
Appendix 4

**Good experiences and examples of implementation
of Natura 2000 in the marine environment including
LIFE fund actions in the marine environment**

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Good practices examples, positive experiences, contributions...			
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1. Towards the identification of marine IBAs in the EU: an exploration by the Birds and Habitats Directives Task Force

This paper is meant as a first step towards a general approach to the identification of marine areas (i.e. those beyond the coastline) that are important for the conservation of birds in the Europe Union. It is based on current knowledge on how birds (mostly waterbirds) are distributed and make use of the marine environment. It concerns truly marine specialists that only approach land in order to breed. These are the so-called 'pelagic' species, the whereabouts of which are still insufficiently known for the proper identification of the areas of highest importance at the European level. Methodological criteria to identify and set the limits to those areas are currently under development, both within (notably in Spain and UK by SEO and RSPB, respectively) and beyond Europe by the Partnership of BirdLife International.

The current paper will focus on the species and IBA categories for which sufficient information is available to warrant an objective proposal by BirdLife International. A separate (second) part of this paper will deal with dispersed pelagic species when solid criteria have been developed and tested for EU waters.

I. General introduction and coast related IBAs

1. In the last two decades, BirdLife International (and its forerunner ICBP) has been very successful in the identification of Important Bird Areas and subsequently getting general recognition that these sites represent prime sites for bird conservation. The European network of IBAs has formed an important scientific reference for the designation of special protection areas (SPAs) under the Wild Birds Directive of the European Union. It is now accepted BirdLife policy that in the EU, all IBAs should be classified as SPAs. Until now, the IBA programme of BirdLife International has been mainly focused on terrestrial and coastal habitats and the bird species using these habitats. Thanks to the increasing knowledge of the importance of inshore waters for waterbirds a number of inshore¹ sites have been identified particularly in the Baltic and North Sea area (note that many of these have been selected using different criteria to current IBAs). On the contrary, little attention has been paid so far to the identification of offshore areas important for predominantly marine species including pelagic species. Apart from lack of information this was due to the limited, if any, legal possibilities for site protection. IBA boundary selection guidelines say that an IBA should be an area which can in some way be managed. This has implications for the selection of areas at sea where ability to manage is severely curtailed.

2. The application of the Environmental Community law beyond territorial waters over which the MS exercises exclusive rights of exploitation and exploration of natural resources² was confirmed by a judgment of the European

¹ For practical reasons, inshore is here defined as the area of marine waters within 12 nm (about 22km) from the coastline, but excluding estuaries and intertidal mudflats; offshore concerns marine waters beyond 12 nm from the coastline. This distinction does not have an ecological meaning but is based on the maximum extent of territorial waters under UNCLOS (United Nations Common Law of the Sea, 1982).

² Other Member States have declared for this purpose Exclusive Economic Zones (EEZs) which extend at maximum 200 nautical miles from the coastline (the area may be limited by the presence of other countries)



Court of Justice (mainly Court case judgement C-6/04³). Apart from the EU perspective other instruments like the OSPAR convention⁴, the Helsinki Convention⁵ and the Barcelona Convention⁶ cover the protection of species and habitats in the marine environment. Therefore, there is an urgent need to adapt criteria and to establish guidelines for the identification of marine IBA's. This paper prepared by BirdLife international for the Birds and Habitats Directives Task Force is meant as a starting point for the preparation of such guidelines. It takes account of work that has already been done in this field and considers the possibilities to extend the IBA concept to the marine environment.

3. Marine habitats

Marine habitats are normally defined by relevant topographical or oceanographical features. The EUNIS Habitat Classification⁷ makes in the first place a distinction according to strata: the sea bed and the water column. Next the sea bed is divided in littoral habitats and habitats that are permanently water-covered⁸. The latter is subdivided in continental shelf⁹ and the deep sea. The shelf break occurs at variable depth, but is generally over 200 metres. Another useful contour line is the 20 m depth line. The waters between this and the coastline are generally known as coastal waters and are not always considered truly marine. In many cases, coastal waters have already been included in land-based IBAs (e.g. next to breeding colonies). In this paper "pelagic" refers to the open sea beyond coastal waters.

