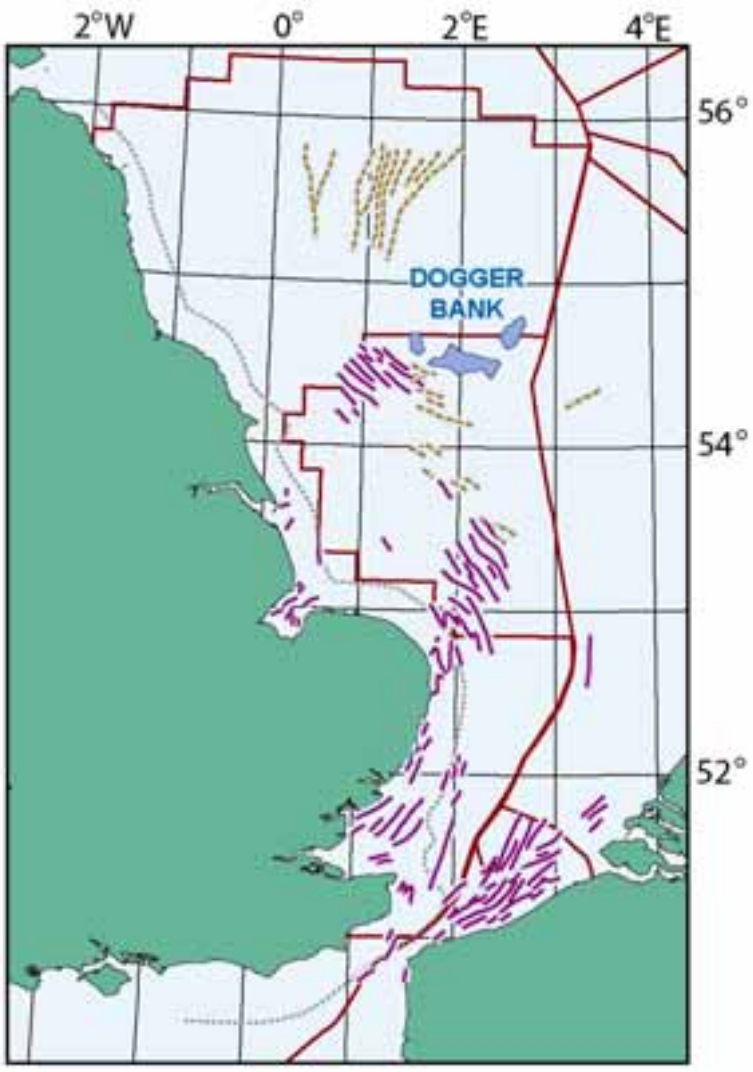
Department of Trade and Industry

CONSERVATION SITES IN THE SEA 3 AREA



August 2002

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1 INTRODUCTION

An integral element of any environmental assessment for offshore oil and gas exploration involves a review of potential sites of conservation importance within the region of interest. For the purpose of the SEA 3, this is especially important given the scale of the area in question and the fact that it includes the coastal zone which is known to support a large number of conservation sites.

The SEA 3 area displays a wide variety of habitat types, from those of a coastal nature, such as estuarine mudflats and sandflats, saltmarsh, sea cliffs and reef habitats, to those associated with the offshore environment. Some of these habitats are rare in a national and/or international context, and many support important numbers of birds, insects and other animals.

This report describes existing and potential conservation sites within the SEA 3 area and has been split into two sections.

The first section, *Existing Coastal and Nearshore Conservation Sites* identifies those coastal and nearshore sites protected by international, national and local conservation designations as well as describing the sites and reasons for their protected status.

The coastal conservation sites are listed according to whether they are of international, national or local importance. For internationally important sites, summary information describing the main features of the site is provided and there is also an assessment of the vulnerability of the site and any relevant management issues. The conservation sites described in this section are listed in Box 1.1 and brief descriptions of the statutory and non-statutory mechanisms responsible for site protection are presented in Appendix 1. Statutory sites are legally protected whilst non-statutory sites, rely on the planning process to confer protection.

Box 1.1 - Coastal and nearshore conservation sites	
International importance	**Designation**
	candidate Special Areas of Conservation (cSAC)
	Special Protection Areas (SPA)
	Ramsar
	Important Bird Areas (IBA)
	Biosphere Reserves
	Environmentally Sensitive Areas (ESA)
National and local importance	
	National Parks
	Areas of Outstanding Natural Beauty (AONB)
	Preferred Conservation Zones (PCZ)
	Regional Landscape Designations (RLD)
	Voluntary Marine Reserves
	Marine Consultation Areas (MCA)
	Heritage Coasts
	National Nature Reserves (NNR)
	Sites of Special Scientific Interest (SSSI)
	Local Nature Reserves (LNR)
	RSPB Reserves
	National Trust for Scotland
	National Trust
	Wildlife Trust Reserves

The second section, *Potential Offshore Conservation Sites* describes offshore areas of SEA 3, between 3-12 nautical miles and also outwith UK territorial waters which contain habitats and/or species which are likely to be afforded protection in the future through the implementation of the Habitats Directive in UK offshore waters.

Much of the information utilised by this report including site descriptions, mapping information and species inventories has come from JNCC and English Nature to whom we are grateful. Other sources of information include both species and habitat biodiversity action plans, the 2000 IUCN Red List of Threatened Species, the Countryside Agency and various non-governmental conservation organisations, including the National Trust, RSPB and the Wildlife Trusts.

Information regarding biodiversity action plans comes from the UK Biodiversity Action Plan website (http://www.ukbap.org.uk/Plans/index.htm). Priority Species Action Plans provide more detailed information on the threats facing 391 species and the opportunities for maintaining and enhancing their populations. Priority Habitat Action Plans provide more detailed descriptions for 45 specific types of habitats.

The 2000 IUCN Red List of Threatened Species provides taxonomic, conservation status and distribution information on taxa that have been evaluated using the 1994 IUCN Red List Categories. This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those taxa that are facing a higher risk of global extinction (i.e. those listed as Critically Endangered, Endangered and Vulnerable). The IUCN Red List also includes information on taxa that are categorized as Extinct or Extinct in the Wild; on taxa that cannot be evaluated because of insufficient information (i.e. are Data Deficient); and on Lower Risk taxa which are either close to meeting the threatened thresholds (i.e. Lower Risk/near threatened) or that would be threatened were it not for an ongoing taxon-specific conservation programme (i.e. Lower Risk/conservation dependent).

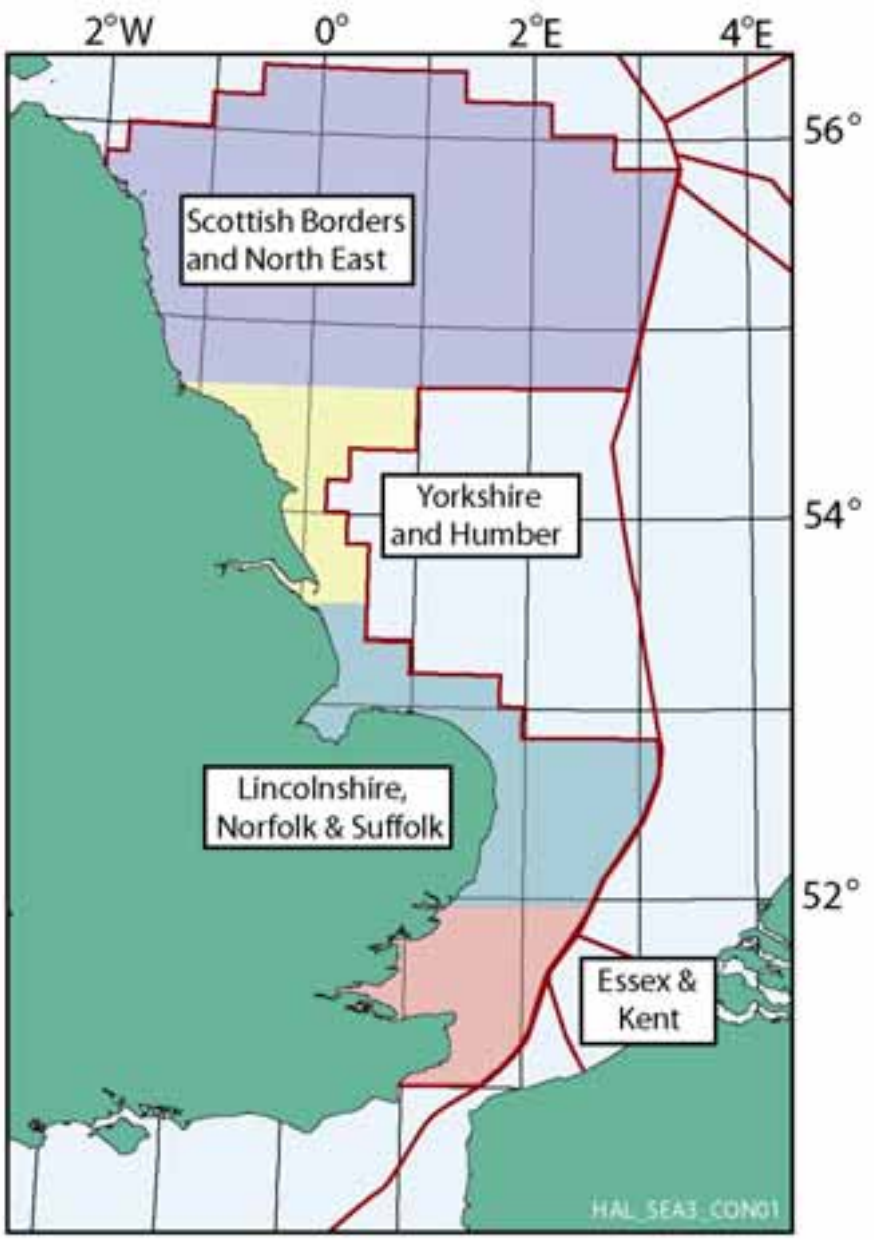
Sources of information
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/

1.1 Existing coastal and nearshore conservation sites

For the purpose of this report, the coast bordering the SEA 3 region has been divided up into four sections (see Box 1.2 and Figure 1.1). These sections differ from those utilised in the *SEA 3 Existing Users Report* and are designed to reflect the significant conservation importance of The Wash, which borders both Lincolnshire and Norfolk.

Box 1.2 - SEA 3 Regional sections and inclusive counties and unitary authorities (UA)	
SCOTTISH BORDERS AND NORTH EAST	The Scottish Borders, Northumberland, Tyne and Wear, Durham, Hartlepool (UA), Stockton-on-Tees (UA), Redcar and Cleveland (UA).
YORKSHIRE AND HUMBER	North Yorkshire, East Riding of Yorkshire, City of Kingston upon Hull (UA), North Lincolnshire (UA) and North East Lincolnshire (UA).
LINCOLNSHIRE, NORFOLK AND SUFFOLK	Lincolnshire, Norfolk and Suffolk.
ESSEX AND KENT	Essex, Southend-on-Sea (UA), Thurrock (UA), Medway (UA), Kent.

Figure 1.1 – SEA 3 regional sections



The protected coastal sites within each region are listed according to whether they are of international, national or local importance and the sites are also described in geographical order, from north to south.

Each regional section is described in a consistent manner that facilitates access to the relevant information and the report can be read in its entirety or as separate regional accounts.

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2 SCOTTISH BORDERS AND NORTH EAST

The Scottish Borders and North East region covers the coastline from Pease Bay in the Scottish Borders down to the northern boundary of North Yorkshire. This area includes the Scottish Borders region, the counties of Northumberland, Tyne and Wear, Durham, and the unitary authorities of Hartlepool, Stockton-on-Tees and, Redcar and Cleveland (see Figure 1.1).

The Scottish Borders coastline is almost entirely cliffed as far as the English border, reaching heights of nearly 200m between Fast Castle Head and St. Abb's Head. These headlands support important seabird breeding colonies and coastal waters support a rich variety of benthic flora and fauna.

Stretches of the Northumberland coast support a very extensive range of intertidal mudflats and sandflats, ranging from wave-exposed beaches to sheltered muddy flats with rich infaunal communities. Lindisfarne, situated off the Northumberland coast, comprises a range of coastal habitats, including rocky shore, sand dunes, saltmarsh and intertidal sand and mudflats with extensive beds of eelgrass *Zostera* spp., an important sources of food for wintering birds. The Farne Islands provide an important breeding site for grey seals *Halichoerus grypus*, with some 1,000 seal pups produced on the islands each year.

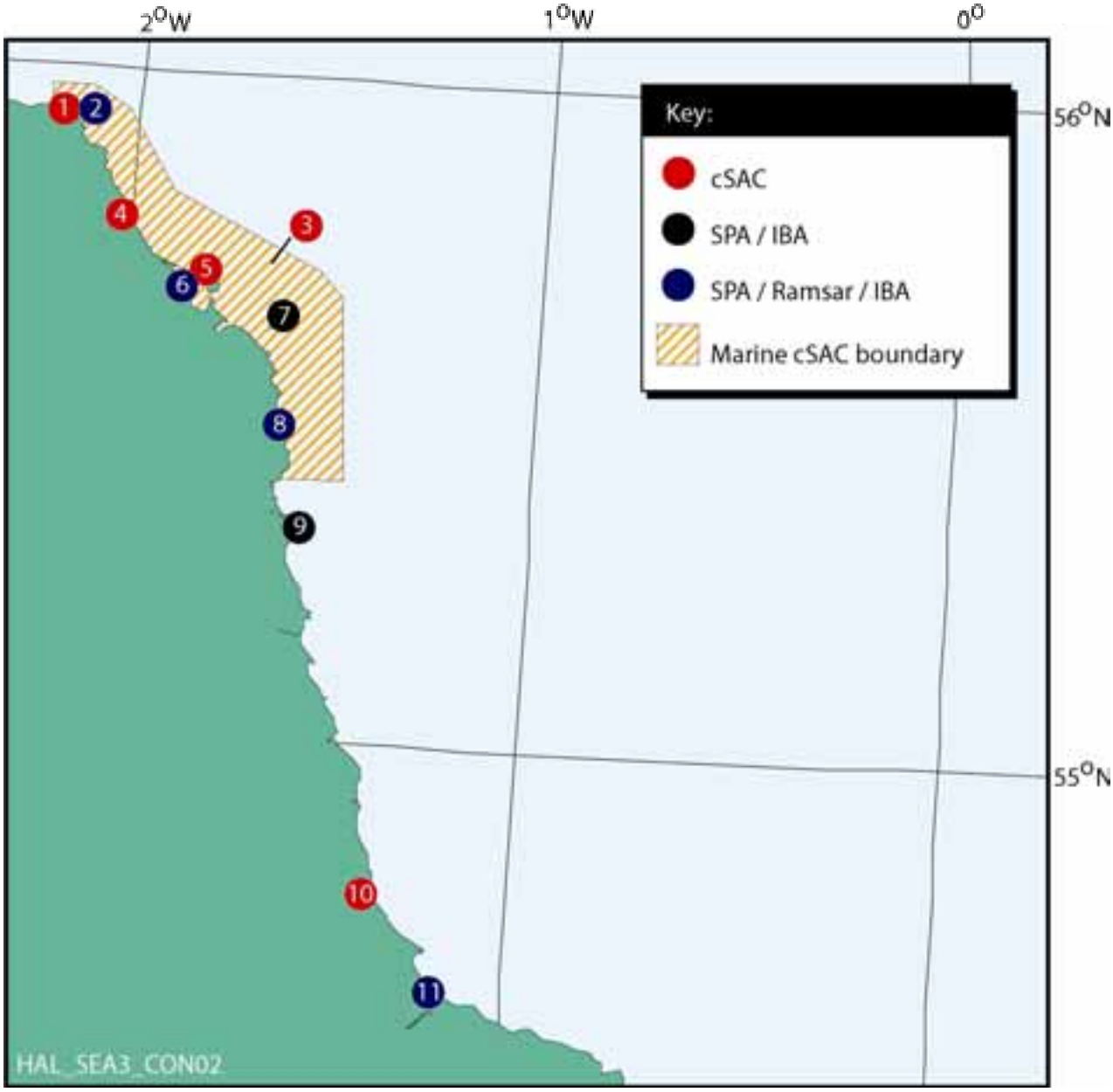
The area plays host to a variety of important marine habitats and species as well as bird areas which are protected under international, national and local designations (see Box 2.1 for details).

Box 2.1 - Coastal protected sites in the Scottish Borders and North East	
International	
Candidate Special Areas of Conservation (cSAC)	5
Special Protection Areas (SPA)	6
Ramsar	3
Important Bird Areas (IBA)	6
National and Local	
Preferred Conservation Zone (PCZ)	1
Regional Lanscape Designation	1
Voluntary Marine Reserve (VMR)	2
Marine Consultation Area	1
Area of Outstanding Natural Beauty (AONB)	1
Heritage Coasts	2
National Nature Reserves (NNR)	5
Sites Of Special Scientific Interest (SSSI)	19
Local Nature Reserve (LNR)	3
Others	
National Trust for Scotland Properties and Sites	1
National Trust Properties and Sites	16
Wildlife Trust Reserves	9

2.1 Sites of international importance

There are a number of sites of international importance along the Scottish Borders and North East coast which are described below. The number given in the right-hand corner of the summary information box identifies that site on Figure 2.1.

Figure 2.1 – Coastal sites of international importance in the Scottish Borders and North East region



2.1.1 St. Abb's to Fast Castle cSAC

Summary information	Figure 2.1 3
Location: 55°55'10"N 02°11'45"W	
Area: 128ha	
Date submitted: 1998	
UK Biodiversity Action Plan Species: *Nucella lapillus*	
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes	
Rare or Threatened Species (IUCN Red List): *Echinus esculentus* (Lower risk)	

St. Abb's Head to Fast Castle is a spectacular area of cliff coastline in south-east Scotland, comprising high cliffed sections and rich vegetated areas in more sheltered localities. While some sections are dominated by large seabird colonies which restrict the vegetation in their vicinity, elsewhere extensive vegetated areas are found. A very high number of flowering plant species are present, including many of local distribution, reflecting the range of micro-habitat conditions.

The site was selected as it represented a good example of the Annex I habitat of "vegetated sea cliffs of the Atlantic and Baltic coasts".

Vulnerability and management issues
The coastal cliffs, seabird colonies and dramatic scenery attract many thousands of visitors each year, ranging from walkers to keen naturalists. Part of the site forms a National Nature Reserve and is managed for nature conservation (and for recreational enjoyment) by the National Trust for Scotland. Management is agreed through a Management Plan which is approved by the National Trust for Scotland, Scottish Natural Heritage and the Scottish Wildlife Trust. Visitor management forms part of the overall plan to protect the area from recreational pressure. The cliffs themselves are largely inaccessible and not subject to the same recreational and grazing pressures as the grasslands bordering the cliffs.

Component designations at national and local level
St. Abb's Head NNR
St. Abb's Head-Fast Castle SSSI
St. Abb's Head National Trust for Scotland site
St. Abb's Head Scottish Wildlife Trust site

Sources of information
Berwickshire and North Northumberland Coast European Marine Site website
http://www.xbordercurrents.com/index.html
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030281
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

2.1.2 St. Abb's Head to Fast Castle SPA/IBA

Summary information Figure 2.1 2

Location: 55°55'00"N 02°10'00"W
Area: 248ha
SPA Classification: 1997
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds)

The SPA and IBA covers the exposed cliffs which extend for over 10km between Fast Castle Head and St. Abb's Head on the Berwickshire coast. The cliffs are backed by areas of grassland, open water, flushes and splash zone communities. The site is important for large numbers of breeding seabirds, especially auks and gulls, which feed outside the SPA in surrounding waters, as well as further away in offshore areas of the North Sea.

During the breeding season, the area regularly supports 79,560 individual seabirds (1987) including Razorbill *Alca torda* (1,470 pairs, 1993), Guillemot *Uria aalge* (20,800 pairs, 1993) Kittiwake *Rissa tridactyla* (19,800 pairs, Mean, 1987-1995), Herring Gull *Larus argentatus* and Shag *Phalacrocorax aristotelis* (430 pairs, 1995).

Vulnerability and management issues
See *1 - St. Abb's to Fast Castle cSAC* for details.

Component designations at national and local level
St. Abb's Head NNR
St. Abb's and Eyemouth Voluntary Marine Reserve
SSSI: Berwickshire Coast (Intertidal), Coldingham Loch, St Abbs Head-Fast Castle
St. Abb's Head National Trust for Scotland site
St. Abb's Head Wildlife Trust site

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/Uk9004271.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

2.1.3 Berwickshire and North Northumberland Coast cSAC

Summary information **Figure 2.1** 3

Location: 55°39'14"N 01°40'20"W
Area: 65,335ha
Date submitted: 1996
UK Biodiversity Action Plan Species: *Nucella lapillus, Modiolus modiolus, Pleuronectes platessa* (Priority Species)*, Pollachius virens* (Priority Species), *Pomatoschistus minutus, Lophius piscatorius* (Priority Species), *Gadus morhua* (Priority Species), *Molva molva* (Priority Species)
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes, Mudflats, Seagrass beds, *Sabellaria spinulosa* reefs, Sublittoral sands and gravels
Rare or Threatened Species (IUCN Red List): *Echinus esculentu*s (Lower risk)
Seasonal Importance of Site: Spring (Grey seal haulout) and Autumn (Grey seal breeding)

This marine site encompasses 115km of coastline and stretches from Fast Castle Head in the Scottish Borders to Alnmouth in Northumberland. The cSAC extends out from the shore and includes the intertidal areas of Lindisfarne and the Farne Islands.

Annex I/II interest features and reason for recommendation are:

Mudflats and sandflats not covered by seawater at low tide
Stretches of the coast in England support a very extensive range of intertidal mudflats and sandflats, ranging from wave-exposed beaches to sheltered muddy flats with rich infaunal communities. These have been selected as biologically diverse and extensive examples of clean sandflats on the east coast. Those in the Lindisfarne and Budle Bay area and on the adjacent open coast flats north of Holy Island

are the most extensive in north-east England, with the largest intertidal beds of narrow-leaved eelgrass *Zostera angustifolia* and dwarf eelgrass *Z. noltii* on the east coast of England, a diverse infauna, and some large beds of mussels *Mytilus edulis*. Some of the bays along the open coast have mobile sediments, with populations of sand-eels *Ammodytes* sp., small crustaceans and polychaete worms. More sheltered sediments have stable lower shore communities of burrowing heart-urchins *Echinocardium cordatum* and bivalve molluscs.

Reefs
Moderately wave-exposed reef habitats occur throughout the site. The subtidal rocky reefs and their rich marine communities, together with the wide variety of associated littoral reefs, are the most diverse known on the North Sea coast. Their remarkably varied nature is due to the wide range of physical conditions in the area, from wave-exposed locations on the open coast, through more sheltered reefs within bays, to those exposed to strong tidal streams in sounds and off headlands. There is also a diverse range of rock types, including soft limestones and hard volcanic rock. The Farne Islands are of special importance as they are among the very few rocky islands with extensive reefs in the enclosed North Sea. A large number of the species present are characteristic of cold water and several reach their southern or eastern limit of distribution within the area.

Submerged or partly submerged sea caves
Caves occur throughout the site in both the intertidal and the subtidal zones in a range of different hard rock exposures. There are examples of partially submerged caves in the cliffs north of Berwick and in the limestone at Howick (south of Craster), and there are submerged sea caves, tunnels and arches in the volcanic rock of the Farne Islands and around St. Abb's Head. Caves occur in association with reefs, in both the intertidal and the subtidal zones. The caves support a range of distinct biological communities depending on their depth and morphology.

Halichoerus grypus
Large breeding colony of grey seals *Halichoerus grypus* are found on the Farne Islands. Some 1,000 seal pups are produced on the Islands each year, providing 3% of the annual pup production of the UK. The cSAC the most south-easterly site selected for this species.

Vulnerability and management issues
The varied geological sequence along the coast forms a mixture of cliffs, rocky shores and sandy bays that attract a variety of recreational users for angling, diving, watersports, etc. In the case of diving, the most popular areas are subject to a voluntary code of practice. Any difficulties arising from recreational activities would be addressed by the site management scheme.

The estuarine reef communities support an important crustacean fishery whilst offshore fisheries exist for *Nephrops* and some pelagic and demersal fish species. Much of the inshore area in Scottish waters is a voluntary Marine Nature Reserve.

Component designations at national and local level
Northumberland Coast AONB
North Northumberland Heritage Coast
St. Abb's and Eyemouth Voluntary Marine Reserve
NNR: Lindisfarne NNR, Farne Islands NNR
SSSI: Bamburgh Coast and Hills, Berwickshire Coast (Intertidal), Burnmouth Coast, Castle Point to Cullernose Point, Howick to Seaton Point, Lindisfarne, Newton Links, Northumberland Shore, St. Abb's Head to Fast Castle, The Farne Islands

Sources of information
Berwickshire and North Northumberland Coast European Marine Site website
http://www.xbordercurrents.com/index.html
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0017072
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

2.1.4 Tweed Estuary cSAC

Summary information Figure 2.1 4

Location: 55°46'16"N 02°00'40"W
Area: 156ha
Date submitted: 2001
UK Biodiversity Action Plan Species: *Alosa alosa*
UK Biodiversity Action Plan Priority Habitats: Mudflats
Rare or Threatened Species (IUCN Red List): *Lampetra fluviatilis* (Lower Risk), *Alosa alosa* (Data Deficient)

The Tweed Estuary is a long narrow estuary, which is still largely natural and undisturbed. It supports a wide range of habitats compared with other estuaries in north-east England. At its mouth there are substantial sandbanks and some areas of rocky shore. Further upstream, large areas of estuarine boulders and cobbles overlie sediment flats and extend into subtidal areas of the channel. Sheltered estuarine mud and sandflats occur away from the fast-flowing river channel.

A wide range of littoral sediments occurs within the estuary. These range from exposed east-facing sandy shores at the estuary mouth, including its sheltering sand-spit, to muddy gravels where the river is actively eroding the banks. The most exposed sandy shores are subject both to wave action and, in places, the scouring action of the outflowing river; their mobile infauna (crustaceans and a few polychaetes) and ephemeral algae reflect these conditions. Species and habitat diversity rises with increasing shelter, until increasingly low-salinity estuarine conditions upstream lead to naturally low infaunal diversity, dominated by characteristic species that are tolerant of brackish-water conditions. Fish species include the rare anadromous allis shad *Alosa alosa*, which runs in the estuary, migratory Atlantic salmon *Salmo salar*, and there are occasional records of river lamprey *Lampetra fluviatilis* and sea lamprey *Petromyzon marinus*.

Annex I/II interest features and reason for recommendation are:

- Estuaries
- *Lampetra fluviatilis*
- Mudflats and sandflats not covered by seawater at low tide

Vulnerability and management issues
The Tweed catchment is large and dominated by arable farming, leading to increased nutrient inputs. There are small-scale coast protection works proposed, and small-scale and infrequent dredging operations are undertaken in the Tweed dock.

Component designations at national and local level
Northumberland Coast AONB
North Northumberland Heritage Coast
Tweed Estuary SSSI

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030292
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

2.1.5 North Northumberland Dunes cSAC

Summary information Figure 2.1 5

Location: 55°41'05"N 01°48'01"W
Area: 1,148ha
Date submitted: 1995
UK Biodiversity Action Plan Species: *Modiolus modiolus*
UK Biodiversity Action Plan Priority Habitats: *Modiolus modiolus* beds, Coastal sand dunes
Rare or Threatened Species (IUCN Red List): none known

The North Northumberland Dunes cSAC extends discontinuously between the River Tweed and River Coquet estuaries and consists of a long series of internationally important dune types and vegetation.

Annex I/II interest features and reason for recommendation are:

- Embryonic shifting dunes and associated vegetation
- Mature dunes with the creeping willow *Salix arenaria* and associated rare plant species
- Humid dune slacks that support a number of rare plant species
- Fixed dunes with herbaceous vegetation in which bloody crane's bill *Geranium sanguineum* is prominent

Vulnerability and management issues
Principal pressures on the site include insufficient grazing management in some areas and damage by overintensive overwintering of cattle and sheep in others. Discussions have been held over re-introducing grazing where appropriate and management agreements, including Countryside Stewardship, are being pursued to address both damaging overuse and undergrazing problems.

Invasion by the non-native plant *Acaena novae-zealandiae* is a problem in some areas. This plant is difficult to eradicate or control. Different control methods are currently under evaluation.

English Nature is working with the local authorities and site managers to address the impact of recreational activities on the dunes.

Component designations at national and local level
Northumberland Coast AONB
North Northumberland Heritage Coast
Lindisfarne NNR
SSSI: Alnmouth Saltmarsh and Dunes, Bamburgh Coast and Hills, Lindisfarne, Newton Links, Warkworth Dunes and Saltmarsh

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0017097
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

2.1.6 Lindisfarne SPA/IBA/Ramsar site

Summary information Figure 2.1 6

Location: 55°40'22"N 01°50'17"W
Area: 3,679ha
SPA Classification: 1992
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes, Mudflats, Coastal sand dunes, Seagrass beds, Coastal saltmarsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds), Autumn (migratory birds) and Winter (over-wintering birds)

Lindisfarne is situated off the Northumberland coast near Berwick-upon-Tweed and as well as the island of Lindisfarne (Holy Island), the site includes extensive mudflats south of Holy Island and at Budle Bay. The area comprises a range of coastal habitats, including rocky shore, sand dunes, saltmarsh and intertidal sand and mudflats with extensive beds of eelgrass *Zostera* spp., an important sources of food for wintering birds.

The site supports internationally important numbers of wintering waterbirds and is of major international importance in autumn and early winter, holding a high proportion of the Svalbard population of Light-bellied Brent Goose *Branta bernicla hrota*. Over winter, the area regularly supports 41,870 individual waterfowl and in summer, the site supports important numbers of breeding tern species that feed in the shallow waters around the site.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1992-1996)
During breeding season	
Little Tern (*Sterna albifrons*)	38 pairs (1.6% of UK breeding population)
Over winter	
Bar-tailed Godwit (*Limosa lapponica*)	2,946 (5.6% of UK wintering population)
Golden Plover (*Pluvialis apricaria*)	5,300 (2.1% of UK wintering population)
Whooper Swan (*Cygnus cygnus*)	79 (1.4% of UK wintering population)
Migratory Species	
On passage	
Ringed Plover (*Charadrius hiaticula*)	527 (1.1% of Europe/Northern Africa wintering population)
Over winter	
Grey Plover (*Pluvialis squatarola*)	1,570 (1% of wintering Eastern Atlantic population)
Greylag Goose (*Anser anser*)	1,416 (1.4% of wintering Iceland/UK/Ireland population)

SPA qualifying bird species	Number of individual birds (Mean, 1992-1996)
Knot (*Calidris canutus*)	3,827 (1.1% of wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population)
Light-bellied Brent Goose (*Branta bernicla hrota*)	1,844 (36.9% of wintering Svalbard/ Denmark/UK population)
Wigeon (*Anas penelope*)	13,375 (1.1% of wintering Western Siberia/Northwestern/Northeastern Europe population)

The bird species responsible for qualifying this area as an IBA are the same as those listed for the SPA although the IBA also includes wintering populations of Whooper Swan *Cygnus cygnus* (67 birds, 1995), Dunlin *Calidris alpina* (6,950 birds, 1995) and the migratory population of Bar-tailed Godwit *Limosa lapponica* (2,900 birds, 1995).

Vulnerability and management issues

Threats include cord-grass *Spartina* encroachment and eel-grass *Zostera* decline, housing and leisure developments, intense visitor pressure, and disturbance from shooting, wind-surfing and microlight planes. Changes in sea-level may lead to erosion and flooding, requiring coastal defence improvements. A management plan and a Recreation Strategy for Holy Island are being drafted. English Nature has undertaken research on wildfowling, and put forward a proposal for trial sanctuary areas.

Component designations at national and local level

Northumberland Coast AONB
North Northumberland Heritage Coast
Lindisfarne NNR
SSSI: Bamburgh Coast and Hills, Lindisfarne, Spindlestone Heughs

Sources of information

JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9006011.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

2.1.7 Farne Islands SPA/IBA

Summary information Figure 2.1 7

Location: 55°37'13"N 01°38'55"W
Area: 102ha
SPA Classification: 1985
UK Biodiversity Action Plan Species: *Sterna dougallii*
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds)

The Farne Islands are a group of low-lying islands between 2-6km off the coast of Northumberland. The islands provide important nesting areas for large numbers of seabirds, especially terns, gulls and auks. During the breeding season, the area regularly supports 142,490 individual seabirds. The seabirds feed in the nearby waters outside of the protected area, as well as more distantly in the North Sea.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of breeding pairs (Mean, 1993-1997)
During breeding season	
Arctic Tern (*Sterna paradisaea*)	2,840 (6.5% of UK breeding population)
Common Tern (*Sterna hirundo*)	230 (1.9% of UK breeding population)
Roseate Tern (*Sterna dougallii*)	3 (5% of UK breeding population)
Sandwich Tern (*Sterna sandvicensis*)	2,070 (14.8% of UK breeding population)
Migratory species	
During breeding season	
Guillemot (*Uria aalge*)	23,499 (1% of breeding East Atlantic population (1997))
Puffin (*Fratercula arctica*)	34,710 (3.9% of breeding population (1996))

The bird species responsible for qualifying this area as an IBA are the same as those listed for the SPA although the IBA also includes breeding populations of Shag *Phalacrocorax aristotelis* (1,020 pairs, 1995) and Lesser Black-backed Gull *Larus fuscus* (1,380 pairs, 1995).

Vulnerability and management issues
Threats include soil erosion caused by visitors and the puffin and seal colonies, disturbance caused by intense visitor pressure and over-fishing. The National Trust manages the islands, and the surrounding waters are of great value in terms of marine conservation. A management plan exists for the site.

Component designations at national and local level
Northumberland Coast AONB
North Northumberland Heritage Coast
Farne Islands NNR
Farne Islands SSSI
Farne Islands National Trust site

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9006021.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

2.1.8 Northumbria Coast SPA/IBA/Ramsar Site

Summary information Figure 2.1 8

Location: 55°27'59"N 01°35'18"W
Area: 1,108ha
SPA Classification: 2000
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes, Coastal sand dunes
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds) and Winter (over-wintering birds)

The Northumbria Coast SPA and Ramsar site includes much of the coastline between the Tweed and the Tees Estuaries. The site consists of mainly discrete sections of rocky shore with associated boulder and cobble beaches. In summer, the site supports important numbers of breeding Little Tern *Sterna albifrons*, whilst in the winter there are large numbers of Turnstone *Arenaria interpres* and Purple Sandpiper *Calidris maritima*.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1992-1996)
During breeding season	
Little Tern (*Sterna albifrons*)	40 pairs (1.7% of UK breeding population)
Over winter	
Purple Sandpiper (*Calidris maritima*)	763 (1.5% of wintering Eastern Atlantic population)
Turnstone (*Arenaria interpres*)	1,456 (2.1% of wintering Palearctic population)

The Northumberland coast IBA covers a larger area (1,926ha) than the SPA/Ramsar site and includes much of the coastline between the Scottish border and the Tyne estuary.

The bird species responsible for qualifying this area as an IBA are the same as those listed for the SPA although the IBA also includes wintering populations of Whooper Swan *Cygnus cygnus* (68 birds, 1995), the migratory populations of Ruff *Philomachus pugnax* (38 birds, 1995) and Turnstone (970 birds, 1995) and, the breeding population of Arctic Tern *Sterna paradisaea* (245 pairs, 1993).

