering species:**

Bar-tailed godwit *Limosa lapponica*  
Bittern *Botaurus stellaris*  
Golden plover *Pluvialis apricaria*  
Hen harrier *Circus cyaneus*

Key sub-features for the Annex I species:

Intertidal mudflats and sandflats – provide a crucial food source for several of the Annex I species. They also provide roosting sites for avocet and overwintering golden plover. Bar-tailed godwit rely on a small number of feeding and roosting sites on the estuary, while little terns feed over the intertidal flats when the tide is in.

Saltmarsh Communities – Avocet, golden plover and bar-tailed godwit utilise areas of saltmarsh for roosting. Marsh harrier will use the saltmarshes as a hunting ground.

Tidal reedbeds – Marsh harriers are now regular breeders on the Humber, requiring wetlands on for nesting and favouring reedbeds. Bittern will utilise areas of intertidal reedbed during the winter.

Coastal lagoons – Over 90% of the Humber's breeding avocet are associated with saline lagoons. Golden plover and bar-tailed godwit may also utilise the lagoons as a high tide roost.

Unvegetated sand and shingle – Little terns nest on bare sand and shingle, only just above the high tide

### 2.5.4 Internationally important populations of regularly occurring migratory species:

Britain's wildfowl belong to the north-west European population and the waders to the East Atlantic flyway population. The following migratory species regularly occur on the Humber at levels of over 1% or more of their biogeographic population:

#### Internationally important Migratory Species

**Passage migrants:**

Redshank *Tringa totanus totanus*  
Ringed plover *Charadrius hiaticula*  
Sanderling *Calidris alba*

**Over wintering migrants:**

Dunlin *Calidris alpina alpina*  
Grey plover *Pluvialis squatarola*  
Knot *Calidris canutus islandica*  
Lapwing *Vanellus vanellus*  
Redshank *Tringa totanus totanus*  
Shelduck *Tadorna tadorna*

## HUMBER MANAGEMENT SCHEME

### Key sub-features for the migratory bird species:

Intertidal mudflats and sandflats – The Annex 1 birds feed throughout the estuary on invertebrate species found in the intertidal mud and sand flats. These areas provide low tide roosting sites for large numbers of waders.

Saltmarsh Communities – Saltmarshes provide a rich feeding habitat for redshank and shelduck, and roosting habitat for many waders.

Tidal reedbeds – Redshank and shelduck may use the reedbeds as a high tide roost.

Coastal lagoons – The lagoons on the Humber are important high tide roosts for several of these migratory birds.

### **2.5.5 Internationally important assemblage of waterfowl**

The Humber Estuary is one of the key estuaries in the UK for wintering waterfowl, regularly supporting over 20,000 birds. The wintering waterfowl assemblage (consisting of over 175,000 birds), includes the Annex I wintering species and the internationally important regularly occurring migratory species. It also includes species present in nationally important numbers or species whose populations exceed 2,000 individuals.

#### **Internationally important Assemblage of Waterfowl**

Black-tailed godwit <i>Limosa limosa islandica</i>	Pochard <i>Aythya ferina</i>
Curlew <i>Numenius arquata</i>	Ringed plover <i>Charadrius hiaticula</i>
Dark-bellied brent geese <i>Branta bernicla bernicla</i>	Sanderling <i>Calidris alba</i>
Goldeneye <i>Bucephala clangula</i>	Scaup <i>Aythya marila</i>
Mallard <i>Anas platyrhynchos</i>	Wigeon <i>Anas penelope</i>
Oystercatcher <i>Haematopus ostralegus</i>	

### Key sub-features for the important assemblage of waterfowl:

Intertidal mudflats and sandflats – Many of the waterfowl species feed on the invertebrate species found in the intertidal mud and sand flats. Dark-bellied brent geese, pochard and wigeon feed on eelgrass that grows on the mudflats. The intertidal mud and sand flats also provide roosting sites for the wildfowl and waders.

Saltmarsh Communities – These provide feeding habitat for grazing species such as dark bellied brent geese and wigeon. Mallard occasionally graze on marsh plants, plucking at the leaves and shoots and black-tailed godwit may feed on the invertebrates in the saltmarsh substrate. Oystercatchers and curlew roost on the saltmarshes of the outer estuary.

Tidal reedbeds – Pochard, feed in the open water pools of the reedbeds, while mallard, goldeneye and scaup may feed and roost in these pools.

Coastal lagoons – Lagoons are an important high tide wader roost, particularly during spring high tides and provide an important feeding habitat for many of the wildfowl species.

### **2.5.6 Internationally important wetland, hosting an assemblage of threatened coastal and wetland invertebrates**

The Humber is an internationally important wetland, hosting an assemblage of threatened coastal and wetland invertebrates. In addition to those listed, a large number of qualifying invertebrate species utilise habitats above highest astronomical tide and hence are outwith the European marine site boundary.

