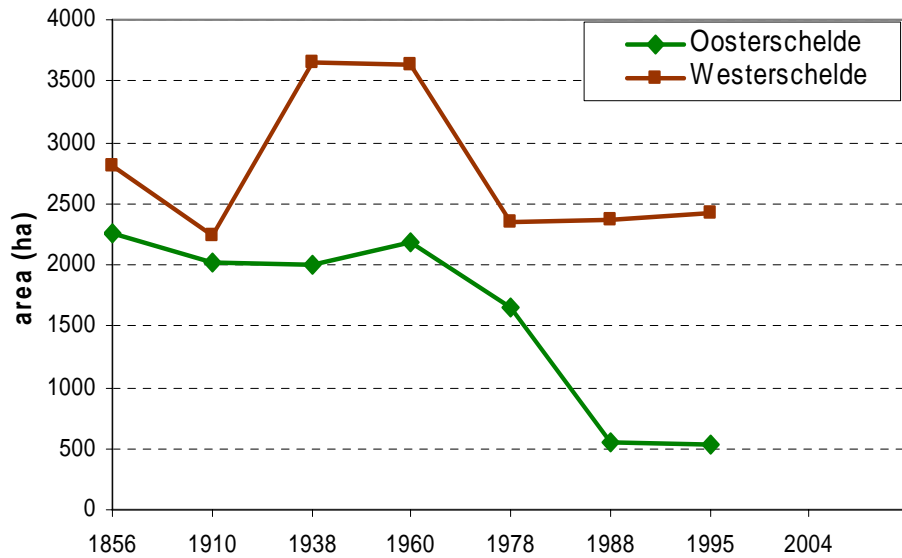
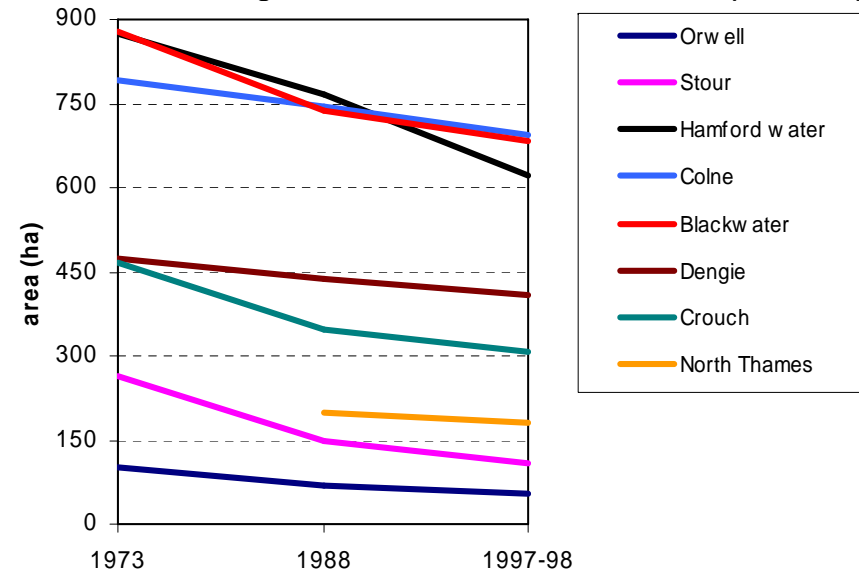