Geographical scope

3. This paper is dealing with the identification of IBAs beyond the littoral zone in European Union waters although much may be applicable elsewhere in the Western Palearctic. It is mainly based on experience from the continental shelf (in particular Baltic Sea and North Sea) because few published data is available on seabird distribution patterns further away and elsewhere. The Birds and Habitats Directives are applicable where Member States claim sovereign rights or an EEZ (Exclusive Economic Zone) has been declared¹⁰. The latter consists of the continental shelf and the "superadjacent" waters up to a limit of 200 nautical miles from the baseline from which the territorial sea is measured. Although the OSPAR and Barcelona Conventions covering the entire NE. Atlantic (up to Greenland) and the Mediterranean respectively require also the protection and conservation of ecosystems and the biological diversity of the maritime area, these requirements are less specific (and partly dependent on soft law) than those of EU law of which the compliance can be effectively enforced. As far as the implementation of the EU Birds Directive is concerned BirdLife should presumably focus its attention now on the territorial waters and EEZ's of the Member States, including major parts of the North Sea and the Baltic Sea.

³ See Judgement articles 115-120 (<http://curia.eu.int/jurisp/cgi-bin/form.pl?lang=en&Submit=Submit&alldocs=alldocs&docj=docj&docop=docop&docor=docor&docjo=docjo&numaff=C-6%2F04&datefs=&datefe=&nomusuel=&domaine=&mots=&resmax=100>)

⁴ Convention for the Protection of the Marine Environment of the North-East Atlantic which entered into force in 1998 (threatened and declining species according to preliminary list indicated in table 3)

⁵ Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992); entered into force in Jan 2000

⁶ Convention for the Protection of the Mediterranean Sea against Pollution (1976) and its Protocol concerning Mediterranean specially protected areas (1982)

⁷ A common European reference set of habitat units with a common description of all units and a common hierarchical classification. EUNIS is the European Nature Information System, developed and managed by the European Topic Centre for Nature Protection and Biodiversity (ETC/NPB in Paris) for the European Environment Agency (EEA) and the European Environmental Information Observation Network (EIONET).

⁸ also referred to as pelagic waters: i.e. the open-water environment, or water column, as distinct from the bed or shore, inhabited by swimming marine or freshwater organisms.

⁹ The gently seaward-sloping seabed surface that extends between the shoreline and the top of the continental slope at about 150 m depth. The average gradient of the shelf is between 1:500 and 1:1000 although it varies greatly, the average width is approximately 70km (North Sea and Baltic Sea are part of the continental shelf).

¹⁰ Note that where EEZ's have not been declared (like in the Mediterranean) the application is restricted to the territorial zone which extends from 12 nm from the coastline.



What are IBAs?¹¹

5. The aim of the Important Bird Areas (IBAs) programme is to identify and protect a network of sites at a biogeographic scale, critical for the long-term viability of naturally occurring bird populations, across the range of those bird species for which a site-based approach is appropriate. The network is considered the minimum essential to ensure the survival of these species. In essence it is BirdLife policy that, with some minor qualifications, all IBAs should be classified as SPAs under the Birds Directive. Four categories of species have been considered of which threatened and congregatory species concern the main categories (see table 6). To summarise, IBAs:

Some characteristics of IBA's

- are places of international significance for the conservation of birds at the global, regional or sub-regional levels;
- are practical tools for conservation;
- are chosen using standardised, agreed criteria applied with common sense;
- must, wherever possible, be large enough to support self-sustaining populations of those species for which they are important;
- must be amenable to conservation and, as far as possible be delimitable from surrounding areas;
- will preferentially include where appropriate, existing Protected Area Networks;
- are not appropriate for all bird species, and for some are only so in parts of their ranges; and
- should form part of a wider, integrated approach to conservation that embraces sites, species and habitat protection.