#### **Threatened Coastal and Wetland Invertebrates**

Ground beetle	<i>Pogonus luridipennis</i> – found under seaweeds and driftwood and strandline litter. It has been recorded at Spurn and between Cleethorpes and Humberston.
Lagoon sand shrimp	<i>Gammarus insensibilis</i> – Humberston Fitties is the most northerly site in Europe for this species (See 2.4.2).
Muscid fly	<i>Spilogona biseriata</i> – feeds on algal mats and has been recorded from Spurn Point and Blacktoft Sands.
Scarce pug moth	<i>Eupithecia extensaria occidua</i> – feeds on wormwood <i>Artemisia maritima</i> , and is only found at Spurn Point and the Wash.

Key sub-features for threatened coastal and wetland invertebrates:

Saltmarsh communities – the invertebrate species utilising this habitat tend to be localised.

Coastal lagoons – are the only priority BAP habitat on the Humber EMS, the lagoon sand shrimp is protected under Schedule 5 of the Wildlife and Countryside Act 1981.

### **2.5.7 Internationally important wetland, supporting a breeding colony of grey seals**

The Humber supports a breeding colony of grey seals *Halichoerus grypus* on the southern edge of their distribution. Grey seals have been breeding at Donna Nook since the early 1970s and are probably related to the Farne Island colonies. Grey seals are amongst the rarest seals in the world and the UK population represents about 40% of the world population and 95% of the EU population.

Key sub-features for the breeding colony of grey seals:

Intertidal mudflats and sandflats – Theses provide an important habitat for grey seals which come ashore in autumn to form breeding colonies, and throughout the year for hauling out or resting, particularly during the spring moult.

## HUMBER MANAGEMENT SCHEME

### 3.0 Conservation Objectives for Humber Estuary European marine site Interest Features

#### 3.1 Introduction

In developing the Management Scheme, the Relevant Authorities on the Humber have reviewed current management measures and assessed the need for new measures in order to maintain the Humber Estuary European marine site in favourable condition<sup>14</sup>. Conservation objectives have been set by English Nature to provide the standard against which the success or failure of the site's management measures can be judged. The Management Scheme will be regularly reviewed and, where necessary, revised so that:

- The conservation objectives are met.
- Changes in site usage are updated.
- Changes in site condition are taken into consideration.
- Improvements in scientific knowledge are incorporated.

#### 3.2 The Conservation Objectives for the Humber Estuary European marine site

English Nature has a duty to provide conservation objectives, these relate specifically to the conservation features of the Humber Estuary European marine site and provide guidance to the Relevant Authorities on the management needed to maintain the site's habitats and species in favourable condition. Favourable condition is defined as the target condition for an interest feature (see Section 2 for a description of interest features) in terms of abundance, distribution structure or function of the features within a site.

Information in this section is drawn from English Nature's "The Humber Estuary European marine site, Interim Advice" given under Regulation 33(2) of the Conservation (Natural Habitats &c.) Regulations 1994.

The conservation objectives are defined as a statement of the nature conservation aspirations for a site. They are expressed in terms of the favourable condition that it is planned will be maintained for the habitat and/or species for which the site has been designated. Favourable condition is monitored via targets, which for the Estuary is "*No decrease in extent from an established baseline, subject to natural change*". Similar targets are set for each conservation objectives

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
Estuary		Extent	Area (ha)	No decrease in extent from an established baseline, subject to natural change.	Extent is an attribute on which reporting is required by the Habitats Directive.

**Extract from Favourable Condition monitoring table**

(See the Regulation 33 Advice for the full tables)

In summary, a conservation objective defines the condition that a habitat or species should be maintained in. The conservation objectives make an allowance for certain changes that occur naturally and that cannot be controlled by human intervention, i.e. isostatic rebound (land sinking) and natural climate change.

---

<sup>14</sup> Favourable conservation status is defined as a range of conditions for a natural habitat or species at which the sum of influences acting upon that habitat or species are not adversely affecting its distribution, abundance, structure or function throughout the EU in the long term. The conditions in which the habitat, or species, is capable of sustaining itself on a long-term basis.

## HUMBER MANAGEMENT SCHEME

The conservation objectives for the Humber Estuary European marine site are:

Subject to natural change, maintain\* the **estuary**<sup>1</sup> in favourable condition, in particular the:

- Saltmarsh communities
- Intertidal mudflat & sandflat communities
- Subtidal sediment communities

Subject to natural change, maintain\* the **coastal lagoons**<sup>1</sup> in favourable condition

Subject to natural change, maintain\* the **Atlantic salt meadows**<sup>1</sup> in favourable condition, in particular the:

- Low to mid marsh communities
- Mid to upper marsh communities
- Transitional communities

Subject to natural change, maintain\* the **Salicornia and other annuals colonising mud and sand**<sup>1</sup> in favourable condition, in particular the:

- Annual *Salicornia* (samphire) saltmarsh community
- *Suaeda maritima* (sea-blite) saltmarsh community

Subject to natural change, maintain\* the **mudflats and sandflats not covered by seawater at low tide**<sup>1</sup> in favourable condition, in particular the:

- Intertidal gravel and sand communities
- Intertidal muddy sand communities
- Intertidal mud communities
- Eelgrass bed communities

Subject to natural change, maintain\* the **sandbanks which are slightly covered by seawater all of the time**<sup>1</sup> in favourable condition, in particular the:

- Subtidal gravel and sands
- Subtidal muddy sands

Subject to natural change, maintain\* the habitats of **river lamprey**<sup>1</sup> in favourable condition.