Indicator 5 Changes to significant coastal and marine habitats and species

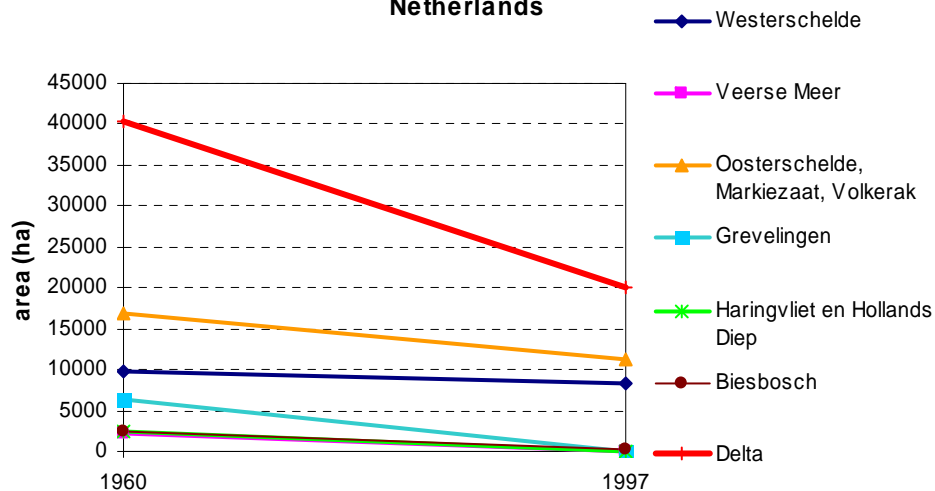
Change in area of saltmarshes - Zeeland



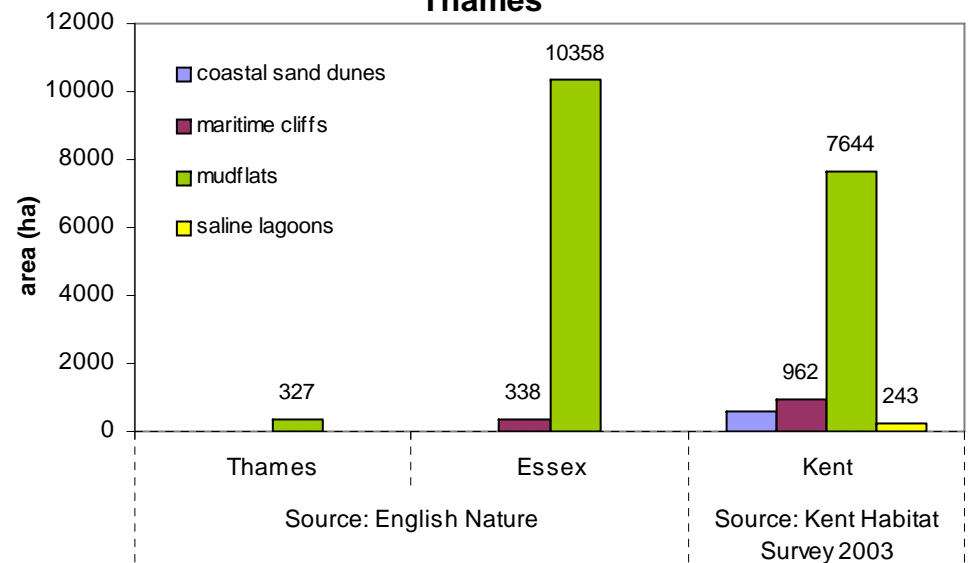
Change in area of saltmarshes - Essex (EN, 2000)



Change in area of tidal mudflats in the Delta area - The Netherlands



Area of specified coastal habitat in Kent, Essex and Thames



- *Trends in area of specified (priority) coastal habitat*
- *Trends in number of breeding pairs: Common, Sandwich and Little tern*
- *Population estimates: Common seal and Harbour porpoise in the Southern North Sea*
- *Number of coast-specific species included in the Red List of species*

Key Message

- Key habitats in coastal zones have declined significantly over the last decades. Salt marshes in Essex have declined to two third of their extent in 1973; in Zeeland they have been reduced by more than 75% of their original extent. Tidal mudflats in Zeeland have declined by 50% over the 1960-1997 period, mainly as a consequence of the Delta works. Nord-Pas de Calais has the largest extent of dunes (8,407ha in 1998) within the SAIL region. The coasts of Thanet (Kent) and Nord-Pas-de-Calais hold an important proportion of the European chalk reef habitat: the largest part is severely affected by erosion.
- It is uncertain to what extent effects of climate change and changes in distribution of prey species are affecting the increase in observations of some of the coastal 'flagship species'.
- In spite of the efforts of halting the loss on Biological Diversity, dozens of 'priority' coastal species are listed as (critically) endangered, vulnerable, or extinct.

Why monitor changes to significant coastal and marine habitats and species?

Coastal habitats provide crucial ecosystem functions: mudflats are among the most productive feeding habitats for wading birds and spawning areas for fish and invertebrates. Saltmarshes and coastal lagoons absorb wave energy from the sea and protect lower-lying lands from flooding. Population numbers of species that are characteristic of dynamic coastal habitats are indicators of the general health and functioning of their feeding and breeding sites.