Vulnerability and management issues
Threats include erosion and flooding caused by sea-level rise, and associated improvements to sea defences, disturbance from recreational activities, and the development of caravan sites, holiday homes, car parks and marinas. A management plan was drawn up in 1993, and a Recreational Strategy in 1998. Estuary Management Plans have been prepared for the Tweed, Aln, Coquet, Blyth and Wansbeck rivers.

Component designations at national and local level
Northumberland Coast AONB
North Northumberland Heritage Coast
SSSI: Alnmouth Saltmarsh and Dunes, Bamburgh Coast and Hills, Bamburgh Dunes, Burnmouth Coast, Castle Point to Cullernose Point, Cresswell Ponds, Cresswell and Newbiggin Shores, Hadston Links, Howick to Seaton Point, Low Hauxley Shore, Newton Links, Northumberland Shore, River Coquet and Coquet Valley Woodlands, River Tweed, Sandy Bay, Tweed Estuary, Tynemouth to Seaton Sluice, Warkworth Dunes and Saltmarsh

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/Uk9006131.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

2.1.9 Coquet Island SPA/IBA

Summary information Figure 2.1 9

Location: 55°20'06"N 01°32'14"W
Area: 22ha
SPA Classification: 1985
UK Biodiversity Action Plan Species: *Sterna dougallii*
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds)

Coquet Island is located 1km off the coast of Northumberland and is a small, flat-topped island. Low sandstone cliffs and a broad rock platform at low tide surround the island. The island is of importance for a range of breeding seabirds, including four species of terns, auks and gulls. During the breeding season, the area regularly supports 33,448 individual seabirds. The seabirds feed in the nearby waters outside of the protected area, as well as more distantly in the North Sea.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of breeding pairs (Mean, 1993-1997)
During breeding season	
Arctic Tern (*Sterna paradisaea*)	700 (1.6% of UK breeding population (4 count mean, 1993, 1995-1997))
Common Tern (*Sterna hirundo*)	740 (6% of UK breeding population)
Roseate Tern (*Sterna dougallii*)	31 (51.7% of UK breeding population)
Sandwich Tern (*Sterna sandvicensis*)	1,590 (11.4% of UK breeding population)
Migratory species	
During breeding season	
Puffin (*Fraterula arctica*)	11,400 (1.3% of breeding population (1995))

The bird species responsible for qualifying this area as an IBA are the same as those listed for the SPA.

Vulnerability and management issues
Threats include recreational disturbance, over-fishing, and habitat degradation caused by high numbers of rabbits and puffins. This habitat degradation has led to a decrease in ground cover and increased predation of terns. The RSPB undertakes research and seabird monitoring, while Durham University carries out research on terns. There is a management plan for the site.

Component designations at national and local level
Northumberland Coast AONB
Coquet Island SSSI

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9006031.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

2.1.10 Durham Coast cSAC

Summary information Figure 2.1 10

Location: 54°45'32"N 01°17'34"W
Area: 394ha
Date submitted: 2001
UK Biodiversity Action Plan Species: *Nucella lapillus*
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes
Rare or Threatened Species (IUCN Red List): none known

The Durham Coast is the only example of vegetated sea cliffs on magnesian limestone exposures in the UK. These cliffs extend along the North Sea coast for over 20km from South Shields southwards to Blackhall Rocks. Their vegetation is unique in the British Isles and consists of a complex mosaic

of grasslands, tall-herb fen, seepage flushes and wind-pruned scrub. Within these habitats rare species of contrasting phytogeographic distributions often grow together forming unusual and species-rich communities of high scientific interest. The communities present on the sea cliffs are largely maintained by natural processes including exposure to sea spray, erosion and slippage of the soft magnesian limestone bedrock and overlying glacial drifts, as well as localised flushing by calcareous water. The site was selected as it represented a good example of the Annex I habitat of "vegetated sea cliffs of the Atlantic and Baltic coasts".

Vulnerability and management issues
Vegetated sea cliffs range from vertical cliffs in the north with scattered vegetated ledges, to the Magnesian limestone grassland slopes of the south. Parts of the site are managed as National Nature Reserve, and plans provide for the non-interventionist management of the vegetated cliffs. The majority of the site is in public ownership and an agreed management plan is being developed to protect nature conservation interests.

Component designations at national and local level
Durham Heritage Coast
Durham Coast NNR
Durham Coast SSSI

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030140
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

2.1.11 Teesmouth and Cleveland Coast SPA/IBA/Ramsar

Summary information Figure 2.1 11

Location: 54°37'50"N 01°07'07"W
Area: 1,247ha
SPA Classification: 1995
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Mudflats, Coastal saltmarsh, Coastal sand dunes
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds), Autumn (Migratory birds) and Winter (over-wintering birds)

The Teesmouth and Cleveland Coast SPA and Ramsar site includes a range of coastal habitats – sand and mudflats, saltmarsh, freshwater marsh and sand dunes – on and around an estuary which has been considerably modified by human activities. The area provides feeding and roosting opportunities for important numbers of waterbirds in winter and during migratory periods. Over winter, the area regularly supports 21,406 individual waterfowl. In summer Little Tern breed on beaches within the site, while Sandwich Tern are abundant during migration.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1991-1995)
During breeding season	
Little Tern (*Sterna albifrons*)	37 pairs (1.5% of UK breeding population (4 year mean, 1993-1996))
On passage	
Sandwich Tern (*Sterna sandvicensis*)	2,190 (5.2% of UK population)
Migratory species	
On passage	
Ringed Plover (*Charadrius hiaticula*)	634 (1.3% of Europe/Northern Africa wintering population)
Over winter	
Knot (*Calidris canutus*)	4,190 (1.2% of wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population)
Redshank (*Tringa totanus*)	1,648 (1.1% of wintering Eastern Atlantic population (Mean, 1987-1991))

The IBA is slightly larger (1,300ha) than the SPA/Ramsar site and comprises the Tees estuary, nearby marshes, rocky and sandy beaches on either side of the mouth of the estuary, and surrounding damp grassland. The bird species responsible for qualifying this area as an IBA are the same as those listed for the SPA although the IBA also includes the migratory population (765 birds, 1995) of Turnstone *Arenaria interpres*.

Vulnerability and management issues

Threats include bait-gathering, recreational disturbance, coastal defence improvements, and oil refinery, pipeline and industrial developments. A Tees Estuary Management Plan has been completed.

Component designations at national and local level

Durham Heritage Coast, North Yorkshire and Cleveland Coast Heritage Coast

NNR: Durham Coast, Teesmouth

SSSI: Castle Eden Dene, Cowpen Marsh, Durham Coast, Hart Warren Dunes, Hawthorn Dene, Hawthorn Quarry, Redcar Rocks, Seal Sands, Seaton Dunes and Common, South Gare and Coatham Sands

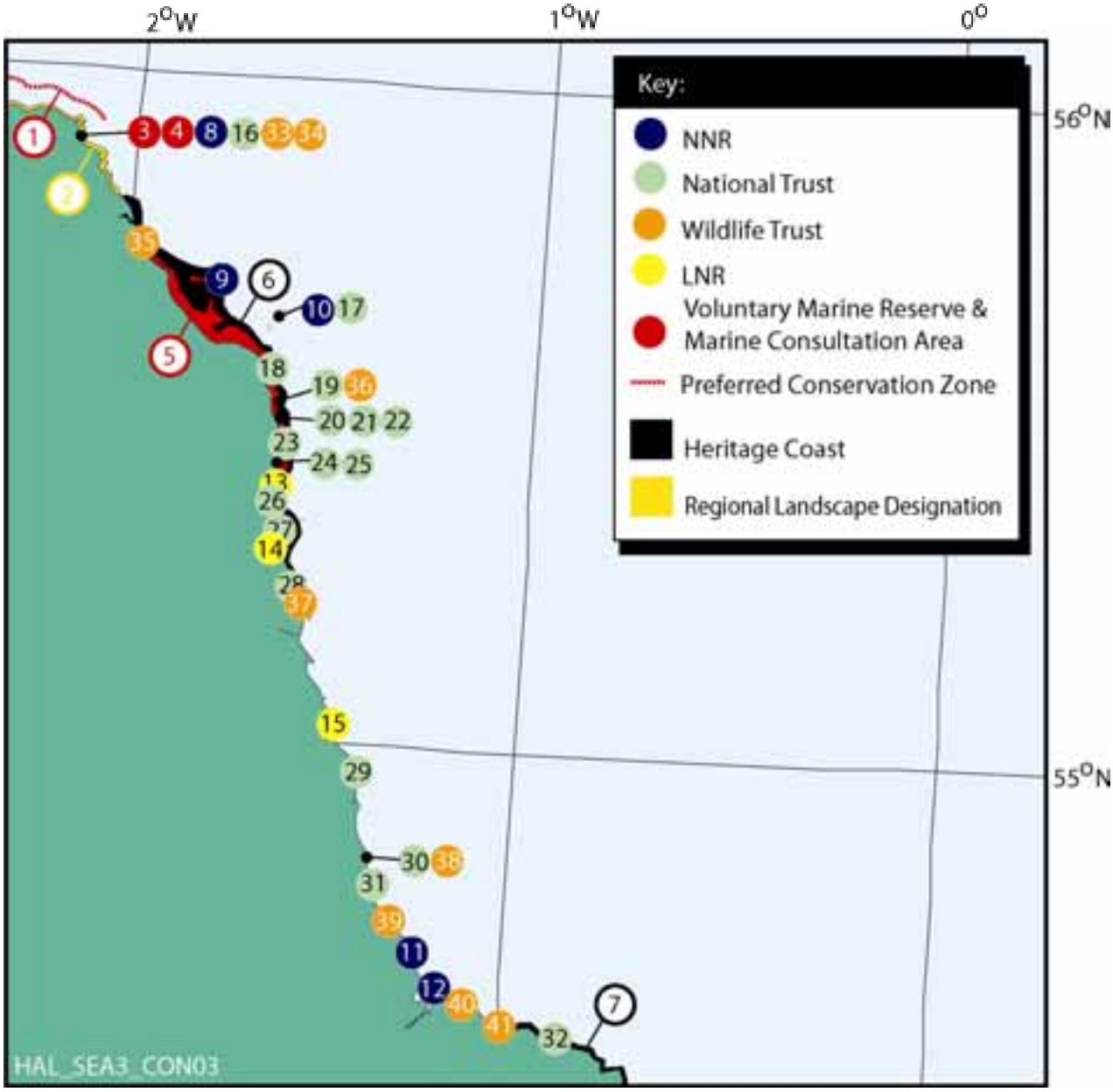
Sources of information

JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9006061.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

2.2 Sites of national and local importance

There are a number of sites of national and local importance along the Scottish Borders and North East coast and these are described below. The number given to each site also identifies that site on Figure 2.2.

Figure 2.2 – Coastal sites of national and local importance in the Scottish Borders and North East region



2.2.1 St. Abb's-Longniddry PCZ

Figure 2.2 1

Created in the 1970s, Preferred Conservation Zones (PCZ) are non-statutory coastal areas in Scotland, of particular national, scenic, environmental or ecological importance, in which major new oil-and gas-related developments would in general be inappropriate and only justified in exceptional circumstances.

Each PCZ has all or some of the following features:

- A coastline with scientific, ecological or scenic features which would be vulnerable to development
- Particular sections of the coastline where an existing or proposed use would be incompatible with major oil and gas developments
- Areas of the coast containing small scale communities whose expansion might cause serious economic and social problems
- Areas of the coast with towns and villages whose character should be protected
- Tourist and recreation areas or other places where developments other than major industrial processes should have priority

Sources of information
Gubbay S (1985) A Coastal Directory for Marine Nature Conservation. WWF and Marine Conservation Society
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

2.2.2 Berwickshire Coast RLD

Figure 2.2 2

Area: 1,232ha

Regional Landscape Designations (RLDs) provide a mechanism whereby Scottish planning authorities can identify sites where there should be a strong presumption against development. The designation recognises that these scenic areas have considerable unexploited potential for tourism and therefore for benefiting local economies.

Sources of information
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

2.2.3 St. Abbs and Eyemouth Voluntary Marine Reserve

Area: 1,030ha
Opening date: 1984

Figure 2.2 3

The Reserve covers 8km of the Berwickshire coast from Pettico Wick in the north to Eyemouth Bay in the south and stretches outwards approximately 1.5km to the 50m depth contour. The marine environment is particularly rich and includes reefs and submerged sea caves with associated flora and fauna.

In 1984, concerns over the future sustainability of this part of the Berwickshire coast lead concerned parties to set up a committee responsible for managing the area as a Voluntary Marine Reserve. The Reserve aims to "conserve the biodiversity of the coastal waters and to raise awareness of the marine environment through education and promote responsible recreational use alongside a sustainable fishery to the mutual benefit of all".

The Voluntary Marine Reserve lies at the northern extreme of the Berwickshire and North Northumberland Coast cSAC marine site.

Further South, St. Mary's Island and its surrounding waters have also been designated a voluntary marine reserve. The island lies just off the coast, north of Whitley Bay, Tyne and Wear and the surrounding waters contain shallow reefs and gullies.

Sources of information
St. Abbs and Eyemouth Voluntary Marine Reserve
http://www.marine-reserve.org.uk/about.html
Berwickshire and North Northumberland Coast European Marine Site website
http://www.xbordercurrents.com/index.html
Shorediving St. Mary's Island website
http://www.dcordes.freeuk.com/stmarys.htm

2.2.4 Berwickshire Marine Consultation Area

Figure 2.2 4

Area: 4,838
Date established: 1986

Marine Consultation Areas are Scottish coastal sites "considered to be of particular distinction in respect of the quality and sensitivity of their marine environment". Whilst a non-statutory designation, Scottish Natural Heritage wish to be consulted on developments, in particular fish farms, which are likely to have an impact on the Berwickshire marine environment.

Sources of information
SEA2 website – Chapter 9.2.2 Nature, landscape and heritage conservation.
http://www.habitats-directive.org/sea2/dev/html_file/sea2_consult.cgi?sectionID=148
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

2.2.5 Northumberland Coast AONB

Figure 2.2 5

Area: 135km^2
Designation date: 1958

The Northumberland Coast AONB consists of a narrow coastal strip stretching from Berwick-upon-Tweed in the north to the Coquet Estuary in the south. The AONB covers an area of open beaches and extensive sand dune systems as well as the island of Lindisfarne and the numerous small islands and rocks of the Farne Islands.

Although the coast remains relatively undeveloped for tourism there are a number of growing visitor pressures which impact upon the AONB. Localised traffic congestion of seaside villages and disturbance of wildlife zones, increased range and use of motorised water sports and dune erosion are all contributing factors.

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/

2.2.6 Heritage Coasts

There are three stretches of Heritage Coast in the North East, covering 122km in total.

2.2.6.1 North Northumberland Heritage Coast

Figure 2.2 6

Location: NT979567-NU266051
Length: 96km
Designation date: 1973

The North Northumberland Heritage Coast stretches from the Scottish border to Cresswell at the southern end of Druridge Bay. The Heritage Coast includes areas of rocky headland, long sandy beaches and sand dunes and takes in the island of Lindisfarne, as well as the Farne Islands.

2.2.6.2 North Yorkshire and Cleveland Heritage Coast

Location: NZ668216-TA036909
Length: 57km
Designation date: 1974

Figure 2.2 7

Within the North East region, the North Yorkshire and Cleveland Heritage Coast covers 12km of rugged cliffs along the Cleveland coast.

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/
Britain Express website
http://www.britainexpress.com/countryside/coast/suffolk.htm
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee

2.2.7 National nature reserves

Figure 2.2

Map ref.	National nature reserves	Area (ha)	Date declared	Site description
8	St. Abb's Head	77	1984	Coastal headland
9	Lindisfarne	3,541	1964	Mudflats, saltmarsh and sand dunes
10	Farne Islands	96	1993	Cliffs, rocks and beaches
11	Durham Coast	62	-	Cliffs, grassland and beaches
12	Teesmouth	355	1995	Intertidal mud and sandflats, sand dunes and saltmarsh

Sources of information
Scottish Natural Heritage website
http://www.snh.org.uk/index/i-frame.htm
English Nature website
http://www.english-nature.org.uk/

2.2.8 Sites of Special Scientific Interest

These are listed on Table A.9 in Appendix 2.

Sources of information
Pers. comm. J Storey, English Nature

2.2.9 Local nature reserves

Figure 2.2

Map ref.	Local nature reserves	Area (ha)	Date declared	Site description
13	Seaton Dunes and Common SSSI	7,771	1998	Sand dunes and grassland
14	Amble Dunes	62	1994	Sand dunes
15	St. Mary's Island	73	1992	

Sources of information
English Nature website
http://www.english-nature.org.uk/
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

2.2.10 National Trust for Scotland sites

Figure 2.2 

Map ref.	National Trust for Scotland sites	Area (ha)	Date acquired	Site description
16	St. Abb's Head	146	1980-1987	Coastal headland

2.2.11 National Trust sites

Figure 2.2 

Map ref.	National Trust sites	Area (ha)	Date acquired	Site description
17	Farne Islands	32	1925	30 islands
18	St. Aidan's and Shoreston Dunes	24	1936	Sand dunes
19	Breadnell and Annstead Dunes	4	1986	Sand dunes and grazing land
20	Newton Links	22	1966	Sand dunes and grazing land
21	Newton Point	47	1983	Coastal dunes and pasture
22	Low Newton-by-the-Sea	56	1980-1982	Beach and village
23	Embleton Links	244	1961	Dunes, foreshore
24	Dunstanburgh Castle	4	1961	Cliffs and castle
25	Dunstanburgh Heughs	111	1990	Coastal farmland
26	Alnmouth	90	1966-1978	Dunelands/saltings
27	Buston Links	8	1978	Sand dunes
28	Druridge Bay	40	1972	Sand dunes/fen
29	The Leas and Marsden Rock	114	1987	Cliffs and cliff-top vegetation
30	Hawthorn Dene and Chourdon Point	67	1990	Beach, cliff-top, wooded dene and farmland
31	Warren House	35	1988	Beach, dene and cliff-top
32	Hunt Cliff and Warsett Hill	62	1991	Undercliff and cliffs

Sources of information
National Trust for Scotland website
http://www.nts.org.uk/stabb.html
National Trust website
http://www.nationaltrust.org.uk/scripts/nthandbook.dll?Action=AREA&Area=North%20East

Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

2.2.12 Wildlife Trust reserves

Figure 2.2

Map ref.	Wildlife Trust reserves	Area (ha)	Date acquired	Site description
33	St. Abb's Head	97	1977	Coastal headland
34	St. Abb's Marine Reserve	1,030	1984	St. Abbs and Eyemouth Voluntary Marine Reserve
35	Cocklawburn Dunes	5	1979	Sand dunes
36	Annstead Dunes	51	1994	Sand dunes and limestone outcrops
37	Cresswell Pond	25	1988	Lagoon, saltmarsh and reedbeds
38	Hawthorn Dene	56	1970	Mixed woodland and coastal grassland
39	Blackhall Rocks	79	1973	Limestone cliffs and grassland, caves and foreshore
40	Coatham Marsh	54	1964	Saltings, freshwater marsh and dry grassland
41	Saltburn Gill	16	1968	Coastal dene, mixed woodland, gorse and bracken, freshwater streams

Sources of information

Scottish Wildlife Trust website
http://www.swt.org.uk/see_wildlife/popup_reserves/east/stabbs_marine.htm
Northumberland Wildlife Trust website
http://www.wildlifetrust.org.uk/northumberland/main_map.htm
Durham Wildlife Trust website
http://www.wildlifetrust.org.uk/durham/
Tees Valley Trust website
http://www.wildlifetrust.org.uk/teesvalley/
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

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3 YORKSHIRE AND HUMBER

This region covers the coastline of North Yorkshire, the East Riding of Yorkshire and the Humber Estuary. It includes the county of North Yorkshire and the unitary authorities of the East Riding of Yorkshire, the City of Kingston upon Hull, North Lincolnshire and North East Lincolnshire which border the Humber Estuary (see Figure 1.1).

The coastal environment of this region contains a variety of different habitats. Hard cliffs of chalk, limestone and sandstone largely dominate the North Yorkshire coastline. The most well known feature being Flamborough Head, where high chalk cliffs support important breeding populations of seabirds. Further south, the soft eroding cliffs of boulder clay along the Holderness coast taper to the shingle spit of Spurnhead. The Humber Estuary presents an expanse of intertidal habitat - sand and mudflats, sandbanks and saltmarsh – which provides internationally important wintering and breeding grounds for wader and wildfowl populations.

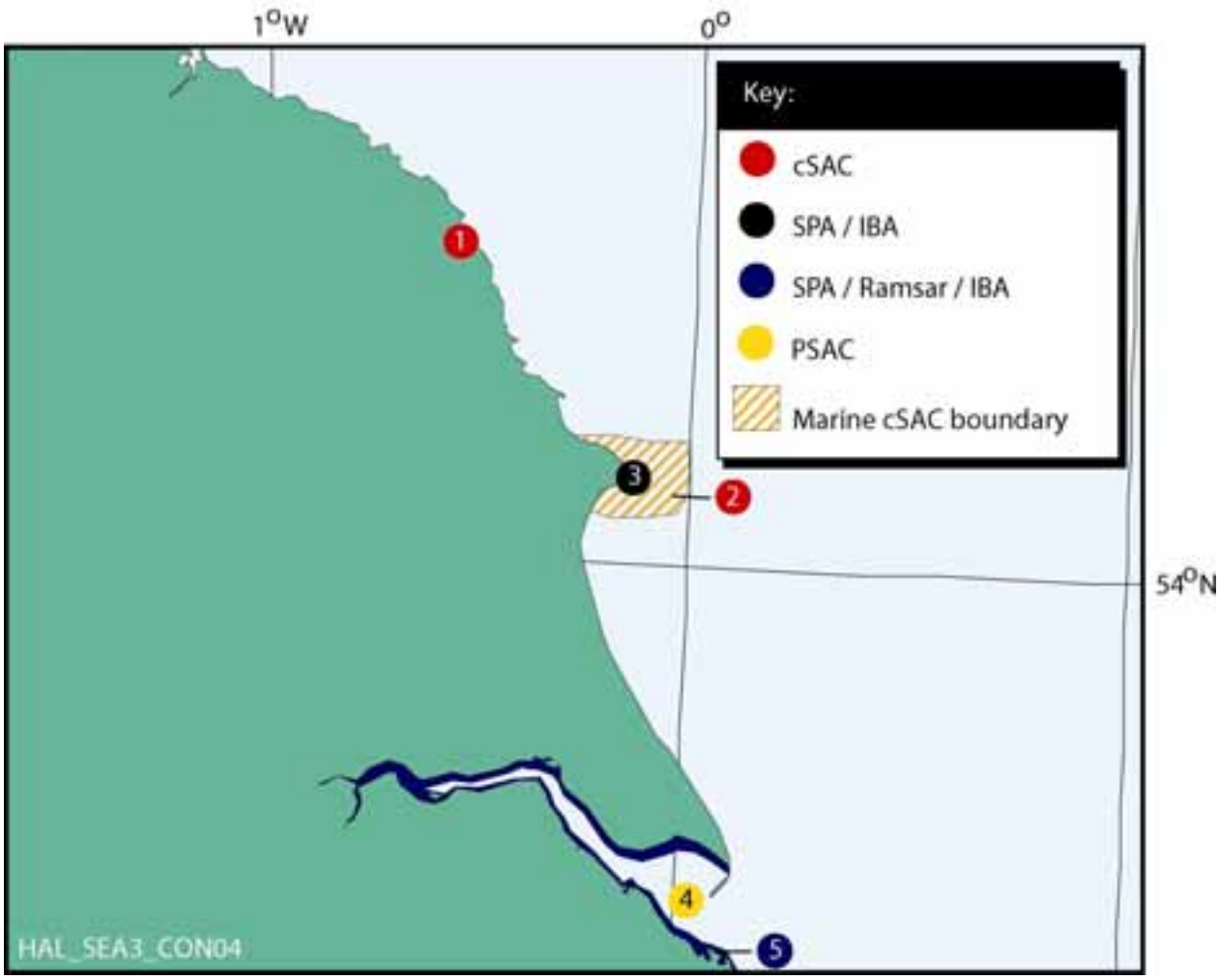
The area plays host to a variety of important marine habitats and species as well as bird areas which are protected under international, national and local designations (see Box 3.1 for details).

Box 3.1 - Coastal protected sites in the Yorkshire and Humber region	
International	
Candidate Special Areas of Conservation (cSAC)	2
Proposed Special Area of Conservation (pSAC)	1
Special Protection Areas (SPA)	2
Ramsar	1
Important Bird Areas (IBA)	2
National and local	
National Park	1
Heritage Coasts	3
National Nature Reserve (NNR)	1
Sites Of Special Scientific Interest (SSSI)	8
Others	
RSPB Reserves	2
National Trust Sites and Properties	11
Wildlife Trust Reserves	8

3.1 Sites of international importance

There are a number of sites of international importance along the Yorkshire and Humber coast which are described below. The number given in the right-hand corner of the summary information box identifies that site on Figure 3.1.

Figure 3.1 – Coastal sites of international importance in the Yorkshire and Humber region



3.1.1 Beast Cliff-Whitby (Robin Hood's Bay) cSAC

Figure 3.1 1
Summary information
Location: 54°24'50"N 00°31'02"W
Area: 260ha
Date submitted: 2001
UK Biodiversity Action Plan Species: *Nucella lapillus, Pleuronectes platessa* (Priority Species)
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes
Rare or Threatened Species (IUCN Red List): *Echinus esculentus* (Lower risk)

Beast Cliff – Whitby is an east coast complex of hard and soft cliffs. The combination of geology, topography and plant communities found on the site are unique and it is one of the best examples of vegetated sea cliffs on the north-east coast of England. The underlying geology varies from base-rich to base-poor, and this variation is reflected in a characteristic and diverse flora across the site.

Vertical hard cliffs support maritime crevice and ledge vegetation, and the more gently sloping parts of Beast Cliff itself are covered by scrub and woodland. Sandstone boulders support a luxuriant growth of mosses and ferns and pools on the cliff shelf support wetland plants and scrub. Due to the frequent land slippage occurring on the site, the woodland is constantly changing and being rejuvenated with mainly young trees forming secondary woodland. North of Beast Cliff to Ravenscar, areas of calcareous clays support typical calcareous grassland and wet flush plant communities, whereas heathland species occur on more acidic sandstone outcrops. From Ravenscar north to Robin Hood's Bay the cliffs are composed either partly or entirely of soft boulder clay. This clay is continually being eroded by wave action and slippage, and supports pioneer plant communities typical of this changing habitat. The Beast Cliff-Whitby cSAC was designated because it was considered a representative of "vegetated sea cliffs of the Atlantic and Baltic coasts".

Vulnerability and management issues
These cliffs are subject to active erosion processes in parts, particularly those areas of soft clay where coastal erosion maintains a cycle of erosion, landslip and colonisation. Any management of these cliffs is difficult due to their unstable nature, but they are sometimes grazed in conjunction with adjacent cliff-top pastures. More southerly sections of cliff are relatively stable, but due to their steep and inaccessible nature are virtually unmanaged. Any intensification in management may influence the vegetation communities present.

The location of this site is rural, but occasional settlements may give rise in the future to coast protection proposals which may interfere with natural coastal erosion processes. There is a current Shoreline Management Plan for this section of the coast; the preferred coastal defence option as outlined in the plan is 'do nothing', which should contribute to maintaining active coastal processes.

Component designations at national and local level
North York Moors National Park
North Yorkshire and Cleveland Coast Heritage Coast
Robin Hood's Bay: Maw Wyke to Beast Cliff SSSI

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030086
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

3.1.2 Flamborough Head cSAC

Summary information Figure 3.1 2

Location: 54°06'41"N 00°04'37"W
Area: 6,312ha
Date submitted: 1996
UK Biodiversity Action Plan Species: *Nucella lapillus, Pleuronectes platessa* (Priority Species), *Modiolus modiolus*, *Pollachius virens* (Priority Species), *Pomatoschistus minutus, Gadus morhua* (Priority Species), *Cruoria cruoriaeformis*
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes, littoral and sublittoral chalk
Rare or Threatened Species (IUCN Red List): *Echinus esculentus* (Lower risk)

Flamborough Head has been selected for the presence of species associated with the chalk and for the site's location at the southern limit of distribution of several northern species. It lies close to the biogeographic boundary between two North Sea waterbodies and encompasses a large area of hard and soft chalk on the east coast of England.

Annex I/II interest features and reason for recommendation are:

Reefs
The site covers around 14% of UK and 9% of European coastal chalk exposure, represents the most northern outcrop of chalk in the UK, and includes bedrock and boulder reefs which extend further into deeper water than at other subtidal chalk sites in the UK, giving one of the most extensive areas of sublittoral chalk in Europe. The reefs and cliffs on the north side of the headland are very hard, resulting in the presence of many overhangs and vertical faces, a feature uncommon in sublittoral chalk. The clarity of the relatively unpolluted sea water and the hard nature of the chalk have enabled kelp *Laminaria hyperborea* forests to become established in the shallow sublittoral. The reefs to the north support a different range of species from those on the slightly softer and more sheltered south side of the headland. The site supports an unusual range of marine species and includes rich animal communities and some species that are at the southern limit of their North Sea distribution, e.g. the northern alga *Ptilota plumosa*. For these reasons, the sublittoral and littoral reef habitats at Flamborough are considered to be the most diverse in the UK.

Vegetated sea cliffs of the Atlantic and Baltic coasts
Flamborough is an east coast representative of hard chalk cliffs, which occur more frequently on the south coast of England. The vegetation of east coast cliff sites is typically less influenced by salt deposition and there are few such areas with predominantly limestone vegetation. Flamborough Head is an exception and is therefore important for the conservation of calcareous cliff vegetation. Maritime vegetation is local and occurs where topography increases salt spray deposition. Elsewhere the chalk substrate supports calcareous grassland communities. Towards the eastern end of the site the chalk is masked by drift deposits, which support grassland communities.

Submerged or partly submerged sea caves
There are larger numbers and a wider range of cave habitats at Flamborough than at any other chalk site in Britain. This site represents caves of the North Sea coast cut into soft rock exposures and is important for its specialised algal communities, which contain abundant *Hildenbrandia rubra*, *Pseudendoclonium submarinum*, *Sphacelaria nana* and *Waerniella lucifuga*. There are more than 200 caves within the site, particularly around the headland and on the north-facing cliffs. Some of these caves are partially submerged at all stages of the tide, others dry out at low tide, and some lie above the high water mark but are heavily influenced by wave splash and salt spray from the sea. The largest caves are known to extend for more than 50m from their entrance on the coast.

Vulnerability and management issues
These interest features are vulnerable to a number of pressures, particularly physical damage and toxic contamination. These and other issues are being addressed by relevant authorities in a Management Scheme which is being developed for the European Marine Site. This identifies key human activities which may affect the SAC interests, will identify the necessary survey management and monitoring systems and measures to maintain the features in favourable condition. This process will also increase the awareness and involvement of statutory organisations and local people in the sustainable use and management of the SAC.

Component designations at national and local level
Flamborough Headland Heritage Coast
Flamborough Head SSSI

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0013036
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

3.1.3 Flamborough Head and Bempton Cliffs SPA/IBA

Summary information Figure 3.1 3

Location: 54°07'55"N 00°06'48"W
Area: 212ha
SPA Classification: 1993
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds)

The cliffs of Flamborough Head project into the North Sea, rising to 135m at Bempton Cliffs, and exposing a wide section of chalk strata. The site supports large numbers of breeding seabirds including Kittiwake *Rissa tridactyla* and auks, as well as the only mainland-breeding colony of Gannet *Morus bassana* in the UK. During the breeding season, the area regularly holds 305,784 individual seabirds. The seabirds feed and raft in the waters around the cliffs, outside the SPA, as well as feeding more distantly in the North Sea.

The bird population responsible for SPA qualification of the site is the migratory population of Kittiwakes *Rissa tridactyla* (83,370 pairs, 2.6% of breeding Eastern Atlantic population (1987)) that come to the site to breed.

The Flamborough Head and Bempton Cliffs IBA cover an area (315ha) slightly larger than the SPA. In addition to the Kittiwake population the IBA also includes breeding populations of Guillemot *Uria aalge* (30,000 pairs, 1994), Razorbill *Alca torda* (7,500 pairs, 1994) and Puffin *Fraterula arctica* (6,000 pairs, 1994).

Vulnerability and management issues
See *2 - Flamborough Head cSAC* for details.

Component designations at national and local level
Flamborough Headland Heritage Coast
Flamborough Head SSSI
Bempton Cliffs RSPB Reserve

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9006101.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

3.1.4 Humber Estuary pSAC

Summary information Figure 3.1 4

Location: 53°37'58"N 00°00'39"W
Area: Entire estuary (approx. 30,000ha)
Date submitted: -
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Mudflats, Sublittoral sands and gravels, Saline lagoons
Rare or Threatened Species (IUCN Red List): none known

The Humber Estuary is 120km long, 14km at its widest point and drains a catchment of some 24,240km^2, providing the largest single input of freshwater from Britain into the North Sea. The estuarine habitat is extensive and varied and the presence of various priority habitats under the European Habitats and Species Directive has led to the Humber estuary being put forward as a proposed marine SAC.

Annex I/II interest features and reason for recommendation are:

- Sandbanks which are slightly covered by seawater all the time
- Estuaries
- Mudflats and sandbanks not covered by seawater at low tide
- Coastal lagoons

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/idt/default.htm
UK Marine SACs Project website
http://www.ukmarinesac.org.uk/
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

3.1.5 Humber Flats, Marshes and Coast (Phase 1 and 2) SPA/Ramsar/IBA

Summary information	Figure 3.1 5
Location: 53°37'58"N 00°00'39"W **Area:** 15,202ha **SPA Classification:** 1994 **UK Biodiversity Action Plan Species:** *Botaurus stellaris* **UK Biodiversity Action Plan Priority Habitats:** Mudflats, Coastal saltmarsh, Coastal and floodplain grazing marsh, Coastal sand dunes, Saline lagoons **Rare or Threatened Species (IUCN Red List):** none known **Seasonal Importance of Site:** Summer (breeding birds), Autumn (Migratory birds) and Winter (over-wintering birds)	

The SPA and Ramsar site comprises extensive wetland and coastal habitats within the Humber Estuary. The estuary has the second-highest tidal range in Britain (7.2m) and approximately one-third of the estuary is exposed as mud or sandflats at low tide. The inner estuary supports extensive areas of reedbed with areas of mature and developing saltmarsh backed by grazing marsh in the middle and outer estuary. On the north Lincolnshire coast, the saltmarsh is backed by low sand dunes with marshy slacks and brackish pools.