Subject to natural change, maintain\* the habitats of **sea lamprey**<sup>1</sup> in favourable condition.

<sup>1</sup> Special Area of Conservation

\*Maintain implies restoration if the feature is not currently in favourable condition

## HUMBER MANAGEMENT SCHEME

Subject to natural change, maintain\* in favourable condition the habitats for the internationally important populations of the **regularly occurring Annex I species**<sup>2</sup>, in particular:

- Intertidal mudflats and sandflats
- Saltmarsh communities
- Tidal reedbeds
- Coastal lagoons
- Unvegetated sand and shingle

Subject to natural change, maintain\* in favourable condition the habitats for the internationally important populations of the **regularly occurring migratory bird species**<sup>2</sup>, in particular:

- Intertidal mudflats and sandflats
- Saltmarsh communities
- Tidal reedbeds
- Coastal lagoons

Subject to natural change, maintain\* in favourable condition the habitats for the internationally important **assemblage of waterfowl**<sup>2</sup>, in particular:

- Intertidal mudflats and sandflats
- Saltmarsh communities
- Tidal reedbeds
- Coastal lagoons

Subject to natural change, maintain\* the **wetland hosting an assemblage of threatened coastal and wetland invertebrates**<sup>3</sup> in favourable condition, in particular:

- Saltmarsh communities
- Coastal lagoons

Subject to natural change, maintain\* the **wetland hosting a breeding colony of grey seals**<sup>3</sup> in favourable condition, in particular:

- Intertidal mudflats and sandflats

Subject to natural change, maintain\* the **wetland regularly supporting 20,000 or more waterfowl**<sup>3</sup> in favourable condition, in particular:

- Intertidal mudflats and sandflats
- Saltmarsh communities
- Tidal reedbeds
- Coastal lagoons

Subject to natural change, maintain\* the **wetland regularly supporting 1% or more of the individuals in a population of one species or sub-species of waterfowl**<sup>3</sup> in favourable condition, in particular:

- Intertidal mudflats and sandflats
- Saltmarsh communities
- Tidal reedbeds
- Coastal lagoons

<sup>2</sup>Special Protection Area habitat

<sup>3</sup>Ramsar habitat

\*Maintain implies restoration if the feature is not currently in favourable condition

## 4.0 Advice on Operations

### 4.1 Introduction

English Nature has a duty under Regulation 33(2) of the Habitats Regulations to advise Relevant Authorities on operations that may cause deterioration to natural habitats or disturbance to species for which the site has been designated. English Nature's Regulation 33 advice has been used by the Relevant Authorities to help identify activities that may cause such deterioration and/or disturbance and plan management proposals designed to avoid or mitigate them.

### 4.2 Format of Advice

English Nature's advice has been provided within six broad categories of operations that may cause deterioration of natural habitats or the habitats of species, or disturbance of species.

Physical Loss	Toxic contamination
Physical Damage	Non-toxic contamination
Non-physical disturbance	Biological disturbance

#### **Categories of Operations - that may cause deterioration**

This provides for:

- Links to be made between human activities and the ecological requirements of the habitats or species, (as required under Article 6 of the Habitats Directive).
- A consistent framework to enable Relevant Authorities to assess the effects of activities and identify priorities for management within their areas of responsibility.
- Is appropriately robust to take into account the development of novel activities or operations that may cause deterioration or disturbance to the interest features of the site and should have sufficient stability to need only infrequent review and updating by English Nature.

The development of this Management Scheme has provided new information on current activities and patterns of usage across the site. It is also important that future consideration of the Regulation 33 advice by Relevant Authorities and others takes account of changes in the usage patterns since the advice was issued.

### 4.3 Operations Advice

English Nature's advice provides a basis for discussion with relevant and competent authorities, advisory groups etc as to the nature and extent of activities taking place within or close to the site that may have an impact on the habitats or species for which the site has been designated.

In conclusion English Nature's advice:

- Explains the international nature conservation importance of the site
- Provides a basis for the Management Scheme
- Should be used as a starting point to assess whether plans and projects will have a significant effect on the site. (plans and projects include consents, authorisations, licences and permissions)
- Provides information for condition monitoring

#### **4.4 Plan and Projects**

In general, any action that requires an application to be made for specific statutory consent, authorisation, planning permission, licence or other permission (typically associated with new development) is considered as a plan or project. New developments within a European marine site require statutory consent or other permission from a Competent Authority.