Red Lists can serve different purposes. They provide a signal to authorities

Changes to significant coastal and marine habitats and species

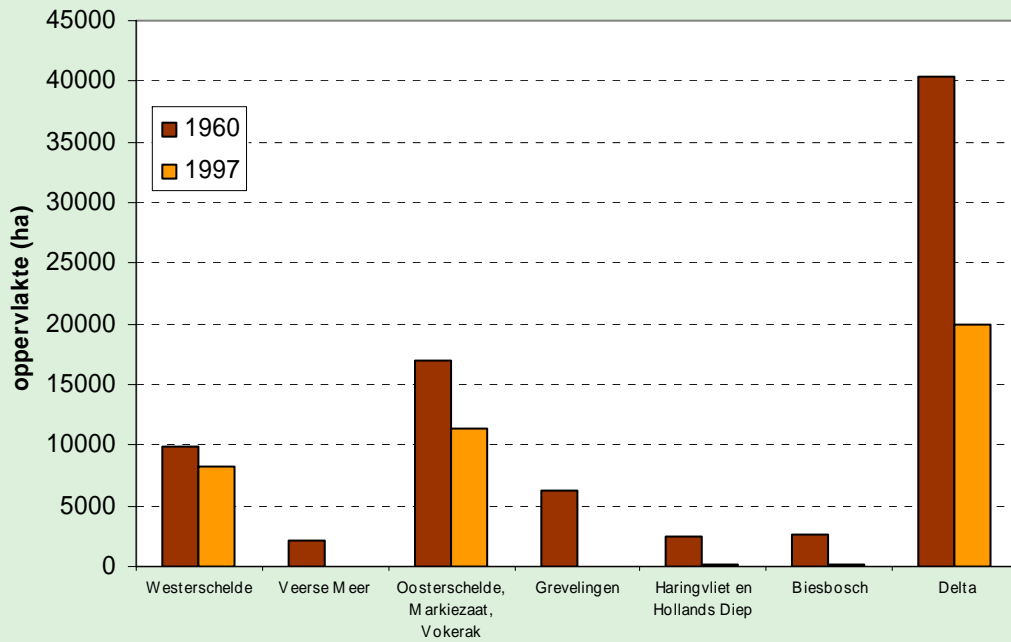
about species in danger of disappearing in the absence of proper conservation action. They help to set priorities for implementing conservation measures and monitoring systems. Red Lists are a medium to promote research and help draw the attention of the public to the gradual loss of biodiversity.

Where do the data come from?

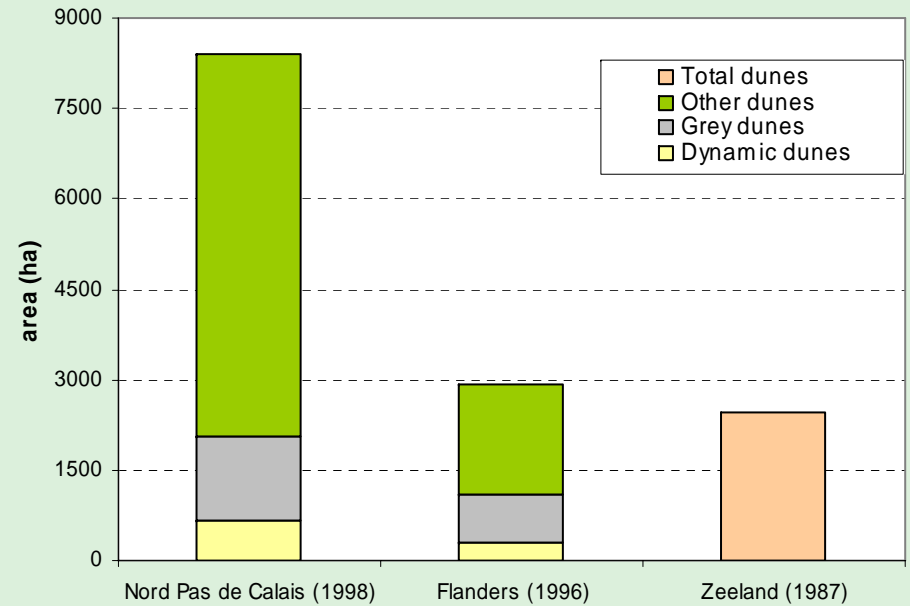
The Kent Habitat Survey (2003) provides estimates of the extent and location of key habitat. Data for Essex and the Thames region are provided by English Nature and range from a variety of sources and years (1988 to 2003). Red Lists for endangered taxa and species in Flanders are provided by the Institute for Nature and Forestry Research - INBO (2003), the Province of Zeeland (Priority species for Zeeland and The Netherlands, 2001), Kent Red Data Book and Biodiversity Action Plan (2003) and Essex Biodiversity Action Plan (2000). Additional sources were consulted for Kent and Medway, and for Nord-Pas de Calais. From these official lists, coast-exclusive and coast-preferential species were selected. Individual expertise, specialized databases and extensive literature search were necessary to fill multiple gaps of information and check contradictory sources, both for species and habitats. Large-scale projects provide population estimates for porpoises (SCANS 1994 and 2005) and seabirds. For the assessment of change in coast-specific habitat, coastal dunes, saltmarshes, maritime cliffs, mudflats, seagrass habitat and saline lagoons were considered.



