

**Site name:** Humber Estuary **County:** East Riding of Yorkshire, Kingston upon Hull, North Lincolnshire, North East Lincolnshire and Lincolnshire.

**District:** East Riding of Yorkshire, Kingston upon Hull, North Lincolnshire, North East Lincolnshire and East Lindsey

**Status:** Site of Special Scientific Interest (SSSI) notified under Section 28C of the Wildlife and Countryside Act 1981, as inserted by Schedule 9 to the Countryside & Rights of Way Act 2000.

**Local Planning Authority:** East Riding of Yorkshire Council, Kingston upon Hull Council, North Lincolnshire Council, North East Lincolnshire Council, Lincolnshire County Council and East Lindsey District Council

**National grid reference:** TA216184 **Area:** 37000.59 ha

**Ordnance Survey sheet:** **1:50,000:** 106, 107, 112, 113  
**1:10,000:** SE72 NW, NE, SW, SE; SE81 NW, NE, SW, SE; SE82 NE, SW, SE; SE92 NW, NE, SW, SE; TA02 NW, NE, SW, SE; TA11 NE; TA12 NW, NE, SW, SE; TA20 NE; TA21 NW, NE, SW, SE; TA22 SW; TA30 NW, NE, SW, SE; TA31 NW, NE, SW, SE; TA40 NW, SW; TA41 NW, SW; TF49 NW, NE, SE.

**Date of notification:** 3 February 2004

#### **Reasons for Notification:**

The Humber Estuary is a nationally important site with a series of nationally important habitats. These are the estuary itself (with its component habitats of intertidal mudflats and sandflats and coastal saltmarsh) and the associated saline lagoons, sand dunes and standing waters. The site is also of national importance for the geological interest at South Ferriby Cliff (Late Pleistocene sediments) and for the coastal geomorphology of Spurn. The estuary supports nationally important numbers of 22 wintering waterfowl and nine passage waders, and a nationally important assemblage of breeding birds of lowland open waters and their margins. It is also nationally important for a breeding colony of grey seals *Halichoerus grypus*, river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus*, a vascular plant assemblage and an invertebrate assemblage.

#### **General description:**

##### **Estuary**

The Humber Estuary is a large macro-tidal coastal plain estuary with high suspended sediment loads, which feed a dynamic and rapidly changing system of accreting and eroding intertidal and subtidal mudflats, sandflats, saltmarsh and reedbeds. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion on the tidal rivers of the Ouse and Trent. The range of salinity, substrate and exposure to wave action influences the estuarine habitats and the range of species that utilise them. These include a breeding bird assemblage, winter and passage waterfowl, river and sea lamprey, grey seals, vascular plants and invertebrates.

The extensive mud and sand flats support a range of benthic communities, which in turn are an important feeding resource for birds and fish. Wave exposed sandy shores are found in the outer/open coast areas of the estuary. These change to the more moderately exposed sandy shores and then to sheltered muddy shores within the main body of the estuary and up into the tidal rivers.

The lower saltmarsh of the Humber is dominated by common cordgrass *Spartina anglica* and annual glasswort *Salicornia* communities. Low to mid marsh communities are mostly represented by sea aster *Aster tripolium*, common saltmarsh grass *Puccinellia maritima* and sea purslane *Atriplex portulacoides* communities. The upper portion of the saltmarsh community is atypical, dominated by sea couch *Elytrigia atherica* (*Elymus pycnanthus*) saltmarsh community. In the upper reaches of the estuary, the tidal marsh community is dominated by the common reed *Phragmites australis* fen and sea club rush *Bolboschoenus maritimus* swamp with the couch grass *Elytrigia repens* (*Elymus repens*) saltmarsh community. On the southern coastal fringe of the estuary on the north Lincolnshire coast, a wide range of saltmarsh communities are present. Good height zonation is found, with levee development along creeks creating extensive depressions holding waterlogged saltmarsh types. Upper saltmarsh is common here. These saltmarsh communities are an integral part of the functioning dynamic estuarine system. They provide nutrients for the mudflats and sandflats, and feeding and roosting areas for nationally important numbers of ducks, geese and waterfowl.