There are separate provisions within the Habitats Regulations for dealing with plans and projects, therefore, they are not covered by this Management Scheme. However, information collated by the Management Scheme may provide guidance and aid consistency when decisions are made by the Competent Authority on individual applications.

#### **4.5 Review of Existing Consents**

The Habitat Regulations (Regulation 50) require that existing consents and other such permits granted before the Humber was designated a European marine site be “*reconsidered as of that date*”. This reconsideration is outside the remit of the Management Scheme. However, information collated by the Management Scheme may be used to inform these discussions as detailed in section 4.4.

## 5.0 Human Activities in and around the Humber Estuary

### 5.1 Introduction

The Humber Estuary has a long history of human activity, undertaken by individuals and organisations. There are numerous initiatives in place to manage some of these, organised by a wide range of organisations and user groups, while other activities are currently unmanaged. This section collates the detailed research undertaken by the Relevant Authorities with assistance from the Humber Advisory Group on activities taking place in and around the Humber Estuary, as a necessary part of developing a comprehensive Management Scheme.

### 5.2 Detail of Human Activities

This Management Scheme documents activities that take place on and around the Humber and details, the management that already exists. The Relevant Authorities in conjunction with the Humber Advisory Group reviewed many activities in the development of this Management Scheme. The activities were grouped into categories for detailed assessment during the development of this Management Scheme (table 5.1). Working groups were formed to carry out detailed assessments of these activities and to determine Management Actions and possible further work. Full details of these activities are provided in the Annexes A-J.

Category	Lead author	Additional Input
Fisheries	NESFC	EN, HAG, IECS
Flood Defence & Land Drainage	EA	IDBs
Industry, Water And Waste Management		
Water Resources	EA	
Water Quality	EA	
Land Use		
High Tide Roosts	EN	IECS, RSPB
Saltmarsh management	EN	HAG, RSPB
Recreation And Tourism	LA	HAG
Science & Education	EN	HAG
Shipping & Navigation	ABP	BW
Ministry of Defence	MoD	
<b>Abbreviations</b>		
ABP – Associated British Ports	IECS – Institute of Estuarine and Coastal Studies	
EA – Environment Agency	LA – Local Authority	
BW – British Waterways	MoD – Ministry of Defence	
EN – English Nature	NESFC – North Eastern Sea Fisheries Committee	
HAG – Humber Advisory Group	RSPB – Royal Society for the Protection of Birds	
IDBs – Internal Drainage Board		

**Table 5.1 Human Activities researched by the Relevant Authorities’ in conjunction with the Humber Advisory Group during the development of the Management Scheme.**

## **6.0 Action Plan for the Humber Estuary European marine site**

### **6.1 Introduction**

Annexes A-J contain information on over 100 activities that take place on the Humber, detailing the management that already exists, or action required, to maintain the high conservation value of the estuary. These actions will be applied by the Relevant Authorities, either working alone, or in partnership with each other and/or the Humber Advisory Group, to ensure that the site is maintained in favourable condition.

### **6.2 Internal and External Factors**

Prior to the development of “Management Actions” for the activities categorised in section 5, an assessment of the ‘internal natural and external factors’ was undertaken. This recognises that natural processes can have an effect on the habitats and species of the site. Natural change, for example due to sea-level rise caused by isostatic rebound (land sinking) are not something that can be changed or altered and the aim is for the dynamic features of the European marine site to be able to behave naturally, and consequently be in as natural a state as possible.

**Internal Natural Factors** – Do natural factors also affect these features in a comparable way and 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 with the subsequent loss of feeding areas and nursery areas.

**External Factors** – Are activities outside the boundary of the site also likely to affect features and does this need to be taken into account for site management?

e.g. Pollutant inputs, power station impingement, water quality, barriers on fish migration and over fishing.

### **6.3 Future Management**

The rationale for future management is first to examine any gaps between the current practices for an activity and those needed to reduce adverse factors. The appropriate management option depends on the cause and effect of the activity on the habitats and species of the Humber Estuary. Table 6.1 was used to determine the appropriate options. Future management options range from the surveillance of natural processes and monitoring existing activities, to the implementation of new management measures, which include the development of Codes of Conduct for some activities.

The proposed Management Actions reflect the measures required to ensure that the interest features remain in favourable condition. The Action Plan (Annexes A-J) will be reviewed annually and revised as conditions change and the management measures yield results. Further changes to the Action Plan will also be required, as new information from surveillance, monitoring and research becomes available (Section 7.2.).