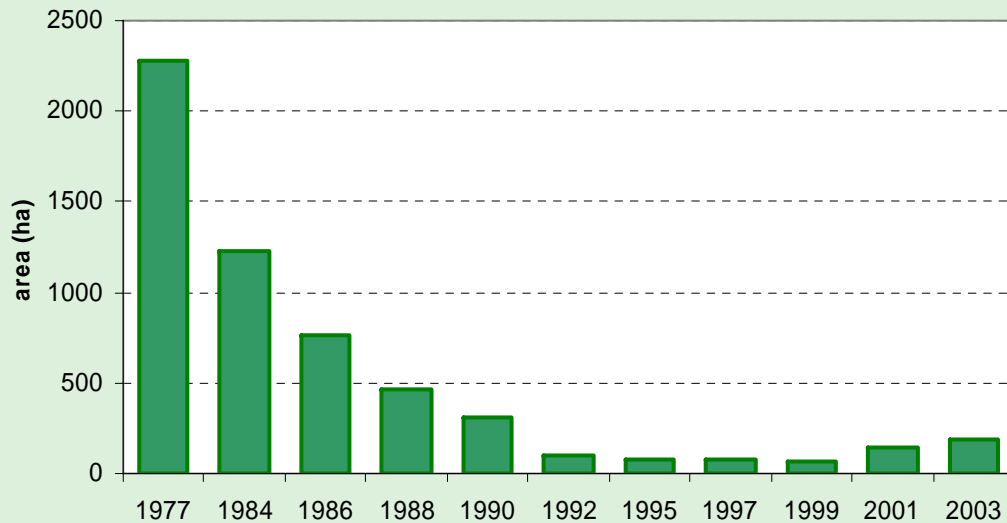
Change in mudflats in the Delta area—The Netherlands (1960-1997)



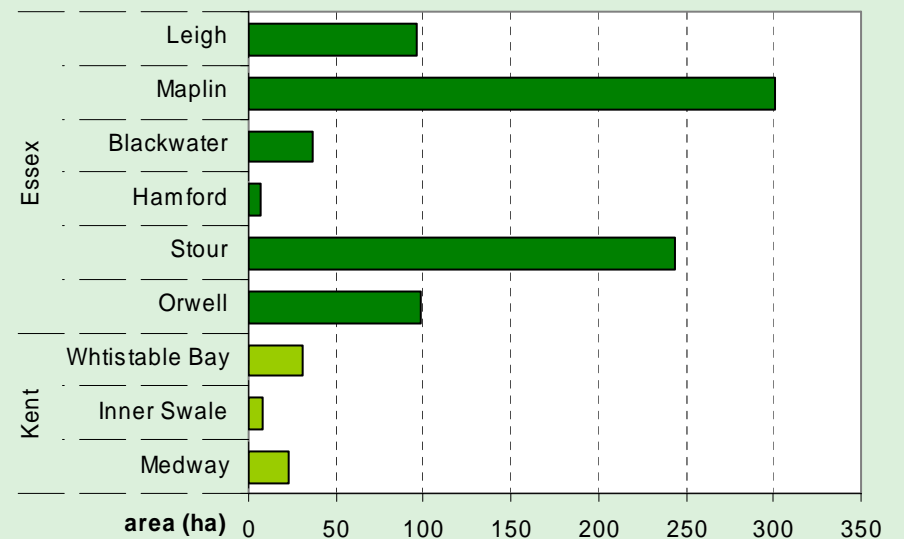
Area of coastal dunes in SAIL sub-regions



Change in Area of Seagrass habitat (Zostera) - Oosterschelde, Zeeland



Area of Seagrass habitat (Zostera) - UK - 1972



What does the indicator show?

COASTAL HABITATS

Essex saltmarshes make up almost 10% of Britain's entire stock. The decline of saltmarsh habitat in Hamford water from 900ha in 1973 to 600ha in 1998 illustrates the general decline of this crucial habitat in Essex. Saltmarshes in the Oosterschelde have been reduced by more than 75% of their original extent (1856). The loss of saltmarshes in Zeeland occurred mainly from the 1960s to 1990 due to the Delta works which have affected the dynamics of tidal processes. In the Westerschelde, the main cause of decline was the claiming of land for polders. The slight increase in saltmarshes in the Westerschelde are mainly due to the deliberate breaching of the dyke at Selenapolder (now Sieperdaschor) in 1990, to extend saltmarsh habitat.

Tidal mudflats provide crucial feeding grounds for populations of wading birds in Essex, Kent and the Delta area in Zeeland. Their biological diversity is unparalleled and they provide a spawning habitat for many invertebrate and fish species. Mudflats have declined by 50% over the 1960-1997 period in the Delta area; most of the 20,000ha lost were located in the Oosterschelde and Grevelingen area.

The loss of mudflats in coastal zones is a major concern for the Environment Agency in the UK. It has been estimated that sea level rise will result in a loss of 8,000 to 10,000ha of intertidal flats in England between 1993 and 2013. The most recent estimate of the area of extent mudflats is 10,358ha in Essex (2000) and 7,644ha in Kent (2003). Land claim has been responsible for the removal of up to 80% of mudflats in estuaries.