### **Saline lagoons**

Within the Humber Estuary SSSI there are good examples of four of the five physiographic types of saline lagoon. These are the isolated lagoon at Humberston Fitties, the silled lagoon at Northcoates 'Point A', the percolation lagoon at Northcoates 'Point B', and the sluiced lagoons at Blacktoft Sands. These lagoons support a number of notable lagoon specialist species including the lagoon sand shrimp *Gammarus insensibilis*, the amphipod *Gammarus chevreuxi*, the chironomid midge *Glyptotendipes barbipes* and a breeding colony of avocets *Recurvirostra avosetta*.

### **Sand dunes**

The sand dunes within the Humber Estuary are features of the outer estuary on both the north and south banks particularly on Spurn and along the Lincolnshire coast south of Cleethorpes. Examples of both strandline, foredune, mobile, semi-fixed dunes, fixed dunes and dune grassland occur on both banks of the estuary and along the coast. Native sea buckthorn *Hippophae rhamnoides* scrub also occurs on both sides of the estuary. The nationally scarce, bulbous meadow grass *Poa bulbosa* is found on the sand dunes at Cleethorpes, and the nationally scarce suffocated clover *Trifolium suffocatum* is found at Spurn.

### **Standing waters**

The most extensive area of standing waters on the Humber occurs at Barton and Barrow. The complex of disused clay pits vary in size and salinity, and are a mosaic of open waters. Similar pits occur at other locations on the estuary, such as at Faxfleet and Haverfield Pits. The pits support important breeding birds such as marsh harriers *Circus aeruginosus* and bittern *Botaurus stellaris*, and provide roosting and feeding areas for waterfowl.

## **Geology and geomorphology**

Approximately one kilometre of the cliff and foreshore at South Ferriby, on the southern shore of the Humber provides exposures of Pleistocene sediments resting upon chalk. The sediments consist of tills (boulder clay) interbedded with silts and gravels, and underlain by chalk rubble resting on solid chalk. Resting upon these sediments are poorly stratified sandy chalk gravels, interpreted as solifluction deposits formed during periglacial conditions. These deposits are of importance as they lie in a marginal area between north-east England and East Anglia, as well as within the Humber Gap, the evolution of which has controlled drainage development in this part of England. Although the glacial origin of some of the sediments has long been recognised, isolated patches of gravels with ripple-marked upper surfaces have been interpreted both as raised beach deposits and more recently as the possible remains of a lacustrine beach formed at the margin of the glacial Lake Humber. The most recent studies suggest that these gravels had a fluvio-glacial origin, and that all the sediments date from the Late Devensian glaciation. The interpretation of this succession of sediments is crucial for interpreting and understanding the Late Pleistocene history of this part of Yorkshire and Lincolnshire. As this succession shows rapid lateral variation, it may be expected that new features, that might lead to a revised interpretation will be exposed as the cliff recedes further.

Spurn is an outstanding example of a dynamic spit system, very unusual, if not unique in Europe, in that the massive supply of sediment resulting from the erosion of the Holderness coast to the north has enabled it to extend across the mouth of a macro-tidal estuary. There exists an exceptionally long historical map record and written accounts extending back to the 7<sup>th</sup> Century A.D. This record indicates that the spit continuously shifts its location in response to ongoing erosion of the Holderness coast. The area immediately to the north of Spurn is of interest as the 'foundation' to which the spit is attached and is representative of the eroding cliffs of Holderness that supply sediment to sustain the spit. The site is also of interest because of the relationship between the orientation of the coast to the prevailing wave climate and the orientation of the spit in relation to the eroding shoreline of Holderness.

## **Wintering and passage waterfowl species**

The estuary regularly supports 22 species of wintering waterfowl in nationally important numbers. These are bittern, dark-bellied brent goose *Branta bernicla bernicla*, shelduck *Tadorna tadorna*, wigeon *Anas penelope*, teal *Anas crecca*, pochard *Aythya ferina*, scaup *Aythya marila*, goldeneye *Bucephala clangula*, oystercatcher *Haematopus ostralegus*, avocet, ringed plover *Charadrius hiaticula*, golden plover *Pluvialis apricaria*, grey plover *Pluvialis squatarola*, lapwing *Vanellus vanellus*, knot *Calidris canutus*, sanderling *Calidris alba*, dunlin *Calidris alpina*, black-tailed godwit *Limosa limosa*, bar-tailed godwit *Limosa lapponica*, curlew *Numenius arquata*, redshank *Tringa totanus* and turnstone *Arenaria interpres*.