HUMBER MANAGEMENT SCHEME

<b>Factor</b>	<b>Activity</b>	<b>Management Options</b>	<b>Example</b>
<b>F1</b>	Activity is a natural process	Surveillance	Natural movement of river channel leading to saltmarsh loss
<b>F2</b>	There is no known mechanism for the activity to affect the feature, and no evidence that it is having an effect	Not considered further	These are issues/activities which may have been raised but which are not happening on site. Or if it did occur would not cause damage e.g. scuba diving
<b>F3</b>	There is a known mechanism for the activity to have an effect, but no evidence to suggest that it is having a significant effect at present	Surveillance. Possibly identify operational limits	Agricultural contamination might flow into the site causing pollution – but no evidence to suggest that it is having a significant effect at present
<b>F4</b>	There is evidence to suggest that an activity might be having a significant effect – at least in some parts of the EMS – but the mechanism and/or the effects are not fully understood	Research and/or trial management including development of codes of practice, zoning of particular areas etc	Some forms of recreation are suspected of disturbing EMS interest features but little is known on the effects of the disturbance and how best to manage the activities
<b>F5</b>	There is evidence to suggest that an activity is having a significant effect and the mechanism is known	Implement management measures (voluntary or statutory), with operational limits as appropriate	The use of unauthorised motor vehicles within the Humber Estuary European marine site causes significant disturbance to birds using the area and damage to the saltmarsh
<b>F6</b>	The activity constitutes a plan or project	Apply Habitats Regulations 48 – 53	Activities requiring planning permission or other forms of consent (see Section 4.4.)

**Table 6.3 Assessment of Activity and the Management Options**

**6.4 Relevant Authorities Management**

The Action Plan lists the Relevant Authorities responsible for the management of each activity. In many cases, the Management Actions will be undertaken by a single Relevant Authority in accordance with the scheme, e.g. – operation of the River Hull Tidal Surge Barrier (Annex B. 11). These Management Actions remain an essential part of the Management Scheme and will be subject to regular review to incorporate new information from surveillance, monitoring and research as it becomes available (The full Action Plan is provided in the Annexes A-J).

HUMBER MANAGEMENT SCHEME

**6.5 Management Actions – undertaken with the help of the Humber Advisory Group**

This Action Plan lists other Management Actions over which the Relevant Authorities do not have direct control. They have agreed to work with the Humber Advisory Group and, in due course, other organisations on means to reduce any adverse impacts that may be occurring on the site. An example is samphire collection (Annex G13). These Management Actions will be reviewed in the same way as those undertaken by the each Relevant Authorities individually (Section 6.4.).

The Relevant Authorities working jointly with user groups, via the Humber Advisory Group, will implement the Management Actions. The HMS (Humber Management Scheme) is in the implementation column of the Management Action table in these cases. English Nature will in some cases act as the lead authority, together with their consultation role in these, and all other Management Actions. (The full Action Plan is provided in the Annexes A-J).

Activity	Annex	Proposed Management Actions Include
A1/ Angling	Annex A – Fisheries	Code of conduct.
A3/ Cockle gathering	Annex A – Fisheries	Code of conduct - access
F2/ Plant gathering	Annex F – Saltmarsh Management	Codes of Conduct
F5/ Access	Annex F – Saltmarsh Management	Surveillance.
G1/ Angling	Annex G – Recreation & Tourism	Code of Conduct.
G2/ Airborne recreation	Annex G – Recreation & Tourism	Code of Conduct.
G3/ Bait digging	Annex G – Recreation & Tourism	Code of Conduct.
G7/ Dog walking	Annex G – Recreation & Tourism	Code of Conduct.
G8/ Horse riding	Annex G – Recreation & Tourism	Monitor.
G10/ Motorised access to foreshores	Annex G – Recreation & Tourism	Monitor.
G11/ Motorised recreation on the foreshores	Annex G – Recreation & Tourism	Code of Conduct.
G12/ Personal Water Craft	Annex G – Recreation & Tourism	Code of Conduct.
G13/ Samphire collection	Annex G – Recreation & Tourism	Code of Conduct.
G15/ Walking	Annex G – Recreation & Tourism	Code of Conduct.
G16/ Wildfowling	Annex G – Recreation & Tourism	Code of Conduct.
H16/ Fields trips – universities/schools	Annex H – Science & Education	Code of Conduct.
H17/ Guided walks and activities	Annex H – Science & Education	Code of Conduct.

**Table 6.5 Management Actions – undertaken with the Humber Advisory Group**

## 7.0 Reporting and review programmes

### 7.1 Introduction

This section sets out the programme of reporting and review to be undertaken by the Relevant Authorities to monitor the implementation and success of the Action Plan.

### 7.2 Monitoring

#### 7.2.1 Condition Monitoring

Monitoring the condition of the habitats and species for which the site has been designated 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 that can contribute to condition monitoring, English Nature will seek to build this into the condition monitoring programme for the site.

Interest Feature or sub-features.	Attribute	Measure	Target
Mudflats and sandflats not covered by seawater at low tide	Extent	Area (ha) of intertidal flats, measured periodically during the reporting cycle (frequency to be determined).	No decrease in extent from an established baseline, subject to natural change.
	Topography	Tidal elevation and shore slope, measured periodically during the reporting cycle (frequency to be determined).	Shore profile should not deviate significantly from an established baseline, subject to natural change.