6. In addition to the above characteristics it also useful to refer to the definition of boundaries (underlined sentences that are problematic for marine areas):

Defining the boundaries of an IBA (from IBA2000)

- A site is defined so that, as far as possible, it:
 - i) is different in character or habitat or ornithological importance from the surrounding area;
 - ii) exists as an actual or potential protected area, with or without buffer zones, or is an area which can be managed in some way for nature conservation;
 - iii) is, alone or with other sites, a self-sufficient area which provides all the requirements of the birds (that it is important for) which use it during the time that they are present.
- Where extensive tracts of continuous habitat occur which are important for birds, only characteristics ii) and iii) apply. This definition is not applicable to migratory bottleneck sites.
- Practical considerations of how best the site may be conserved are the foremost consideration.
- Simple, conspicuous boundaries such as roads or rivers can often be used to delimit site margins, while features such as watersheds, ridge-lines and hilltops can help in places where there are no obvious discontinuities in habitat (transitions of vegetation or substrate). Boundaries of ownership are also relevant.
- There is no fixed maximum or minimum size for IBAs — the biologically sensible should be tempered with the practical. Neither is there a definitive answer on how to treat cases where a number of small sites lie near each other. Whether these are best considered as a series of separate IBAs, or as one larger site containing areas lacking ornithological significance, depends upon the local situation with regard to conservation and management.

What has been done so far?

Marine IBAs¹²

7. The marine environment¹³ is important for birds in Europe. European seas support over 60 species of bird that either have an unfavourable conservation status in Europe (Tucker & Heath 1994) or are marine specialists which are highly dependent upon the continuing integrity and quality of marine ecosystems (Tucker & Evans 1997). These species include four species that are globally threatened or near-threatened with extinction. Many of these species

¹¹ Paragraph taken from "Identification and demarcation of marine IBAs and their relationship to the Birds Directive" prepared by Duncan Huggett and presented for BirdLife International at various conferences (see references).

¹² Paragraphs 4-5 largely taken from Heath & Evans (2000), page 51 (abbreviated as IBA2000)

¹³ i.e. marine habitats below the low-tide mark (Tucker & Evans 1997) thus excluding intertidal areas



congregate at certain times of the year, such as seabirds at breeding colonies or loons (divers) and seaducks at favourable feeding grounds in winter. Yet despite its importance for bird conservation, the marine environment has, until recently, received relatively little attention in terms of the identification of Important Bird Areas. This is due primarily to the difficulty of defining, identifying and delineating priority sites in areas of homogeneous appearance, coupled with the difficulty of stimulating international co-operation to establish integrated protection and management schemes for important sites outside national territorial waters. This inventory identifies 470 IBAs in Europe that have some marine habitat, including 147 IBAs that have more than 50% marine habitat cover and at least 25 IBAs are solely marine. Within the scope of IBA2000 no specific attempt has been made, to provide complete listings of marine areas important for birds in Europe (see for situation in a number of countries Appendix I).

Previous inventories of marine areas that are internationally important for birds

8. Three major publications have attempted to define, identify and delineate important areas for birds in European seas: *Important bird areas for seabirds in the North Sea* (Skov *et al.* 1995), *Important marine areas for wintering birds in the Baltic Sea* (Durinck *et al.* 1994), and *Important bird areas in the Baltic Sea* (Skov *et al.* 2000).¹⁴ In SW. Europe a first attempt has been made to describe the methodology and identify marine areas in Spain: *Towards the identification of Important Bird Areas (IBAs) at sea -- Preliminary notes from Spain* (Carboneras & Viada in prep.).