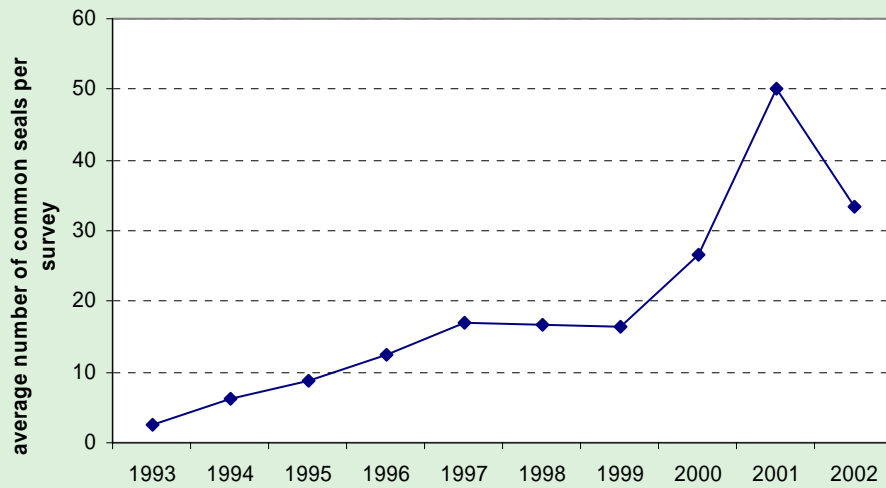
Dunes may be typified as 'dynamic' (or mobile), 'grey' (or fixed with vegetation) and 'other', but different subcategories exist among reporting sources. In absolute terms, Nord-Pas de Calais has the largest extent of dunes (8,407ha in 1998) within the Southern North Sea region, however the habitat represents only 0.7% of the total area of NPDC. In Zeeland, the 2,466ha of dunes represent 1.4% of the total land area of the Province (1987). In West-Vlaanderen, 90ha of the total area of dunes (2,935 ha) are embryonic, 216ha are dynamic and 801ha are grey dunes (1996). In Nord-Pas de Calais approximately 36ha were lost between 1990 en 1998, mostly to housing.

Seagrass beds are formed by two species of *Zostera* in the study area, both of which are considered scarce throughout SAIL region coastal waters. The area of Maplin and the Stour in Essex contained a significant extent of this habitat in 1972 but no current information is available. Between 1987 and 1992 symptoms of a wasting disease affecting several populations appeared in the south of England. The extent of seagrass beds is also sensitive to a range of natural factors. Seagrass beds are strongly dependent on the transitional habitat from salt to freshwater. In the Oosterschelde in Zeeland, seagrass beds have been in decline since 1977; less than 100ha are left from the original 2,278ha.

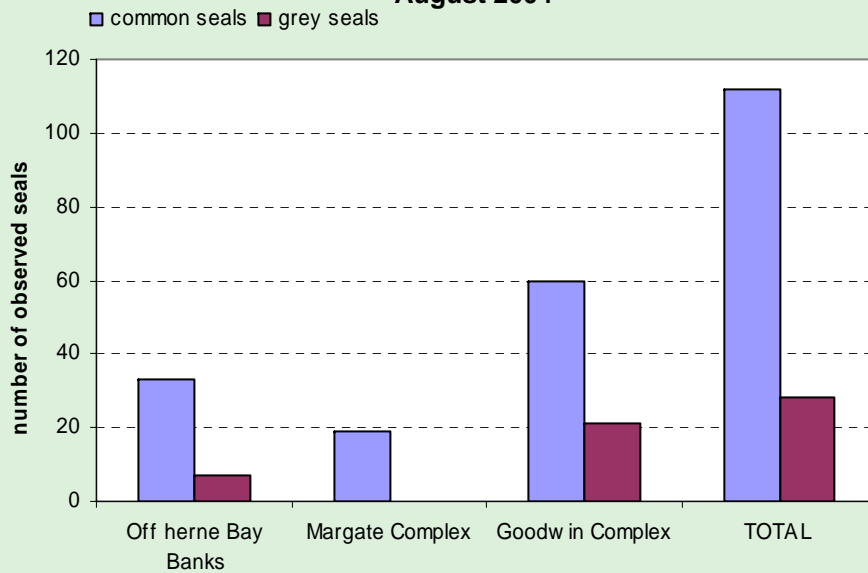
In Britain, less than 1% of the coastline is formed by chalk cliffs and platforms, yet this includes 75% of the chalk reefs in Europe. Thanet's coast in Kent comprises 12% of these reefs. The entire extent of the chalk cliffs and reefs in Thanet is a Marine Special Area of Conservation. In Nord-Pas de Calais, 25km of the coastline consists of chalk cliffs: the largest part is affected by erosion rates of 10-70cm per year (source: PLAGÉ, 2003).