**Extract from Favourable Condition monitoring table**

(See the Regulation 33 Advice for the full tables)

The condition monitoring scheme is required as:

- We need to determine the condition of the interest features.
- We do not have a thorough understanding of all the activities affecting the site, and it may be that the effects of certain activities take some time to manifest themselves.
- The overall site may be in favourable condition; however, specific features within the site may need attention.
- Favourable condition at the time of designation does not necessarily imply that the site will still be in favourable condition in a number of years time.

An essential step in developing the management scheme will be the evaluation of the effect of existing regulatory systems, voluntary agreements and unregulated patterns of use against the conservation objectives. If a gap in management is identified then the management scheme will seek to fill it.

### **7.2.2 Compliance monitoring**

The Relevant Authorities are responsible for monitoring the activities under their remit and the Action Plan identifies existing and new management measures designed to ensure that the Humber Estuary European marine site is maintained in favourable condition. The Relevant Authorities have set out against each of these measures the mechanisms by which they will ensure that the measures are put in place and are effective. For example, this may involve undertaking monitoring to gain further information and understanding of the activity and its effects on the European marine site.

### **7.3 Review of Management**

To ensure the management measures are sufficient to maintain the Humber Estuary in favourable condition and that the measures in this Action Plan (Annexes A-J) are implemented, regular assessment of progress is needed and the scheme will be reviewed annually.

An annual report will be produced to outline the implementation of existing management measures, developments on new actions identified by this scheme, and the work of the Humber Advisory Group. Changes in English Nature's Regulation 33 advice and information from the condition monitoring will also be used to assess the effectiveness of the scheme and prioritise where management measures should be focussed in the following year.

### **7.4 Reporting and Review Programmes**

The Management Scheme Action Plan will be reviewed annually. Outstanding action points and new issues will be discussed at a meeting of the full Humber Estuary Relevant Authorities Group. A timetable for implementation of the Management Actions is given in the Annexes A-J.

## HUMBER MANAGEMENT SCHEME

### **Bibliography**

DEPARTMENT OF THE ENVIRONMENT TRANSPORT AND THE REGIONS (DETR). 1998. European marine sites in England and Wales: A guide to the Conservation (Natural Habitats & c.) Regulations 1994 and to the Preparation and Application of Management Schemes. London.

English Nature Humber to Pennines Team. April 2003. The Humber Estuary European Marine Site, Interim Consultation advice given under Regulation 33(2) of the Conservation (Natural Habitats & c.) Regulations 1994.

Morecambe Bay European Marine site Management Group. 2001. Morecambe Bay European Marine Site: Management Scheme.

DETR's Planning Policy Guidance 9: Nature conservation (PPG9)

Solent European Marine Site Management Group. 2001. Solent European Marine Site Foundation Document: Second Draft for Comment.

UK Marine SACs Project. 2001. Indications of Good Practice for establishing management schemes on European marine sites - Learning from the UK Marine SACs Project 1906-2001.

Wash and North Norfolk Coast European Marine Site Management Group. 2001. Wash and North Norfolk Coast European Marine Site: Draft Management Scheme.

For a list of useful websites, please see our site [www.humberems.co.uk](http://www.humberems.co.uk).

## HUMBER MANAGEMENT SCHEME

### **Glossary**

Annex I birds	Bird species listed on Annex 1 of the Birds Directive. These are in danger of extinction, are rare, or are considered vulnerable within the European Union. Those that regularly occur at levels over 1% of the national population meet the SPA qualifying criteria.
Annex II species	A species listed in Annex II of the Habitats Directive for which Special Areas of Conservation can be selected.
Attribute	A characteristic of a habitat, biotope, community or population of a species, which most economically provides an indication of the condition of the interest features to which it applies. For species, these may include measures of population size, structure, habitat requirements and distribution. For habitats, attributes may include measures of area covered, composition and structure and supporting processes such as ecosystem structure, tidal streams, salinity, sediment accretion/erosion, water quality, and the presence of typical species.
Biodiversity	Biological diversity – the total variety of life on earth. This includes diversity within species, between species and of ecosystems.
Birds Directive	The abbreviated term for Council Directive 79/409/EEC of 2 April 1979 on the Conservation of Wild Birds. This Directive aims to protect bird species within the EU through the conservation of populations of certain birds and the habitats used by these species.
Coastal Habitat Management Plans	These balance habitat losses and gains that are likely to occur in response to ‘coastal squeeze’.
Coastal Squeeze	Process by which natural coastal habitats are ‘squeezed’ by rising sea levels and the installation/maintenance of sea defences.
Competent Authority	Any Minister, government department, public or statutory undertaker, public body or person holding a public office that exercises statutory powers.
Conservation objective	A statement of the nature conservation aspirations for the features of interest on a site, expressed in terms of the favourable condition that the species and/or habitats for which the site has been selected should attain. Conservation objectives for European marine sites relate to the aims of the Habitats and Birds Directives.
Country agencies/the statutory national nature conservation bodies:	The statutory national nature conservation bodies: the Countryside Council for Wales, English Nature, Scottish Natural Heritage and their Joint Nature Conservation Committee and the Environment & Heritage Service, (an agency within the Department of the Environment (Northern Ireland).
European marine site	A European site (SAC or SPA) which consists of, or so far as it consists of, marine areas.