North Sea The study area covered the entire North Sea, the Channel and the Kattegat, bounded by the coastlines of the United Kingdom, Norway, Sweden, Denmark, Germany, the Netherlands, Belgium and France (...). It included all territorial and international waters between the western Channel, the Northern Atlantic and the Kattegat. Data were analyzed from coastal and continental shelf seabird surveys during 1979–1994. The distribution of 30 species provided the basis for identifying important areas for birds. Twenty areas were identified as internationally important for birds in the area, of which the top six sites comprising less than 5 % of the region hold more than 80% of the cumulated sum of proportions for the species in question.

Baltic Sea The study area encompassed the Baltic Sea, the Danish Straits and the Kattegat (Durinck *et al.* 1994, Skov *et al.* 2000). Data were presented for 30 species for which 1% or more of their biogeographic population winters in the Baltic Sea. Thirty-nine areas were identified as internationally important for wintering birds in the region, of which the top 10 sites, which cover less than 5% of the region, hold about 90% of the total estimated number of wintering birds.

Spain The preliminary analysis by Carboneras & Viada (in prep.) was based on a number of physical and ecological characteristics which, when combined, helped identify important areas for seabirds in each of Spain's three distinct marine zones (Mediterranean, Atlantic and Macaronesia), and set their limits. They matched oceanographical criteria (topography, salinity, temperature, currents, upwellings, nutrients) against the regular use that seabirds made of those areas and obtained a preliminary list of 13 marine IBAs for seabirds in Spain. Their analysis mainly focused on birds which behave as strictly marine when they occur in Spanish waters (divers, petrels, shearwaters, storm-petrels, gannets, cormorants, skuas, gulls, terns and auks). The analysis was not only based on concentrations of seabirds but on the regular use that they made of certain areas, and the relevance of such areas for the conservation of seabird species. Thus, the identification of areas on which seabirds depend during part of their life cycle was key to the process. They included important foraging grounds, sites of importance along migration routes, waters where seabirds develop part of their breeding cycle as well as areas where significant aggregations occur (for resting, moulting, in winter, etc.).

9. The first three of those studies referred to above applied the so-called Marine Classification Criterion (MCC) that measures marine bird concentrations and their international significance. The methodology is dependent on having sufficiently large amounts of quantitative data available on bird distribution in marine areas. It enables the use of the 1%-threshold which is widely applied to waterbirds for the identification of wetlands of international importance under the Ramsar Convention (IBA criterion B1i). The MCC requires the quantification of three parameters (Skov *et al.* 2000):

- The size of the area based on the borders of a high-density aggregation of a waterbird or seabird species (parameter "A");
- The proportion of the total biogeographic or flyway population estimated to occur within the borders of the aggregation; and
- The degree of concentration displayed by the aggregation.

The border of the high-density aggregation has to be determined accurately by the use of robust and fine-scale interpolation techniques creating a minimum amount of false information. Important aggregations contain over 1% of

¹⁴ Although two of these studies refer explicitly to "Important Bird Areas" standard data checking and validation procedures by the BirdLife Secretariat (Heath & Evans 2000: 10) were not adhered to (cf. critical review of Skov *et al.* 2000 and other reports, Ardea 89: 551-553).



the total biogeographic or fly-way population of the species in question. The degree of concentration is regarded as important where 1% or more of a population is concentrated in an area of no more than 3000 km². The application of the MCC requires the precise delineation of the borders of species aggregations by the use of standard GIS routines¹⁵. In the North Sea report all regularly occurring species were considered including divers, grebes, cormorants, fulmar, gannet, diving ducks, sea ducks, gulls, terns and auks. The Baltic Sea report (2000), which covers both inshore wetlands¹⁶ and offshore marine areas, concerns mainly divers, grebes, cormorant, diving ducks, sea ducks, and auks (in relation to offshore areas). The areas considered of international importance for birds identified using the MCC method are shown for the North Sea in table 1 and figure 1 and for the Baltic in table 2 and figure 2.