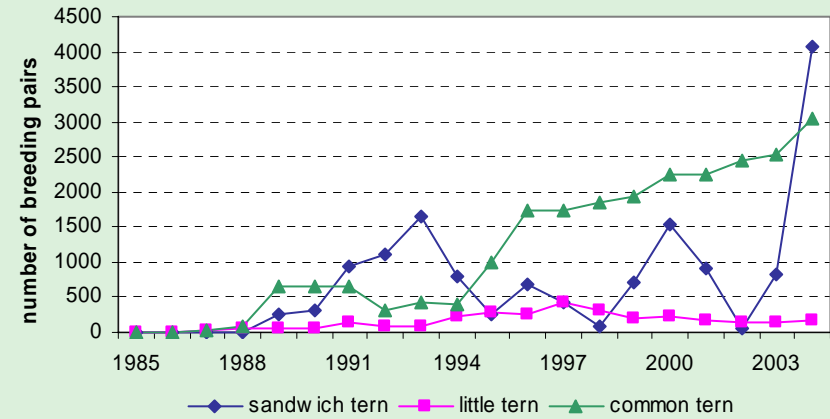
Delta area - The Netherlands - average seal count per survey



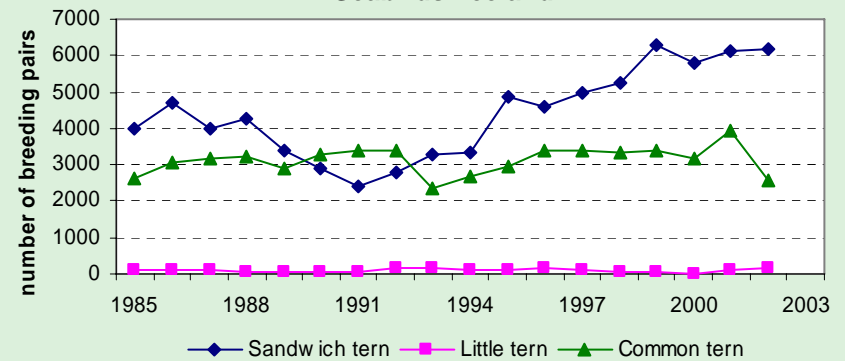
Seals on haul-out sites off the north Kent coast, August 2004



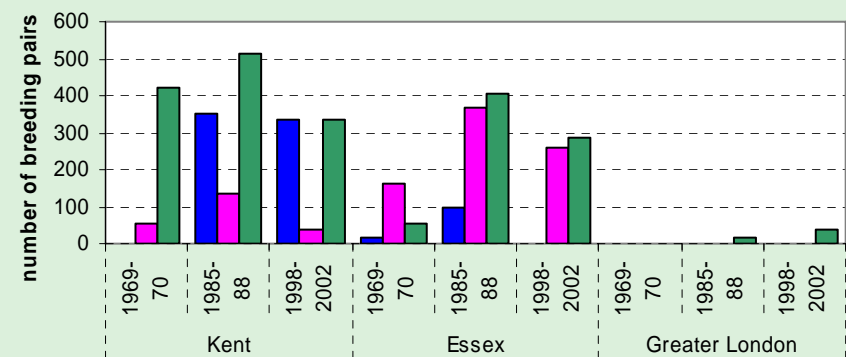
Seabirds Flanders



Seabirds Zeeland



Number of breeding seabirds in the UK SAIL sub-regions



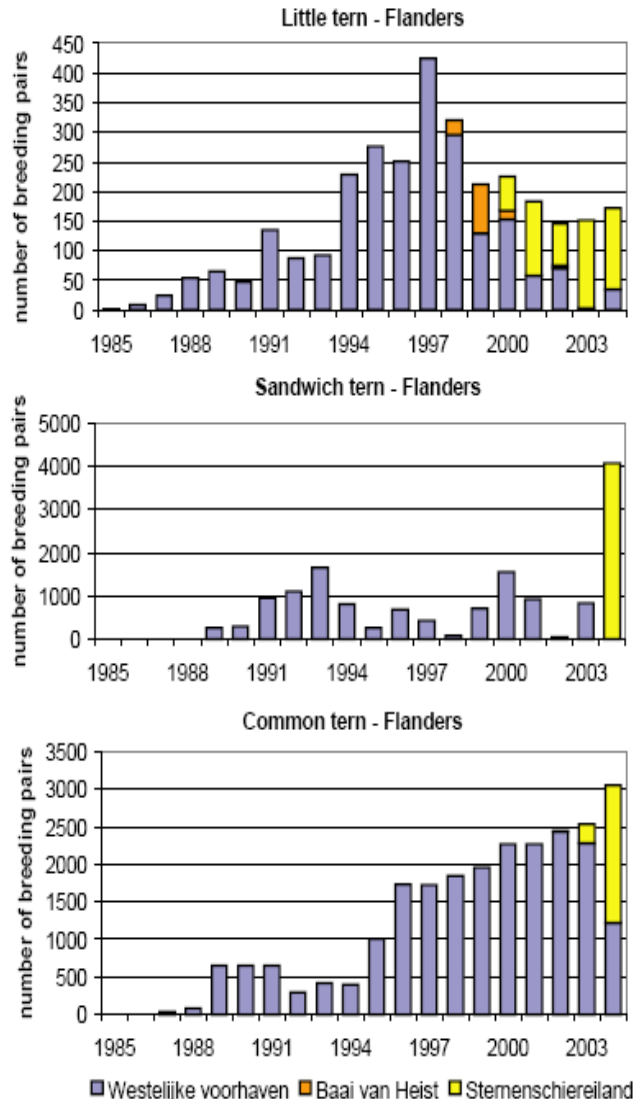
COASTAL SPECIES

Seabirds

The number of breeding pairs of Common and Sandwich terns at the Belgian coast has increased, while breeding pairs of Little tern have decreased since a peak (425) in 1997. The establishment of a protected breeding site in Zeebrugge in 2000 already shows a clear impact: most of the Common and Little terns and 100% of the breeding pairs of Sandwich terns (4,000) used this area for breeding in 2004.