## HUMBER MANAGEMENT SCHEME

Favourable condition	The target condition for an interest feature in terms of abundance, distribution and/or quality of that feature within a site. A measure of the contribution that the site makes to the favourable conservation status of the feature. Interest features may be considered to be in: favourable condition; unfavourable-recovering; unfavourable-no change; or unfavourable-declining.
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 EU in the long term. The condition in which the habitat or species is capable of sustaining itself on a long-term basis.
Habitats Directive	The abbreviated term for Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora. It is the aim of this Directive to promote the conservation of certain habitats and species within the EU.
Interest feature	A natural or semi-natural feature for which a European site has been selected. This includes any Habitats Directive Annex I habitat and any Annex II species and any population of a bird species for which an SPA has been designated under the Birds Directive.
Isostatic rebound	Upward movement of the Earth's crust following sinking due to isostatic depression during glaciation.
Management Scheme	The framework established by the Relevant Authorities for 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.
Monitoring	Surveillance undertaken to ensure that formulated standards are being maintained. The term is also applied to compliance monitoring against accepted standards to ensure that agreed or required measures are being followed.
Natura network	2000 The European network of protected sites established under the Birds Directive and the Habitats Directive.
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 their habitats for which the site was designated.
Plans and projects	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.

## HUMBER MANAGEMENT SCHEME

Precautionary principle	The assumption that where there are real threats of serious damage to the environment, lack of full scientific information should not be used as a justification for postponing measures to prevent such damage occurring. It does not however imply that the suggested cause of such damage must be eradicated unless proved to be harmless and it cannot be used as a licence to invent hypothetical consequences. Moreover, it is important, when considering whether the information available is sufficient, to take account of the associated balance of likely costs, including environmental costs, and benefits.” (DETR & Welsh Office, 1998).
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.
Special Area of Conservation (SAC)	A site designated under the Habitats Directive by the Member States where appropriate steps are taken to protect the habitats for which the site is designated.
Shoreline Management Plans	Provide for a strategic and coordinated approach to the management of coastal defences.
Special Protection Area (SPA)	A site designated under the Birds Directive by the Member States where appropriate steps are taken to protect the bird species for which the site is designated.

## HUMBER MANAGEMENT SCHEME

### **Abbreviations and Acronyms**

AA	Appropriate Assessment
ABP	Associated British Ports
AMP3	Asset Management Plans
AONB	Area of Outstanding Beauty
APT	Associated Petroleum Terminals
AWR	Air Weapons Ranges
AWS	Anglian Water Services
BAP	Biodiversity Action Plan
BASC	British Association for Shooting and Conservation
BASS	Bass Anglers Sportfishing Society
BATNEEC	Best Available Techniques Not Entailing Excessive Cost
BSBI	Botanical Society of the British Isles
BW	British Waterways
CA	Competent Authority
CAMS	Catchment Abstraction Management Schemes
CC	County Council
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CHaMP	Coastal Habitat Management Plan
COMAH	Control of Major Accident Hazard sites – Regulations 1999
COTH	Crude Oil Terminals (Humber) Ltd.
CPRE	Council for the Protection of Rural England
DC	District Council
Defra	Department of Environment, Food and Rural Affairs
EA	Environment Agency
EC	European Commission
EH	English Heritage
EIA	Environment Impact Assessment
ELDC	East Lindsey District Council
EN	English Nature
EOD	Explosive Ordnance Demolition
ERYC	East Riding of Yorkshire Council
ESFJC	Eastern Sea Fisheries Joint Committee
EU	European Union
FEPA	Food and Environmental Protection Act 1985
HA	Harbour Authority
HAG	Humber Advisory Group
HB	Humber Bibliography
HEEMS	Humber Estuary European marine site
HEMS	Humber Estuary Management Strategy
HEP	Humber Estuary Partnership
HERAG	Humber Estuary Relevant Authorities Group
HES	Humber Estuary Services
HESMP	Humber Estuary Shoreline Management Plan
HINCA	Humber Industry and Nature Conservation Association
HMS	Humber Management Scheme
HST	Humber Sea Terminals
IDB	Internal Drainage Board
IECS	Institute of Estuarine & Coastal Studies (Hull University)
IPC	Integrated Pollution Control
IPPC	Integrated Pollution Prevention and Control
JNCC	Joint Nature Conservation Committee
JoNuS	Joint Nutrient Study
JTG	Joint Group for Wildfowling and Conservation on Tidal Land