Seaward extensions of breeding colony IBAs

10. When viewed together with the intensive use of coastal and continental shelf waters around some European coasts and the potential impacts of these activities on seabirds, it is clear that the conservation of seabirds needs actions to be targeted on both the terrestrial and marine environments. The Birds Directive provides the statutory incentive to establish marine protected areas for seabirds. RSPB has made a detailed study including specific recommendations on the extension of seabird colonies into the marine environment to include feeding areas (RSPB 2000, Huggett 2001).

11. The information brought together in that report confirms that while it would be desirable to have more information on how and where seabirds use the sea and on the significance of particular areas to seabirds, enough is known about seabird ecology to put forward some sound proposals on how the boundaries of SPAs could be extended to include marine feeding areas. It has been possible to develop and apply criteria to the SPAs holding seabird colonies in a way that conforms with the Birds Directive, is based on the importance of the areas to seabirds, is transparent, logical and systematic and which can be applied in spite of uncertainty or limited information. The following criteria were developed for the delimitation of boundaries of breeding seabird SPAs at sea:

- The boundary at sea should be drawn as a radius from points at the margins of the colonies and parallel to the shoreline where the colony extends along a stretch of coast.
- The distance to the seaward boundary should be determined on the basis of information on foraging range, feeding and surface use of breeding seabirds.
- The distance to the seaward boundary should be species-specific and refer to those breeding species at the site which fulfil the IBA criteria.
- When there is more than one breeding IBA species using the site, the highest recommended figure should be used to set the distance to the seaward boundary.
- Known and regularly used feeding areas adjacent to a recommended boundary should be incorporated within the site.
- Where known and regularly used feeding areas do not lie adjacent to recommended boundaries, these locations should be considered as sites in their own right.
- Where the recommended seaward boundaries of sites overlap they should be merged to form a single site for management purposes.

12. Three groups of seabird species have been identified suggesting boundaries 5, 15, and 40 km from the nesting colonies (table 3). This gives a reasonably detailed breakdown based on best interpretation of the data at the present time. A map of UK SPA's holding seabird colonies with suggested modifications taking into account of feeding areas is shown in figure 3. Species with extensive feeding ranges like Gannet, Fulmar and Storm Petrel, cannot be covered by this kind of seaward extensions of breeding colonies, although they will profit to a certain extent from extensions made for other seabird species.

¹⁵ The numerical criteria applied for the drawing of the boundaries were not explained. The process is only described in technical terms: "In this inventory, the boundaries of Inshore and offshore IBAs were integrated and analysed by standard GIS routines. [...] Delineation of the borders of species aggregations were defined by fine-scale linear interpolation (normal kriging) of corrected densities [...]. The boundaries were determined by density lines (polygons), which marked the plateau of higher densities following a density gradient" (Skov *et al.* 2000: 20).

¹⁶ Note that the Ramsar definition of wetlands in the marine environment is restricted to "areas of marine water the depth of which at low tide does not exceed six metres" although designated sites may include "bodies of marine water deeper than six metres at low tide lying within the wetlands, especially where these have importance as waterfowl habitat".



13. In this approach generic, precautionary radii are defined for each species based on their known foraging ranges and then apply these to each of their colony IBAs. Its advantage is that it does not require a detailed assessment of sea use or colony-specific foraging ranges. It will be relatively robust to variations in marine distribution among colonies and across years. However, the draw-back of the radius-based approach is that it will often incorporate sea areas that seabirds seldom use. Ideally, site-specific radii should be estimated for each seabird species for which a site is designated at each of their colony IBAs, and the radius that encloses a certain proportion of the species' marine distribution selected as the outer boundary. However, reliable foraging radii are only available from a small number of colony IBAs in the UK and so site-specific criteria that encompass a given proportion of foraging trips for a species for which a site is designated, around each of its colony IBAs, cannot be implemented. Obtaining this data would require considerable time and expenditure of limited conservation resources (Huggett 2001)¹⁷.

Which species?