The estuary supports important numbers of waterbirds and waders during the migration periods and in winter. Over winter, the area regularly supports 187,617 individual waterfowl. It also supports important breeding populations of terns and raptors in summer.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds ((Mean, 1992-1996)
During breeding season	
Little Tern (*Sterna albifrons*)	63 pairs (2.6% of UK breeding population)
Marsh Harrier (*Circus aeruginosus*)	11 pairs (6.9% of UK breeding population (1995))
Over winter	
Bar-tailed Godwit (*Limosa lapponica*)	1,593 (3% of UK wintering population)
Bittern (*Botaurus stellaris*)	2 (2% of UK wintering population)
Golden Plover (*Pluvialis apricaria*)	29,235 (11.7% of UK wintering population)
Hen Harrier (*Circus cyaneus*)	20 (2.7% of UK wintering population (Mean, 1985-1989))
Migratory species	
On passage	
Redshank (*Tringa totanus*)	5,212 (2.9% of wintering Eastern Atlantic population)
Sanderling (*Calidris alba*)	1,767 (1.8% of Eastern Atlantic/Western and Southern Africa population (2 year mean, 1993-1994))
Over winter	
Dunlin (*Calidris alpina*)	23,605 (1.7% of wintering Northern Siberia/Europe/Western Africa population)
Knot (*Calidris canutus*)	33,848 (9.7% of wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population)
Redshank (*Tringa totanus*)	4,452 (1.4% of wintering Eastern Atlantic population)
Shelduck (*Tadorna tadorna*)	4,083 (1.4% of wintering Northwestern Europe population)

The Humber flats, marshes and coast IBA covers 16,490ha, an area slightly larger than the SPA/Ramsar site and includes the estuary, and coastline to the north and south of the Humber mouth, including Spurn Pont. In addition to those species covered by the SPA, the IBA also includes the important bird populations listed below.

IBA qualifying bird species	Number of individual birds (1995)
During breeding season	
Avocet (*Recurvirostra avosetta*)	4 pairs
Short-eared Owl (*Asio flammeus*)	5 pairs

Over winter	
Ruff (*Philomachus pugnax*)	20
Curlew (*Numenius arquata*)	2,730
Redshank (Tringa tetanus)	4,820
Migratory species	
On passage	
Ringed Plover (*Charadrius hiaticula*)	860
Golden Plover (*Pluvialis apricaria*)	18,200
Grey Plover (*Pluvialis squatarola*)	1,770
Ruff (*Philomachus pugnax*)	130
Bar-tailed Godwit (*Limosa lapponica*)	610

Vulnerability and management issues

Threats include intense industrial development, disturbance from leisure activities and development, especially motorcycling and water-sports, discharged oil and industrial effluents from shipping activities, rubbish-tipping, wildfowling, and coastal defence improvements. The Humber Estuary Management Strategy complements various shoreline, Heritage Coast, Wildlife Trust, and RSPB Reserve management plans.

Component designations at national and local level

Spurn Head Heritage Coast
Spurn NNR
Spurn Wildlife Trust Reserve
SSSI: Humber Flats and Marshes - Barton Barrow Clay Pits, Humber Flats and Marshes, Pyewipe and Cleethorpes, Humber Flats and Marshes - Spurnhead to Saltflat, Humber Flats and Marshes - Upper Humber, Humber Flats and Marshes - the Grues, North Lincolnshire Coast, Saltfleetby Theddlethorpe Dunes, South Ferriby Cliffs, The Lagoons
Blacktoft Sands RSPB Reserve

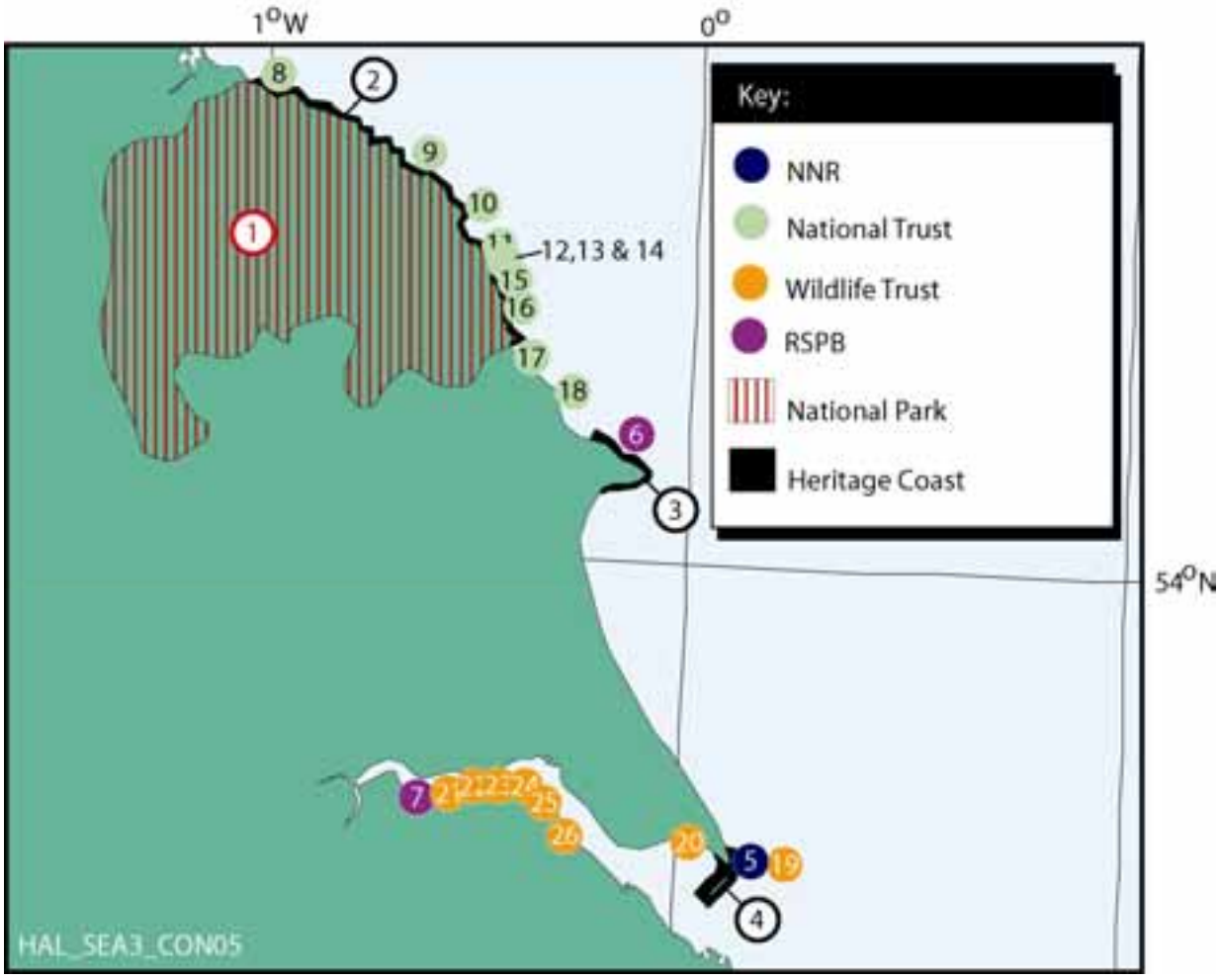
Sources of information

JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9006111.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

3.2 Sites of national and local importance

There are a number of sites of national and local importance along the Yorkshire and Humber coast which are described below. The number given to each site also identifies that site on Figure 3.2.

Figure 3.2 – Coastal sites of national and local importance in the Yorkshire and Humber region



3.2.1 North York Moors National Park

Figure 3.2 1

Area: 1,436km^2
Designation date: 1952

Open heather moorland is the main feature of the North York Moors National Park but the eastern coastal boundary of the Park is marked by a 42km stretch of the North Yorkshire and Cleveland Heritage Coast.

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

3.2.2 Heritage Coasts

Much of the Yorkshire coastline has been designated as Heritage Coast and includes three separate sections.

3.2.2.1 North Yorkshire and Cleveland Heritage Coast

Location: NZ668216-TA036909
Length: 57km
Designation date: 1974

Figure 3.2 **2**

The North Yorkshire and Cleveland Heritage Coast runs from Saltburn in Cleveland to north of Scarborough, and covers the entire coastal fringe of the North York Moors National Park. Rugged cliffs dominate the coastline.

3.2.2.2 Flamborough Headland Heritage Coast

Figure 3.2 **3**

Location: TA202686-TA151757
Length: 19km
Designation date: 1979

Covering part of Filey Bay, the Flamborough Headland Heritage Coast extends around the dramatic chalk cliffs of the headland.

3.2.2.3 Spurn Head Heritage Coast

Figure 3.2 **4**

Location: TA393172-TA409184
Length: 18km
Designation date: 1988

The Spurn is a dynamic sand peninsula that stretches southwards for approximately three and a half miles into the mouth of the Humber estuary, with sandy beaches and the North Sea on its eastern side, and areas of saltmarsh and extensive mudflats, on its western side.

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/
Britain Express website
http://www.britainexpress.com/countryside/coast/suffolk.htm
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

3.2.3 National nature reserves

Figure 3.2 

Map ref.	National nature reserve	Area (ha)	Date declared	Site description
5	Spurn	296	1966	Beaches, mudflats and saltmarsh

Sources of information
English Nature website
http://www.english-nature.org.uk/

3.2.4 Sites of Special Scientific Interest

These are listed on Table A.9 in Appendix 2.

Sources of information
Pers. comm. J Storey, English Nature

3.2.5 RSPB reserves

Figure 3.2 

Map ref.	RSPB reserve	Area (ha)	Date acquired	Site description
6	Bempton Cliffs	24	1969	Chalk cliffs; cliff-nesting seabirds including gannetry
7	Blacktoft Sands	197	1975	Tidal reedbed, saltmarsh and brackish lagoons; breeding waterfowl and reedbed species, migrant waders

Sources of information
RSPB website
http://www.rspb.org.uk/wildlife/
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *ed*s. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

3.2.6 National Trust properties and sites

Figure 3.2 

Map ref.	National Trust sites	Area (ha)	Date acquired	Site description
8	Port Mulgrave	15	1988	Wild coastal slope
9	Saltwick Nab	3	1936	Cliffland
10	Bay Ness Farm	72	1981-1986	Headland, cliffs and coastal fields
11	Boggle Hole	3	1986	Cliff
12	Ravenscar – Stoupe Brow Farm	29	1985-1988	Cliff and coastal farmland and scrub
13	Ravenscar	105	1977-1987	Cliff and coastal farmland
14	Ravenscar – Bent Rigg Farm	39	1985	Cliff-top land
Map ref.	**National Trust sites**	**Area (ha)**	**Date acquired**	**Site description**
15	Staintondale	37	1981-1982	Cliff and coastal farmland

16	Hayburn Wyke	26	1981	Cliffs and wooded valley
17	Cayton Bay and Knipe Point	36	1984	Cliff, undercliff and beach
18	Newbiggin East Farm	10	1983	Cliffs and coastal farmland

Sources of information
National Trust website
http://www.nationaltrust.org.uk/scripts/nthandbook.dll?Action=AREA&Area=Yorkshire
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

3.2.7 Wildlife Trust reserves

Figure 3.2

Map ref.	Wildlife Trust reserves	Area (ha)	Date acquired	Site description
19	Spurn	306	1960	Beaches and saltmarsh
20	Welwick Saltmarsh	6	1977	Saltmarsh
21	Far Ings and Barton Reedbed	59	1973	Flooded clay pits, reedbeds and saltmarsh
22	Pasture Wharf	21	1992	Flooded clay pits, reedbeds and foreshore
23	Barrow Haven Reedbed	13	1989	Flooded clay pits and reedbeds
24	Fairfield Pit	9	1987	Flooded clay pit and foreshore
25	Dawson City Clay Pits	16	1986	Flooded clay pits and reedbeds
26	Killingholme Haven Pits	36	1979	Flooded clay pits, reedbeds and saline lagoons.

Sources of information
Yorkshire Wildlife Trust website
http://www.yorkshire-wildlife-trust.org.uk/news_release_03.htm
Lincolnshire Wildlife Trust website
http://www.lincstrust.co.uk/
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

4 LINCOLNSHIRE, NORFOLK AND SUFFOLK

This region covers the coastline of the counties of Lincolnshire, Norfolk and Suffolk (see Figure 1.1).

The coastal environment of this region contains a variety of different habitats many of which are of considerable ecological importance. The Lincolnshire coast is a dynamic environment dominated by extensive sand dune systems and saltmarsh communities. Further south, the estuarine expanse of the Wash presents an array of important marine and coastal habitats, including extensive intertidal flats and sand banks which provide important habitat and refuge for a huge number of waterbirds and other animals. The low-lying barrier coast of North Norfolk includes extensive intertidal sand and mudflats, together with areas of freshwater grazing marsh, saltmarsh and reedbed. On the east coast of Norfolk, the mosaic of wetland habitats of the Broads forms one of the finest marshland complexes in the UK.

The Suffolk coast contains a rich mixture of unique and vulnerable lowland habitats created by the interaction of natural processes and human activity. There are large areas of marsh bisected by freshwater dykes and extensive reedbeds. Lagoons are a prominent feature and support a range of floral and faunal communities from brackish through to freshwater. The dynamic shingle structures of Orfordness and Benacre Ness provide examples of the constantly changing nature of much of the Suffolk coast. The coast is also deeply indented by a number of estuaries which support internationally important bird assemblages.

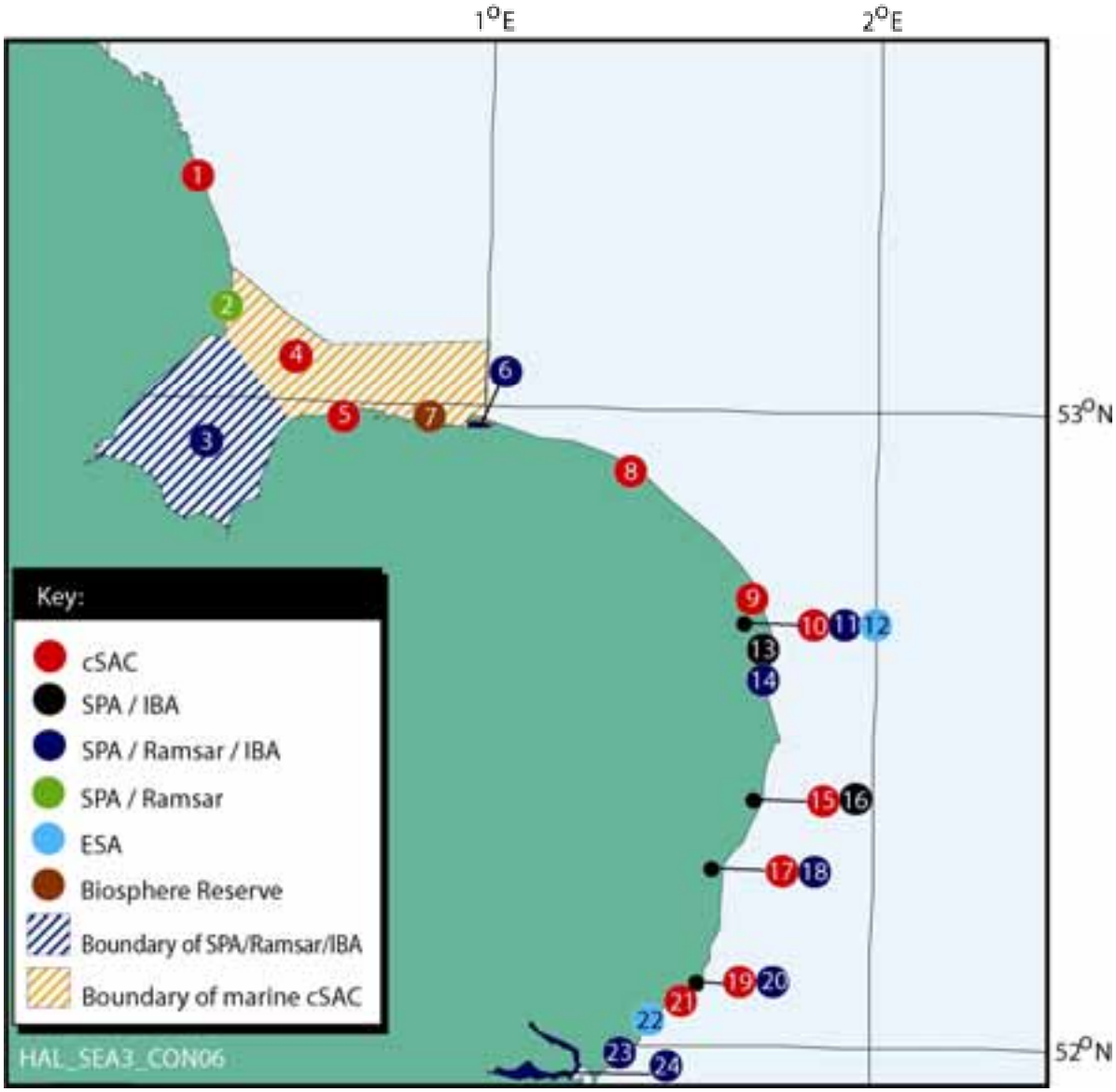
The area plays host to a variety of important marine habitats and species as well as bird areas which are protected under international, national and local designations (see Box 4.1 for details).

Box 4.1 – Coastal protected sites in Lincolnshire, Norfolk and Suffolk	
International	
Candidate Special Areas of Conservation (cSAC)	10
Special Protection Areas (SPA)	11
Ramsar	9
Important Bird Areas (IBA)	10
Biosphere Reserve	1
Environmentally Sensitive Areas (ESA)	2
National and local	
National Park	1
Areas of Outstanding Natural Beauty (AONB)	2
Heritage Coasts	2
National Nature Reserves (NNR)	13
Sites Of Special Scientific Interest (SSSI)	5
Local Nature Reserve (LNR)	4
Others	
RSPB Reserves	7
National Trust Sites and Properties	11
Wildlife Trust Reserves	16

4.1 Sites of international importance

There are a number of sites of international importance along the Lincolnshire, Norfolk and Suffolk coast which are described below. The number given in the right-hand corner of the summary information box identifies that site on Figure 4.1.

Figure 4.1 – Coastal sites of international importance in the Lincolnshire, Norfolk and Suffolk region



4.1.1 Saltfleetby-Theddlethorpe Dunes and Gibraltar Point cSAC

Summary information Figure 4.1 1

Location: 53°23'28"N 00°13'33"E
Area: 960ha
Date submitted: 2001
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal sand dunes, Mudflats, Coastal saltmarsh
Rare or Threatened Species (IUCN Red List): none known

This site provides a good example of an actively accreting sand dune system, saltmarsh and extensive intertidal areas. Within the SAC, all stages of dune development are represented. On the Saltfleetby-Theddlethorpe foreshore, accreting mud and silt flats and saltmarsh in the north give way to a narrower sandy beach in the south. Further south at Gibraltar Point, extensive wave-built sand ridges run parallel to the coast and between the ridges there are strips of saltmarsh. The saltmarsh and mature dune systems support a diverse range of plants, insects, birds and other animals.

Annex I/II interest features and reason for recommendation:

- Dunes with *Hippophae rhamnoides*
- Embryonic shifting dunes
- Fixed dunes with herbaceous vegetation
- Humid dune slacks
- Shifting dunes along the shoreline with sand-binding marram *Ammophila arenaria*

Vulnerability and management issues
Saltfleetby-Theddlethorpe Dunes and Gibraltar Point are two separate coastal complexes. They both contain a complex of habitats ranging from dry 'grey' dunes down to saltmarsh. The sites are both vulnerable to changes in sedimentation rates along the coast caused by coastal protection schemes further north.

The sites are both visited by large numbers of tourists and disturbance and damage from inappropriate access is a problem. The majority of these sites are declared as National Nature Reserves.

Component designations at national and local level
NNR: Gibraltar Point, Saltfleetby-Theddlethorpe
SSSI: Gibraltar Point, Saltfleetby-Theddlethorpe Dunes
Wildlife Trust Reserves: Gibraltar Point, Saltfleetby-Theddlethorpe

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030270
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.2 Gibraltar Point SPA and Ramsar site

Summary information Figure 4.1 2

Location: 53°06'00"N 00°20'16"E
Area: 414ha
SPA Classification: 1993
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal sand dunes, Mudflats, Coastal saltmarsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds) and Winter (over-wintering birds)

Gibraltar Point accommodates large numbers of overwintering birds and significant colonies of breeding terns which feed outside of the SPA in nearby waters. Over winter, the area regularly supports 22,137 individual waterfowl. The site is also important for waders during the spring and autumn migratory period. To the south, the coastal habitats of Gibraltar Point SPA are continuous with The Wash SPA, with which the ecology of this site is intimately linked.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1992-1996)
During breeding season	
Little Tern (*Sterna albifrons*)	23 pairs (1.0% of UK breeding population)
Over winter	
Bar-tailed Godwit (*Limosa lapponica*)	719 (1.4% of UK wintering population)
Migratory species	
Over winter	
Grey Plover (*Pluvialis squatarola*)	2,017 (1.3% of wintering Eastern Atlantic population)
Knot (*Calidris canutus*)	10,155 (2.9% of wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population)

Vulnerability and management issues
See *1 - Saltfleetby-Theddlethorpe Dunes and Gibraltar Point cSAC* for details.

Component designations at national and local level
Gibraltar Point NNR
Gibraltar Point SSSI
Gibraltar Point Wildlife Trust Reserve

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9008022.htm
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.3 The Wash SPA/IBA/Ramsar site

Summary information Figure 4.1 3

Location: 52°56'16"N 00°17'12"E
Area: 62,212ha
SPA Classification: 1988
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Sublittoral sands and gravels, Maritime cliffs and slopes, Mudflats, Coastal saltmarsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds), Spring/Autumn (Migratory birds) and Winter (over-wintering birds)

The Wash is the largest estuarine system in the UK and is fed by the rivers Witham, Welland, Nene and Great Ouse that drain much of the East Midlands. The Wash comprises extensive saltmarshes, major intertidal banks of sand and mud, shallow waters and deep channels. The eastern end of the site includes low chalk cliffs at Hunstanton and the gravel pits at Snettisham are an important high-tide roost for waders.

The intertidal flats support a rich invertebrate fauna and colonising beds of Glasswort *Salicornia* spp., which are important food sources for the large numbers of waterbirds dependent on the site. The sheltered nature of The Wash creates suitable breeding conditions for shellfish, principally Mussel *Mytilus edulis*, Cockle *Cardium edule* and shrimps - important food sources for waterbirds such as Oystercatchers *Haematopus ostralegus*.

The Wash is of importance for a large number of geese, ducks and waders, both in spring and autumn migration periods, as well as through the winter. Over winter, the area regularly supports 400,273 individual waterfowl (Mean 1992-1996). The SPA is especially notable for supporting a very large wintering population of Knot *Calidris canutus*. In summer, The Wash is an important breeding area for terns and as a feeding area for Marsh Harrier that breed just outside of the SPA.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1992-1996)
During breeding season	
Common Tern (*Sterna hirundo*)	152 pairs (1.2% of UK breeding population (1993))
Little Tern (*Sterna albifrons*)	33 pairs (1.4% of UK breeding population)
Marsh Harrier (*Circus aeruginosus*)	15 pairs (9.4% of UK breeding population (1995))
Over winter	
Avocet (*Recurvirostra avosetta*)	110 (8.7% of UK wintering population)
Bar-tailed Godwit (*Limosa lapponica*)	11,250 (21.2% of UK wintering population)
Golden Plover (*Pluvialis apricaria*)	11,037 (4.4% of UK wintering population)
Whooper Swan (*Cygnus Cygnus*)	68 (1.2% of UK wintering population)
Migratory species	
On passage	
Ringed Plover (*Charadrius hiaticula*)	1,185 (2.4% of Europe/Northern Africa population)
Sanderling (*Calidris alba*)	1,854 (1.9% of Eastern Atlantic/Western and Southern Africa population (2 year Mean, 1994-1995)
Over winter	
Black-tailed Godwit (*Limosa limosa islandica*)	859 (1.2% of wintering Iceland-breeding population)
Curlew (*Numenius arquata*)	3,835 (1.1% of wintering Europe-breeding population)
Dark-bellied Brent Goose (*Branta bernicla bernicla*)	22,248 (7.4% of wintering Western Siberia/Western Europe population)

SPA qualifying bird species	Number of individual birds (Mean, 1992-1996)
Dunlin (*Calidris alpina*)	35,620 (2.5% of wintering Northern Siberia/Europe/Western Africa population)
Grey Plover (*Pluvialis squatarola*)	9,708 (6.5% of wintering Eastern Atlantic population)
Knot (*Calidris canutus*)	186,892 (53.4% of wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population)
Oystercatcher (*Haematopus ostralegus*)	25,651 (2.9% of wintering Europe and Northern/Western Africa population)
Pink-footed goose (*Anser brachyrhynchus*)	33,265 (14.8% of wintering Eastern Greenland/Iceland/UK population)
Pintail (*Anas acuta*)	923 (1.5% of wintering Northwestern Europe population)
Redshank (*Tringa totanus*)	2,953 (2.0% of wintering Eastern Atlantic population)
Shelduck (*Tadorna tadorna*)	15,981 (5.3 % of wintering Northwestern Europe population)
Turnstone (*Arenaria interpres*)	717 (1.0% of wintering Western Palearctic population)

The Wash IBA covers an area (67,000ha) slightly larger than the SPA/Ramsar site. In addition to those species covered by the SPA, the IBA also includes the important bird populations listed below.

IBA qualifying bird species	Number of individual birds (1995)
Breeding resident	
Avocet (Recurvirostra avosetta)	45 pairs
Redshank (Tringa tetanus)	580 pairs
During breeding season	
Montagu's Harrier (Circus pygargus)	2 pairs
Over winter	
Berwick's Swan (Cygnus columbianus)	76
Curlew (Numenius arquata)	2,730
Redshank (Tringa tetanus)	4,820
Migratory species	
On passage	
Avocet (Recurvirostra avosetta)	200
Redshank (Tringa tetanus)	7,000
Oystercatcher (Haematopus ostralegus)	26,500
Bar-tailed Godwit (Limosa lapponica)	13,300
Curlew (Numenius arquata)	8,800
Grey Plover (Pluvialis squatarola)	13,300
Knot (Calidris canutus)	133,000
Dunlin (Calidris alpina)	46,700
Turnstone (Arenaria interpres)	1,150

Vulnerability and management issues
See *4 - The Wash and North Norfolk Coast cSAC* for details.

Component designations at national and local level
Norfolk Coast AONB
North Norfolk Heritage Coast
NNR: Gibraltar Point, The Wash
SSSI: Gibraltar Point, Hunstanton Cliffs, The Wash
RSPB Reserves: Frampton Marshes, Snettisham
Wildlife Trust Reserves: Frampton Marsh, Gibraltar Point

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9008021.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.4 The Wash and North Norfolk Coast cSAC

Summary information Figure 4.1 4

Location: 52°56'13"N 00°19'05"E
Area: 107,802ha
Date submitted: 1996
UK Biodiversity Action Plan Species: *Ventrosia ventrosa*, *Modiolus modiolus, Pomatoschistus minutus, Pleuronectes platessa*
UK Biodiversity Action Plan Priority Habitats: Sublittoral sands and gravels, *Sabellaria spinulosa* reefs, Mudflats, Coastal saltmarsh
Rare or Threatened Species (IUCN Red List): none known

The Wash is connected via sediment transfer systems to the North Norfolk Coast. Together these sites form one of the most important marine areas in the UK and European North Sea coast and include extensive areas of varying, but particularly sandy sediments subject to a range of conditions.

Annex I/II interest features and reason for recommendation:

Sandbanks which are slightly covered by seawater all the time
Sandy sediments occupy most of the subtidal area, resulting in one of the largest expanses of sublittoral sandbanks in the UK. The subtidal sandbanks vary in composition and include coarse sand through to mixed sediment at the mouth of the embayment. Sublittoral communities present include large dense beds of brittlestars *Ophiothrix fragilis*. Species include the sand-mason worm *Lanice conchilega* and the tellin *Angulus tenuis*. Benthic communities on sandflats in the deeper, central part of the Wash are particularly diverse. The subtidal sandbanks provide important nursery grounds for young commercial fish species, including plaice *Pleuronectes platessa*, cod *Gadus morhua* and sole *Solea solea*.

Mudflats and sandbanks not covered by seawater at low tide
The sandflats in the embayment of the Wash include extensive fine sands and drying banks of coarse sand, and this diversity of substrates, coupled with variety in degree of exposure, means that there is a high diversity relative to other east coast sites. Sandy intertidal flats predominate, with some soft mudflats in the areas sheltered by barrier beaches and islands along the north Norfolk coast. The biota includes large numbers of polychaetes, bivalves and crustaceans. Salinity ranges from that of the open coast in most of the area (supporting rich invertebrate communities) to estuarine close to the rivers. Smaller, sheltered and diverse areas of intertidal sediment, with a rich variety of communities, including some eelgrass *Zostera* spp. beds and large shallow pools, are protected by the north Norfolk barrier islands and sand spits.

Large shallow inlets and bays

Communities in the intertidal include those characterised by large numbers of polychaetes, bivalve and crustaceans. Sublittoral communities cover a diverse range from the shallow to the deeper parts of the embayments and include dense brittlestar beds and areas of an abundant reef-building worm ('ross worm') *Sabellaria spinulosa*. The embayment supports a variety of mobile species, including a range of fish and Common seal *Phoca vitulina*.

Reefs
In the tide-swept approaches to the Wash, with a high loading of suspended sand, the relatively common tube-dwelling polychaete worm *Sabellaria spinulosa* forms areas of biogenic reefs. These structures are varied in nature, and include reefs which stand up to 30cm proud of the seabed and which extend for hundreds of metres. The reefs are thought to extend into The Wash where super-abundant *S. spinulosa* occurs and where reef-like structures such as concretions and crusts have been recorded. The site and its surrounding waters is considered particularly important as it is the only currently known location of well-developed stable *Sabellaria* reef in the UK. The reefs are a particularly important component of the sublittoral as they are diverse and productive habitats which support many associated species that would not otherwise be found in predominantly sedimentary areas. Associated motile species include large numbers of polychaetes, mysid shrimps, the pink shrimp *Pandalus montagui*, and crabs. *S. spinulosa* is considered to be an important food sources for the commercially important pink shrimp *P. montagui*.

Salicornia and other annuals colonising mud and sand
The largest single area of this vegetation in the UK occurs at this site, which is one of the few areas in the UK where saltmarshes are generally accreting. The proportion of the total saltmarsh vegetation is high because of the extensive enclosure of marsh in this site. The vegetation is also unusual in that it forms a pioneer community with common cord-grass *Spartina anglica* in which it is an equal component. The inter-relationship with other habitats is significant, forming a transition to important dune, saltmeadow and halophytic scrub communities.

Atlantic salt meadow (Glauco-Puccinellietalia)
This site on the east coast of England is selected both for the extensive ungrazed saltmarshes of the North Norfolk Coast and for the contrasting, traditionally grazed saltmarshes around the Wash. The Wash saltmarshes represent the largest single area of the habitat type in the UK. The Atlantic salt meadows form part of a sequence of vegetation types that are unparalleled among coastal sites in the UK for their diversity and are amongst the most important in Europe. Saltmarsh swards dominated by sea-lavenders *Limonium* spp. are particularly well-represented on this site. In addition to typical lower and middle saltmarsh communities, in North Norfolk there are transitions from upper marsh to freshwater reedswamp, sand dunes, shingle beaches and mud/sandflats.

Mediterranean and thermo-Atlantic halophilous scrubs (Arthrocnemetalia fruticosae)
The Wash and North Norfolk Coast, together with the North Norfolk Coast, comprises the only area in the UK where all the more typically Mediterranean species that characterise Mediterranean and thermo-Atlantic halophilous scrubs occur together. The vegetation is dominated by a shrubby cover up to 40cm high of scattered bushes of shrubby sea-blite *Suaeda vera* and sea-purslane *Atriplex portulacoides*, with a patchy cover of herbaceous plants and bryophytes.

Common seal Phoca vitulina
The extensive intertidal flats here and on the North Norfolk Coast provide ideal conditions for common seal *Phoca vitulina* breeding and hauling-out. This site is the largest colony of common seals in the UK, with some 7% of the total UK population.

Vulnerability and management issues
The Wash and North Norfolk Coast is one of the most diverse coastal systems in Britain. This diversity is largely dependent on physical processes that dominate the natural system; consequently the vulnerability of habitats is linked to changes in the physical environment. The intertidal zone is

being threatened from coastal squeeze as a result of land-claim and coastal defence works as well as sea-level rise and storm-surges. Changes in the sediment budgets also threaten these habitats. At present activities which alter the sediment characteristics include dredging and coastal protection works. Current management is underway to address concerns over declines in shellfisheries.

The area supports internationally important seal populations that are vulnerable to disturbance and disruption of the marine ecosystem upon which they depend. Such issues should be addressed through the Marine Scheme of Management.

Component designations at national and local level
Norfolk Coast AONB
North Norfolk Heritage Coast
NNR: Gibraltar Point, The Wash, Holme Dunes, Scolt Head Island, Holkham, Blakeney
SSSI: Gibraltar Point, North Norfolk Coast, The Wash
National Trust Sites: Holme-next-the-Sea, Scolt Head Island, Blakeney Point
Wildlife Trust Sites: Holme Dunes, Scolt Head Island (East)

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0017075
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.5 North Norfolk Coast cSAC

Summary information Figure 4.1 5

Location: 52°58'08"N 00°36'38"E
Area: 3,454ha
Date submitted: 1996
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal vegetated shingle, Coastal sand dunes, Saline lagoons, Coastal saltmarsh
Rare or Threatened Species (IUCN Red List): none known

Blakeney Point, a shingle spit on the North Norfolk Coast, exhibits a typical sequence of shingle vegetation, which includes open communities of pioneer species on the exposed ridge and more continuous grassland communities on the more sheltered shingle recurves. It also includes some of the best examples of transitions between shingle and saltmarsh, with characteristic but rare species more typical of the Mediterranean (see details of The Wash and North Norfolk Coast cSAC for details).

The shingle structure of Blakeney Point forms a highly significant component of the geomorphological structure of the North Norfolk coast and helps to maintain a series of interrelated habitats. These include a large, active series of dunes on shingle barrier islands and spits, and their associated herbaceous vegetation. The site encompasses a number of small percolation lagoons, the most notable of which are at Blakeney Spit Pools, a lagoon system of six small pools between a shingle ridge and saltmarsh. The fauna of the lagoons includes a nationally rare species, the lagoon mysid *Paramysis nouvelli*.

Annex I/II interest features and reason for recommendation:

- Perennial vegetation of stony banks
- Fixed dunes with herbaceous vegetation
- Humid dune slacks
- Mediterranean and thermo-Atlantic halophilous scrubs (*Arthrocnemetalia fruticosae*)
- Coastal lagoons
- Embryonic shifting dunes
- Shifting dunes along the shoreline with *Ammophila arenaria*

Vulnerability and management issues
A Shoreline Management Plan, local biodiversity action plans, water level management plans, Site Management Statements and Wildlife Enhancement Scheme Agreements are addressing the issues of flood defence, sea-level rise, coastal retreat, water level management, habitat recreation and visitor pressure. The cSAC includes a number of National Nature Reserves and reserves owned or managed by voluntary conservation organisations.