In addition, nine species of passage waders regularly occur in nationally important numbers on the Humber Estuary. These are: ringed plover, grey plover, sanderling, dunlin, ruff *Philomachus pugnax*, black-tailed godwit, whimbrel *Numenius phaeopus*, redshank and greenshank *Tringa nebularia*.

Wintering waterfowl and passage waders are widely distributed throughout the site, the distribution of individual species reflecting habitat distribution and species ecology. For example, the sandier sediments of the outer estuary are characterised by an assemblage including knot and grey plover, while the largest concentrations of

wigeon are found in the saltmarshes of the upper estuary. At high tide, large mixed flocks are concentrated into key roost sites which are at a premium due to the combined effects of extensive historical land claim, coastal squeeze and the acute lack of grazing marsh and grassland on both banks of the estuary.

### **Breeding bird assemblage of lowland open waters and their margins**

The Humber Estuary supports a breeding bird assemblage of lowland open waters and their margins, including nationally important numbers of bittern, marsh harrier *Circus aeruginosus*, avocet and bearded tit *Panurus biarmicus*. Breeding bitterns first returned to the estuary in 2000, following an absence of over 20 years, and breeding avocets were first recorded here in 1992. The numbers of avocets in particular have increased substantially in recent years. The following species also contribute to the assemblage: little grebe *Tachybaptus ruficollis*, great crested grebe *Podiceps cristatus*, mute swan *Cygnus olor*, shelduck, gadwall *Anas strepera*, shoveler *Anas clypeata*, pochard, tufted duck *Aythya fuligula*, water rail *Rallus aquaticus*, little ringed plover *Charadrius dubius*, snipe *Gallinago gallinago*, redshank, common tern *Sterna hirundo*, cuckoo *Cuculus canorus*, kingfisher *Alcedo atthis*, yellow wagtail *Motacilla flava*, grasshopper warbler *Locustella naevia*, sedge warbler *Acrocephalus schoenobaenus*, reed warbler *Acrocephalus scirpaceus*, and reed bunting *Emberiza schoeniclus*. The distribution of the breeding species that make up the assemblage is concentrated within (although not restricted to) the clay pits, lagoons and reedbeds at Far Ings – Barton, Read’s Island and Blacktoft Sands.

### **Grey seals**

The Humber Estuary supports one of the largest grey seal breeding colonies in England with a high rate of pup production compared to other UK sites.

### **River lamprey and sea lamprey**

The Humber Estuary acts as an important migration route for both river lamprey and sea lamprey between coastal waters and their spawning areas. Both species are present in the estuary to some degree all year round, although numbers increase during summer and autumn periods when migration takes place.

### **Vascular plant assemblage**

The site supports an important vascular plant assemblage, including at least ten nationally scarce species. These are characteristic of coastal and wetland habitats. They are bulbous foxtail *Alopecurus bulbosus*, bulbous meadow-grass, divided sedge *Carex divisa*, sea buckthorn, slender hare’s-ear *Bupleurum tenuissimum*, spiral tasselweed *Ruppia cirrhosa*, rush-leaved fescue *Festuca arenaria*, curved hard-grass *Parapholis incurva*, suffocated clover and sea clover *Trifolium squamosum*. Common couch sub-species *Elytrigia repens* ssp. *arenosa* has also been included as a notable taxon. In addition, the Humber is of phytogeographical interest, with several scarce species of vascular plant occurring at or close to the northern or southern limits of their range on the east coast of Britain.

### **Invertebrate assemblage**

Assemblages of terrestrial and aquatic invertebrates are well represented across the Humber Estuary and its hinterlands. These include many scarce and threatened species across a range of taxa, especially the Coleoptera and Lepidoptera. For example, the sand dunes at Spurn support the ground beetle *Amara lucida*, the white colon moth *Sideridis albicolon* and the shore wainscot moth *Mythimna litoralis*. Saltmarshes such as those at Welwick provide foraging grounds for the solitary bee

*Colletes halophilus*, which is closely associated with the flowers of sea aster *Aster tripolium*. Sea aster is also the larval food plant for the starwort moth *Cucullia asteris*. Further upstream, brackish and freshwater reedbeds support the reed-beetle *Donacia clavipes* and the silky wainscot moth *Chilodes maritimus*, both of which are associated with common reed. Areas of willow *Salix* spp. scrub within reedbeds are also important and are the larval food plant of the cream-bordered green-pea moth *Earias clorana*. Fully aquatic species include the water beetles *Agabus conspersus* and *Helophorus fulgidicollis*.