14. Bird species in the marine environment can be divided into two categories: seabirds and waterbirds (IBA2000). The term 'waterbird' is used in the same sense as that used for 'waterfowl' under the Ramsar Convention, and includes (in Europe) marine bird species in the following families: Gaviidae (divers), Phalacrocoracidae (cormorants), Anatidae (ducks), and Laridae (gulls and terns). By this definition waterbirds include, for example, cormorants, gulls and terns, which some authors have more traditionally considered as seabirds. Most of these have an inland and/ or coastal distribution but some of them notably gulls and terns also occur commonly on the continental shelf¹⁸. Species like Audouin's Gull, Kittiwake, Sandwich Tern, and Roseate Tern are exclusively marine during their entire life cycle. The term 'seabird' covers, in Europe, all bird species in the following families: Procellariidae (fulmars, petrels, shearwaters), Hydrobatidae (storm-petrels), Sulidae (gannets), Stercorariidae (skuas) and Alcidae (auks). For the purpose of this paper gull and tern species that are largely dependent on the marine environment during part of their annual cycle (e.g. the non-breeding season) are considered seabirds ("seabirds+").

15. During the non-breeding season many seabird species are largely pelagic. It should be noted that some of these species feed hundreds of miles from the breeding colony, including Fulmar, Leach's Petrel, Storm Petrel, Manx Shearwater and Gannet.

16. For the selection of IBA's in Europe twenty IBA criteria have been developed. These allow the identification, based on a site's international importance for (table 6): Threatened bird species, Congregatory bird species, Assemblages of restricted range species, and Assemblages of biome-restricted species. The latter two categories do not concern marine areas, so these are not relevant for this purpose. Threatened bird species refer to three categories: globally threatened species (5), Species of European Conservation Concern categories 2 and 3 (26) and (sub-)species included in Annex I of the Birds Directive (29¹⁹) (37 subspecies or species in total; table 4). Twenty-three marine species and subspecies which are not considered threatened at the European level or listed in Annex I, are listed in table 5²⁰. In total both categories concern 60 (sub)species occurring in EU waters of which 27 have a largely non-coastal/ pelagic distribution outside the breeding season. Some predominantly inland species have been excluded (e.g. *Larus ridibundus*). The majority of these species are covered by the habitat conservation requirements of the Birds Directive either as Annex I species or as migratory species not listed in Annex I.

17. Outside the breeding season not all the species listed in tables 4 and 5 are relevant for the identification of marine IBA's in Europe, because (a) they do not winter in European waters and passage occurs rapidly (most petrels and

¹⁷ In respect of the generic foraging radii approach, it might be worth noting UK Government criticism of this approach: "One of the difficulties with employing a generic radius approach encountered during work carried out by JNCC on extensions to bird breeding colonies, is that feeding locations for birds from a particular breeding colony appear to be specific to that colony, rather than determined by a generic foraging distance for each species" (Johnston et al. 2002, page 140; see also page 123). Apparently it is the UK Government view that the approach is not that helpful as it is felt insufficient data exists to define radii and much unutilised sea would be included.

¹⁸ defined as marine waters from 20 to 200 metres in depth (see also footnote 33)

¹⁹ including *Polysticta stellerii*, *Larus minutus*, and *Puffinus yelkouan*, which will be added to Annex I with the accession of new Member States in May 2004 (the latter species is already included in Appendix II of the Bern Convention).

²⁰ The (total) list of marine species largely taken from Tucker & Evans (1997), chapter Marine habitats, Table 3



skuas), and (b) species with a low conservation interest (some gulls). The from a conservation point of view most relevant species for the identification of marine IBA's have been tentavily indicated in tables 4 and 5 (set in bold type).