Component designations at national and local level
Norfolk Coast AONB
North Norfolk Heritage Coast
NNR: Holme Dunes, Scolt Head Island, Holkham, Blakeney
North Norfolk Coast SSSI
National Trust Sites: Holme-next-the-Sea, Scolt Head Island, Blakeney Point
Wildlife Trust Sites: Holme Dunes, Scolt Head Island (East)

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0019838
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.6 North Norfolk Coast SPA/IBA/Ramsar site

Summary information Figure 4.1 6

Location: 52°58'13"N 00°35'55" E
Area: 7,887ha
SPA Classification: 1989
UK Biodiversity Action Plan Species: *Botaurus stellaris, Sterna dougallii*
UK Biodiversity Action Plan Priority Habitats: Mudflats, Coastal and freshwater grazing marsh, Reedbeds, Coastal vegetated shingle, Coastal sand dunes, Saline lagoons, Coastal saltmarsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds), Spring/Autumn (Migratory birds) and Winter (over-wintering birds)

The North Norfolk Coast SPA/IBA and Ramsar site encompasses much of the northern coastline of Norfolk. It is a low-lying barrier coast that extends for 40km from Holme to Weybourne and includes a great variety of coastal habitats.

The main habitats found along the coastline include extensive intertidal sand and mudflats, together with areas of freshwater grazing marsh and reedbed. The site contains some of the best examples of saltmarsh in Europe. There are deposits of shingle at Blakeney Point, and major sand dunes at Scolt Head. Extensive reedbeds are found at Brancaster, Cley and Titchwell, and areas of grazing marsh are present all along the coast. The grazing marsh at Holkham has a network of clear water dykes holding a rich diversity of aquatic plant species. To the west, the coastal habitats of the North Norfolk Coast SPA are continuous with The Wash SPA, with which area the ecology of this site is linked.

The great diversity of high-quality freshwater, intertidal and marine habitats results in large numbers of waterbirds occurring throughout the year. In summer, the site holds large breeding populations of waders, four species of terns, Avocet and wetland raptors such as Marsh Harriers. In winter, the coast is used by very large numbers of geese, seaducks and waders and regularly supports 91,249 individual waterfowl (Mean, 1992-1996). The coast is also of major importance for staging waterbirds in the spring and autumn migration periods. Breeding terns, particularly Sandwich Tern and wintering seaducks regularly feed outside the SPA in adjacent coastal waters.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1994-1998)
During breeding season	
Avocet (*Recurvirostra avosetta*)	177 pairs (30% of UK breeding population (1998))
Bittern (*Botaurus stellaris*)	3 (15% of UK breeding population (1998))
Common Tern (*Sterna hirundo*)	460 pairs (3.7% of UK breeding population (1996))
Little Tern (*Sterna albifrons*)	377 pairs (15.7% of UK breeding population)
Marsh Harrier (*Circus aeruginosus*)	14 pairs (8.8% of UK breeding population (1995))
Mediterranean Gull (*Larus melanocephalus*)	2 pairs (20% of UK breeding population (1996))
Roseate Tern (*Sterna dougallii*)	2 pairs (3.3% of UK breeding population)
Sandwich Tern (*Sterna sandvicensis*)	3,457 pairs (24.7% of of UK breeding population)

SPA qualifying bird species	Number of individual birds (Mean, 1994-1998)
Over winter	
Avocet (*Recurvirostra avosetta*)	153 (12% of UK wintering population)
Bar-tailed Godwit (*Limosa lapponica*)	1,236 (2.3% of UK wintering population)
Golden Plover (*Pluvialis apricaria*)	2,667 (1.1% of UK wintering population (Mean, 1992-1996)
Hen Harrier (*Circus cyaneus*)	16 (2.1% of UK wintering population)
Ruff (*Phillomachus pugnax*)	54 (7.7% of UK breeding population)
Migratory species	
During breeding season	
Redshank (*Tringa totanus*)	700 pairs (1.2% of breeding Eastern Atlantic - wintering population (1998))
Ringed Plover (*Charadrius hiaticula*)	220 pairs (1.4% of Europe/Northern Africa wintering population (1998))
On passage	
Ringed Plover (*Charadrius hiaticula*)	1,256 (2.5% of Europe/Northern Africa population)
Over winter	
Dark-bellied Brent Goose (*Branta bernicla bernicla*)	11,512 (3.8% of wintering Western Siberia/Western Europe population (Mean, 1992-1996))
Knot (*Calidris canutus*)	10,801 (3.1% of wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population (Mean, 1992-1996))
Pink-footed goose (*Anser brachyrhynchus*)	33,265 (14.8% of wintering Eastern Greenland/Iceland/UK population (Mean, 1992-1996)
Pintail (*Anus acuta*)	1,139 (1.9% of wintering Northwestern Europe population (Mean, 1992-1996))
Redshank (*Tringa totanus*)	2,953 (2.0% of wintering Eastern Atlantic population)
Wigeon (*Anas penelope*)	14,039 (1.1% of wintering western Siberia/Northwestern/Northeastern Europe population (Mean, 1992-1996))

The North Norfolk Coast IBA covers a similar area (7,700ha) to the SPA and Ramsar site, extending for over 40km from Hunstanton in the west to Salthouse in the east. The IBA does not include any bird species not already covered by the SPA designation.

Vulnerability and management issues
See *5 - North Norfolk Coast cSAC* for details.

Component designations at national and local level
Norfolk Coast AONB
North Norfolk Heritage Coast
NNR: Blakeney, Holkham, Holme Dunes, Scolt Head Island
SSSI: Morston Ciff, North Norfolk Coast
National Trust Reserves: Blakeney Point
Wildlife Trust Reserves: Holme Dunes, Cley and Salthouse Marshes, Scolt Head Island (East)
RSPB Reserves: Titchwell Marsh

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009031.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for

conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.7 Norfolk Coast biosphere reserve

Summary information Figure 4.1 7

Location: TF900460
Area: 8,500ha
Designation date: 1976

The Norfolk Coast Biosphere Reserve comprises four sites – Holkham NNR, Scolt Head NNR, and the former Blakeney Point SSSI and Cley and Salthouse Marshes SSSI – which were all included within the North Norfolk Coast SSSI when it was notified in 1986. The reserve represents a coastal marsh and dune system biome.

Sources of information
UK Man and the Biosphere Reserve Directory website
http://www.nmw.ac.uk/mab/BRReport/norfolk.htm

4.1.8 Overstrand Cliffs cSAC

Summary information Figure 4.1 8

Location: 52°55'23"N 01°19'30"E
Area: 30ha
Date submitted: 1996
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes
Rare or Threatened Species (IUCN Red List): none known

The soft cliffs at Overstrand are subject to slumping and cliff falls and this has led to the development of a successional series of habitats from bare sand and pioneer communities to semi-stabilised grassland and scrub. Freshwater seepage lines emerging from the cliff face and stable cliff top grassland are important in the overall plant diversity of the site which also supports a large number and diversity of invertebrates. The cliffs were selected as a cSAC as they were considered to represent a good example of "vegetated sea cliffs of the Atlantic and Baltic coasts".

Vulnerability and management issues
Overstrand Cliffs are composed of Pleistocene sands and clays with seepages which result in moderately frequent landslips. Sea defences are limited to a few groynes except at the extreme eastern and western ends. The land-use on the landward side is mostly golf course, with some houses towards the eastern and woods and open ground at the western end. The site is most vulnerable to coastal protection measures and possible artificial drainage of seepages to reduce slippages. However, the current Shoreline Management Plan allows for 'do nothing', i.e. retreat along all but the extreme eastern end of this section. Therefore, the site is probably of low vulnerability.

Component designations at national and local level
Norfolk Coast AONB
Overstrand Cliffs SSSI

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030232
North Norfolk District Council website
http://www.north-norfolk.gov.uk/council/directorates/chiefexec/coastal/doc1.html
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.9 Winterton-Horsey Dunes cSAC

Summary information Figure 4.1 9

Location: 52°43'24"N 01°41'23"E
Area: 426ha
Date submitted: 1996
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal sand dunes
Rare or Threatened Species (IUCN Red List): none known

Embryonic shifting dune vegetation in which both sand couch *Elytrigia juncea* and lyme-grass *Leymus arenarius* are represented, fronts some sections of this extensive dune system. There are also areas of dune heath and acidic dune grassland within the site which contrast with the nearby calcareous and species-rich dunes of much of north Norfolk. Because of their acidic soils, the dunes support swamp and mire communities, in addition to small areas of typical dune slack vegetation characterised by creeping willow *Salix arenaria* and Yorkshire-fog *Holcus lanatus*. They represent an extreme of the geographical range of humid dune slacks within the UK.

Annex I/II interest features and reason for recommendation:
- Embryonic shifting dunes
- EU-Atlantic decalcified fixed dunes *(Calluno-Ulicetea)*
- Humid dune slacks

Vulnerability and management issues
A concrete wall constructed in the 1960s, together with sea defence works up-drift which reduce sediment supply, constrain and prevent the site from responding naturally to coastal processes. The embryonic shifting dune communities are most vulnerable. Beach-feeding operations pose a threat through the possible use of sand with shell fragments, particularly to the Atlantic decalcified fixed dunes. A Coastal Habitat Action Plan (ChaMP) is scheduled to be produced by February 2002, and will attempt to address these issues.

The site is backed by intensively-farmed arable land, and water abstraction from this area is a threat to the humid dune slack communities. Visitor pressures are high especially in the summer, resulting in erosion, fire and disturbance impacts. The site relies on rabbits to maintain open habitats, and is therefore vulnerable to outbreaks of disease.

Component designations at national and local level

Winterton Dunes NNR
Winterton-Horsey Dunes SSSI
Horsey National Trust Site

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0013043
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.10 The Broads cSAC

Summary information Figure 4.1 10

Location: 52°43'49"N 01°36'43"E
Area: 5,866ha
Date submitted: 1996
UK Biodiversity Action Plan Species: *Vertigo moulinsiana, Liparis loeselii*
UK Biodiversity Action Plan Priority Habitats: Coastal and floodplain grazing marsh, Reedbeds, Fens
Rare or Threatened Species (IUCN Red List): none known

The Broads are a series of flooded medieval peat cuttings which lie within the floodplains of five principal river systems, the Rivers Bure, Yare and Waveney, together with the two Bure tributaries, the Ant and Thurne. The distinctive open landscape comprises a complex and interlinked mosaic of wetland habitats including open water, reedbeds, carr woodland, grazing marsh and fen meadow, forming one of the finest marshland complexes in the UK. The differing types of management of the vegetation for reed, sedge and marsh hay, coupled with variations in hydrology and substrate, support an extremely diverse range of plant communities and animal species.

Annex I/II interest features and reason for recommendation:

- Residual alluvial forest *(Alnion glutinoso-incanae).* The complete successional sequence from open water through reedswamp to alder *Alnus glutinosa* woodland and a corresponding wide range of flora, including a number of uncommon species such as the marsh fern *Thelypteris palustris.*
- *Liparis loeselii.* Three small populations of the fen orchid *Liparis loeselii* occur on the site, and in 1996 only 242 plants were found.
- *Vertigo moulinsiana.* The site is a very important area for its wetland invertebrate fauna, and many Red Data Book and Nationally Scarce species occur. The Broads cSAC is the main stronghold of Desmoulins' whorl snail *Vertigo moulinsiana.* There are several large populations associated with standing and flowing water and ditch systems.

- Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation. The site contains several examples of eutrophic lakes which although artificial, support relict vegetation of the original fenland flora. The site contains one of the richest assemblages of rare and local aquatic plant species in the UK.
- Calcareous fens with *Cladium mariscus* and *Carex davalliana*. This habitat type forms large-scale mosaics with other fen types, open water and woodland, and important associated plant

species include the fen orchid *Liparis loeselii*, marsh helleborine *Epipactis palustris*, lesser tussock-sedge *Carex diandra*, slender sedge *Carex lasiocarpa* and fibrous tussock-sedge *Carex appropinquata*.

- Transition mires and quaking bogs. The site provides examples of transition mire in a floodplain in the south-eastern part of the UK, where the habitat is rare.
- Alkaline fens. The site consists of a complex zonation of different fen types but is principally of the floodplain mire type.

Vulnerability and management issues

The site has suffered from management neglect and natural succession during the 20th century. This is slowly being reversed through conservation and other management works undertaken by a number of bodies. Sea level rise and reduced summer flows in the northern rivers brought about by abstraction are resulting in increasing saline intrusion into the site and generally drier summer conditions. The Environment Agency, Broads Authority and English Nature are investigating options to remedy this situation.

The site also suffers from eutrophication, primarily from sewage outfalls and to a lesser degree, agriculture. Some of the sewage works in the northern rivers are now phosphorus stripping and there is a programme of mud-pumping to remove enriched material from lakes. Pressure from tourism and recreation is now being considered by the Broads Authority through the Broads Plan.

Water Level Management Plans and the Environmentally Sensitive Area scheme are starting to raise water levels, revert arable areas back to grass and encourage sensitive management particularly of the ditches, to address problems brought about by drainage in the past. Appropriate standards of flood defence are necessary for the wetland, and works are currently proceeding under the Environment Agency Broads Strategy.

Component designations at national and local level

The Broads National Park

NNR: Ant Broads and Marshes, Bure Marshes, Calthorpe Broad, Hickling Broad, Ludham-Potter Heigham, Mid-Yare

SSSI: Alderfen Broad, Ant Broads and Marshes, Barnby Broad and Marshes, Broad Fen, Dilham, Bure Broads and Marshes, Burgh Common and Muckfleet Marshes, Calthorpe Broad, Cantley Marshes, Crostwick Marsh, Damgate Marshes, Acle, Decoy Carr, Acle, Ducan's Marsh, Claxton, Geldeston Meadows, Hall Farm Fen, Hemsby, Halvergate Marshes, Hardley Flood, Limpenhoe Meadows, Ludham to Potter Heigham Marshes, Poplar Farm Meadows, Langley, Priory Meadows, Hickling, Shallam Dyke Marshes, Thurne, Smallburgh Fen, Sprat's Water and Marshes, Carlton Colville, Stanley and Alder Carrs, Aldeby, Trinity Broads, Upper Thurne Broads and Marshes, Upton Broad and Marshes, Yare Broads and Marshes

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0013577
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.11 Broadland SPA/Ramsar/IBA

Summary information Figure 4.1 11

Location: 51°36'00"N 52°43'56"E
Area: 5,462ha
SPA Classification: 1994
UK Biodiversity Action Plan Species: *Botaurus stellaris*
UK Biodiversity Action Plan Priority Habitats: Coastal and floodplain grazing marsh, Reedbeds, Fens
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds) and Winter (over-wintering birds)

The Broadland SPA and Ramsar site covers a similar area and habitat as the Broads cSAC (5,866ha) and was designated in recognition of the international importance of the area for a variety of wintering and breeding raptors and waterbirds. Over winter, the area regularly supports 22,603 individual waterfowl (1999). Breeding and wintering raptors, and wintering waterbirds spend time on feeding areas outside the SPA boundary. The estuary at the mouth of Broadland is Breydon Marsh SPA (see below), and the two sites adjoin each other at Halvergate Marshes.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds
During breeding season	
Bittern (*Botaurus stellaris*)	3 (15% of UK breeding population (1998))
Marsh Harrier (*Circus aeruginosus*)	21 pairs (13.1% of UK breeding population (1995))
Over winter	
Berwick's Swan (*Cygnus columbianus bewickii*)	320 (4.6% of UK wintering population)
Bittern (*Botaurus stellaris*)	6 (6.0% of UK wintering population)
Hen Harrier (*Circus cyaneus*)	22 (2.9% of UK wintering population (Mean, 1987-1991)
Ruff (*Phillomachus pugnax*)	96 (13.7% of UK wintering population (Mean, 1987-1991)
Whooper Swan (*Cygnus cygnus*)	133 (2.4% of UK wintering population (Mean, 1993-1997)

SPA qualifying bird species	Number of individual birds
Migratory species	
Over winter	
Gadwall (*Anas strepera*)	605 (2.0% of wintering Northwestern Europe population (1999))
Pink-footed goose (*Anser brachyrhynchus*)	3,290(1.5% of wintering Eastern Greenland/Iceland/UK population (Mean, 1994-1998)
Shoveler (*Anas clypeata*)	401 (1.0% of wintering Northwestern/Central Europe population (1999))

The Broadland IBA covers a similar area (5,485ha) to the SPA and Ramsar site. In addition to those species covered by the SPA and Ramsar designations, the IBA also includes the wintering population of Greylag geese *Anser anser* (1,050 birds, 1995), the breeding population of Common Tern *Sterna hirundo* (155 pairs, 1993) and the resident breeding population of Crane *Grus grus* (no bird numbers given, 1993).

Vulnerability and management issues
See *11 - The Broads cSAC* for details.

Component designations at national and local level
The Broads National Park
NNR: Ant Broads and Marshes, Bure Marshes, Calthorpe Broad, Hickling Broad, Ludham-Potter Heigham, Mid-Yare
SSSI: Alderfen Broad, Ant Broads and Marshes, Barnby Broad and Marshes, Broad Fen (Dilham), Bure Broads and Marshes, Burgh Common and Muck Fleet Marshes, Calthorpe Broad, Crostwick Marsh, Damgate Marshes, Decoy Carr, Acle, Duncan's Marsh, Claxton, Geldeston Meadows, Hall Farm Fen (Hemsby), Hardley Flood, Havergate Marshes, Limpenhoe Meadows, Ludham - Potter Heigham Marshes, Poplar Farm Meadows (Langley), Priory Meadows (Hickling), Shallam Dyke Marshes (Thurne), Smallburgh Fen, Sprat's Water and Marshes, Carlton Colville, Stanley and Alder Carrs, Upper Thurne Broads and Marshes, Upton Broad and Marshes, Yare Broads and Marshes
Berney Marshes RSPB Reserve
Wildlife Trust Reserves: Carlton Marshes, Oulton Marshes

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009253.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.12 The Broads environmentally sensitive area

Summary information Figure 4.1 12

Area: 8,900ha
Designation date: 1987

European Community authorisation for Environmentally Sensitive Areas (ESAs) is derived from Article 19 of Council Regulation (EEC) No. 797/85 - National Aid in Environmentally Sensitive Areas. ESAs are statutory areas in which the Government seeks to encourage environmentally sensitive farming practices, prevent damage that might result from certain types of agricultural intensification, and restore traditional landscapes, for which member states are allowed to make payments to farmers.

The Broads ESA includes the system of broads, waterways, reed swamps, fens, carr woodland and drained grazing marsh.

Sources of information

Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

4.1.13 Great Yarmouth North Denes SPA/IBA

Summary information Figure 4.1 13

Location: 52°44'02"N 01°41'10"E
Area: 149ha
SPA Classification: 1993
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal sand dunes, Coastal vegetated shingle
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds)

Behind a wide shingle beach, the North Denes dune system is actively accreting. The dunes are stabilised by Marram *Ammophila arenaria* and there are extensive areas of Grey hair-grass *Corynephorus canescens*. The site supports important numbers of breeding Little Tern *Sterna albifrons* (220 breeding pairs, 9.2% of UK breeding population, Mean, 1992-1996) that feed outside the SPA in nearby waters.

The Great Yarmouth North Denes IBA is of a similar size (146ha) as the SPA and also covers the breeding population of Little Tern.

Vulnerability and management issues

Threats include disturbance of the *Sterna albifrons* colony by dogs and people, predation of the terns, tourism development, and beach erosion. There is no management plan for the Great Yarmouth North Denes part of the IBA, except for the RSPB *S. albifrons* protection scheme, in existence since 1986.

Component designations at national and local level

Winterton Dunes NNR
SSSI: Great Yarmouth North Denes, Winterton-Horsey Dunes

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009271.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.14 Breydon Water SPA/Ramsar/IBA

Summary information Figure 4.1 14

Location: 52°35'03"N 01°37'18"E
Area: 1,203ha
SPA Classification: 1996
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Mudflats, Coastal and floodplain grazing marsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds) and Winter (over-wintering birds)

The Breydon Water SPA and Ramsar site is an inland tidal estuary at the mouth of the River Yare and its confluence with the Rivers Bure and Waveney. It has extensive areas of mudflats that are exposed at low tide and these form the only tidal flats on the east coast of Norfolk. There are areas of floodplain grassland adjacent to the intertidal areas. Breydon Water is internationally important for wintering waterbirds, some of which feed in the Broadland SPA that adjoins this site at Halvergate Marshes. Over winter, the area regularly supports 43,225 individual waterfowl (Mean, 1991-1995).

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1992-1996)
During breeding season	
Common Tern (*Sterna hirundo*)	155 pairs (1.3% of UK breeding population (4 count Mean, 1992-1994, 1996))
Over winter	
Avocet (*Recurvirostra avosetta*)	33 (2.6% of UK wintering population)
Berwick's Swan (*Cygnus columbianus bewickii*)	391 (5.6% of UK wintering population)
Golden Plover (*Pluvialis apricaria*)	5,040 (2.0% of UK wintering population)

The Breydon Water IBA covers a smaller area (515ha) than the SPA and Ramsar site and also includes the migratory population of Golden Plover *Pluvialis apricaria* (1,670 birds, 1995).

Vulnerability and management issues
Recreational disturbance can be a problem. The site is regularly monitored as part of the Wetland Bird Survey (WeBS).

Component designations at national and local level
The Broads National Park
Breydon Water SSSI
Breydon Water RSPB Reserve

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009181.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.15 Benacre to Easton Bavents Lagoons cSAC

Summary information Figure 4.1 15

Location: 52°23'11"N 01°42'37"E
Area: 367ha
Date submitted: 1995
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal vegetated shingle, Saline lagoons, Seagrass beds, Maritime cliffs and slopes
Rare or Threatened Species (IUCN Red List): none known

Benacre to Easton Bavents Lagoons is a series of percolation lagoons (The Denes, Benacre Broad, Covehithe Broad and Easton Broad), between the coastal towns of Kessingland (to the north) and Southwold (to the south). The coast is low-lying and consists of shingle beach in the northern part and low cliffs around Easton Bavents and Covehithe.

Seawater enters the lagoons by percolation through the barriers, or by overtopping them during storms and high spring tides and the lagoons display a wide range of salinities, from nearly full saline in South pool, The Denes, to extremely low salinity at Easton Broad. This range of salinity has resulted in a series of lagoonal vegetation types, including beds of narrow–leaved eelgrass *Zostera angustifolia* in fully saline or hyper saline conditions, beds of spiral tasselweed *Ruppia cirrhosa* in brackish water and dense beds of common reed *Phragmites australis* in freshwater.

Annex I/II interest features and reason for recommendation:
- Lagoons

Vulnerability and management issues
The lagoons at the Denes were created through shingle extraction. Salinity is maintained through percolation and overtopping of the shingle barrier. No management input is required to maintain these lagoons. The lagoons at Benacre, Covehithe and Easton are natural and result from ponded

streams behind shingle barriers. Sea water enters the lagoons through overtopping of the barriers during high tides. These lagoons are experiencing erosion and landwards movement of the confining barrier, leading to the reduction in the area of each lagoon. Natural processes will eventually lead to the loss of these features. Potential management actions to reduce the rate of erosion are being addressed through the Shoreline Management Plan process.

Component designations at national and local level
Suffolk Coast and Heaths AONB
Suffolk Heritage Coast
Benacre NNR
Benacre to Easton Bavents SSSI

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0013104
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.16 Benacre to Easton Bavents SPA/IBA

Summary information Figure 4.1 16

Location: 52°23'11"N 01°42'37"E
Area: 517ha
SPA Classification: 1996
UK Biodiversity Action Plan Species: *Botaurus stellaris*
UK Biodiversity Action Plan Priority Habitats: Coastal vegetated shingle, Saline lagoons, Maritime cliffs and slopes, Reedbeds, Coastal and floodplain grazing marsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds) and Winter (over-wintering birds)

The Benacre to Easton Bavents SPA/IBA covers a larger area than the cSAC (367ha, see above). In addition to the lagoons, the SPA also includes the fringing reed-beds on the landward side of the lagoons, which at Benacre Broad grades into deciduous woodland on the rising ground behind the lagoon. The smaller Covehithe and Easton Broads have developed similarly, with fringing reedbeds. Elsewhere, ditches rich in water plants and invertebrates separate grazing marsh fields.

The area supports important populations of breeding birds, which are particularly associated with reedbed and shingle beach habitats. The reedbeds also support important numbers of Bittern *Botaurus stellaris* in winter. Little Tern *Sterna albifrons* feed outside the SPA in adjacent marine waters.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds
During breeding season	
Bittern (*Botaurus stellaris*)	1 pair (5% of UK breeding population (1998))
Little Tern (*Sterna albifrons*)	53 pairs (2.2% of UK breeding population (1997))
Marsh Harrier (*Circus aeruginosus*)	6 pairs (3.8% of UK breeding population (Mean, 1993-1997))
SPA qualifying bird species	**Number of individual birds**
Over winter	

Bittern (*Botaurus stellaris*)	2 (2.0% of UK wintering population (1998))

The IBA covers the same area as the SPA and was designated for the site's resident breeding population of Marsh Harrier.

Vulnerability and management issues
See *14 - Benacre to Easton Bavents Lagoons cSAC* for details.

Component designations at national and local level
See *14 - Benacre to Easton Bavents Lagoons cSAC* for details.

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009291.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.17 Minsmere to Walberswick Heaths and Marshes cSAC

Summary information Figure 4.1 17

Location: 52°15'22"N 01°37'02"E
Area: 1,266ha
Date submitted: 1995
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal vegetated shingle, Coastal sand dunes
Rare or Threatened Species (IUCN Red List): none known

The Minsmere to Walberswick Heaths and Marshes cSAC supports an extensive and well-developed beach strandline of mixed sand and shingle with associated plant species typical of sandy shores, such as sea sandwort *Honckenya peploides* and shingle plants such as the sea beet *Beta vulgaris maritima.*

Dry lowland heath occupies an extensive area of the site, which is at the extreme easterly range of heath development in the UK. The heathland is predominantly NVC H8 *Calluna vulgaris-Ulex gallii* heath, a type most characteristic of western parts of the UK and is dominated by heather *Calluna vulgaris*, western gorse *Ulex gallii* and bell heather *Erica cinerea*.

Annex I/II interest features and reason for recommendation:
- Annual vegetation of drift lines
- Dry heaths (all subtypes)

Vulnerability and management issues
Dry heath: These heaths were formed through, and are dependent upon, active management. Without grazing or cutting of heather, scrub and tree invasion onto the heaths is rapid and can be extensive. Bracken can also dominate large areas if suitable management has not been undertaken over the past decade. The heathland at Minsmere forms part of a RSPB reserve. The site management plan

includes actions to ensure that open heathland is maintained and areas of scrub and bracken are cleared from former heath. Part of the cSAC is managed as Westleton Heath Nature Reserve.

Annual vegetation of drift lines: This habitat is maintained through the action of natural coastal processes upon the shoreline. The requirement for management is limited and is restricted to ensuring that significant human disturbance of the vegetated shore zone does not occur. This aspect of management is addressed through the RSPB visitor management plan.

Component designations at national and local level
Suffolk Coast and Heaths AONB
Suffolk Heritage Coast
NNR: Walberswick, Westleton Heath
Minsmere-Walberswick Heaths and Marshes SSSI
Minsmere RSPB Reserve
Dunwich Heath and Minsmere Beach National Trust site

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/idt/sac/data/S12809.htm
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.18 Minsmere-Walberswick SPA/IBA/Ramsar site

Summary information Figure 4.1 18

Location: 52°18'55"N 01°38'02"E
Area: 2,019ha
SPA Classification: 1992
UK Biodiversity Action Plan Species: *Botaurus stellaris, Caprimulgus europaenus, Lullula arborea*
UK Biodiversity Action Plan Priority Habitats: Mudflats, Saline lagoons, Coastal vegetated shingle, Reedbeds, Coastal and floodplain grazing marsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds) and Winter (over-wintering birds)

Minsmere-Walberswick is located on the Suffolk coast south of Southwold and it comprises two large marshes, the Blyth estuary and associated habitats. The site contains a complex mosaic of habitats – areas of marsh with dykes, extensive reedbeds, mud-flats, lagoons, shingle, woodland and areas of lowland heath. It supports the largest continuous stand of Common Reed *Phragmites australis* in England and Wales and demonstrates the nationally rare transition in grazing marsh ditch plants from brackish to freshwater.

The reedbeds are of major importance for breeding and wintering populations of Bittern *Botaurus stellaris* and raptors. A range of breeding waders populate the mudflats and lagoons and the shingle beaches support important numbers of breeding Little Tern *Sterna albifrons*, which feed outside of the SPA in adjacent marine waters.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds

During breeding season	
Avocet (*Recurvirostra avosetta*)	91 pairs (15.4% of UK breeding population (1996))
Bittern (*Botaurus stellaris*)	7 pairs (35% of UK breeding population (Mean, 1993-1997))
Little Tern (*Sterna albifrons*)	28 pairs (1.2% of UK breeding population (Mean, 1992-1996))
Marsh Harrier (*Circus aeruginosus*)	16 pairs (10% of UK breeding population (Mean, 1993-1997))
Nightjar (*Caprimulgus europaenus*)	24 pairs (0.7% of UK breeding population (1990))
Woodlark (*Lullula arborea*)	20 pairs (1.3% of UK breeding population (Mean, 1995-1999)
Over winter	
Avocet (*Recurvirostra avosetta*)	278 (21.9% of UK wintering population (Mean, 1992-1996))
Bittern (*Botaurus stellaris*)	14 (14% of UK wintering population (1998))
Hen Harrier (*Circus cyaneus*)	15 (2.0% of UK wintering population (Mean, 1985-1989))

The IBA covers an area (2,190ha) slightly larger than the SPA and Ramsar site but the bird populations covered by the IBA are the same as the SPA.

Vulnerability and management issues
See *16 - Minsmere to Walberswick Heaths and Marshes cSAC* for details

Component Designations at national and local level
See *16 - Minsmere to Walberswick Heaths and Marshes cSAC* for details.

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009112.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.19 Alde, Ore and Butley Estuaries cSAC

Summary information Figure 4.1 19

Location: 52°06'06"N 01°34'08"E
Area: 1,562ha
Date submitted: 2001
UK Biodiversity Action Plan Species: *Alkmaria romijni*
UK Biodiversity Action Plan Priority Habitats: Mudflats, Coastal saltmarsh, Coastal vegetated shingle, Coastal and floodplain grazing marsh, Reedbeds
Rare or Threatened Species (IUCN Red List): none known

This estuary, made up of three rivers, is the only bar-built estuary in the UK with a shingle bar. This bar has been extending rapidly along the coast since 1530, pushing the mouth of the estuary progressively south-westwards. The eastwards-running Alde River originally entered the sea at Aldeburgh, but now turns south along the inner side of the Orfordness shingle spit. It is relatively wide and shallow, with extensive intertidal mudflats on both sides of the channel in its upper reaches and saltmarsh accreting along its fringes. The Alde subsequently becomes the south-west flowing River Ore, which is narrower and deeper with stronger currents. The smaller Butley River, which has extensive areas of saltmarsh and a reedbed community bordering intertidal mudflats, flows into the Ore shortly after the latter divides around Havergate Island. The mouth of the River Ore is still moving south as the Orfordness shingle spit continues to grow through longshore drift from the north.

There is a range of littoral sediment and rock biotopes (the latter on sea defences) that are of high diversity and species richness for estuaries in eastern England. Water quality is excellent throughout. The area is relatively natural, being largely undeveloped by man and with very limited industrial activity. The estuary contains large areas of shallow water over subtidal sediments, and extensive mudflats and saltmarshes exposed at low water. Its diverse and species-rich intertidal sand and mudflat biotopes grade naturally along many lengths of the shore into vegetated or dynamic shingle habitat, saltmarsh, grassland and reedbed.

Annex I/II interest features and reason for recommendation:

- Estuaries
- Mudflats and sandflats not covered by seawater at low tide
- Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*

Vulnerability and management issues
Past canalisation and erosion together with sea-level rise has resulted in the loss of much of the saltmarsh. There are plans for managed coastal retreat which in the long-term will result in the creation of saltmarsh.

Component designations at national and local level
Suffolk Coast and Heaths AONB
Suffolk Heritage Coast
Orfordness-Havergate NNR
Alde-Ore Estuary SSSI
Havergate Island RSPB Reserve
Alde Mudflats Wildlife Trust Reserve
Orfordness National Trust Site

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0030076
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.20 Alde-Ore Estuary SPA/IBA/Ramsar site

Summary information Figure 4.1 20

Location: 52°04'58"N 01°33'03"E
Area: 2,417ha
SPA Classification: 1996
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Mudflats, Coastal saltmarsh, Coastal vegetated shingle, Saline lagoons, Coastal and floodplain grazing marsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds) and Winter (over-wintering birds)

The Alde-Ore Estuary site comprises the estuarine complex of the rivers Alde, Butley and Ore, including Havergate Island and Orfordness. The site supports a variety of habitats including intertidal mudflats, saltmarsh, vegetated shingle (Orfordness), saline lagoons and grazing marsh. The diversity of wetland habitat types present is of particular significance to the birds occurring as these provide a range of opportunities for feeding, roosting and nesting within the site complex.

At different times of the year, the site supports notable assemblages of wetland birds including seabirds, wildfowl and waders. Over winter, the area regularly supports 24,962 individual waterfowl (Mean, 1991-1995) and of these, important populations of Avocet *Recurvirostra avosetta*, in particular. The Alde-Ore Estuary also provides important breeding habitat for several species of seabird and regularly supports 59,117 individual seabirds (count period ongoing), as well as wader and raptor species. During the breeding season, gulls and terns feed in the marine waters outside the SPA.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1991-1995)
During breeding season	
Avocet (*Recurvirostra avosetta*)	104 pairs (17.6% of UK breeding population (Mean, 1990-1994))
Little Tern (*Sterna albifrons*)	48 pairs (2.0% of UK breeding population (Mean, 1993-1994, 1996-1998))
Marsh Harrier (*Circus aeruginosus*)	3 pairs (1.9% of UK breeding population (Mean, 1993-1997))
Sandwich Tern (*Sterna sandvicensis*)	169 pairs (1.2% of UK breeding population)
Over winter	
Avocet (*Recurvirostra avosetta*)	766 (60.3% of UK wintering population)

SPA qualifying bird species	Number of individual birds (Mean, 1991-1995)
Migratory species	
During breeding season	
Lesser Black-backed Gull (*Larus fuscus*)	21,700 pairs (17.5% of breeding Western Europe/Mediterranean/Western Africa population (1998))
Over winter	
Redshank (*Tringa totanus*)	1,919 (1.3% of wintering Eastern Atlantic population)

The IBA covers the same area as the SPA and includes a number of bird populations not covered by the SPA qualification. These include a migratory population of Avocet *Recurvirostra avosetta* (760 birds, 1995) and a breeding population of Common Tern *Sterna hirundo* (95 pairs, 1993).

Vulnerability and management issues
See *18 - Alde, Ore and Butley Estuaries cSAC* for details.

Component designations at national and local level
See *18 - Alde, Ore and Butley Estuaries cSAC* for details.

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009112.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.21 Orfordness-Shingle Street cSAC

Summary information Figure 4.1 21

Location: 52°05'21"N 01°34'01"E
Area: 1,358ha
Date submitted: 1996
UK Biodiversity Action Plan Species: *Alkmaria romijni, Nematostella vectensis*
UK Biodiversity Action Plan Priority Habitats: Coastal saltmarsh, Coastal vegetated shingle, Saline lagoons
Rare or Threatened Species (IUCN Red List): *Nematostella vectensis* (Vulnerable)

Orfordness is an extensive shingle structure and consists of a foreland, a 15km long spit and a series of recurves running from north to south on the Suffolk coast. The spit has been selected as it supports some of the largest and most natural sequences in the UK of shingle vegetation affected by salt spray. Driftline vegetation occurs on the sheltered, western side of the spit, at the transition from shingle to saltmarsh. The driftline community is widespread and comprises sea beet *Beta vulgaris maritima* and orache *Atriplex* spp.