The number of breeding terns in Zeeland is the highest of the Southern North Sea region. Specifically Common and Sandwich terns breed in high numbers and the population of Sandwich terns is increasing over the period 1985-2003.

Essex and Kent have important populations of breeding terns, especially Little tern. The latest 'Seabird' census (1998-2002) revealed a total number of 1,947 pairs of Little tern in the UK, of which 300 pairs were in Kent and Essex breeding sites.



Harbour porpoises

The large-scale observation efforts on harbour porpoises - and other cetaceans - in the North Sea in SCANS I (1994) resulted in a population estimate of 309,000 (CI: 237,000-381,000). The results of the SCANS II efforts (July 2005) are available in the second half of 2006. Long-term monitoring of sightings of Harbour porpoises along the Dutch coast shows a strong increase since 1996 (34% increase per annum). Important by-catches of Harbour porpoises are documented for the bottom set net fisheries, the bass fishery and the gill and tangle net fisheries in the UK. Based on available population estimates and the target to reduce cetacean by-catch below 1.7% of the estimated population (ASCOBANS 2000), Harbour porpoise by-catch in UK vessels in the North Sea should be less than 500 animals per year.

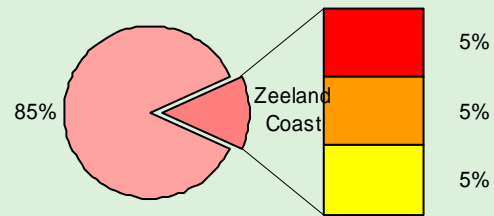
Seals

An increase in the average count of Common seals per survey in the Delta area was recorded between 1993 and 2001 (from 2 to 50 seals). However, it is estimated that the population was cut back by 22,000 in the southern North Sea because of an outbreak of the viral disease *Phocine distemper* in the summer of 2002. During surveys on haul-out sites off the north Kent coast (August 2004) 112 common seals and 28 grey seals were observed. These numbers are thought to represent approximately 60% of the actual population. The total population of the Harbour seal in the UK North Sea is estimated at 19,702 (1994-1999) of which 3,568 are on the English east coast. The total population for the Delta area is estimated at 97 seals (2000). Haul-out behaviour affects the counts significantly in both areas.

RED LISTS and priority species:

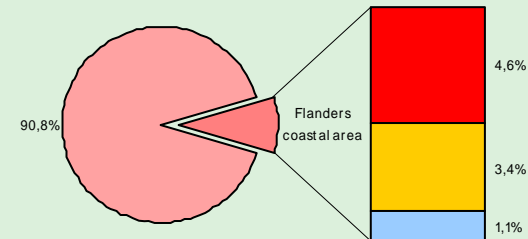
For Zeeland, species from the Red List (RL) with a distribution restricted to or preferential in dunes and tidal area were selected. Fifteen of these 'coastal' mammals on the Red List (15% of total RL mammals) are critically endangered, endangered and sensitive. Nine species of birds on the RL (12%) occur in the coastal area of Zeeland. The largest part is considered endangered. Only 1 of the 35 fishes on the RL is coastal, and actually classified as extinct in Zeeland (*Fint*, *Alosa fallax*). Thirty one of the 499 vascular plants on the RL in The Netherlands, have their distribution in the coastal zone of Zeeland; 16

Red list - Mammals - Zeeland coastal



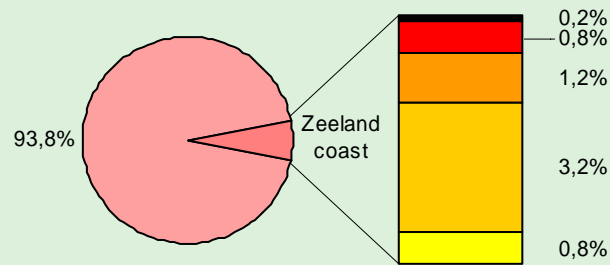
■ Netherlands - non-coastal
 ■ critically endangered
 ■ endangered
 ■ sensitive

Red List - Birds - Flanders



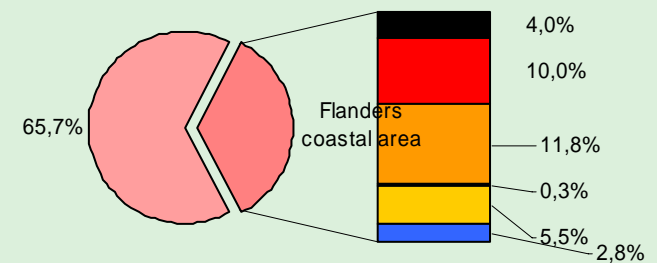
■ Flanders non-coastal
 ■ Critically endangered
 ■ vulnerable
 ■ irregular breeder