IBA2000 criteria

18. Seabirds are covered by the following IBA2000 criteria²¹:

A1. The site regularly holds significant numbers of a globally threatened species, or other species of global conservation concern

A4iii. The site is known or thought to hold, on a regular basis, $\geq 20,000$ waterbirds or $\geq 10,000$ pairs of seabird of one or more species

B1i. The site is known or thought to hold 1% or more of a flyway population or other distinct population of a waterbird species [includes global criterion A4i]

B1ii. The site is known or thought to hold 1% or more of a distinct population of a seabird species [includes global criterion A4ii]

B2. The site is one of the 'n' most important sites in a country for a species with an unfavourable conservation status in Europe (...), and for which the site-protection approach is thought to be appropriate.

B3. The site is one of the 'n' most important sites in a country for a species with a favourable conservation status in Europe but with its global range concentrated in Europe, and for which the site protection approach is thought to be appropriate.

C1. the same as criterion A1.

C2. The 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. The site is known to regularly hold at least 1% of a flyway population of a migratory species that is not considered to be threatened in the EU.

C4. the same as criterion A4iii.

C6. The site is one of the five most important in the European region in question for a species or subspecies considered threatened in the European Union.

19. Within criterion category C (European Union importance) C2, C3 and C6 have been widely applied to identify breeding colonies of marine species. They could not be applied for non-migratory species which are not included on Annex I (e.g. *Cephus grylle* and in temperate Europe, *Larus argentatus*). Outside the breeding season these criteria are less appropriate although the 1%-criterion has been applied for some waterbird species which winter in congregations like *Melanitta nigra*, *Somateria mollissima*, and *Clangula hyemalis*. However, the occurrence of such concentrations is dependent on shellfish banks (e.g. *Spisula subtruncata*) of which the locations may vary from year-to-year. IBA North Sea north of the Wadden Sea (Netherlands) along 150 km coast line²² includes large concentrations of *Melanitta nigra*, but in some years the *Spisula* banks are located just south of this area. This example shows that even for highly congregatory seaducks the delimitation of marine sites may be difficult.

Four types of marine IBAs

20. Four types of bird distribution patterns can be distinguished in the marine environment:

- a) Seaward extensions of breeding colonies IBAs: such extensions used in particular for feeding, resting and social interactions can be small or large but the total area is limited by the feeding range of the breeding birds concerned. The extent of the area is species dependent; the maximum distance from the breeding colony varies from several kilometres to over 30 km. These same areas may be important for sedentary species around the year;

²¹ Note that criterion C7 has been exclusively applied to retain existing IBAs which did not qualify under the C1-C6

²² Total area 187,000 hectares, seaward extension to the 20 meter depth line (3-5 nm wide); the Special Protection Area (2000) has a seaward boundary of three nautical miles and covers about two thirds of the IBA.



- b) Non-breeding waterbird concentrations: coastal areas, which hold feeding and moulting concentrations of waterbirds²³ in particular divers, grebes and benthos feeding ducks;
- c) Migration hotspots: sites where, because of their geographical position, seabirds fly over in the course of their regular migrations. These sites normally correspond to special land features (headlands, straits) and are identified by the number of birds passing by. In some cases, the area also holds rich feeding grounds or is the site of important concentrations where birds stop during their migrations;
- d) Important areas for pelagic species: This type concerns marine areas which are completely unconnected to the coastline (i.e. not offshore islands and rocks). This type includes sites which pelagic seabirds use regularly to feed. Very often, other marine animals use them too and important fisheries occur in the same areas. These areas tend to have specific oceanographic features and their biological productivity is invariably high. It concerns also sites where seabirds regularly gather in large numbers although not necessarily to feed. They can be moulting, resting or courting grounds, during the breeding season or outside it. These areas are identified by the high number of birds that use them on a regular basis.

Similar categories (a, b, d) have also been recognised by JNCC (Johnston et al. 2002) as “three main types of functional concentrations of seabirds to enable the identification of marine SPAs”²⁴. The first three types refer to areas which are related to the coastline, and they may include coastal areas and wetlands. The next paragraphs of this paper will be confined to these so-called “marine IBA’s related to the coastline”. The fourth type, marine IBA’s that are rich feeding for pelagic species, will be dealt with in a separate part II of this paper that will be finalised at a later stage.