The southern end of the spit has a particularly fine series of undisturbed ridges, with zonation of communities determined by the ridge pattern. Pioneer communities with sea pen *Lathyrus japonicus* and false oat-grass *Arrhenatherum elatius* grassland.

The site also encompasses a series of percolation lagoons which have developed in the shingle bank adjacent to the shore at the mouth of the Ore estuary. The fauna of these lagoons includes typical lagoon species, such as the cockle *Cerastoderma glaucum*, the ostracod *Cypredeis torosa* and the gastropods *Littorina saxatilis tenebrosa* and *Hydrobia ventrosa*. The nationally rare starlet sea anemone *Nematostella vectensis* is also found at the site.

Annex I/II interest features and reason for recommendation:

- Annual vegetation of drift lines
- Perennial vegetation of stony banks
- Lagoons

Vulnerability and management issues
Vegetated shingle is a sensitive habitat. The site is managed to limit recreational pressures. Much of the interest is self-sustaining with little need for intervention. Natural coastal processes will lead to changes in the extent of lagoons at Shingle Street over time.

Component designations at national and local level
See *18 - Alde, Ore and Butley Estuaries cSAC* for details.

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0014780
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.22 Suffolk River Valleys Environmentally Sensitive Area

Summary information Figure 4.1 22

Area: 43,600ha
Designation date: 1988

European Community authorisation for Environmentally Sensitive Areas (ESAs) is derived from Article 19 of Council Regulation (EEC) No. 797/85 - National Aid in Environmentally Sensitive Areas. ESAs are statutory areas in which the Government seeks to encourage environmentally sensitive farming practices, prevent damage that might result from certain types of agricultural intensification, and restore traditional landscapes, for which member states are allowed to make payments to farmers.

The Suffolk River Valley's ESA includes grassland and associated reedbeds, ditches, hedgegrows and trees which contrast with surrounding arable land. River valleys and coastal marshes provide important habitat for wetland bird populations.

Sources of information
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

4.1.23 Deben Estuary SPA/IBA/Ramsar site

Summary information Figure 4.1 23

Location: 52°02'31"N 01°20'44"E
Area: 979ha
SPA Classification: 1996
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Sublittoral sands and gravels, Coastal saltmarsh, Mudflats, Reedbeds
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds) and Winter (over-wintering birds)

The narrow and sheltered Deben estuary extends south-eastwards for over 12km from the town of Woodbridge to the sea just north of Felixstowe. The estuary mouth is the narrowest section and is protected by the presence of shifting sandbanks. The saltmarsh and intertidal mudflats that occupy the majority of the site display the most complete range of saltmarsh community types in Suffolk. The estuary holds a range of swamp communities that fringe the estuary and in general, these are dominated by Common Reed *Phragmites australis*.

The site qualified as an SPA by supporting a wintering population of Avocet *Recurvirostra avosetta* (95 birds; 7.5% of wintering UK population, Mean 1991-1995).

The IBA covers a similar area (981ha) as the SPA and as well as the wintering Avocet population also includes a resident breeding population of Marsh Harrier *Circus aeruginosus* (4 pairs, 1990).

Vulnerability and management issues
Threats include sea-level change that may result in flooding and erosion, coastal defence improvements that may cause habitat loss, and disturbance from sailing and other leisure pursuits and developments. There is no site-specific management plan, but the area is covered by the Suffolk Coast and Heaths Project and Management Plan.

Component designations at national and local level
Suffolk Coast and Heaths AONB
Suffolk Heritage Coast
SSSI: Bawdsey Cliff, Deben Estuary, Ferry Cliff, Ramsholt Cliff

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009261.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.1.24 Stour and Orwell Estuaries SPA/IBA/Ramsar site

Summary information Figure 4.1 24

Location: 51°57'15"N 01°09'26"E
Area: 3,324ha
SPA Classification: 1994
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal cliffs and slopes, Coastal saltmarsh, Mudflats, Coastal vegetated shingle, Seagrass beds, Coastal and floodplain grazing marsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Spring/Autumn (Migratory birds) and Winter (over-wintering birds)

The Stour and Orwell estuaries straddle the eastern part of the Suffolk/Essex border and include extensive mudflats, low cliffs, saltmarsh and small areas of vegetated shingle on the lower reaches. The mudflats hold *Enteromorpha*, *Zostera* and *Salicornia* spp., and the site also includes an area of low-lying grazing marsh at Shotley Marshes on the south side of the Orwell.

The site is of particular importance for over-wintering bird species and regularly as many as 64,768 (Mean, 1991-1995) individual waterfowl during this period.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1991-1995)
Over winter	
Hen Harrier (*Circus cyaneus*)	10 (1.3% of UK wintering population (1996))
Migratory species	
Over winter	
Black-tailed Godwit (*Limosa limosa islandica*)	2,475 (3.5% of wintering Iceland-breeding population)
Dunlin (*Calidris alpina*)	23,940 (1.7% of wintering Northern Siberia/Europe/Western Africa population)
Grey Plover (*Pluvialis squatarola*)	3,660 (2.4% of wintering Eastern Atlantic population)
Pintail (*Anas acuta*)	878 (1.5% of wintering Northwestern Europe population)
Redshank (*Tringa tetanus*)	3,545 (2.4% of wintering Eastern Atlantic population)
Ringed Plover (*Charadrius hiaticula*)	578 (1.2% of wintering Europe/Northern Africa population)
Shelduck (*Tadorna tadorna*)	3,672 (1.2% of wintering Northwestern Europe population)
Turnstone (*Arenaria interpres*)	836 (1.2% of wintering Western Palearctic population)

The Stour and Orwell IBA covers a similar area (3,379ha) to the SPA and Ramsar site. In addition to those species covered by the SPA, the IBA also includes the migratory populations of Ringed Plover (925 birds, 1995), Black-tailed Godwit (1,710 birds, 1995), Redshank (2,210 birds, 1995) and Turnstone (750 birds, 1995). The IBA also includes the wintering population of Knot *Calidris canutus* (3,300, 1995).

Vulnerability and management issues
Threats include oil, industrial and sewage pollution, sea-level rise that may lead to flooding, erosion and habitat loss through harbour dredging, and industrial and recreational developments and disturbance. Major losses of intertidal land to port/commercial development have taken place at Fagbury flats (Orwell) and Bathside Bay (Stour), the latter being outside nationally protected areas. The Stour/Orwell management plan has been produced through the Suffolk Coast and Heaths Project. A major research and monitoring programme is underway with the aim of understanding and addressing the problem of saltmarsh erosion.

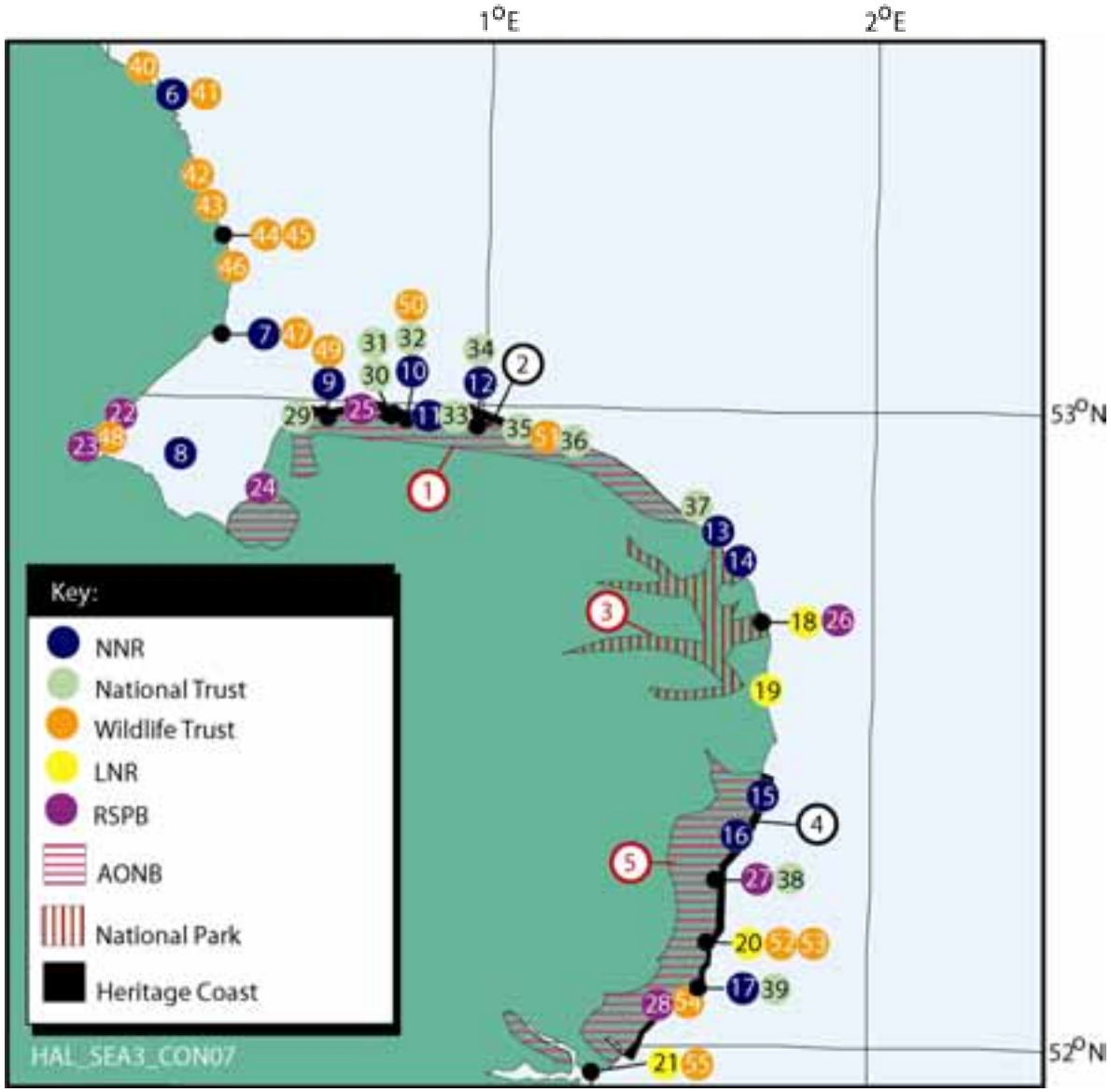
Component designations at national and local level
Suffolk Coast and Heaths AONB
Suffolk Heritage Coast
SSSI: Orwell Estuary, Stour Estuary
Stour Estuary RSPB Reserve (see *Essex and Kent* section)
Hogmarsh Wildlife Trust Reserve (see *Essex and Kent* section)

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009261.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

4.2 Sites of national and local importance

There are a number of sites of national and local importance along the Lincolnshire, Norfolk and Suffolk coast, which are described below. The number given to each site also identifies that site on Figure 4.2.

Figure 4.2 – Coastal sites of national and local importance in the Lincolnshire, Norfolk and Suffolk region



4.2.1 Norfolk Coast AONB

Figure 4.2 1

Area: 145,100ha
Designation date: 1967

The Norfolk Coast AONB includes the Wash, the north-facing coastal marsh and dunes of the North Norfolk Heritage Coast and the high boulder clay cliffs east of Weybourne. The coast is backed by gently rolling chalkland and glacial moraine.

Along the main part of the North Norfolk coast, the AONB boundaries have been drawn to exclude a number of communities, of which the largest are Hunstanton, Sheringham, Cromer, Overstrand and Mundesley. The AONB extends 5-10km inland (southwards) from the low water mark and also includes two outlying areas; one to the west at the south east corner of the Wash and the other to the southeast, north of Winterton-on-Sea.

The Norfolk Coast AONB contains some of the most important saltmarsh, intertidal flats, dunes, shingle and grazing marsh in Europe. The number of protected sites mirrors the ecological significance of the area; the Heritage Coast stretch of the AONB is a Ramsar site, a Biosphere Reserve, a SSSI, a SPA and cSAC and Marine cSAC.

The large numbers of visitors, which visit the AONB, present the greatest pressure on the landscape through erosion of sensitive habitat and disturbance. There are also agricultural pressures which include loss of hedgerows and permanent pasture as well as inadequate management of heaths and marshes.

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/aonb/
UK Man and the Biosphere Reserve Directory website
http://www.nmw.ac.uk/mab/BRReport/norfolk.htm

4.2.2 North Norfolk Heritage Coast

Figure 4.2 2

Location: TF695440-TG096441
Length: 64km
Designation date: 1975

The Heritage Coast stretches along the coast of North Norfolk from Holme-next-the-Sea to Salthouse and includes Gibraltar Point and, extensive areas of saltmarsh and sand dunes.

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/

4.2.3 The Broads National Park

Figure 4.2 3

Area: 303km^2
Designation date: 1989

The Broads National Park covers the entire floodplain of the five Rivers and associated fenland and marsh.

The Broads National Park was established in 1989 through a special act of Parliament, the Norfolk and Suffolk Broads Act (1988). The Broads Authority was set up to manage the area and is charged with conserving and enhancing the natural beauty of the area, promoting the enjoyment of the Broads by the public and protecting the interests of navigation.

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

4.2.4 Suffolk Coast and Heaths AONB

Figure 4.2 4

Area: 40,300ha
Designation date: 1970

The Suffolk Coast and Heaths AONB stretches from Lowestoft to the river Stour and protects a range of habitats including heathland, reedbeds, saltmarsh and mudflats, all of which are under pressure of change. It contains the estuaries of the Blyth, Alde, Deben, Orwell and Stour and is bounded by a dynamic coastline of soft cliffs and shingle spits.

The AONB has been seriously affected by changes in agricultural practices and much of the rich saltmarsh habitat has been lost as a result of agricultural intensification. Tourism and water-based recreational activities may also impact upon the fragile nature of the coastal environment. Given its proximity to centres of economic growth, the AONB is under increasing development pressures including industrial pollution of the estuaries from industry upstream and the current demand for expansion of the port of Felixstowe

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/aonb/

4.2.5 Suffolk Heritage Coast

Figure 4.2 5

Location: TM537845-TM325365
Length: 57km
Designation date: 1973

The Suffolk Heritage Coast stretches from Benacre Ness in the north, to the Deben Estuary in the south, and includes areas of low marshes and reedbeds interspersed with beaches of sand and shingle. The Heritage Coast covers the length of the Suffolk Coast and Heaths AONB.

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/aonb/
Britain Express website
http://www.britainexpress.com/countryside/coast/suffolk.htm

4.2.6 National nature reserves

Figure 4.2

Map ref.	National nature reserve	Area (ha)	Date declared	Site description
6	Saltfleetby-Theddlethorpe Dunes	440	1968	Coastal dunes, foreshore, freshwater-and-salt-marsh
7	Gibraltar Point	429	1984	Intertidal flats, sand dunes, shingle
8	The Wash	9,899	1986	Estuarine intertidal flats and saltmarsh, sandbanks
9	Holme Dunes	187	1995	Sand dunes, sand flats, saltmarsh and reedbeds
10	Scolt Head Island	737	1955	Saltmarsh, sand dunes, shingle and mudflats
11	Holkham	3,851	1967	Sand dunes, saltmarsh, intertidal mudflats and reedbeds

Map ref.	National nature reserve	Area (ha)	Date declared	Site description
12	Blakeney	1,097	1995	Shingle, sand dunes, saltmarsh, sand and mudflats and reedbeds
13	Winterton Dunes	109	1957	Sand dunes, dune slack and dune heath
14	Martham Broad	59	-	Shallow brackish lake, reedbeds
15	Benacre	393	1987-1993	Brackish pools, lagoons, reedbed, sand dunes, shingle beaches and broadleaved woodland.
16	Walberswick	582	1972-1973	Heath, grazing marsh, reedbed, woodland, intertidal mudflats, saltmarsh and shingle.
17	Orfordness-Havergate	228	1954-1972	Tidal mudflats, saltmarsh, shingle and brackish lagoons.

Sources of information
English Nature website
http://www.english-nature.org.uk/

4.2.7 Sites of Special Scientific Interest

These are listed on Table A.9 in Appendix 2.

Sources of information
Pers. comm. J Storey, English Nature

4.2.8 Local nature reserves

Figure 4.2

Map ref.	Local nature reserve	Area (ha)	Date declared	Site description
18	Breydon Water	453	1968	Grazing marshes and mudflats, open water
19	Gunton Warren and Corton Woods	30	1993	-
20	The Haven, Aldeburgh	22	1994	Shingle beach, scrub and marsh
21	Landguard Common	24	1979	Seashore, compacted shingle and scrub

Sources of information
English Nature website
http://www.english-nature.org.uk/
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

4.2.9 RSPB reserves

Figure 4.2 

Map ref	RSPB reserve	Area (ha)	Date acquired	Site description
22	Freiston Shore	-	-	Intertidal flats and saltmarsh.
23	Frampton Marsh	387	1984	Saltmarsh and intertidal mudflats.
24	Snettisham	1,315	1972	Shingle beach with flooded pits, saltmarsh, tidal flats, saltmarsh.
25	Titchwell Marsh	379	1973	Reedbeds, saltmarsh, brackish pools, sand dunes, shingle beach.
26	Breydon Water	288	-	Intertidal flats and saltmarsh.
27	Minsmere	796	1977	Shallow brackish water, mudflat, islands, reedbeds, mere, heathland, woodland, grazing marsh and sand dunes.
28	Havergate Island	179	1949	Island with shingle and lagoons.

Sources of information
RSPB website
http://www.rspb.org.uk/wildlife/
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

4.2.10 National Trust sites

Figure 4.2 

Map ref.	National Trust sites	Area (ha)	Date acquired	Site description
29	Holme-next-the Sea	2	1991	Grass-covered dunes
30	Branodonum Roman Fort	9	1984-1985	Roman shore fort
31	Brancaster	870	1964-1967	Beach, tidal foreshore, sand dunes, marsh and saltings
32	Scolt Head Island	870	1923-1937	Sand dune, saltmarsh, shingle ridge
33	Stiffkey Saltmarshes	197	1976	Saltmarsh
34	Blakeney Point	480	1912-1932	Shingle spit, foreshore, saltmarsh and sand dunes
35	Morston Marshes	238	1973-1986	Saltmarsh, tidal creeks, scrub covered grassland
36	Salthouse Broad	12	1950	Marsh, shingle, saline lagoons
37	Horsey	705	1948-1985	Marshes, marrams and mere
38	Dunwich Heath and Minsmere Beach	87	1968-1987	Sandy cliffs, beach, foreshore, heathland
39	Orfordness	627	1993	Shingle spit, saltmarsh

Sources of information
National Trust website
http://www.nationaltrust.org.uk/scripts/nthandbook.dll?Action=AREA&Area=East%20of%20England
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

4.2.11 Wildlife Trust reserves

Figure 4.2

Map ref.	Wildlife Trust reserves	Area (ha)	Date acquired	Site description
40	Donna Nook	894	1978	Sand dunes, slacks and intertidal areas
41	Saltfleetby/ Theddlethorpe	39	1968	Sand and mudflats, saltmarsh and sand dunes
42	Sandilands Pit	2	1959	Flooded clay pit, reedbeds and coastal grassland.
43	Huttoft Bank Pits	6	1959	Flooded clay pits, reedbeds, and open water,
44	Wolla Bank Reedbed	3	1959	Reedbeds
45	Wolla Bank Pit	4	1959	Flooded clay pit and reedbeds
46	Chapel Pit	3	1959	Flooded clay pit
47	Gibraltar Point	431	1949	Sand dunes and saltmarsh
48	Frampton Marsh	271	1976	Mature saltmarsh
49	Holme Dunes	188	1965	Sand dunes, sand flats, saltmarsh and reedbeds
50	Scolt Head Island (East)	31	1945	Saltmarsh, sand dunes, shingle and mudflats
51	Cley and Salthouse Marshes	332	1926	Scapes, shingle bank and coastal grazing marsh
52	The Haven	16	1989	Shingle beach, scrub and marsh
53	Hazelwood Marshes	62	1991	Coastal grazing marshes and tidal flats
54	Alde Mudflats	122	1991	Intertidal mudflats and saltmarsh
55	Landguard	16	1976	Seashore, compacted shingle and scrub

Sources of information
Lincolnshire Wildlife Trust website
http://www.lincstrust.co.uk/
Norfolk Wildlife Trust website
http://www.wildlifetrust.org.uk/norfolk/
Suffolk Wildlife Trust website
http://www.wildlifetrust.org.uk/suffolk/placestv/placmap1.htm
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

5 ESSEX AND KENT

This region covers the coastline of the counties of Essex and Kent, and includes the unitary authorities of Thurrock and Medway (see Figure 1.1).

The ecological significance of much of the Essex and Kent coast lies in the large number of estuaries present in the area. These display a wide variety of estuarine habitats which includes tidal creeks and islands, intertidal mud and sandflats, grazing marsh and saltmarsh. The invertebrate fauna and the sheltered nature of many of the estuaries attract internationally important numbers of waterbirds during the migration and winter periods. In Kent, the Thanet Coast is the longest continuous stretch of coastal chalk in the UK and further along the coast, Dungeness contains the largest shingle expanse in Europe.

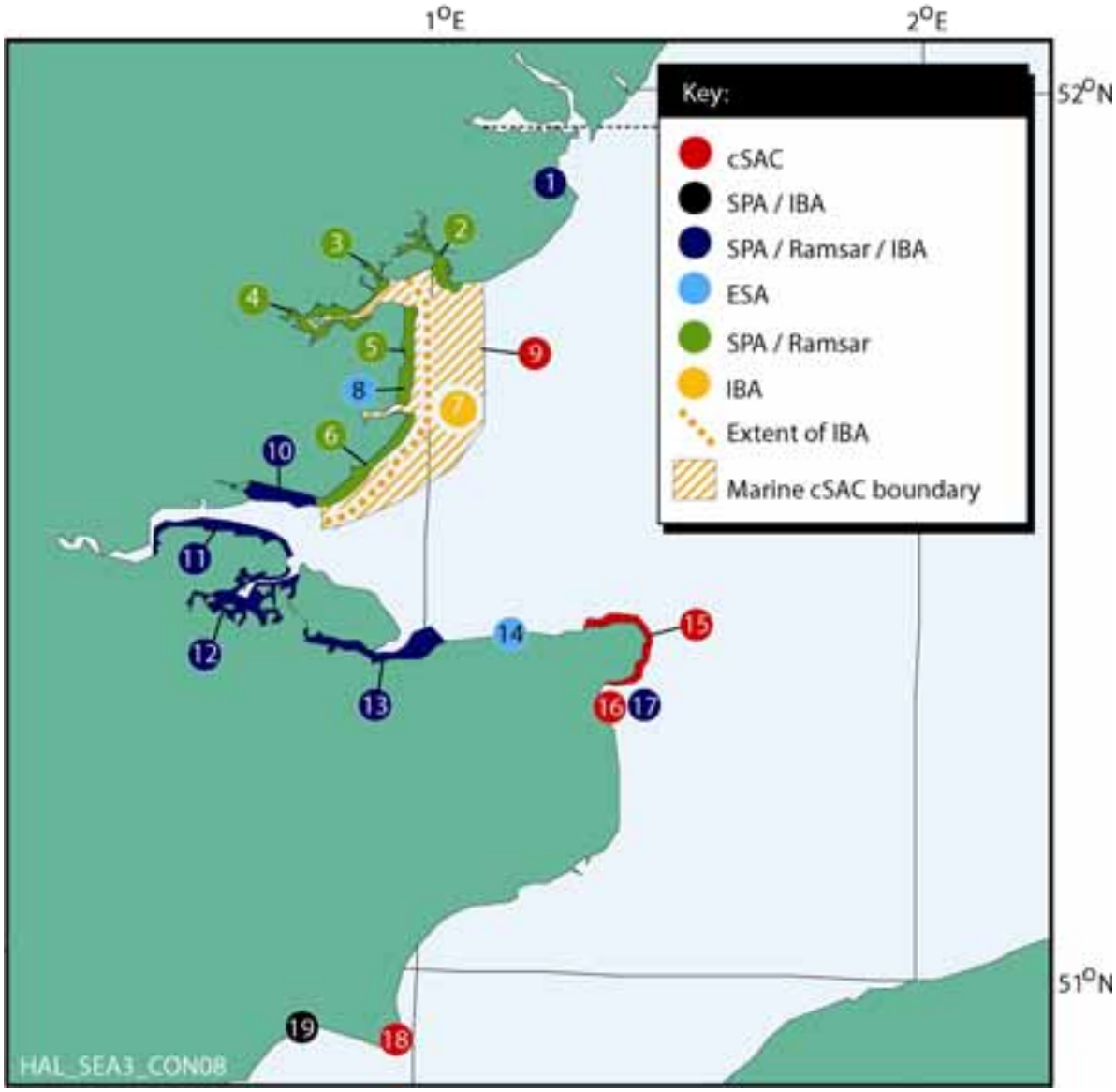
The area plays host to a variety of important marine habitats and species as well as bird areas which are protected under international, national and local designations (see Box 5.1 for details).

Box 5.1 – Coastal Protected Sites in Essex and Kent	
International	
Candidate Special Areas of Conservation (cSAC)	4
Special Protection Areas (SPA)	12
Ramsar	11
Important Bird Areas (IBA)	8
Environmentally Sensitive Areas (ESA)	2
National and Local	
Area of Outstanding Natural Beauty (AONB)	1
Heritage Coasts	2
National Nature Reserves (NNR)	9
Sites Of Special Scientific Interest (SSSI)	28
Local Nature Reserve (LNR)	7
Others	
RSPB Reserves	4
National Trust Sites and Properties	8
Wildlife Trust Reserves	22

5.1 Sites of international importance

There are a number of sites of international importance along the Essex and Kent coast which are described below. The number given in the right-hand corner of the summary information box identifies that site on Figure 5.1.

Figure 5.1 – Coastal sites of international importance in the Essex and Kent region



5.1.1 Hamford Water SPA/IBA/Ramsar site

Summary information Figure 5.1 1

Location: 51°52'46"N 01°14'29"E
Area: 2,187ha
SPA Classification: 1993
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal saltmarsh, Mudflats
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds), Spring/Autumn (Migratory birds) and Winter (over-wintering birds)

Hamford Water is a large, shallow estuarine basin comprising tidal creeks and islands, intertidal mud and sandflats, and saltmarsh. The rich invertebrate fauna and sheltered nature of the site attracts internationally important numbers of waterbirds during the migration and winter periods, as well as

for breeding terns in summer. Over winter, the area regularly supports 44,462 individual waterfowl (Mean, 1991-1995). The shallow and sheltered nature of the complex provides refuge for waterbirds, especially during periods of severe weather.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1991-1995)
During breeding season	
Little Tern (*Sterna albifrons*)	55 pairs (2.3% of UK breeding population (Mean, 1992-1995))
Over winter	
Avocet (*Recurvirostra avosetta*)	317 (25% of UK wintering population)
Golden Plover (*Pluvialis apricaria*)	4,118 (1.6% of UK wintering population)
Ruff (*Phillomachus pugnax*)	53 (7.6% of UK breeding population)
Migratory species	
On passage	
Ringed Plover (*Charadrius hiaticula*)	1,572 (3.1% of Europe/Northern Africa population)
Over winter	
Black-tailed Godwit (*Limosa limosa islandica*)	1,121 (1.6% of wintering Iceland-breeding population)
Dark-bellied Brent Goose (*Branta bernicla bernicla*)	6,892 (2.3% of wintering Western Siberia/Western Europe population)
Grey Plover (*Pluvialis suatarola*)	3,251 (2.2% of wintering Eastern Atlantic population)
Ringed Plover (*Charadrius hiaticula*)	520 (1.0% of wintering Europe/Northern Africa population)
Teal (*Anas crecca*)	4,206 (1.1% of wintering Northwestern Europe population)

The IBA is slightly smaller (2,143ha) than the SPA and Ramsar sites and includes a number of bird populations not covered by the SPA. These include the passage populations of Grey Plover (2,490 birds, 1995), Black-tailed Godwit (1,620 birds, 1995) and a wintering population of Bar-tailed Godwit (380 birds, 1995).

Vulnerability and management issues

Threats include disturbance from caravan sites, past proposals for marina expansion, saltmarsh erosion caused by rising sea-level, and the flooding of tern nests by high tides.

Component designations at national and local level

Hamford Water NNR
SSSI: Hamford Water, The Naze
Wildlife Trust Reserves: John Weston Reserve, Skipper's Island

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009131.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.2 Colne Estuary (Mid-Essex Coast Phase 2) SPA/Ramsar site

Summary information Figure 5.1 2

Location: 51°48'57"N 00°57'36"E
Area: 2,701ha
SPA Classification: 1994
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal saltmarsh, Mudflats, Coastal and floodplain grazing marsh, Coastal vegetated shingle, Reedbeds
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds) and Winter (over-wintering birds)

The Colne Estuary is a comparatively short and branching estuary, with five tidal arms that flow into the main channel of the River Colne. The estuary is an integral component of the phased Mid-Essex Coast SPA.

The site hosts a wide variety of coastal habitats which include mudflats, saltmarsh, grazing marsh, sand and shingle spit, disused gravel pits and reedbeds which provide feeding and roosting opportunities for the large number of waterbirds that use the site. The estuary is of importance for a range of wintering wildfowl and waders and regularly supports 38,548 individual waterfowl (Mean, 1991-1995), as well as breeding Little Tern which nest on shell, sand and shingle spits.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1991-1995)
During breeding season	
Little Tern (*Sterna albifrons*)	38 pairs (1.6% of UK breeding population)
Over winter	
Avocet (*Recurvirostra avosetta*)	75 (5.9% of UK wintering population)
Golden Plover (*Pluvialis apricaria*)	2,530 (1.0% of UK wintering population)
Hen Harrier (*Circus cyaneus*)	4 (0.5% of UK wintering population (Mean, 1994-1998))
Migratory species	
Over winter	
Dark-bellied Brent Goose (*Branta bernicla bernicla*)	4,907 (1.6% of wintering Western Siberia/Western Europe population)
Redshank (*Tringa totanus*)	2,077 (1.4% of wintering Eastern Atlantic population)

Vulnerability and management issues
See *7- Mid-Essex Coast IBA* and *8 - Essex Estuaries cSAC* for details.

Component designations at national and local level
Colne Estuary NNR
Colne Estuary SSSI
Colne Point Wildlife Trust Reserve,

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009243.htm
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.3 Blackwater Estuary (Mid-Essex Coast Phase 4) SPA/Ramsar site

Summary information Figure 5.1 3

Location: 51°45'13"N 00°51'59"E
Area: 4,395ha
SPA Classification: 1995
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal saltmarsh, Mudflats, Coastal and floodplain grazing marsh, Coastal vegetated shingle
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds), Spring/Autumn (Migratory birds) and Winter (over-wintering birds)

The Blackwater Estuary is the largest estuary in Essex and is an integral component of the phased Mid-Essex Coast SPA.

The estuary's mudflats are fringed by saltmarsh on the upper shores, with shingle, shell banks and offshore islands a feature of the tidal flats. The surrounding terrestrial habitats - the sea wall, ancient grazing marsh and its associated fleet and ditch systems, plus semi-improved grassland, are of high conservation interest. The site is of importance to a wide range of overwintering waterbirds and regularly supports 109,815 individual waterfowl, and is important in the summer for breeding terns.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1991-1995)
During breeding season	
Little Tern (*Sterna albifrons*)	36 pairs (1.5% of UK breeding population (1997))
Over winter	
Avocet (*Recurvirostra avosetta*)	76 (6.0% of UK wintering population)
Golden Plover (*Pluvialis apricaria*)	7,247 (2.9% of UK wintering population)
Hen Harrier (*Circus cyaneus*)	4 (0.5% of UK wintering population (Mean, 1994-1998))
Ruff (*Philomachus pugnax*)	51 (7.3% of UK wintering population)
Migratory species	
On passage	
Ringed Plover (*Charadrius hiaticula*)	955 (1.9% of Europe/Northern Africa population)
Over winter	
Black-tailed Godwit (*Limosa limosa islandica*)	1,280 (1.8% of wintering Iceland-breeding population)
Dark-bellied Brent Goose (*Branta bernicla bernicla*)	15,392 (5.1% of wintering Western Siberia/Western Europe population)
Dunlin (*Calidris alpina*)	33,267 (2.4% of wintering Northern Siberia/Europe/Western Africa population)
Grey Plover (*Pluvialis squatarola*)	5,090 (3.4% of wintering Eastern Atlantic population)
Redshank (*Tringa totanus*)	4,015 (2.7% of wintering Eastern Atlantic population)
Ringed Plover (*Charadrius hiaticula*)	600 (1.2% of Europe/Northern Africa population)
Shelduck *(Tadorna tadorna)*	4,594 (1.5% of wintering Northwestern Europe population)

Vulnerability and management issues
See *7- Mid-Essex Coast IBA* and *8 - Essex Estuaries cSAC* for details.

Component designations at national and local level
Blackwater Estuary NNR
Blackwater Estuary SSSI

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009245.htm
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.4 Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) SPA/Ramsar site

Summary information Figure 5.1 4

Location: 51°38'23"N 00°43'06"E
Area: 1,736ha
SPA Classification: 1998
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal saltmarsh, Mudflats
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Winter (over-wintering birds)

The intertidal zone along the Rivers Couch and Roach is "squeezed" between the sea walls along both banks and the river channel. Unlike more extensive estuaries in the area, this leaves a relatively narrow strip of tidal mud, which, nonetheless, is used by significant numbers of birds. The Crouch and Roach Estuaries are an integral component of the phased Mid-Essex Coast SPA.

The site is of importance for wintering waterbirds and qualifies as an SPA for supporting a wintering population of migratory Dark-bellied Brent Goose *Branta bernicla bernicla* (3,074 birds, representing 1.0% of the wintering Western Siberia/Western Europe population, Mean, 1991-1995).

Vulnerability and management issues
See *7- Mid-Essex Coast IBA* and *8 - Essex Estuaries cSAC* for details.

Component designations at national and local level
SSSI: Burnham-on-Crouch, Crouch and Roach Estuaries

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009244.htm
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.5 Dengie (Mid-Essex Coast Phase 1) SPA/Ramsar site

Summary information Figure 5.1 5

Location: 51°41'26"N 00°57'34"E
Area: 3,127ha
SPA Classification: 1994
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal saltmarsh, Mudflats
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Winter (over-wintering birds)

The Dengie Estuary is a large and remote area of tidal mudflats and saltmarshes at the eastern end of the Dengie peninsula, between the adjacent Blackwater and Couch estuaries. The site is an integral component of the phased Mid-Essex Coast SPA.

There are a range of different habitat types within the site, foreshore, extensive saltmarsh and beaches which support assemblage of rare coastal flora and the site is of importance for wintering populations of Hen Harrier, wildfowl and waders and regularly supports 31,452 individual waterfowl over winter (Mean, 1991-1995).

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1991-1995)
Over winter	
Bar-tailed Godwit (*Limosa lapponica*)	1,156 (2.2% of UK wintering population)
Hen Harrier (*Circus cyaneus*)	5 (0.7% of UK wintering population (Mean, 1994-1998))
Migratory Species	
Over winter	
Grey Plover (*Pluvialis squatarola*)	2,411 (1.6% of wintering Eastern Atlantic population)
Knot (*Calidris canutus*)	8,393 (2.4% of wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population)

Vulnerability and management issues
See *7- Mid-Essex Coast IBA* and *8 - Essex Estuaries cSAC* for details.