Red List - Higher plants - Zeeland coastal



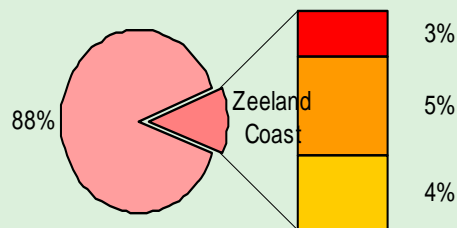
■ Netherlands - non-coastal
 ■ critically endangered
 ■ endangered
 ■ vulnerable
 ■ extinct

Red List - Higher plants - Flanders coastal area



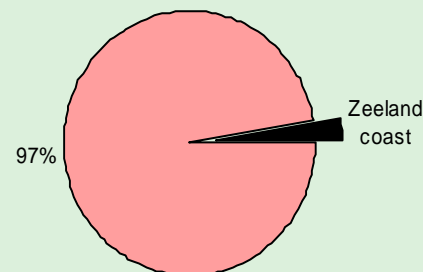
■ Flanders non-coastal
 ■ critically endangered
 ■ endangered
 ■ vulnerable
 ■ extinct
 ■ near threatened
 ■ data deficient

Red list - Birds - Zeeland coastal



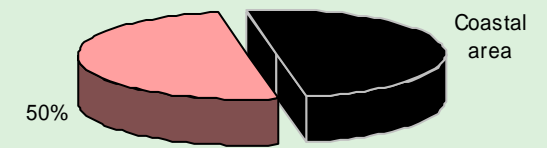
■ Netherlands - non-coastal
 ■ critically endangered
 ■ endangered
 ■ vulnerable

Red List - Fish - Zeeland coastal



■ Netherlands
 ■ extinct

Red List Flanders - Fish



■ Flanders non-coastal
 ■ extinct

species are vulnerable and 1 has become extinct. Of all 8 taxonomic groups analyzed, 2 have extinct species (vascular plants and fishes).

In West-Flanders 50% of the RL coastal fish species (8 species) are extinct. Some caution is needed to interpret this data. According to specialists the RL is incomplete for fishes since it does not include rays and sharks. Slightly more than 25% of Red List vascular plants are coastal (137 species), most are 'critically endangered' (40 species or 7%) or 'endangered' (47 species or 9%). Only a small percent of RL breeding birds are exclusively breeding at the coast (8%). This includes the category 'non-permanent breeder'.

From the 3 mammals that are coast-specific in Flanders, 2 are endangered and 1 considered extinct.

The Essex Biodiversity Action Plan (BAP) contains 25 priority species, of which 5 are coast-specific. Special attention is given to Hog's fennel, of which 60% of the national population is found in Essex, and the Bright wave moth which is now thought to be extinct in Essex.

The Biodiversity Action Plan and the Kent Red Data Book provide valuable information on the list of 221 BAP priority species. None of the mammal and bird priority species are considered coastal. Both species of coastal 'BAP' amphibians and reptiles are extinct. Mosses (1 endangered) and lichens (1 vulnerable) in the coastal zones are also considered among the priority species. Of the 2 coast specific flowering plants in the Kent BAP, 1 is extinct.

Two coastal species of the 37 mammals on the RL for Nord-Pas de Calais are considered endangered. The RL for seabirds (102), holds 20 coastal species. Of these, 1 is extinct and 4 endangered. The Sand lizard (*Lacerta agilis*) - the only coastal species on the list of amphibians and reptiles (11) - is extinct in the region. The RL for Nord-Pas de Calais (Kerautret, 2000) is provisory.

What are the implications for planning and managing the coast?

Member states have the obligation to set clear targets for the conservation of identified priority species, through the Habitats Directive, the Convention on Biodiversity and other international conventions. Compliance with these targets for the favourable conservation status of priority species and habitat will be reported on a systematic basis through monitoring, evaluation and reporting schemes implemented under the Habitat Directive.



How reliable is the indicator?

A number of difficulties arise from the use of Red Lists. Not all species that are listed on the national Red Lists belong there according to specialists, while some taxa that are experiencing conservation problems are not included. Where subspecies are hard to determine in the field, discussion centres on the interpretation of the status. The definition of 'coast-specific' and 'coast-preferential' also leaves room for interpretation.

Relevant time series are available for seabird populations. Except for the SCANS effort, most data on seals and porpoises are from observation efforts, and not census data. There is an important disparity in quality and range of the data, which makes comparison among the SAIL sub-regions difficult. Data on coastal habitat are very disperse, often outdated, and the criteria for characterizing and defining habitat differ between regions.