## HUMBER MANAGEMENT SCHEME

KUHCC	Kingston Upon Hull City Council
LA	Local Authority
LBAP	Local Biodiversity Action Plan
LCC	Lincolnshire County Council
LEAP	Local Environment Agency Plan
LPA	Local Planning Authority
LWT	Lincolnshire Wildlife Trust
MAFF	Ministry of Agriculture, Fisheries and Food (now known as Defra)
MCA	Maritime and Coastguard Agency
MEP	Member of the European Parliament
MHWM	Mean High Water Mark
MLWM	Mean Low Water Mark
MOD	Ministry of Defence
NELC	North East Lincolnshire Council
NESFC	North East Sea Fisheries Committee
NFSA	National Federation of Sea Anglers
NFU	National Farmers Union
NLC	North Lincolnshire Council
NMMP	National Marine Monitoring Programme
NRA	National Rivers Authority (now Environment Agency)
RA	Relevant Authority
RAWG	Relevant Authorities Working Group
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAMF	Sea Anglers Matchman Federation
SMR	Sites & Monument Record offices
SMPs	Shoreline Management Plans
SPA	Special Protection Area
Spp.	Species
SUDS	Sustainable urban drainage systems
UA	Unitary Authority
UKD	United Kingdom Dredging
WAERC	Wetland Archaeology and Environments Research Centre (Hull University)
WeBS	Wetland Bird Surveys
YWS	Yorkshire Water Services
YWT	Yorkshire Wildlife Trust

## HUMBER MANAGEMENT SCHEME

### **Common name – Taxonomic name**

Atlantic salt meadows	<i>Glauco-Puccinellietalia maritimae</i>
Avocet	<i>Recurvirostra avosetta</i>
Baltic tellin	<i>Macoma balthica</i>
Bittern	<i>Botaurus stellaris</i>
Black-tailed godwit	<i>Limosa limosa islandica</i>
Common Cockle	<i>Cerastoderma edule</i>
Common cordgrass	<i>Spartina anglica</i>
Common reed	<i>Phragmites australis</i>
Common saltmarsh grass	<i>Puccinellia maritima</i>
Common whelk	<i>Buccinum undatum</i>
Curlew	<i>Numenius arquata</i>
Dark-bellied brent geese	<i>Branta bernicla bernicla</i>
Dunlin	<i>Calidris alpina alpina</i>
Gaper clam	<i>Mya spp</i>
Glasswort	<i>Salicornia spp</i>
Golden plover	<i>Pluvialis apricaria</i>
Goldeneye	<i>Bucephala clangula</i>
Grey plover	<i>Pluvialis squatarola</i>
Grey seals	<i>Halichoerus grypus</i>
Ground beetle	<i>Pogonus luridipennis</i>
Hen harrier	<i>Circus cyaneus</i>
Hornwrack bryozoan	<i>Flustra foliacea</i>
Horse mussel	<i>Modiolus modiolus</i>
Horseshoe worm	<i>Phoronis muelleri</i>
Knot	<i>Calidris canutus islandica</i>
Lagoon isopod	<i>Idotea chelipes</i>
Lagoon mudsnail	<i>Ventrosia ventrosa</i>
Lagoon sand shrimp	<i>Gammarus insensibilis</i>
Lapwing	<i>Vanellus vanellus</i>
Little tern	<i>Sterna albifrons</i>
Lugworm	<i>Arenicola marina</i>
Mallard	<i>Anas platyrhynchos</i>
Marsh harrier	<i>Circus aeruginosus</i>
Muscid fly	<i>Spilogona biseriata</i>
Oystercatcher	<i>Haematopus ostralegus</i>
Pochard	<i>Aythya ferina</i>
Polychaete worm	<i>Arenicola marina</i>
Polychaete worm	<i>Manayunkia aestuarina</i>
Polychaete worm	<i>Nephtys cirrosa</i>
Polychaete worm	<i>Sabellaria spinulosa</i>
Polychaete worm	<i>Scolelepis squamata</i>
Ragworm	<i>Nereis spp</i>
Razor shell	<i>Ensis spp</i>
Redshank	<i>Tringa totanus totanus</i>
Ringed plover	<i>Charadrius hiaticula</i>
River lamprey	<i>Lampetra fluviatilis</i>
Saltmarsh grass/fescue	<i>Puccinellia/Festuca</i>
Saltmarsh rush	<i>Juncus gerardii</i>
Samphire	<i>Salicornia spp</i>
Sand mason worm	<i>Lanice conchilega</i>
Sand shrimp	<i>Gammarus chevreuxi</i>
Sanderling	<i>Calidris alba</i>
Scarce pug moth	<i>Eupithecia extensaria occidua</i>
Scaup	<i>Aythya marila</i>

## HUMBER MANAGEMENT SCHEME

Sea aster	<i>Aster tripolium</i>
Sea club-rush	<i>Scirpus maritimus</i>
Sea couch grass	<i>Elymus pycnanthus</i>
Sea lamprey	<i>Petromyzon marinus</i>
Sea lavender	<i>Limonium vulgare</i>
Sea purslane	<i>Atriplex portulacoides</i>
Sea-blite	<i>Suaeda maritima</i>
Shelduck	<i>Tadorna tadorna</i>
Spiral tasselweed	<i>Ruppia cirrhosa</i>
Wigeon	<i>Anas penelope</i>
Wormwood	<i>Artemisia maritima</i>