Component designations at national and local level
Dengie NNR
Dengie SSSI

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009242.htm
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.6 Foulness (Mid-Essex Coast Phase 5) SPA/Ramsar site

Figure 5.1 6

Summary information

Location: 51°34'26"N 00°55'17"E
Area: 10,969ha
SPA Classification: 1996
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal saltmarsh, Mudflats, Coastal and floodplain grazing marsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds), Spring/Autumn (Migratory birds) and Winter (over-wintering birds)

Foulness is located on the coast of Essex, north of the mouth of the Thames Estuary and is an integral component of the phased Mid-Essex Coast SPA.

The site is part of an open coast estuarine system comprising grazing marsh, saltmarsh, intertidal mudflats, cockle-shell banks and sandflats. The diversity of coastal habitats present supports important populations of breeding, migratory and wintering waterbirds, and the site regularly supports 107,468 individual waterfowl (Mean, 1991-1995) over winter.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1992-1996)
During breeding season	
Avocet (*Recurvirostra avosetta*)	46 pairs (7.8% of UK breeding population (1996))
Common Tern (*Sterna hirundo*)	220 pairs (1.8% of UK breeding population (1996))
Little Tern (*Sterna albifrons*)	24 pairs (1.0% of UK breeding population)
Sandwich Tern (*Sterna sandvicensis*)	320 pairs (2.3% of UK breeding population (1995))
Over winter	
Avocet (*Recurvirostra avosetta*)	100 (7.9% of UK wintering population)
Bar-tailed Godwit (*Limosa lapponica*)	7,639 (14.4% of UK wintering population)
Golden Plover (*Pluvialis apricaria*)	3,359 (1.3% of UK wintering population)
Hen Harrier (*Circus cyaneus*)	6 (0.8% of UK wintering population (Mean, 1994-1996))
Migratory species	
On passage	
Redshank (*Tringa totanus*)	2,144 (1.2% of wintering Eastern Atlantic population)
Over winter	
Dark-bellied Brent Goose (*Branta bernicla bernicla*)	13,075 (4.4% of wintering Western Siberia/Western Europe population)
Grey Plover (*Pluvialis squatarola*)	4,209 (2.8% of wintering Eastern Atlantic population)
Knot (*Calidris canutus*)	40,429 (11.6% of wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population)
Oystercatcher (*Haematopus ostralegus*)	11,765 (1.3% of wintering Europe and Northern/Western Africa population)

Vulnerability and management issues
See *7- Mid-Essex Coast IBA* and *8 - Essex Estuaries cSAC* for details.

Component designations at national and local level
Foulness SSSI

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009244.htm
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.7 Mid-Essex Coast IBA

Summary information Figure 5.1 7

Location: 51°47'N 01°00'E
Area: 22,817ha
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal saltmarsh, Mudflats, Coastal and

floodplain grazing marsh, Coastal vegetated shingle
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds), Spring/Autumn (Migratory birds) and Winter (over-wintering birds)

The Mid-Essex Coast IBA includes the Blackwater, Crouch and Dengie Estuaries, and the sand-silt flats of Foulness and Maplin Sands.

Although many of the bird populations have already been covered separately through the SPA qualifications for each of the inclusive sites, the accumulative bird populations responsible for IBA qualification of this complex of sites are shown below. The IBA regularly holds 230,400 wintering and 81,300 migratory waterbirds (1995).

IBA qualifying bird species	Number of individual birds (1995)
During breeding season	
Sandwich Tern (*Sterna sandvicensis*)	330 pairs
Common Tern (*Sterna hirundo*)	125 pairs
Little Tern (*Sterna albifrons*)	58 pairs
Redshank (*Tringa totanus*)	895 pairs
Over winter	
Avocet (*Recurvirostra avosetta*)	120
Bar-tailed Godwit (*Limosa lapponica*)	7,550
Ruff (*Philomachus pugnax*)	50
Migratory species	
On passage	
Bar-tailed Godwit (*Limosa lapponica*)	3,380
Black-tailed Godwit (*Limosa limosa islandica*)	1,090
Ringed Plover (*Charadrius hiaticula*)	1,700
Grey Plover (*Pluvialis squatarola*)	6,500
Knot (*Calidris canutus*)	7,450
Dunlin (*Calidris alpina*)	30,800
Curlew (*Numenius arquata*)	6,550
Turnstone (*Arenaria interpres*)	900
Redshank (*Tringa totanus*)	5,450
Oystercatcher (*Haematopus ostralegus*)	11,000
Over winter	
Black-tailed Godwit (*Limosa limosa islandica*)	1,130
Golden Plover (*Pluvialis apricaria*)	12,500
Ringed Plover (*Charadrius hiaticula*)	835
Grey Plover (*Pluvialis squatarola*)	8,700
Knot (*Calidris canutus*)	37,600
Dunlin (*Calidris alpina*)	48,300
Curlew (*Numenius arquata*)	5,500
Turnstone (*Arenaria interpres*)	1,030
Redshank (*Tringa totanus*)	5,450
Black-tailed Godwit (*Limosa limosa islandica*)	5,650
Oystercatcher (*Haematopus ostralegus*)	15,800
Dark-bellied Brent Goose (*Branta bernicla bernicla*)	29,600
Shelduck (*Tadorna tadorna*)	5,700
Teal (*Anas crecca*)	4,150

Vulnerability and management issues
See *8 - Essex Estuaries cSAC* for details.

Component designations at national and local level
NNR: Blackwater Estuary, Colne Estuary, Dengie
SSSI: Blackwater Estuary, Burnham-on-Crouch, Colne Estuary, Crouch and Roach Estuaries,

Dengie, Foulness, The Cliff
Wildlife Trust Reserves: Blue House Farm, Bradwell Cockle Spit, Colne Point, Fingringhoe Wick, Lion Creek, Ray Island, Tollesbury Wick Marshes

Sources of information
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.8 Essex Coast Environmentally Sensitive Area

Summary information Figure 4.1 8

Area: 27,500ha
Designation date: 1994

European Community authorisation for Environmentally Sensitive Areas (ESAs) is derived from Article 19 of Council Regulation (EEC) No. 797/85 - National Aid in Environmentally Sensitive Areas. ESAs are statutory areas in which the Government seeks to encourage environmentally sensitive farming practices, prevent damage that might result from certain types of agricultural intensification, and restore traditional landscapes, for which member states are allowed to make payments to farmers.

The Essex Coast ESA includes coastal wet grasslands supporting internationally important numbers of overwintering and breeding waterfowl. The area also holds the greatest density of Iron Age and Roman salt production sites.

Sources of information
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

5.1.9 Essex Estuaries cSAC

Summary information Figure 5.1 9

Location: 51°39'13"N 01°00'50"E
Area: 47,218ha
Date submitted: 1996
UK Biodiversity Action Plan Species: *Ostrea edulis, Pomatoschistus minutus, Modiolus modiolus*
UK Biodiversity Action Plan Priority Habitats: Coastal saltmarsh, Mudflats, Coastal and floodplain grazing marsh, Coastal vegetated shingle, Seagrass beds, *Modiolus modiolus* beds, *Sabellaria spinulosa* reefs, Sublittoral sands and gravels
Rare or Threatened Species (IUCN Red List): none known

The Essex Estuaries marine cSAC includes the extensive intertidal flats of the Colne, Blackwater, Roach and Crouch estuaries, Dengie Flats and Maplin Sands.

Annex I/II interest features and reason for recommendation:

Estuaries
Essex Estuaries contains a very wide range of characteristic marine and estuarine sediment communities and some diverse and unusual marine communities in the lower reaches, including rich sponge communities on mixed, tide-swept substrates. Sublittoral areas have a very rich invertebrate fauna, including the reef-building worm *Sabellaria spinulosa*, the brittlestar *Ophiothrix fragilis*, crustaceans and ascidians. The site also has large areas of saltmarsh and other important coastal habitats.

Mudflats and sandflats not covered by seawater at low tide
The area includes a wide range of sediment flat communities, from estuarine muds, sands and muddy sands to fully saline, sandy mudflats with extensive growths of eelgrass *Zostera* spp. on the open coast. The open coast areas of Maplin Sands and Dengie Flats have very extensive mudflats and an unusually undisturbed nature. Maplin Sands is particularly important for its large, nationally-important beds of dwarf eelgrass *Zostera noltei* and associated animal communities.

Salicornia and other annuals colonising mud and sand
Glasswort *Salicornia* spp. saltmarsh in the Essex estuaries forms an integral part of the transition from the extensive and varied intertidal mud and sandflats through to upper saltmeadows. Although the saltmarshes in this area are generally eroding, secondary pioneer communities appear as a precursor to erosion on the seaward edge of degraded mid-marsh communities. The area of pioneer marsh includes gradation into extensive cord-grass *Spartina* spp. swards.

Spartina swards (Spartinion maritimae)
The most extensive remaining stand of the native small cord-grass *Spartina maritima* in the UK and possibly in Europe is found in the Essex Estuaries. The stand is located at Foulness Point and covers approximately 0.17ha. Other smaller stands are found elsewhere in the estuary complex, notably in the Colne estuary, where it forms a major component of the upper marsh areas.

Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
Although the saltmarshes in this area are generally eroding, extensive salt meadows remain and Essex Estuaries represents Atlantic salt meadows in south-east England. Golden samphire *Inula crithmoides* is a characteristic species of these marshes, occurring both on the lower marsh and on the drift-line.

Mediterranean and thermo-Atlantic halophilous scrubs (Arthrocnemetalia fruticosae)
The occurrence of Mediterranean and thermo-Atlantic halophilous scrubs is currently artificially restricted by sea-walls. It now occurs principally as a strandline community or at the foot of sea-walls. Recent managed retreat schemes offer the prospect of future expansion of the habitat type.

Vulnerability and management issues
The saltmarshes and mudflats are under threat from 'coastal squeeze' - man-made sea defences prevent landward migration of these habitats in response to sea-level rise. These habitats are also vulnerable to plans or projects (onshore and offshore) which have impacts on sediment transport. English Nature's Regulation 33 advice was issued June 2000. A scheme of management is being established with the aim of addressing such problems.

Component designations at national and local level
NNR: Blackwater Estuary, Colne Estuary, Dengie
SSSI: Blackwater Estuary, Colne Estuary, Crouch and Roach Estuaries, Dengie, Foulness

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0013690
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.10 Benfleet and Southend Marshes SPA/IBA/Ramsar site

Summary information Figure 5.1 10

Location: 51°31'42"N 00°41'00"E
Area: 2,251ha
SPA Classification: 1994
UK Biodiversity Action Plan Species/Habitats: none known
UK Biodiversity Action Plan Priority Habitats: Coastal saltmarsh, Mudflats, Coastal and floodplain grazing marsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Spring/Autumn (Migratory birds) and Winter (over-wintering birds)

Benfleet and Southend Marshes are located on the north shore of the outer Thames Estuary. The site encompasses an extensive series of saltmarshes, cockle-shell banks, mudflats and grassland that supports a diverse flora and fauna. These habitats provide a wide range of feeding and roosting opportunities for internationally important numbers of wintering wildfowl and waders and regularly supports 34,789 individual waterfowl (Mean, 1991-1995).

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1992-1996)
Migratory Species	
On passage	
Ringed Plover (*Charadrius hiaticula*)	800 (1.6% of Europe/Northern Africa population)
Over winter	
Dark-bellied Brent Goose (*Branta bernicla bernicla*)	3,819 (1.3% of wintering Western Siberia/Western Europe population)
Grey Plover (*Pluvialis squatarola*)	3,789 (2.5% of wintering Eastern Atlantic population)
Knot (*Calidris canutus*)	8,850 (2.5% of wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population)

The IBA is slightly larger (2,750ha) than the SPA and Ramsar site and the only bird population not covered by the SPA is the over-wintering population of migratory Dunlin *Calidris alpina* (10,400 birds, 1995).

Vulnerability and management issues
Intensive recreational activity, an important shellfish industry, past housing and marina proposals, and sea-level rise all pose threats to the area. Southend Borough Council is coordinating the management and promoting public awareness of Southend flats. A management plan exists for the site.

Component designations at national and local level
Leigh NNR
Benfleet and Southend Marshes SSSI

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9009171.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.11 Thames Estuary and Marshes SPA/IBA/Ramsar site

Summary information Figure 5.1 11

Location: 51°29'08"N 00°35'47"E
Area: 4,839ha
SPA Classification: 2000
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal saltmarsh, Mudflats, Coastal and floodplain grazing marsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds), Spring/Autumn (Migratory birds) and Winter (over-wintering birds)

The Thames Estuary and Marshes SPA is located on the south side of the Thames Estuary. The marshes extend for about 15km along the south side of the estuary and also include intertidal areas on the north side of the estuary. To the south of the river, much of the area is brackish grazing marsh, although some of this has been converted to arable use. Outside the sea wall, there is a small extent of saltmarsh and broad intertidal mudflats.

The estuary and adjacent grazing marsh areas support an important assemblage of wintering waterbirds (33,433 individual waterfowl, Mean, 1991-1995), and is also important in spring and autumn migration periods.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1992-1996)
Over winter	
Avocet (*Recurvirostra avosetta*)	276 (21.7% of UK wintering population)
Hen Harrier (*Circus cyaneus*)	7 (0.9% of UK wintering population (Mean, 1993-1997))
Migratory species	
On passage	
Ringed Plover (*Charadrius hiaticula*)	559 (1.1% of Europe/Northern Africa population)
Over winter	
Ringed Plover (*Charadrius hiaticula*)	541 (1.1% of Europe/Northern Africa population)

The IBA is much larger (12,030ha) than the SPA and Ramsar site and includes areas of the inner Thames up to the Thames barrier. Those bird populations not covered by the SPA but included in the IBA qualification include the resident breeding population of Avocet *Recurvirostra avosetta* (33 pairs, 1995), the over-wintering populations of Dunlin *Calidris alpina* (12,900 birds, 1995), Redshank *Tringa tetanus* (1,890 birds, 1995) and also a migratory population of Redshank *Tringa tetanus* (1,680 birds, 1995).

Vulnerability and management issues
Threats include sea-level rise that may result in erosion and flooding, considerable infrastructure development, dredging proposals, and water shortages for wetland enhancements. An estuary management plan initiative is in place.

Component designations at national and local level

SSSI: Inner Thames Marshes, Lion Pit, Mucking Flats and Marshes, Northward Hill, Purfleet Chalk Pits, South Thames Estuary and Marshes, West Thurrock Lagoons and Marshes

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9012021.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.12 Medway Estuary and Marshes SPA/IBA/Ramsar site

Summary information Figure 5.1 12

Location: 51°24'02"N 00°40'38"E
Area: 4,684ha
SPA Classification: 1993
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal saltmarsh, Mudflats, Coastal and floodplain grazing marsh, Seagrass beds
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds), Spring/Autumn (Migratory birds) and Winter (over-wintering birds)

The Medway Estuary feeds into and lies on the south side of the outer Thames Estuary and joins the Thames Estuary between the Isle of Grain and Sheerness. The site consists of a complex arrangement of tidal channels, which drain around large islands of saltmarsh and peninsulas of grazing marsh. The mudflats are rich in invertebrates and also support beds of *Enteromorpha* and some eelgrass *Zostera* spp. Small shell beaches occur, particularly in the outer part of the estuary and grazing marshes are present inside the sea walls around the estuary.

The complex and diverse range of coastal habitats support important numbers of waterbirds throughout the year. In summer, the estuary supports breeding terns and waders, whilst in winter, the area provides feeding and roosting areas for 65,274 waterfowl (Mean, 1991-1995). The site is also important during spring and autumn migration periods, especially for waders.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1991-1995)
During breeding season	
Avocet (*Recurvirostra avosetta*)	28 pairs (4.7% of UK breeding population)
Little Tern (*Sterna albifrons*)	28 pairs (1.2% of UK breeding population (1997))
Over winter	
Avocet (*Recurvirostra avosetta*)	314 (24.7% of UK wintering population)
Migratory Species	
On passage	
Ringed Plover (*Charadrius hiaticula*)	1,337 (2.7% of Europe/Northern Africa population)

SPA qualifying bird species	Number of individual birds (Mean, 1991-1995)
Over winter	
Black-tailed Godwit (*Limosa limosa islandica*)	957 (1.4% of wintering Iceland-breeding population)
Dark-bellied Brent Goose (*Branta bernicla bernicla*)	3,205 (1.1% of wintering Western Siberia/Western Europe population)
Dunlin (*Calidris alpina*)	25,936 (1.9% of wintering Northern Siberia/Europe/Western Africa population)
Grey Plover (*Pluvialis squatarola*)	3,406 (2.3% of wintering Eastern Atlantic population)
Pintail (*Anas acuta*)	697 (1.2% of wintering Northwestern Europe population)
Redshank (*Tringa totanus*)	3,690 (2.5% of wintering Eastern Atlantic population)
Ringed Plover (*Charadrius hiaticula*)	768 (1.5% of Europe/Northern Africa population)
Shelduck (*Tadorna tadorna*)	4,465 (1.5% of wintering Northwestern Europe population)

The IBA covers a larger area (6,840ha) than the SPA and Ramsar site. Those bird populations not covered by the SPA but included in the IBA qualification include the resident breeding population of Avocet *Recurvirostra avosetta* (34 pairs, 1992), the migratory populations of Dunlin *Calidris alpina* (16,600 birds, 1995), Redshank *Tringa tetanus* (5,800 birds, 1995), Grey Plover *Pluvialis squatarola* (3,430 birds, 1995) and Turnstone *Arenaria interpres* (1,140 birds, 1995), and also the over-wintering population of Curlew *Numenius arquata* (1,960 birds, 1995).

Vulnerability and management issues

Threats include road, powerline, industrial, wharf, marina and recreational developments, sea-level rise and associated coastal defence work, erosion of saltmarsh, and land-based dredging disposal. An estuary management plan is in preparation for the Medway and Swale.

Component designations at national and local level

SSSI: Medway Estuary and Marshes, South Thames Estuary and Marshes
Nor Marsh and Motney Hill RSPB Reserve

Sources of information

JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9012031.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.13 The Swale SPA/IBA/Ramsar site

Summary information Figure 5.1 13

Location: 51°21'39"N 00°50'21"E
Area: 6,514ha
SPA Classification: 1982
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal saltmarsh, Mudflats, Coastal and floodplain grazing marsh, Seagrass beds
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds), Spring/Autumn (Migratory birds) and Winter (over-wintering birds)

The Swale is an estuarine area that separates the Isle of Sheppey from the Kent mainland and to the west it adjoins the Medway Estuary. The site contains extensive intertidal mudflats which support a dense invertebrate fauna and beds of algae and eelgrass *Zostera* spp., all of which provide an important food sources for waterbirds. Locally there are large Mussel *Mytilus edulis* beds formed on harder areas of substrate. The SPA contains the largest extent of grazing marsh in Kent and there is a network of brackish and freshwater dykes and ditches.

In summer, the site is of importance for Marsh Harrier, breeding waders and Mediterranean Gull. The Swale supports large numbers of waterbirds, both in the spring and autumn migration periods and during winter when there are 65,390 waterfowl present (Mean, 1991-1995).

Those bird populations responsible for SPA qualification of the site are shown below.

SPA qualifying bird species	Number of individual birds (Mean, 1992-1996)
During breeding season	
Avocet (*Recurvirostra avosetta*)	103 pairs (17.5% of UK breeding population (1996))
Marsh Harrier (*Circus aeruginosus*)	24 pairs (15% of UK breeding population (1995))
Mediterranean Gull (*Larus melanocephalus*)	12 pairs (120% of UK breeding population (1996))
Over winter	
Avocet (*Recurvirostra avosetta*)	89 (7.0% of UK wintering population)
Bar-tailed Godwit (*Limosa lapponica*)	542 (1.0% of UK wintering population)
Golden Plover (*Pluvialis apricaria*)	2,862 (1.1% of UK wintering population)
Hen Harrier (*Circus cyaneus*)	23 (3.1% of UK wintering population (Mean, 1996-1998))
Migratory species	
On passage	
Redshank (*Tringa tetanus*)	683 (1.4% of wintering Eastern Atlantic population)
Over winter	
Black-tailed Godwit (*Limosa limosa islandica*)	1,755 (2.5% of wintering Iceland-breeding population)
Grey Plover (*Pluvialis squatarola*)	2,021 (1.3% of wintering Eastern Atlantic population)
Knot (*Calidris canutus*)	5,582 (1.6% of wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population)
Pintail (*Anas acuta*)	966 (1.6% of wintering Northwestern Europe population)
Redshank (*Tringa tetanus*)	1,640 (1.1% of wintering Eastern Atlantic population)

SPA qualifying bird species	Number of individual birds (Mean, 1992-1996)
Shoveler (*Anas clypeata*)	471 (1.2% of wintering Northwestern/Central Europe population)

The IBA covers the same area as the SPA and Ramsar site and includes a number of bird populations not already covered by the SPA qualification, which are shown below.

IBA qualifying bird species	Number of individual birds (1995)
Over winter	
Ruff (*Philomachus pugnax*)	73
Migratory species	
On passage	
Avocet (*Recurvirostra avosetta*)	130
Black-tailed Godwit (*Limosa limosa islandica*)	760
Grey Plover (*Pluvialis squatarola*)	1,890
Bar-tailed Godwit (*Limosa lapponica*)	410
Over winter	
Dunlin (*Calidris alpina*)	11,500
Curlew (*Numenius arquata*)	1,550

Vulnerability and management issues

Threats include development, sea-level rise that may result in erosion, flooding and habitat loss through coastal defence development, and disturbance from recreational activities. An estuary management plan is in preparation for the Medway and Swale.

Component designations at national and local level

The Swale NNR
South Bank of Swale LNR
SSSI: The Swale, Warden Point
Elmley Marshes RSPB Reserve
Wildlife Trust Reserves: Oare Marshes, South Bank of Swale LNR

Sources of information

JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9012011.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.14 North Kent Marshes Environmentally Sensitive Area

Summary information Figure 4.1 14

Area: 13,700ha
Designation date: 1993

European Community authorisation for Environmentally Sensitive Areas (ESAs) is derived from Article 19 of Council Regulation (EEC) No. 797/85 - National Aid in Environmentally Sensitive Areas. ESAs are statutory areas in which the Government seeks to encourage environmentally sensitive farming practices, prevent damage that might result from certain types of agricultural intensification, and restore traditional landscapes, for which member states are allowed to make payments to farmers.

The North Kent Marshes ESA includes coastal wet grasslands supporting internationally important numbers of overwintering and breeding waterfowl; freshwater and brackish ditches and dykes with aquatic flora. The area also holds saltworking mounds and old field systems.

Sources of information

Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

5.1.15 Thanet Coast cSAC

Summary information Figure 5.1 15

Location: 51°23'24"N 01°22'33"E
Area: 2,808ha
Date submitted: 1996
UK Biodiversity Action Plan Species: *Nucella lapillus, Sabellaria alveolata*
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes, Littoral and sublittoral chalk
Rare or Threatened Species (IUCN Red List): none known

The Thanet Coast cSAC is the longest continuous stretch of coastal chalk in the UK and represents 20% of the UK resources of this type and 12% of the EC resources. The sublittoral chalk reefs within the site are comparatively impoverished owing to the harsh environmental conditions in the extreme southern area of the North Sea. However, subtidal chalk platforms extend offshore in a series of steps dissected by gullies and there are unusually rich intertidal algal communities present.

The Thanet Coast cSAC is bordered by about 23km of chalk cliffs with many caves, stacks and arch formations. Partly submerged caves range considerably in depth, height and aspect and hence in algal communities present. Some of the caves support very specialised algal and lichen communities containing species such as *Pseudoendoclonium submarinium* and *Lyngbya* spp., some of which have not been recorded outside of the area.

Annex I/II interest features and reason for recommendation:

- Reefs
- Submerged or partly submerged sea caves

Vulnerability and management issues
The soft upper chalk is vulnerable to erosion and natural physical destruction. The adjacent land is heavily built-up, with a resident population of 120,000. Levels of tourism and recreation activity are high with, 2 million visitors per year. To protect infrastructure, coastal protection works have been constructed along 75% of the cliff face. Some commercial fishing, including potting, occurs within the site. Harvesting of bait and shellfish occurs on the shores and has caused a small amount of physical damage to the reef. There is a commercial port and two small harbours.

In preparing the management scheme, all human activities have been evaluated with stakeholders, and management agreed. Recreation and harvesting are to be managed with mutually agreed voluntary codes of conduct. A new wildlife project is to be established to draft the codes and interpret and promote the site.

Component designations at national and local level
Thanet Coast SSSI

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0013107
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.16 Sandwich Bay cSAC

Summary information Figure 5.1 16

Location: 51°18'19"N 01°22'39"E
Area: 1,190ha
Date submitted: 1996
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Coastal sand dunes
Rare or Threatened Species (IUCN Red List): none known

The seaward edge of the north of the Sandwich Bay cSAC displays a good sequence of embryonic shifting dune communities and contains a good range of characteristic foredune species including sea bindweed *Calystegia soldanella*, sea spurge *Euphorbia paralias* and sea holly *Eryngium maritimum*.

The site is the only large area of fixed dune grassland in the extreme south east of England and includes a number of rare and scarce species, such as fragrant evening-primrose *Oenothera stricta*, bedstraw broomrape *Orobanche caryophyllacea* and sand catchfly *Silene conica*, as well as the UK's largest population of lizard orchid *Himantoglossum hircinum*.

Annex I/II interest features and reason for recommendation:
- Embryonic shifting dunes
- Fixed dunes with herbaceous vegetation
- Shifting dunes along the shoreline with *Ammophila arenaria*
- Dunes with *Salix arenaria*

Vulnerability and management issues

Most of the site is unmanaged 'rough' on golf-courses. The damper areas are prone to invasion by willow/reed - tall-fen vegetation. Control of scrub is being undertaken through management agreements and as a consented operation.

Component designations at national and local level
Sandwich and Pegwell Bay NNR
Pegwell Bay-Sandwich Bay LNR (Wildlife Trust Reserve)
Sandwich Bay and Hacklinge Marshes SSSI
National Trust Sites: Pegwell Bay, Sandwich Bay

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0013077
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.17 Thanet Coast and Sandwich Bay SPA/IBA/Ramsar site

Summary Information Figure 5.1 17

Location: 51°18'18"N 01°22'47"E
Area: 1,870ha
SPA Classification: 1994
UK Biodiversity Action Plan Species: none known
UK Biodiversity Action Plan Priority Habitats: Maritime cliffs and slopes, Coastal sand dunes, Coastal saltmarsh, Coastal and floodplain grazing marsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Spring/Autumn (Migratory birds) and Winter (over-wintering birds)

This site consists of a long stretch of rocky shore, adjoining areas of estuary, sand dune, maritime grassland, saltmarsh and grazing marsh. Qualification of the site as an SPA comes from the important numbers of over-wintering Turnstone *Arenaria interpres* (940 birds, 1.3% of wintering Western Palearctic population, Mean 1991-1995) that visit the site. The site is also used by large numbers of migratory birds as they make landfall in Britain in spring or depart for continental Europe in autumn.

The IBA covers a larger area (2,560ha) than the SPA and Ramsar site and includes the migratory populations of of Ringed Plover *Charadrius hiaticula* (500 birds, 1995) and Turnstone (940 birds, 1995), which are not covered by the SPA qualification.

Vulnerability and management issues
See *13 - Thanet Coast cSAC* and *14 - Sandwich Bay cSAC* for details.

Component designations at national and local level
See *13 - Thanet Coast cSAC* and *14 - Sandwich Bay cSAC* for details.

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9012071.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.18 Dungeness cSAC

Summary information Figure 5.1 18

Location: 50°55'08"N 00°57'10"E
Area: 3,224ha
Date submitted: 1996
Number of Species: none known
UK Biodiversity Action Plan Species: *Triturus cristasus*
UK Biodiversity Action Plan Priority Habitats: Coastal vegetated shingle, Saline lagoons, Fens, Coastal and floodplain grazing marsh
Rare or Threatened Species (IUCN Red List): *Triturus cristasus* (Lower Risk)

Dungeness has the largest shingle expanse in Europe and the total area of exposed shingle covers some 1,600ha, though the extent of the buried shingle ridges is much greater. The site has the most diverse and extensive examples of stable vegetated shingle in Europe, including the best representation of scrub on shingle, notably prostate forms of broom *Cytisus scoparius* and blackthorn *Prunus spinosa*.

A feature of the site is the small depressions formed within the shingle structure, which support fen and open-water communities. These pools support a large and viable population of Great-crested newt *Triturus cristasus*.

Annex I/II interest features and reason for recommendation:

- Annual vegetation of drift lines
- Perennial vegetation of stony banks
- *Triturus cristatus*

Vulnerability and management issues
The shingle vegetation is very vulnerable to disturbance by vehicles and walkers, although the coastal shingle (drift-line) vegetation has much greater potential for recovery than the perennial vegetation of shingle banks that occurs further inland. Extensive areas of the site are now managed as a Nature Reserve at both Dungeness and Rye Harbour, with emphasis on interpretation of the site's value and on appropriate public access.

The wetlands which support great crested newt were formerly grazed, maintaining open unshaded vegetation. This practice largely ceased in the 1950s, and since then there has been invasion of ponds by willows shading the water. Management by hand has now been undertaken to reduce this problem, and restoration of light grazing is being investigated.

Abstraction of water is thought to have damaged some of the shingle wetlands as well as components of the perennial vegetation of the shingle beach. This will be addressed through the relevant review provisions of the Habitats Regulations. The site is close to an active airport which carries a potential risk from air pollution, although current levels of air traffic and motor vehicles are not thought to cause a problem.

Component designations at national and local level
Dungeness NNR
SSSI: Dungeness, Rye Harbour
Dungeness RSPB Reserve

Sources of information
JNCC SAC website
http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0013059
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.1.19 Dungeness to Pett Level SPA/IBA

Summary information Figure 5.1 19

Location: 50°55'50"N 00°44'59"E
Area: 1,474ha
SPA Classification: 1999
UK Biodiversity Action Plan Species: *Acrocephalus paludicola*
UK Biodiversity Action Plan Priority Habitats: Coastal vegetated shingle, Saline lagoons, Fens, Coastal and floodplain grazing marsh
Rare or Threatened Species (IUCN Red List): none known
Seasonal Importance of Site: Summer (breeding birds), Spring/Autumn (Migratory birds) and Winter (over-wintering birds)

Dungeness to Pett Level SPA is located on the border of Kent and East Sussex and contains a wide variety of coastal habitats, ranging from shingle beaches through to various types of wetland and open water. The gravel and shingle pits of Dungeness display a natural succession of wetlands from species-rich fen through to sallow carr, which attract important numbers of wintering wildfowl.

Within the site, Rye Harbour has a shingle beach which, together with the pits at Dungeness supports breeding terns and gulls. The grazing marshes at Pett Level and Rye Harbour have close-cropped swards grazed by sheep where arable farming has not been introduced and support wintering wildfowl. The numerous ditches that intersect these marshes have developed a rich aquatic flora and invertebrate fauna, and provide important habitat for migrating Aquatic Warbler *Acrocephalus paludicola*. Rye Harbour, Camber Sands and Rye Saltings include saltmarsh, sandflats and mudflats that provide valuable feeding areas for wintering waterbirds.

Those bird populations responsible for SPA qualification of the site are shown below.

SPA Qualifying Bird Species	Number of Individual Birds (Mean, 1993-1997)
During breeding season	
Common Tern (*Sterna hirundo*)	266 pairs (2.2% of UK breeding population)
Little Tern (*Sterna albifrons*)	35 pairs (1.5% of UK breeding population)
Mediterranean Gull (*Larus melanocephalus*)	2 pairs (20% of UK breeding population)
On passage	
Aquatic Warbler (*Acrocephalus paludicola*)	30 (44.8% of UK population (1997)
Over winter	
Berwick's Swan (*Cygnus columbianus bewickii*)	179 (2.6% of UK wintering population)
Migratory Species	
Over winter	
Shoveler (*Anas clypeata*)	419 (1.0% of wintering Northwestern/Central Europe population (Mean, 1991-1995))

The IBA covers a much larger area (9,080ha) than the SPA and includes a number of bird populations not included in the SPA designation. These include the wintering populations of Smew *Mergus albellus* (38 birds, 1996), Golden Plover *Pluvialis apricaria* (2,850 birds, 1996) and Ruff *Philomachus pugnax* (47 birds, 1996), as well as a breeding population of Sandwich Tern *Sterna sandvicensis* (100 pairs, 1995).

Vulnerability and management issues
See *16 - Dungeness cSAC* for details.

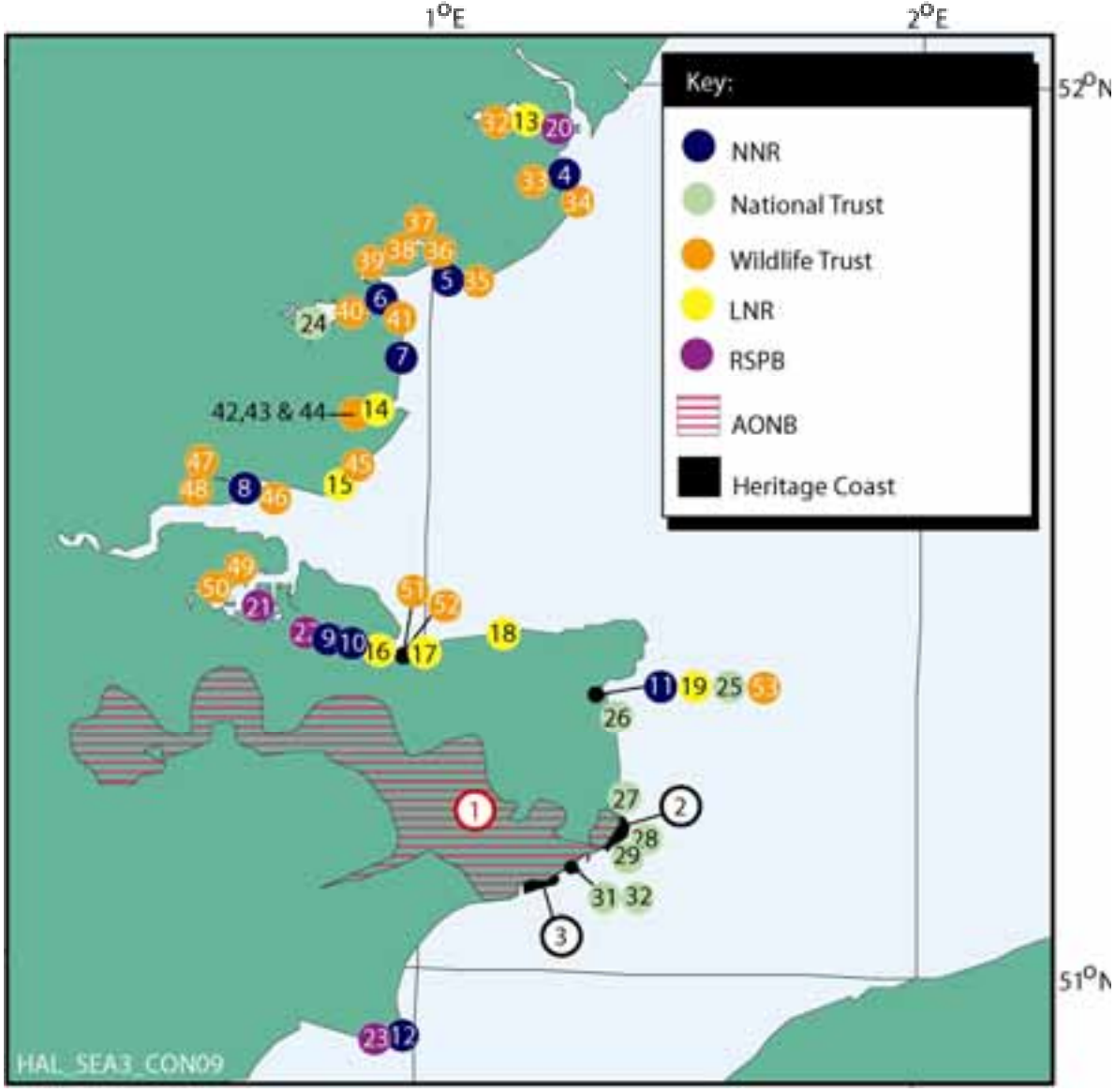
Component designations at national and local level
Dungeness NNR
SSSI: Camber Sands and Rye Saltings, Dungeness, Hastings Cliffs and Pett Beach, Houghton Green Cliff, North Lade, Pett Level, Romney Warren, Rye Harbour, Walland Marsh, Winchelsea Cutting

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/England/UK9012091.htm
Heath MF & Evans MI (2000) Important Bird Areas in Europe – Priority sites for conservation. Vol 1: Northern Europe. Birdlife International
Birdlife International website
http://www.birdlife.org.uk/sites/index.cfm?GeoRecID=221
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
The 2000 Red List of Threatened Species website
http://www.redlist.org/search/search-basic.html

5.2 Sites of national and local importance

There are a number of sites of national and local importance along the Essex and Kent which are described below. The number given to each site also identifies that site on Figure 5.2.

Figure 5.2 – Coastal sites of national and local importance in the Essex and Kent region



5.2.1 Kent Downs AONB

Figure 5.2 **1**

Area: 87,800ha (878km^2)
Designation date: 1968

The Kent Downs AONB stretches from the Surrey border in a widening ribbon of rolling countryside to meet the sea at the cliffs of Dover. The AONB roughly follows the southeast's outcrop of chalk and greensand, the two ridges running parallel with each other to the coast. The chalk ridge, with its

characteristic dip slope and dry valleys, has great wildlife importance in its unimproved chalk grassland, scrub communities and broadleaved woodlands. The well-wooded greensand ridge supports heathlands and acidic woodlands.

The AONB, bordered by large and expanding urban areas including Ashford, Maidstone and the Medway towns, as well as the ports of Dover and Folkestone, has a large commuter population and the area is under continuing pressure for commuter development. The North Downs are a heavily used local recreational resources and also receive visitor traffic from London and the Kent resorts.

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/aonb/

5.2.2 Heritage Coasts

5.2.2.1 South Foreland Heritage Coast

Figure 5.2 

Location: TR340432-TR382482
Length: 7km
Designation date: 1975

The South Foreland Heritage Coast is an area of high chalk cliffs that stretch from Dover, in the south west halfway to Deal, in the north east. The area is largely undeveloped, despite its proximity to the port of Dover.

5.2.2.2 Dover-Folkestone Heritage Coast

Figure 5.2 

Location: TR243372-TR308398
Length: 7km
Designation date: 1975

The Dover-Folkestone Heritage Coast covers the area of the White Cliffs of Dover.

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/aonb/
Britain Express website
http://www.britainexpress.com/countryside/coast/suffolk.htm
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

5.2.3 National nature reserves

Figure 5.2 

Map ref.	National nature reserve	Area (ha)	Date declared	Site description
4	Hamford Water	1,449	1983-1996	Foreshore, mudflats, shingle and shell banks, saltmarsh, low dunes, coastal grassland
5	Colne Estuary	576	1983	Grazing marsh, saltmarsh and mudflats, shingle spit
6	Blackwater Estuary	1,031	1983	Remote mudflats, grazing marsh, fresh

Map ref.	National nature reserve	Area (ha)	Date declared	Site description
				and brackish pools and ditches
7	Dengie	2,366	1983-1994	Tidal mudflats, shell-gravel beaches and saltmarsh
8	Leigh	257	1974	Saltmarsh, mudflats and grazing marsh
9	Elmley	931	-	Grazing marsh, saltmarsh, brackish ditches and fleets
10	The Swale	220	-	Freshwater grazing marsh, saltmarsh and mudflats
11	Sandwich and Pegwell Bay	628	-	Chalk cliffs, intertidal mudflats, beaches, sand dunes, saltmarsh, coastal scrubland and dykes and ditches
12	Dungeness	-		Vegetated shingle beach, grazing marsh and fen.

Sources of information
English Nature website
http://www.english-nature.org.uk/
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

5.2.4 Sites of Special Scientific Interest

These are listed on Table A.9 in Appendix 2.

Sources of information
Pers. comm. J Storey, English Nature

5.2.5 Local nature reserves

Figure 5.2

Map ref.	Local nature reserve	Area (ha)	Date declared	Site description
13	Wrabness	21	1993	-
14	Hullbridge Foreshore	4	1995	
15	Southend on Sea Foreshore	848	1996	
16	Oare Marshes	69	1983	
17	South Bank of Swale	20	1969	
18	Bishopstone Cliffs	30	1991	
19	Pegwell Bay – Sandwich Bay	610	1994	

Sources of information
English Nature website
http://www.english-nature.org.uk/
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

5.2.6 RSPB reserves

Figure 5.2 

Map ref.	RSPB reserve	Area (ha)	Date acquired	Site description
20	Stour Estuary	424	1982	Mudflats, saltmarsh, woodland, reedbeds and scrub. Wintering waders and wildfowl.
21	Nor Marsh and Motney Hill	102	1985	Saltmarsh and intertidal mud. Breeding terns, wintering wildfowl and waders.
22	Elmley Marshes	282	1974	Coastal grazing marsh, freshwater fleets and floods, and saltmarsh. Wintering and breeding waterfowl and waders, raptors.
23	Dungeness	874	1931	Shingle with flooded pits, marsh, gorse and bramble. Breeding terns, wintering waterfowl and migratory birds.

Sources of information
RSPB website
http://www.rspb.org.uk/wildlife/
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

5.2.7 National Trust sites

Figure 5.2 

Map ref.	National Trust sites	Area (ha)	Date acquired	Site description
24	Northey Island and South House Farm	122	1978	Island with saltmarsh
25	Pegwell Bay	145	1981	Saltmarsh, mudflats and coastline
26	Sandwich Bay	78	1968-1975	Coastal saltings, sand dunes and foreshore
27	Kingsdown Leas and The Leas	9	1978	Clifftop
28	South Foreland Lighthouse	-	1989	Lighthouse and garden
29	Langdon Hole	43	1992	Cliff hollow
30	Dover: Langdon Cliffs and Foxhill Down	21	1988	Cliff, chalk downland and scrub
31	Dover: Great Farthingloe	27	1979	Cliff and farmland

Sources of information
National Trust website
http://www.nationaltrust.org.uk/scripts/nthandbook.dll?Action=AREA&Area=South%20East
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

5.2.8 Wildlife Trust reserves

Figure 5.2

Map ref.	Wildlife Trust reserves	Area (ha)	Date acquired	Site description
32	Hogmarsh	5	1976	Saltmarsh island in tidal River Stour
33	Skippers Island/Saltings	94	1972	Island with brackish pools and saltmarsh
34	John Weston Reserve	6	1971	Coastal grassland and freshwater ponds
35	Colne Point	276	1968	Shingle ridge, sand, intertidal mudflats and saltmarsh. Rare invertebrate species present
36	Rat Island	14	1964	Low-lying island with saltings. Large breeding colony of black-headed gulls.
37	Fingringhoe Wick	51	1961	Woodland, grassland, heath, reedbeds, freshwater ponds and lake, saltmarsh and intertidal mudflats
38	Ray Island	45	1970	Shingle and sand island in surrounding saltings, freshwater pond and grassland
39	Abbots Hall Farm	283	2000	Arable farm with planned areas of saltmarsh, saline lagoons and grazing marsh
40	Tollesbury Wick	242	1994	Freshwater grazing marsh, seawalls, brackish creeks, mudflats and saltmarsh
41	Bradwell Cockle Spit	81	1968	Extensive shell bank, saltmarsh and creeks
42	Blue House Farm	243		Farm with grazing marsh and intertidal mudflats
43	Lower Raypits	47	1992	Saltings, pasture, dykes and seawalls
44	Lion Creek	5	1986	Brackish creek, saltmarsh and grassland
45	Shoebury Old Ranges	7	1986	Shell banks, sand dunes and dune slacks, scrub and grassland.
46	Two Tree Island	257	1961	Island with intertidal mudflats and saltmarsh
47	Vange Marsh	3	1983	Saltmarsh and mudflats
48	Fobbing Marsh	76	1989	Grazing marsh, rough grassland, saltings and reedbed
49	Holborough Marshes	34	1996	Brackish reedbeds, freshwater marsh and dykes, grassland and woodland
50	Burham Marsh	36	1964	Reedbed and marsh
51	Oare Marshes	69	1983	Grazing marsh and saltmarsh, freshwater dykes
52	South Swale LNR	413	1967	Mudflats and saltmarsh, grassland and reedbed
53	Sandwich Bay and Pegwell Bay LNR	610	1970	Mudflats, saltmarsh, shingle and sand dunes, rocky cliffs

Sources of information

Essex Wildlife Trust website
http://www.essexwt.org.uk/
Kent Wildlife Trust website
http://www.kentwildlife.org.uk/reserves/index.htm
Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P., & Davidson, N.C., *eds*. 1995. *Coasts and seas of the United Kingdom.* Peterborough, Joint Nature Conservation Committee.

6 POTENTIAL FOR ADDITIONAL COASTAL AND OFFSHORE SITES

6.1 Overview

This section describes coastal and offshore areas of SEA 3 which contain habitats and/or species some of which meet the definition of relevant features under the Habitats Directive and Birds Directive in UK offshore waters. Such areas could therefore be considered further in selecting SACs and SPAs.

The Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001 came into force on 31 May 2001, and regulates UKCS offshore oil and gas activities with respect to the European Council Directive on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive), and the European Council Directive on the conservation of wild birds (the Birds Directive).

At present, all identified marine cSACs and SPAs (which will form part of the *Natura 2000* network) are on or adjacent to the UK coast. There are no sites that are wholly at sea. However, JNCC are currently undertaking work to assist in identifying further sites in the offshore environment; this project follows a change in policy by the UK Government to apply both the Birds and Habitats Directives to the entire UK continental shelf. The first phase of this project will identify suitable sites in waters beyond 12nm from land. In relation to the Habitats Directive, sites in this zone are likely to include reefs and shallow (under 20m in depth) sandbanks. Sites may also be identified for harbour porpoise and (under the Birds Directive) for seabirds. In undertaking this review of waters beyond 12nm, it is possible that further suitable sites will be identified within 12nm from the shore.

In the period prior to identification of proposed Natura 2000 sites, sites supporting relevant features of interest should be treated with care to ensure that they are not damaged or altered in such a way that might prejudice their selection as Natura 2000 sites (pers. comm. P Gilliland, English Nature).

Initiatives at both national and European level are in the process of identifying selection criteria and potential sites which may warrant protection. These initiatives include the Offshore Natura 2000 Project and OSPAR's Marine Protected Areas programme.

6.2 Offshore Natura 2000 Project

The UK Government is currently taking steps to implement the Habitats Directive and the Birds Directive in offshore waters. Selection of SACs and SPAs in the UK has so far been confined to terrestrial sites and within UK territorial waters. The UK offshore area refers to the area from the 12 nautical mile territorial seas limit out to the UK Continental Shelf designated area limits, up to a limit of 200nm.

Advice on the selection of Natura 2000 sites within 12nm of the coast is provided by each of the country conservation agencies CCW, SNH and EN, together with the Environment and Heritage Service for Northern Ireland, and is co-ordinated and reported to the UK Government through the JNCC. In contrast to the position from mean low water mark to 12nm, control of activities from 12 to 200nm is not a devolved matter and relates to Great Britain as a whole. Therefore the responsibility of advising UK Government on selection of sites under the Habitats and Birds Directives within this offshore area rests with the JNCC.

As part of the selection process, JNCC have been asked to provide information to enable identification of offshore SACs and SPAs. The "Offshore Natura 2000 Project" is being conducted by

JNCC under a steering group consisting of representatives from DEFRA, DTI, other government departments, devolved administrations and country conservation agencies.

The JNCC Offshore Natura 2000 project is broken down into several steps:

1. Identify and agree relevant habitats and species in the UK offshore area
2. Consider and interpret habitat definitions for Annex I habitats found in the UK offshore area
3. Consider site selection criteria for Annex I habitats and Annex II species under the Habitats Directive in relation to selection of sites in the offshore area
4. Consider site selection criteria for Birds Directive Annex I and migratory species in relation to selection of sites in the offshore area
5. Collate existing data on relevant habitats and species of the offshore area
6. Indicate at a generic level the type of conservation objectives that would apply to any Annex I or II features or relevant bird species

The JNCC has completed an assessment to inform the selection of Natura 2000 sites in offshore waters - *Natura 2000 in UK Offshore Waters: Advice to support the implemetation of the EC Habitats and Birds Directive in UK offshore waters.* JNCC Report 325 (Johnstone *et al*. 2002).

Sources of information
CM Johnston, CG Turnbull and ML Tasker (2002). *Natura 2000 in UK Offshore Waters: Advice to support the implementation of the EC Habitats and Birds Directive in UK offshore waters.* JNCC Report 325.

6.3 OSPAR marine protected areas

At Sintra, Portugal, in 1998 the OSPAR Commission adopted a new Annex V *'On the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area'* and an accompanying OSPAR Strategy. The objective of this Annex is to take the necessary measures to protect and conserve the ecosystems and the biological diversity of the maritime area which are, or could be, affected as a result of human activities, and to restore, where practicable, marine areas which have been adversely affected.

The establishment of MPAs will also contribute to and take account of Contracting Party's obligations under other international Conventions and Directives, including EC Directives (and in particular the Council Directive 92/43/EEC on the conservation of natural habitats and wild flora and fauna and the Council Directive 79/409/EEC on the conservation of birds), and measures taken under the Bern, Bonn (including its regional agreements) and Ramsar Conventions, the Convention on Biological Diversity, the Helsinki Convention, the Barcelona Convention, the Trilateral Wadden Sea Co-operation and the North Sea Conferences.

Sources of information
OSPAR Conventiuon for the Protection of the Marine Environment of the North-East Atlantic: Fourth Workshop on Marine Protected Areas in the OSPAR Area. Roscoff 8-12 July 2002. MPA 02/8/1-E

6.4 Potential conservation sites

6.4.1 Annex I habitats

Three habitat types listed on Annex I of the Habitats Directive are known to or potentially occur in UK offshore waters:

- **Sandbanks which are slightly covered by sea water all the time -** described as "Sublittoral sandbanks, permanently submerged. Water depth is seldom more that 20m below Chart Datum. Non-vegetated sandbanks or sandbanks with vegetation belonging to the *Zosteretum marinae* and *Cymbodoceion nodosae*".

This habitat comprises a range of sandy sediments. In terms of Wentworth's classification it includes all types of sand but in terms of Folk's classification (used by BGS to produce Figure 6.1), this habitat includes all sands, muddy sands and gravely sands, and some forms of sandy gravels.

- **Reefs -** described as "Submarine or exposed at low tide, rocky substrates and biogenic concretions, which arise from the sea floor in the sublittoral zone but may extend into the littoral zone where there is an uninterrupted zonation of plant and animal communities. These reefs generally support a zonation of benthic communities of algae and animal species including concretions, encrustations and corallogenic concretions".

This habitat comprises bedrock, boulders and cobbles (cobbles >64mm in diameter), including those composed of soft rock, such as chalk. Biogenic concretions i.e. aggregations of a species to form a hard substratum thus enabling an epibiota community to develop. Biogenic reef-forming species include *Serpula vermicularis, Sabellaria* spp., *Lophelia pertusa, Mytilus edulis* and *Modiolus modiolus* (occurs primarily within 12nm of the coast).

- **Submarine structures made by leaking gases –** described as "Spectacular submarine complex structures, consisting of rocks, pavements and pillars up to 4m high. These formations are due to the aggregation of sandstone by a carbonate cement resulting from microbial oxidation of gas emissions, mainly methane. The methane most likely originated from microbial decomposition of fossil plant materials. The formations are interspersed with gas vents that intermittently release gas. These formations shelter a highly diversified ecosystem with brightly coloured species".

Within the SEA 3 offshore area, the Annex I habitat *Submarine structures made from leaking gases* is unlikely to be present.

6.4.1.1 Selection criteria

Offshore Annex I habitats will be selected using a number of criteria:

- *Representativity*. How typical a site is for a particular habitat.
- *Area of habitat*. Area of the site covered by the habitat type in relation to the total area covered by that habitat type within national territory.
- *Conservation of structure and functions.*
- *Global assessment* of the value of the site for conservation of the habitat type concerned.
- *Geographical range.* Favourable conservation status is dependent upon the maintenance of the geographical range of the habitat type or species.

The location and extent of areas of possible Annex I habitat in UK offshore waters have been mapped by BGS for JNCC. Limitations on using existing geological map interpretations to map the location and extent of Annex I habitats in UK offshore waters were encountered in terms of the depth of sandy sediments to include, and in terms of the Habitats Directive definition of 'reef'.

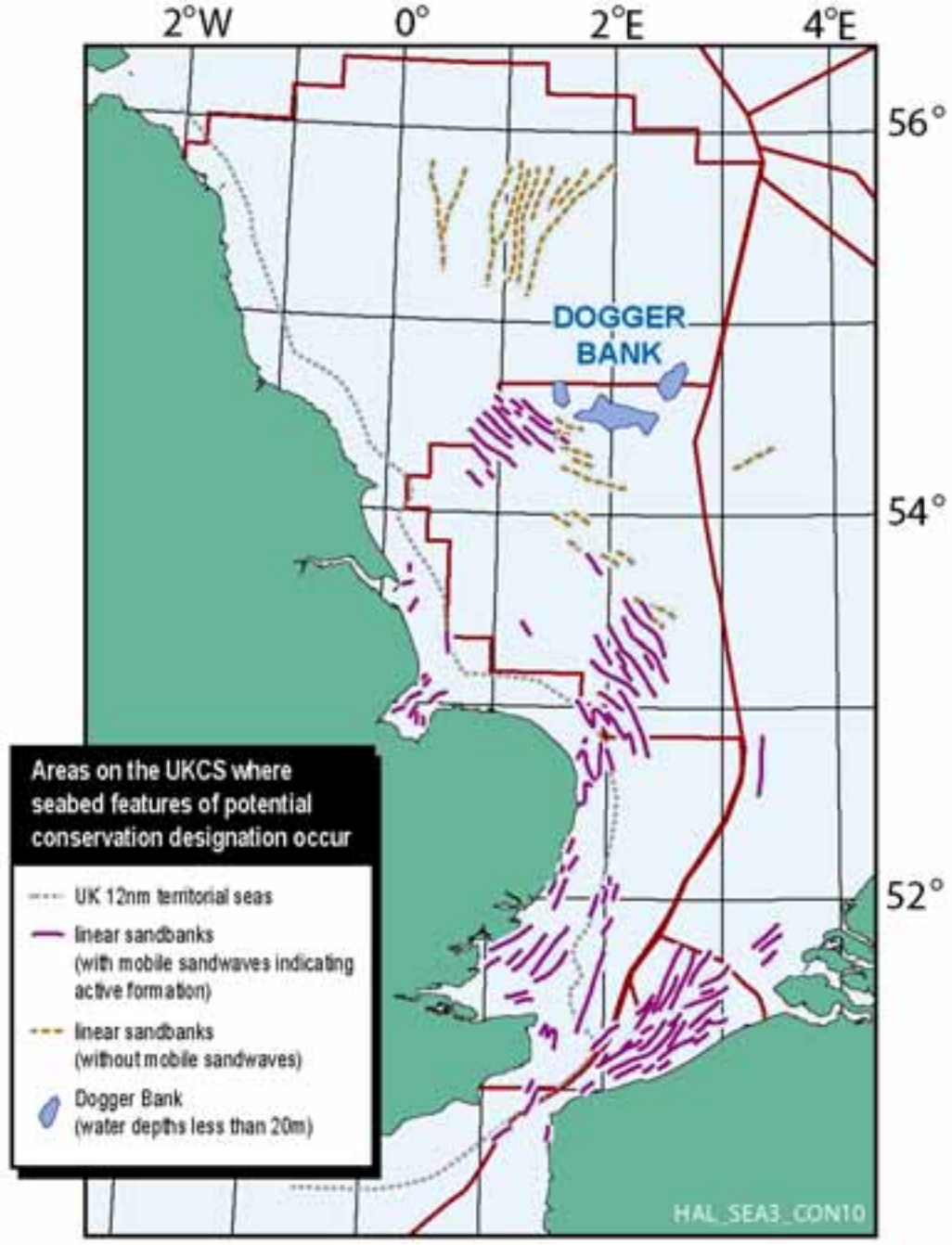
The Annex I sandbank habitat may form the summits of more extensive structures which extend into water deeper than 20m. The actual area considered for protection may therefore need to be increased to incorporate complete sandbank flanks, associated sandy habitats and/or channels between banks, to maintain the structure and functions of a sandbank.

Reef habitat in terms of the Habitats Directive includes bedrock, rocky substrates and biogenic concretions arising from the seafloor. Areas of 'gravel' according to the BGS modified Folk classification include any solid particles from 2mm diameter to greater than 256mm diameter. In terms of the Wenworth classification, this category includes 'cobbles' and 'boulders', which would be included within the UK interpretation of definition of reef, but also includes 'pebbles' and 'granules' which do not fall within the definition. Therefore, during the work to map areas of reef, all those areas categorised as 'gravel' were included as potential Annex I reef habitat. Future survey work is expected to indicate that some of these areas do not fall within the definition of reef.

Sandbanks which are slightly covered by sea water all the time

The main location of offshore sandbanks in the SEA 3 area occur around the north and north-east coast of Norfolk, in the outer Thames Estuary and off the south-east coast of Kent (Figure 6.1).

Figure 6.1 - Sandy sediment in less than 20m water depth within SEA 3



Dogger Bank (South-West Patch). The Dogger Bank is an extensive sandy mound in the central North Sea, in UK waters much of the bank is between 20 and 40m but an area of sandy sediment in the south-west is shallower than 20m (although this lies within the area covered by SEA 2).

Norfolk Banks - Norfolk Sandy mounds, North Norfolk sandbanks, Haisborough Tail, Hewett Ridges and Smith's Knoll. The sandbanks off the Norfolk coast are a combination of tidal current sandbanks and sandy mounds, with the sandy mounds dominating the western half, north of The Wash. Much of the relevant Annex I habitat is within the area covered by SEA 2.

Outer Thames Estuary sandbanks. Group of sandbanks formed entirely of tidal current ridges. Different to Norfolk Banks as there is a higher proportion of gravel as opposed to sand in the Norfolk Banks.

Reefs

Potential bedrock and stony/rocky reef habitats are much more common in western UK offshore waters, and are virtually absent from UK offshore waters in the North Sea. Information regarding the location of biogenic reefs is limited (Figure 6.2).

Recent research in the Wash using remote video, identified very extensive areas of *S. spinulosa* reef rising up to 60cm above the seabed and almost continually covering a linear extent of 300m. However, whilst *S. spinulosa* is very common around the British Isles and does form reefs, "in most parts of its geographical range *S. spinulosa* does not form reefs, but is solitary or in small groups encrusting pebbles, shell, kelp holdfasts and bedrock" (*Sabellaria spinulosa* reefs Habitat Action Plan). Where conditions are favourable, much more extensive thin crusts can be formed, sometimes covering extensive areas of the seabed. However, these crusts may be only seasonal features, being broken up during winter storms (Foster-Smith and White 2001).

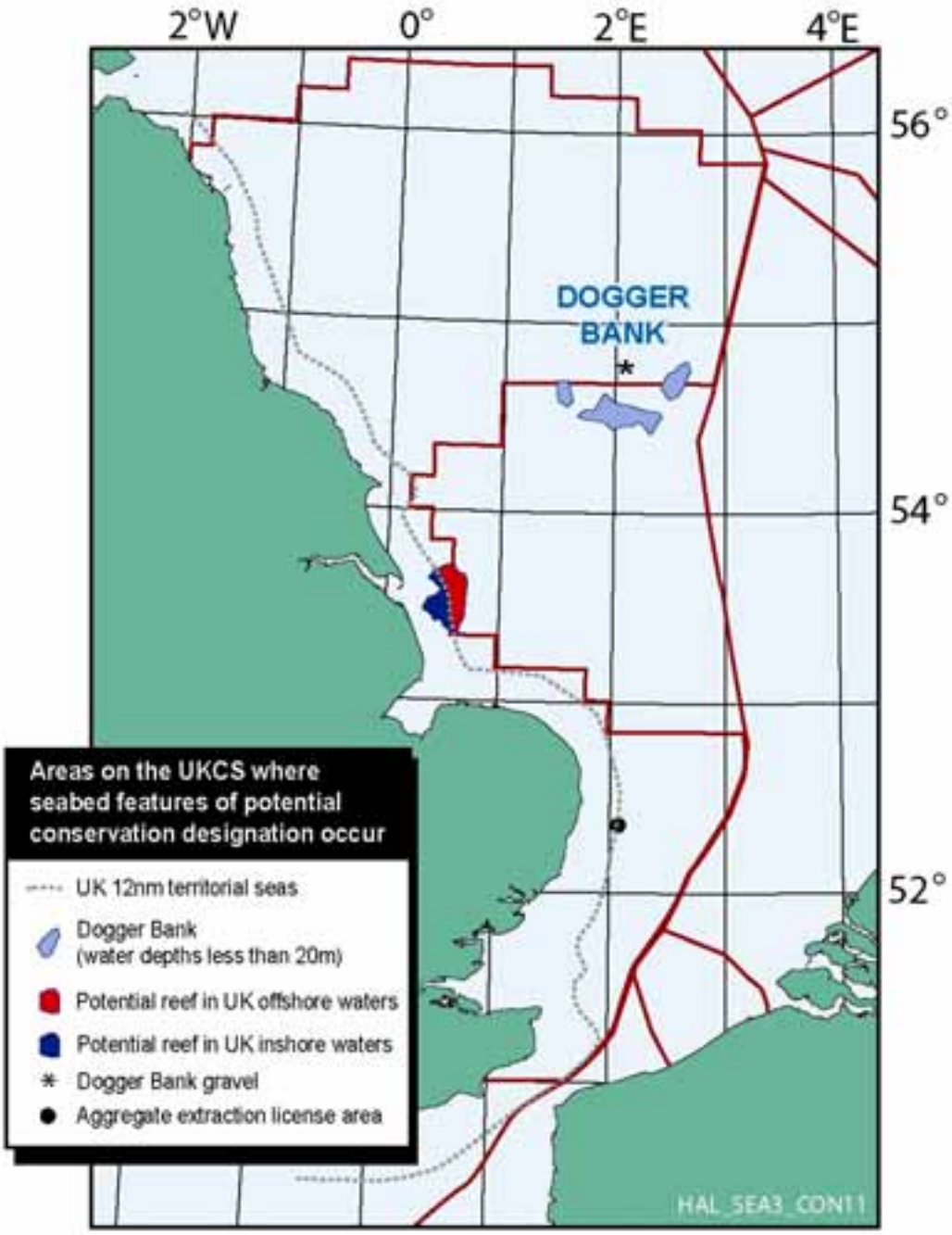
Given the need for clarification of the Annex I 'reef' habitat definition and the insufficient information on reef habitats, a degree of caution must be exercised in identifying potential locations of reef habitat in SEA 3 as more detailed survey information is required.

Dogger Bank Gravel. To the north-west of the *Dogger Bank South-West Patch*, there are superficial mounds of gravel (i.e. of particles from 2mm to greater than 256mm diameter), which could be potential Annex I habitat. However, information suggests that it is unlikely that the Dogger Bank gravel is within the definition of Annex I reef habitat.

Offshore of Humber. This region comprises a series of irregular gravel mounds with superficial gravel overlying other sediment and bedrock. The majority of the area is under licence for aggregate extraction and future surveys may establish which areas, if any, have a predominant particle size greater that 64mm.

Sabellaria Reefs (Licence Area 401/2). *Sabellaria spinulosa* reef was found in 2000 in the aggregate licence area 401/2, approximately 13nm east of Great Yarmouth. The majority of the licence area lies within territorial waters but the eastern edge lies within UK offshore waters.

Figure 6.2 - Potential Annex I reef habitat within SEA 3



6.4.2 Annex II species

There are four species listed on Annex II of the Habitats Directive that are known to occur in UK offshore waters for which selection of SACs will be considered:

- Grey seal *Halichoerus grypus*
- Common seal *Phoca vitulina*
- Bottlenose dolphin *Tursiops truncatus*
- Harbour porpoise *Phocoena phocoena*

For the two seal species, coastal SACs within SEA 3 have already been proposed to protect selected breeding colonies and moulting and haul-out sites - the Berwickshire and North Northumberland cSAC (grey seal breeding site) and The Wash and North Norfolk cSAC (common seal breeding site) (see relevant regional sections in *Existing Coastal and Nearshore Conservation Sites* section of this report for details). Three nearshore SACs have been proposed for bottlenose dolphin, none of which are within the SEA 3 area and there are no proposed nearshore SACs for harbour porpoise in UK waters.

6.4.2.1 Selection criteria

There are a number of site assessment criteria used for site selection for Annex II species, which include:

- *Proportion of UK population.* Relative size or density of the population in the site with that of the national UK population.
- *Conservation of features important for species survival*. For wide ranging marine species, identifiable sites used for breeding and feeding are obviously important to to that species' life and reproduction. There may also be identifiable sites used for other purposes which may be important for the species.
- *Geographical range*. Favourable conservation status of each Annex II species is dependent upon the maintenance of the geographical range of the species. The site selection for each species should be chosen to reflect its distribution in the UK.
- *Special UK responsibility/proportion of European population*. UK waters probably hold proportions above 30% of all four of the marine mammal species listed Annex II, with the grey seal population being of especial importance.
- Multiple interest. It is quite likely that foraging sites identified in offshore waters for any of the four Annex II species would be used by several or all of the species at various times. This is due to the overlap in prey species taken by the Annex II species concerned.
- *Rarity*. Grey seal, common seal and harbour porpoise are not considered rare in UK waters. Although widely distributed in UK waters, bottlenose dolphins occur in much lower numbers in UK offshore waters than do harbour porpoises.

The above Annex II species are typically wide ranging, thus making it difficult to identify specific areas which may be deemed essential to their life and reproduction, and therefore, considered for proposal as SACs.

More detailed information regarding the offshore distribution of these Annex II species and specific offshore areas deemed essential to their life and reproduction within SEA 3 is given in the technical report Background information on marine mammals relevant to Strategic Environmental Assessments 2 and 3.

6.4.2.2 ASCOBANS

Conservation of the bottlenose dolphin, harbour porpoise and other small cetaceans within the North Sea also forms part of the ASCOBANS agreement.

The Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS) was concluded in 1991 under the auspices of the Convention on Migratory Species (UNEP/CMS or Bonn Convention) and entered into force in 1994.

ASCOBANS co-ordinates and implements conservation measures for dolphins, porpoises and other toothed whales *(Odontoceti)* in the Baltic and North Seas. Since migrating cetaceans regularly cross national boundaries, ASCOBANS promotes their effective protection by international cooperation.

Currently eight European countries - Belgium, Denmark, Finland, Germany, the Netherlands, Poland, Sweden and the United Kingdom - are Parties to the Agreement.

A Conservation and Management Plan forming part of the Agreement obliges Parties to engage in habitat conservation and management, surveys and research, pollution mitigation and public information (ASCOBANS website).

6.4.3 Birds Directive Annex I and migratory species

Marine SPAs are being considered for 56 bird species which are either on Annex I of the Birds Directive or are migratory species which regularly occur in UK waters.

The list of Birds Directive Annex I and regularly occurring migratory species to be considered for marine SPAs consists of a number of different species of birds with very different dispersion patterns, some of which breed in the UK and some that are only found at certain times of the year.

Three types of marine Special Protection Areas (SPAs) are being considered in the UK (for both inshore and offshore waters):

- Extensions to SPA breeding colonies
- Inshore areas used by birds in the non-breeding seasons (divers, grebes and seaduck)
- Marine feeding areas (and potential moulting areas)

Marine feeding areas (and potential moulting areas) are the only type of marine SPA that relates to offshore waters and forms part of the JNCC 'Offshore Natura 2000 Project'.

Work is proceeding on identifying marine feeding areas that may qualify as marine SPAs. The European Seabirds at Sea (ESAS) database is likely to be the primary sources of data for identification of such areas for species for which there are adequate data in the database.

Sources of information

CM Johnston, CG Turnbull and ML Tasker (2002). *Natura 2000 in UK Offshore Waters: Advice to support the implementation of the EC Habitats and Birds Directive in UK offshore waters.* JNCC Report 325.

UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm

ASCOBANS website
http://www.ascobans.org/

6.4.4 OSPAR marine protected areas

OSPAR envisage that MPAs should not only protect marine species and habitats under immediate threat or subject to rapid decline, but also aim to protect or conserve additional features, such as representativity, productivity and high natural biodiversity. Areas important for migratory species might also be identified and included into the system of MPAs.

Draft guidelines for the identification, selection and management of MPAs have been produced by OSPAR. To inform the selection process, a compilation of lists of threatened and/or declining species and habitats within the OSPAR region have been drawn up and an OSPAR/ICES/EEA initiative on habitat classification and mapping has been undertaken.

Prior to the 4th MPA workshop held in Roscoff, France in July 2002, no sites had formally been proposed for the OSPAR MPA network by Contacting Parties. The WWF have suggested a number

of potential sites for consideration by the OSPAR Contracting Parties and one of these, the Dogger Bank is of relevance to the SEA 3 area. The UK are currently concentrating their resources on identifying Natura 2000 sites, and have no specific proposals for OSPAR MPAs. Complete regulations are not yet in place to allow the UK to fully implement MPAs in UK waters beyond 12nm.

By 2006, Contracting Parties within OSPAR must propose their first set of MPAs for Territorial Seas, offshore areas where they exhibit sovereignty and/or jurisdiction, and High Seas. Some of these are likely to be existing or proposed marine Natura 2000 sites but will not be restricted to them. A well-managed ecologically coherent network of OSPAR MPAs is envisaged by 2010.

Sources of information

OSPAR Conventiuon for the Protection of the Marine Environment of the North-East Atlantic: Fourth Workshop on Marine Protected Areas in the OSPAR Area. Roscoff 8-12 July 2002. MPA 02/8/1-E

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Scottish Natural Heritage website
http://www.snh.org.uk/index/i-frame.htm

Scottish Wildlife Trust website
http://www.swt.org.uk/see_wildlife/popup_reserves/east/stabbs_marine.htm
SEA2 website – Chapter 9.2.2 Nature, landscape and heritage conservation.
http://www.habitats-directive.org/sea2/dev/html_file/sea2_consult.cgi?sectionID=148
St. Abbs and Eyemouth Voluntary Marine Reserve
http://www.marine-reserve.org.uk/about.html
Suffolk Wildlife Trust website
http://www.wildlifetrust.org.uk/suffolk/placestv/placmap1.htm
Tees Valley Trust website
http://www.wildlifetrust.org.uk/teesvalley/
The 2000 Red List of Threatened Species website
http://www.redlist.org/
The Countryside Agency website
http://www.countryside.gov.uk/
UK Biodiversity website
http://www.ukbap.org.uk/Plans/index.htm
UK Man and the Biosphere Reserve Directory website
http://www.nmw.ac.uk/mab/BRReport/norfolk.htm
Yorkshire Wildlife Trust website
http://www.yorkshire-wildlife-trust.org.uk/news_release_03.htm

APPENDIX 1: GLOSSARY AND ABBREVIATIONS

Term	Definition
AONB	Area of Outstanding Natural Beauty
BGS	British Geological Survey
Biodiversity	Diversity of species
Biosphere Reserve	Sites designated for the long-term study of ecosystems and the monitoring of environmental change
CCW	Countryside Council for Wales
CSAC	Candidate Special Area of Conservation
EC	European Commission
EEC	European Economic Community
EN	English Nature
ESA	Environmentally Sensitive Area
ESAS	European Seabirds At Sea
EU	European Union
Ha	Hectare
IBA	Important Bird Area
IUCN	The World Conservation Union
JNCC	Joint Nature Conservation Committee
Km	Kilometre
LNR	Local Nature Reserve
MAB	UNESCO's Man and the Biosphere Programme
MCA	Marine Consultation Area
Natura 2000	Sites of conservation value designated under the EU Habitats Directive
NNR	National Nature Reserve
OSPAR	Oslo and Paris Commission
PCZ	Preferred Conservation Zone
RLD	Regional Landscape Designation
RSPB	Royal Society for the Protection of Birds
Ramsar Sites	Areas designated by the UK under the Ramsar Convention (Convention on Wetlands of International Importance especially as waterfowl habitat)
SCI	Sites of Community Importance – network of candidate SACs
SNH	Scottish Natural Heritage
SAC (Special Areas of Conservation)	Areas designated as European Sites (Natura 2000) under the Habitats and Species Directive
SPA (Special Protection Areas)	Areas designated as European Sites under the Wild Birds Directive
SSSI	Site of Special Scientific Interest
SEA (Strategic Environmental Assessment)	An appraisal process through which environmental protection and sustainable development is considered in decisions on policy, plans and programmes
UK	United Kingdom
UNESCO	United Nations Organisation for Education, Science, Culture and Communications
VMR	Voluntary Marine Reserve

APPENDIX 2: CONSERVATION DESIGNATIONS

This appendix identifies and gives details of the major statutory and non-statutory mechanisms that operate at international, national and local level to conserve the SEA 3 environment, including those administered by voluntary bodies and other organisations. It also contains listings of the various protected sites within the SEA 3 region.

Sites of international importance

The numbers of sites of international importance in the SEA 3 region are detailed in Box A.1.

Box A.1 - Sites of international importance in the SEA 3 area.	
Special Areas of Conservation (SACs)	21
Special Protection Areas (SPAs)	31
Ramsar Sites	24
Important Bird Areas (IBAs)	27
Biosphere Reserves	1
Environmentally Sensitive Areas	4

EC Habitats and Birds Directives

In 1979 the European Community adopted *Council Directive 79/409/EC on the conservation of wild birds*, known as the Birds Directive. One of the key provisions of this Directive is the establishment of an internationally co-ordinated network of protected areas. Member states are required to identify and classify the most suitable territories in size and number for rare or vulnerable species listed in Annex I to the Directive and for regularly occurring migratory species. These sites are known as Special Protection Areas (SPAs).

In 1992 the Community adopted *Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora*, known as the Habitats Directive. The Habitats Directive includes a requirement to establish a European network of important high quality conservation sites that will make a significant contribution to conserving the habitat types and species listed in Annexes I and II of the Directive. The listed habitat types and species are those considered to be most in need of conservation at a European level. Each member state is required to prepare and propose to the EC a national list of sites, which will be evaluated in order to form a network of Sites of Community Importance (SCIs). These will eventually be designated by Member States as Special Areas of Conservation (SACs). SACs and SPAs will together be known as the *Natura 2000 Network.*

Special Areas of Conservation (SACs)

The UK statutory provisions applying to *Natura 2000* sites are contained in the *Conservation (Natural Habitats &c) Regulations 1994* which includes marine areas in or up to the seaward limit of territorial waters (12 nautical miles).

Advice to Government on the selection of possible SACs has been provided by the statutory nature conservation agencies – Countryside Council for Wales (CCW), English Nature (EN) and Scottish Natural Heritage (SNH), coordinated through the Joint Nature Conservation Committee (JNCC).

Sites are submitted to the European commission, following consultation with site owner/occupiers and other interested parties. At this stage, sites become known as candidate Special Areas of Conservation (cSACs). The process that the UK Government and the European Commission must follow for cSAC selection is in two stages and is described in Box A.2.

Box A.2 - cSAC Selection Process

Stage 1 – Assessment of relative importance of sites containing examples of the individual Annex I habitats and Annex II species in each member state. Factors considered:

- Percentage of national resources contained within the site series
- The quality of habitats, including features that are important for associated species
- Member States' special responsibility for particular habitats and species
- Coverage of geographical range of habitat or species within the site series
- Coverage of ecological variation of habitat or species within the site series

Stage 2 – Assessment of overall importance of sites in the context of the biogeographical region and the EU as a whole. Factors considered:

- The relative value of the site at a national level
- The relationship of the site to migration routes
- The total area of the site
- The diversity of habitats and species present on the site
- The overall quality of the site in the context of the biogeographical region and/or the EU

Currently, 567 cSACs covering an area of over 2.3 million hectacres have been submitted by the UK, a number of which are found within the SEA 3 area (Table A.1).

Table A.1 - SEA 3 candidate Special Areas of Conservation	Area (ha)
Scottish Borders and North East	
St. Abb's to Fast Castle	128
Berwickshire and North Northumberland Coast	65,335
Tweed Estuary	156
North Northumberland Dunes	1,148
Durham Coast	394
Yorkshire and Humber	
Beast Cliff - Whitby (Robin Hood`s Bay)	260
Flamborough Head	6,312
Humber Estuary	30,000
Lincolnshire, Norfolk and Suffolk	
Saltfleetby-Theddlethorpe Dunes and Gibraltar Point	960
The Wash and North Norfolk Coast	107,802
North Norfolk Coast	3,454
Overstrand Cliffs	30
Winterton-Horsey Dunes	426
The Broads	5866
Benacre to Easton Bavents Lagoons	367
Minsmere to Walberswick Heaths and Marshes	1,266
Alde, Ore and Butley Estuaries	1,562
Orfordness-Shingle Street	1,358
Essex and Kent	
Essex Estuaries	47,218
Thanet Coast	2,808
Sandwich Bay	1,138
Dungeness	3,224

Sources of information

Joint Nature Conservation Committee website
http://www.jncc.gov.uk/
UK Marine SAC Project website
http://www.ukmarinesac.org.uk/

Special Protection Areas (SPAs)

Natura 2000 will also comprise Special Protection Areas (SPAs) classified under the *EC Birds Directive*.

The process of selecting SPAs in the UK has been hindered by lack of agreed selection criteria formalised at a European level. The UK has therefore used internationally recognised criteria, especially those given under the Ramsar Convention (see Box 3 - Categories of criteria for site selection under the Ramsar Convention) to select SPAs.

The UK SPA network has been compiled by the JNCC together with the various UK conservation agencies and comprises 243 sites (c.a. 1,454,500 ha). Those SPAs within the SEA 3 region are displayed in Table A.2.

Table A.2 - SEA 3 Special Protection Areas	Area (ha)
Scottish Borders and North East	
St. Abb's Head to Fast Castle	248
Northumbria Coast	1,108
Lindisfarne	3,679
Farne Islands	102
Coquet Island	22
Teesmouth and Cleveland Coast	1,247
Yorkshire and Humber	
Flamborough Head and Bempton Cliffs	212
Humber Flats, Marshes and Coast (Phase 1 and 2)	15,202
Lincolnshire, Norfolk and Suffolk	
Gibraltar Point	414
The Wash	62,212
North Norfolk Coast	7,887
Broadland	5,462
Great Yarmouth North Denes	149
Breydon Water	1,203
Benacre to Easton Bavents	517
Minsmere – Walberswick	2,019
Alde-Ore Estuary	2,417
Deben Estuary	979
Stour and Orwell Estuaries	3,324
Essex and Kent	
Hamford Water	2,187
Colne Estuary (Mid-Essex Coast Phase 2)	2,701

Table A.2 - SEA 3 Special Protection Areas	Area (ha)
Blackwater Estuary (Mid-Essex Coast Phase 4)	4,395
Dengie (Mid-Essex Coast Phase 1)	3,127
Crouch and Roach Estuaries (Mid-Essex Coast Phase 3)	1,736
Foulness (Mid-Essex Coast Phase 5)	10,969
Benfleet and Southend Marshes	2,251
Thames Estuary and Marshes	4,839
Medway Estuary and Marshes	4,684
The Swale	6,515
Thanet Coast and Sandwich Bay	1,870
Dungeness to Pett Level	1,474

Sources of information
JNCC UK SPA Network website
http://www.jncc.gov.uk/UKSPA/sites/

Ramsar sites

The *Convention on Wetlands of International Importance, Especially as Waterfowl Habitats (The Ramsar Convention, 1971)* is an intergovernmental treaty that aims to stem the progressive encroachment on and loss of wetland habitat. Ramsar sites are designated for their important waterfowl populations and rare or endangered plant and animal species. The criteria for site selection are shown in Box A.3.

Box A.3 - Categories of criteria for site selection under the Ramsar Convention.

- Representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region
- Supports vulnerable, endangered, or critically endangered species or threatened ecological communities
- Supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region
- Supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions
- Regularly supports 20,000 or more waterbirds
- Regularly supports 1% of the individuals in a population of one species or subspecies of waterbird
- Supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity
- An important sources of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend

Many of the Ramsar sites identified have been simultaneously classified at the time of their Ramsar designation, as SPAs under the EC Birds Directive. To date the UK has listed 126 Ramsar sites covering 517,656 hectares and those of relevance to SEA 3 are shown in Table A.3.

Table A.3 - SEA 3 Ramsar sites	Area (ha)
Scottish Borders and North East	
Northumbria Coast	1,108
Lindisfarne	3,679
Teesmouth and Cleveland Coast	1,247
Yorkshire and Humber	
Humber Flats, Marshes and Coast (Phase 1 and 2)	15,202
Lincolnshire, Norfolk and Suffolk	
Gibraltar Point	414
The Wash	62,212
North Norfolk Coast	7,887
Broadland	5,462
Breydon Water	1,203
Minsmere - Walberswick	2,019
Alde-Ore Estuary	2,417
Deben Estuary	979
Stour and Orwell Estuaries	3,324
Essex and Kent	
Hamford Water	2,187
Colne Estuary (Mid-Essex Coast Phase 2)	2,701
Blackwater Estuary (Mid-Essex Coast Phase 4)	4,395
Dengie (Mid-Essex Coast Phase 1)	3,127
Crouch and Roach Estuaries (Mid-Essex Coast Phase 3)	1,736
Foulness (Mid-Essex Coast Phase 5)	10,969
Benfleet and Southend Marshes	2,251
Thames Estuary and Marshes	4,839
Medway Estuary and Marshes	4,684
The Swale	6,515
Thanet Coast and Sandwich Bay	1,870

Sources of information
Joint Nature Conservation Committee website
http://www.jncc.gov.uk/

Important Bird Areas (IBAs)

The Important Bird Areas (IBA) Programme of Birdlife International is a worldwide initiative aimed at identifying and protecting a network of sites that are important for the long-term viability of naturally occurring bird populations. The programme aims to guide national conservation strategies and assist the conservation activities of international organisations.

Within SEA 3, there are a number of sites which have been classified as IBAs and these are presented in Table A.4. The relevant criteria for selection of these sites are shown in Box A.4.

Table A.4 – SEA 3 IBA sites

Scottish Borders and North East	**Area (ha)**	**Criteria**
Lindisfarne	3679	A4i, A4iii, B1i, B2, C2, C3, C4, C6
Farne Islands	101	A4i, A4iii, B1i, B1ii, B2, B3, C2, C3, C4, C6
Northumberland Coast	1926	A4i, B1i, B2, C3, C6
Coquet Island	22	A4i, A4iii, B1i, B1ii, B2, C2, C3, C4, C6
Teesmouth and Cleveland Coast	1300	A4i, A4iii, B1i, B2, C3, C4, C6
Yorkshire and Humber		
Flamborough Head and Bempton Cliffs	315	A4i, A4ii, A4iii, B1i, B1ii, B2, B3, C3, C4
Humber Flats, Marshes and Coast	16,490	A4i, A4iii, B1i, B2, C2, C3, C4, C6
Lincolnshire, Norfolk and Suffolk		
The Wash	67000	A4i, A4iii, B1i, B2, B3, C2, C3, C4, C6
North Norfolk Coast	7700	A4i, A4iii, B1i, B2, B3, C2, C3, C4, C6
Breydon Water	515	A4i, A4iii, B1i, B2, C2, C4, C6
Great Yarmouth North Denes	146	B1i, B2, C2, C6
Benacre to Easton Bavents	516	C6
Minsmere-Walberswick	2190	B3, C6
Alde/Ore Estuary	2416	A4i, A4iii, B1i, B2, B3, C2, C3, C4, C6
Deben Estuary	981	C6
Stour and Orwell Estuary	3379	A4i, A4iii, B1i, B2, C3, C4
Essex and Kent		
Hamford Water	2143	A4i, A4iii, B1i, B2, C3, C4, C6
Mid-Essex Coast	22817	A4i, A4iii, B1i, B2, C2, C3, C4, C6
Benfleet and Southend Marshes	2750	A4i, A4iii, B1i, B2, C3, C4
Thames Estuary and Marshes	12030	A4iii, B1i, B2, C3, C4, C6
Medway Estuary and Marshes	6840	A4i, A4iii, B1i, B2, C3, C4, C6
The Swale	6514	A4i, A4iii, B1i, B2, B3, C3, C4, C6
Thanet Coast and Sandwich Bay	2560	A4i, B1i, C3
Dungeness To Pett Levels	9080	A4i, A4iii, B1i, B2, C2, C3, C4, C6

Box A.4 - Relevant categories of criteria for IBA site selection

- A4i – Site is known or though to hold, on a regular basis, 1% or more of a biogeographic population of a congregatory waterbird species
- A4iii - Site is known or though to hold, on a regular basis, at least 20,000 waterbirds, or at least 10,000 pairs of seabird, of one or more species
- B1i - Site is known or though to hold 1 % of a flyway population or other distinct population of a waterbird species
- B2 – Site is one of the 'n' most important sites for a species with an unfavourable conservation status in Europe
- B3 - Site is one of the 'n' most important sites for a species with a favourable conservation status in Europe but with its global range concentrated in Europe
- C2 – Site is known to regularly hold at least 1% of the flyway or EU population of a species considered to be threatened in the EU
- C3 - Site is known to regularly hold at least 1% of the flyway or EU population of a species not considered to be threatened in the EU
- C4 – Site is known to regularly hold at least 20,000 migratory waterbirds, or at least 10,000 pairs of migratory seabird, of one or more species
- C6 – Site is one of the five most important in the European region for a species or subspecies considered threatened in the EU

Sources of information
Birdlife International website
http://www.birdlife.org.uk/
Important Bird Areas in Europe: Priority sites for conservation. Vol. 1: Northern Europe. Birdlife International

Biosphere Reserves

Biosphere Reserves are terrestrial and coastal ecosystems which are internationally recognised within the framework of UNESCO's Man and the Biosphere (MAB, 1971) Programme. They are nominated by national governments and each Biosphere Reserve is intended to fulfil three basic functions:

- To contribute to the conservation of landscapes, ecosystems, species and genetic variation
- To foster economic and human development which is socio-culturally and ecologically sustainable
- To provide support for research, monitoring, education and information exchange related to local, national and global issues of conservation and development

Individual biosphere reserves remain under the sovereign jurisdiction of the countries in which they are established. In the UK there are currently twelve biosphere reserves and of these, the North Norfolk Coast Biosphere Reserve (8,500 ha) is the only one in the SEA 3 region.

Sources of information
UK Biosphere Reserves website
http://www.nmw.ac.uk/mab/ukbr.htm
UNESCO World Network of Biosphere Reserves website
http://www.unesco.org/mab/wnbr.htm

Sites of national and local importance

The numbers of sites of national and local importance in the SEA 3 region are detailed in Box A.5.

Box A.5 - Sites of national and local importance in the SEA 3 area	
National Parks	2
Areas of Outstanding Natural Beauty (AONBs)	4
Heritage Coasts	9
National Nature Reserves (NNRs)	28
Sites of Special Scientific Interest (SSSI)	62
Local Nature Reserves (LNRs)	14
RSPB Reserves	13
The National Trust for Scotland	1
The National Trust	46
Wildlife Trust Reserves	55

National Parks

National Park status recognises the national importance of the area concerned in terms of landscape, biodiversity and as a recreational resources. National Parks are designated under the National Parks and Access to the Countryside Act of 1949 and responsibility for designation lies with the Countryside Agency.

National Parks are run by National Park Authorities set up by law as a single purpose local authority charged with conserving and enhancing the natural beauty, wildlife and cultural heritage of the Park. Funds for the National Park Authorities are provided directly by government (75%) and via the local authorities (25%) within the Park area.

There are seven National Parks in England accounting for nearly 7% of the land area. In addition the Norfolk Broads, managed by an Authority created by special legislation (The Broads Act 1988), enjoys similar status as the other National Parks. Within SEA 3 there are two National Parks, both of which have coastal boundaries (Table A.5).

Table A.5 - SEA 3 National Parks	Area (km^2)
North York Moors National Park	1,436
The Broads National Park	303

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/nationalparks/

Areas of Outstanding Natural Beauty (AONBs)

AONBs were brought into being under the same legislation as National Parks – the National Parks and Access to the Countryside Act of 1949, and the primary objective of the designation is to conserve the natural beauty of the landscape. The administration of planning and development control in AONBs is the responsibility of the local authorities within whose boundaries they fall.

The Countryside Agency is responsible for designating Areas of Outstanding Natural Beauty (AONB) and advising Government and others on how they should be protected and managed. There are 37 AONBs in England, a number of which are within the SEA 3 region (Table A.6).

Table A.6 - SEA 3 Areas of Outstanding Natural Beauty	Area (km^2)
Northumberland Coast	135
Norfolk Coast	451
Suffolk Coast and Heaths	403
Kent Downs	878

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/nationalparks/

Heritage Coasts

Heritage Coasts are designated areas of the UK coastline which are managed to ensure that their natural beauty is conserved and the public can gain access. In England, 32% (1,027km) of the coastline is conserved as Heritage Coasts. Table A.7 highlights those areas of the SEA 3 coastline protected by this designation.

Table A.7 - SEA 3 Heritage Coasts	Length (km)
Scottish Borders and North East	
North Northumberland	96
North Yorkshire and Cleveland	12 (57)
Yorkshire and Humber	
North Yorkshire and Cleveland	45 (57)
Flamborough Headland	19
Spurn Head	18
Lincolnshire, Norfolk and Suffolk	
North Norfolk	64
Suffolk	57
Essex and Kent	
South Foreland	7
Dover - Folkestone	7

Sources of information
The Countryside Agency website
http://www.countryside.gov.uk/nationalparks/

National nature reserves (NNRs)

National nature reserves (NNRs) were established to protect the most important areas of wildlife habitat and geological formations in Britain, and to provide a resources for scientific research. NNRs are usually designated for their broader ecological value rather than for the presence of any rare species. A number of factors may contribute to the designation of a NNR including; how fragile a site is, the size of the site, how 'natural' the site is and the presence of species rich communities.

Within Scotland and England, the reserves are either owned or controlled by Scottish Natural Heritage or English Nature respectively, or held by approved bodies such as the Wildlife Trusts. Table 9 indicates NNRs in the SEA 3 area (Table A.8).

Table A.8 - SEA 3 national nature reserves	Area (Ha)
Scottish Borders and North East	
St. Abb's Head	77
Lindisfarne	3,541
Farne Islands	96
Durham Coast	62
Teesmouth	355
Yorkshire and Humber	
Spurn	296
Lincolnshire, Norfolk and Suffolk	
Saltfleetby-Theddlethorpe Dunes	440
Gibraltar Point	429
The Wash	9,899
Holme Dunes	187
Scolt Head Island	737
Holkham	3,851
Blakeney	1,097
Holkham	3,851
Winterton Dunes	109
Martham Broad	59
Benacre	393
Walberswick	582
Orfordness-Havergate	228
Essex and Kent	

Table A.8 - SEA 3 national nature reserves	Area (Ha)
Hamford Water	1,448
Colne Estuary	576
Blackwater Estuary	1,031
Dengie	2,366
Leigh	257
Elmley	931
The Swale	220
Sandwich and Pegwell Bay	628
Dungeness	-

Sources of information
Scottish Natural Heritage
http://www.snh.org.uk/index/i-frame.htm
English Nature website
http://www.english-nature.org.uk/special/nnr/nnr_search.asp

Sites of Special Scientific Interest (SSSIs)

Sites of Special Scientific Interest (SSSI) are the main nature conservation designation in Great Britain. These sites are special for their plants, animals or habitats, their rocks or landforms or a combination of these. Geological SSSIs are described in Sites of Geological Importance in the SEA 3 Other Designations Report.

In both Scotland and England, a SSSI is an area that has been notified as being of special interest under the Wildlife and Countryside Act 1981. The 1981 Act was amended by the Countryside and Rights of Way Act 2000 which improved protection for SSSIs in England.

Scottish Natural Heritage and English Nature are responsible for identifying and protecting SSSIs in Scotland and England respectively. The SSSIs within the SEA 3 region are displayed in Table A.9.

Table A.9 - SEA 3 Sites of Special Scientific Interest		
Site name	**Location**	**Qualifying features**
Scottish Borders and North East		
Lindisfarne	NU105422	Intertidal, Mud/sand, sand dune, boulders/rocks
Bamburgh Coast and Hills	NU167357	Acid grassland, intertidal mud and sand (with or without Zostera spp.), fore dunes
Bamburgh Dunes	NU189348	Sand dune
Newton Links	NU230269	Intertidal mud/sand, saltmarsh, sand dune
Farne Islands	NU235376	Bird cliff vegetation
Alnmouth Saltmarsh And Dunes	NU247104	Saltmarsh, fore dunes, dune grassland
Castle Point to Cullernose Point	NU254215	Coastal Grassland and bird cliff vegetation
Warkworth Dunes and Saltmarsh	NU260058	Saltmarsh, sand dunes
Howick to Seaton Point	NU268147	Intertidal
Low Hauxley Shore	NU283017	Intertidal
Coquet Island	NU293049	Bird cliff vegetation
Northumberland Shore	NZ274988	Intertidal mud/sand, boulders/rocks
Cresswell and Newbiggin Shores	NZ300929	Intertidal

Table A.9 - SEA 3 Sites of Special Scientific Interest		
Durham Coast	NZ476382	Intertidal mud/sand, boulders/rocks, sand dune
Seal Sands	NZ526261	Intertidal mud/sand
Tees and Hartlepool Foreshore and Wetlands	NZ532339	Intertidal mud/sand, shingle, rock and boulders, lagoons
Seaton Dunes and Common	NZ534281	Saltmarsh, sand dune
South Gare and Coatham Sands	NZ576260	Sand dune
Redcar Rocks	NZ610252	Intertidal
Yorkshire and Humber		
Robin Hood's Bay: Maw Wyke to Beast Cliff	NZ962031	Intertidal boulders/rocks
Cayton, Cornelian and South Bays	TA059859	Coastal Grassland
Filey Brigg	TA128815	Intertidal
Humber Flats and Marshes: Spurn Head to Saltend Flats	TA344174	Saltmarsh, sand dune
Humber Flats and Marshes: The Grues	TA133252	Intertidal, saltmarsh
Humber Flats and Marshes: Upper Humber	SE955235	Intertidal mud/sand, shingle, saltmarsh, lagoons
Humber Flats and Marshes: Barton and Barrow Clay Pits	TA043235	Intertidal mud/sand
The Lagoons	TA411176	Lagoons
Humber Flats and Marshes: Pyewipe and Cleethorpes Coast	TA313086	Intertidal mud/sand, sand dune
North Lincolnshire Coast	TA424009	Intertidal, dune grassland
Lincolnshire, Norfolk and Suffolk		
Saltfleetby - Theddlethorpe Dunes	TF484903	Intertidal, sand dune
The Wash	TF537411	Intertidal
North Norfolk Coast	TF744446	Intertidal mud and sand (with or without Zostera), fen, saltmarsh, shingle, sand dune, lagoons
Sidestrand and Trimingham cliffs	TG280390	Maritime cliffs
Winterton - Horsey Dunes	TG487214	Sand dune, fore dunes, dune grassland
Essex and Kent		
Blackwater Estuary	TL992116	Intertidal mud and sand, shingle, saltmarsh, lagoons, sea wall
Dengie	TM043020	Saltmarsh
Colne Estuary	TM059168	Intertidal, lagoons
Stour Estuary	TM171329	Intertidal
Holland Haven Marshes	TM221178	Coastal Grassland
Hamford Water	TM228254	Intertidal, shingle, lagoons, coastal grassland

Table A.9 - SEA 3 Sites of Special Scientific Interest		
Orwell Estuary	TM231377	Brackish open water, intertidal
Languard Common	TM285318	Shingle above High Tide Mark
Alde-Ore Estuary	TM442492	Intertidal, shingle, lagoons, coastal grassland
Leiston- Aldeburgh	TM462595	Shingle above High Tide Mark
Minsmere-Walberswick Heaths and Marshes	TM477734	Shingle above High Tide Mark, intertidal, saltmarsh, sand dune, lagoons
Benacre to Easton Bavents	TM522808	Woodland, intertidal, shingle, lagoons
Mucking Flats and Marshes	TQ706811	Intertidal
Vange and Fobbing Marshes	TQ733838	Saltmarsh
Pitsea Marsh	TQ742869	Saltmarsh
South Thames Estuary and Marshes	TQ812795	Brackish standing water, intertidal, lagoons
Crouch and Roach Estuaries	TQ847966	Intertidal, standing brackish water, saltmarsh, lagoons
Benfleet and Southend Marshes	TQ860846	Intertidal mud and sand
Medway Estuary and Marshes	TQ863703	Intertidal
The Swale	TQ976663	Intertidal
Sheppey Cliffs and Foreshore	TQ992731	Intertidal
Dungeness	TR065181	Intertidal mud and sand (with or without Zostera), shingle, sand dune, lagoons
Romney Warren	TR086260	Intertidal mud/sand, sand dunes
Tankerton Slopes	TR122672	Coastal grassland
Folkstone Warren	TR276385	Intertidal, maritime cliffs
Thanet Coast	TR317702	Brackish standing water, intertidal mud/sand, boulders/rocks
Sandwich Bay to Hacklinge Marshes	TR354592	Intertidal mud/sand, saltmarsh, sand dune
Dover to Kingsdown Cliffs	TR360434	Scrub

Sources of information
Scottish Natural Heritage
http://www.snh.org.uk/index/i-frame.htm
English Nature website
http://www.english-nature.org.uk/special/nnr/nnr_search.asp
Pers. comm. J Storey, English Nature

Local nature reserves (LNRs)

Local nature reserves (LNRs) are places with wildlife or geological features that are of special interest locally. Local Nature Reserves are a local authority designation and Councils have the authority to set up, or declare, an LNR on land that they own or have a legal interest in. Management of a reserve is

the responsibility of the council, although this responsibility may be transferred to others such as a local voluntary group. The recommended criteria for selection of LNRs in England are presented in Box A.6.

Box A.6 - English Nature recommends that LNRs should be:
- Normally greater than 2 ha in size - Capable of being managed with the conservation of nature and/or the maintenance of special opportunities for study, research or enjoyment of nature as the priority concern and one or more of the following: - Of high natural interest in the local context - Of some reasonable natural interest and of high value in the local context for formal education or research - Of some reasonable natural interest and of high value in the local context for informal enjoyment of nature by the public

There are over 600 LNRs in England covering an area of over 29,000 ha. The LNRs present in the SEA 3 region are shown in Table A.10. There are no Scottish LNR's of relevance to SEA 3.

Table A.10 - SEA 3 local nature reserves	**Area (Ha)**
Scottish Borders and North East	
Seaton Dunes and Common SSSI	7,771
Amble Dunes	62
St. Mary's Island	73

Table A.10 - SEA 3 local nature reserves	Area (Ha)
Yorkshire and Humber	
No relevant sites	
Lincolnshire, Norfolk and Suffolk	
Breydon Water	453
Gunton Warren and Corton Woods	30
The Haven, Aldeburgh	22
Landguard Common	24
Essex and Kent	
Wrabness	21
Hullbridge Foreshore	4
Southend on Sea Foreshore	848
Oare Marshes	69
South Bank of the Swale	420
Bishopstone Cliffs	30
Pegwell Bay and Sandwich Bay	610

Sources of information
English Nature website
http://www.english-nature.org.uk/special/lnr/lnr_search.asp

RSPB Reserves

The RSPB (Royal Society for the Protection of Birds) maintain a large number of nature reserves in the UK covering a wide range of wildlife habitats, those of relevance to the SEA 3 region are highlighted in Table A.11.

Table A.11 - SEA 3 RSPB reserves	Area (ha)
Scottish Borders and North East	
No relevant sites	
Yorkshire and Humber	
Bempton Cliffs	24
Blacktoft Sands	197
Lincolnshire, Norfolk and Suffolk	
Freiston Shore	-
Frampton Marsh	387
Snettisham	1,315
Titchwell Marsh	379
Breydon Water	288
Minsmere	796
Havergate Island	179
Essex and Kent	
Stour Estuary	424
Nor Marsh and Motney Hill	102
Elmley Marshes	282
Dungeness	874

Sources of information
RSPB website
http://www.rspb.org.uk/wildlife/reserves/england.asp

The National Trust for Scotland

The National Trust for Scotland is a registered charity and acts to protect architectural, scenic and historic sites and properties in Scotland. The only National Trust for Scotland coastal site of relevance to SEA 3 is St. Abb's Head (146 ha) in the Scottish Borders.

Sources of information
National Trust for Scotland website
http://www.nts.org.uk/stabb.html

The National Trust

The National Trust, a registered charity, protects almost 600 miles of coastline in England, Wales and Northern Ireland and more than 200 properties. Within the SEA 3 area there are a number of National Trust properties and sites which are shown in Table A.12.

Table A.12 - SEA 3 National Trust sites	Area (ha)
Scottish Borders and North East	
Farne Islands	32
St. Aidan's and Shoreston Dunes	24
Breadnell and Annstead Dunes	4
Newton Links	22
Newton Point	47
Low Newton-by-the-Sea	56
Embleton Links	244
Dunstanburgh Castle	4
Dunstanburgh Heughs	111
Alnmouth	90
Buston Links	8
Druridge Bay	40
The Leas and Marsden Rock	114
Hawthorn Dene and Chourdon Point	67
Warren House	35
Hunt Cliff and Warsett Hill	62
Yorkshire and Humber	
Port Mulgrave	15
Saltwick Nab	3
Bay Ness Farm	72
Boggle Hole	3
Ravenscar – Stoupe Brow Farm	29
Ravenscar	105
Ravenscar – Bent Rigg Farm	39
Staintondale	37
Hayburn Wyke	26
Cayton Bay and Knipe Point	36
Newbiggin East Farm	10
Lincolnshire, Norfolk and Suffolk	
Holme-next-the Sea	2
Branodonum Roman Fort	9
Brancaster	870
Scolt Head Island	870
Stiffkey Saltmarshes	197
Blakeney Point	480
Morston Marshes	238
Salthouse Broad	12
Horsey	705
Dunwich Heath and Minsmere Beach	87

Table A.12 - SEA 3 National Trust sites	Area (ha)
Orfordness	627
Essex and Kent	
Northey Island and South House Farm	122
Pegwell Bay	145
Sandwich Bay	78
Kingsdown Leas and The Leas	9
South Foreland Lighthouse	-
Langdon Hole	43
Dover: Langdon Cliffs and Foxhill Down	21
Dover: Great Farthingloe	27

Sources of information
The National Trust website
http://www.nationaltrust.org.uk/main/nationaltrust/index.html

Wildlife Trust Reserves

The Wildlife Trusts partnership is a network of 47 independent wildlife charities and more than 100 urban wildlife groups, and together they care for 2,498 nature reserves throughout the UK. Table A.13 gives details of the regional Wildlife Trusts and the nature reserves of relevance to SEA 3.

Table A.13 - Wildlife Trust reserves	Area (ha)
Scottish Borders and North East	
St. Abb's Head	97
St. Abb's Marine Reserve	1,030
Cocklawburn Dunes	5
Annstead Dunes	51
Cresswell Pond	25
Hawthorn Dene	56
Blackhall Rocks	79
Coatham Marsh	54
Saltburn Gill	16
Yorkshire and Humber	
Spurn	306
Welwick Saltmarsh	6
Far Ings and Barton Reedbed	59
Pasture Wharf	21
Barrow Haven Reedbed	13
Fairfield Pit	9
Dawson City Clay Pits	16
Killingholme Haven Pits	36
Lincolnshire, Norfolk and Suffolk	
Donna Nook	894
Saltfleetby/ Theddlethorpe	39
Sandilands Pit	2
Huttoft Bank Pits	6
Wolla Bank Reedbed	3
Wolla Bank Pit	4
Chapel Pit	3
Gibraltar Point	431
Frampton Marsh	271
Holme Dunes	188
Scolt Head Island (East)	31
Cley and Salthouse Marshes	332
The Haven	16

Table A.13 - Wildlife Trust reserves	Area (ha)
Hazelwood Marshes	62
Alde Mudflats	122
Landguard	16
Essex and Kent	
Hogmarsh	5
Skippers Island/Saltings	94
John Weston Reserve	6
Colne Point	276
Rat Island	14
Fingringhoe Wick	51
Ray Island	45
Abbots Hall Farm	283
Tollesbury Wick	242
Bradwell Cockle Spit	81
Blue House Farm	243
Lower Raypits	47
Lion Creek	5
Shoebury Old Ranges	7
Two Tree Island	257
Vange Marsh	3
Fobbing Marsh	76
Holborough Marshes	34
Burham Marsh	36
Oare Marshes	69
South Swale LNR	413
Sandwich Bay and Pegwell Bay LNR	610

Sources of information

The Wildlife Trusts website
http://www.wildlifetrusts.org/
Scottish Wildlife Trust website
http://www.swt.org.uk/see_wildlife/popup_reserves/east/stabbs_marine.htm
Northumberland Wildlife Trust website
http://www.wildlifetrust.org.uk/northumberland/main_map.htm
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http://www.wildlifetrust.org.uk/durham/
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http://www.lincstrust.co.uk/
Norfolk Wildlife Trust website
http://www.wildlifetrust.org.uk/norfolk/
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http://www.wildlifetrust.org.uk/suffolk/placestv/placmap1.htm
Essex Wildlife Trust website
http://www.essexwt.org.uk/
Kent Wildlife Trust website
http://www.kentwildlife.org.uk/reserves/index.htm