Towards marine IBA’s related to the coastline

Setting marine boundaries

21. When it comes to defining the boundaries of a marine IBA, the guidelines given in para 6 need to be adapted to the particular characteristics of the marine environment. Any marine IBA should aim at covering the whole of the area that is regularly used by seabirds at critical moments of their lifetime. Those sites should, therefore, be homogeneous extensions of a given 'habitat' and be distinct from surrounding areas. The identification of a marine 'habitat' is thus key to the process. Relevant oceanographic features which can be used to set the limits of marine IBAs are: the presence and extent of regular upwellings (upward currents that bring nutrient-rich bottom waters to the surface), sea currents, eddies, nutrient-outflows (such as rivers) and temperature / salinity anomalies (or disruptions), normally known as areas of convergence.

22. At the Natura 2000 in Offshore Waters seminar held in June 2002 (Turnbull et al. 2002) some general points were made. Boundaries need to be based on good science, focusing in the first place on the interest feature for sites. However, for all habitats (particularly extensive and patchy habitats, e.g. iceberg ploughmarks, cold water coral reef) boundaries should be wider rather than tight around habitats and should be pragmatic and bear in mind future management needs. Existing systems, e.g. ICES blocks, could be used so long as they are fully justified and appropriate. The precautionary principle should be used in setting boundaries around sites where uncertainty exists over the full extent of the interest feature. The management regime could be varied within the site and remain flexible to accommodate future information acquisition.

23. The common guidelines for defining the boundaries of IBAs need amendment (cf. para 6) having full regard to relevant European case law. The statement “Where extensive tracts of continuous habitat occur which are important for birds, only characteristics ii) and iii) apply” (see para 6) is very relevant for the marine environment. To which extent should the following characteristics be retained for marine IBAs:

- ii) A site exists as an actual or potential protected area, with or without buffer zones, or is an area which can be managed in some way for nature conservation;
- iii) A site is, alone or with other sites, a self-sufficient area which provides all the requirements of the birds (that it is important for) which use it during the time that they are present.

Condition iii) cannot apply to marine areas because sites not connected to land do not provide breeding sites during the breeding season. For some species they also not provide sheltered locations for roosting. Condition ii) does seem to be relevant for marine IBA’s because we are aiming at “manageable” sites for which legal protection measures are

²³ note the definition of the term “waterbirds” in paragraph 11

²⁴ These have also been included in the “Concluding principles” of the European seminar “Natura 2000 in UK Offshore Waters: Implementation of the EC Habitats and Birds Directives in UK offshore waters” (Turnbull et al. 2002). The artificial split between inshore and offshore sites (category d confined to offshore waters, i.e. 15 km from the coastline and category b indicated as “coastal marine areas”) was however not supported by BirdLife.



feasible. The general remark on the size of IBA's ("the biologically sensible should be tempered with the practical") is equally applicable for marine IBA's.

It is recommended to add the following guideline on defining boundaries of marine IBA's:

In the case of marine areas beyond the sublittoral and inshore zones only characteristics i) and ii) apply. This definition is not applicable to migration hotspots.

The guideline "where extensive tracts of continuous habitat occur ..." should be confined to non-marine and inshore habitats.

Seaward extensions of breeding colony IBAs

24. The RSPB has developed an useful and simple methodology for defining boundaries of feeding areas around seabird colonies: the radius of the feeding range from points at the margins of the colonies and parallel to the shoreline where the colony extends along a stretch of coast (para 10-13). The minimum information necessary is an indication of the feeding ranges of the species for which the site was selected or designated. Feeding ranges differ widely from species to species and they may, to a lesser extent, also vary from colony to colony. If more precise data on feeding locations are available they should be used: this may lead to smaller or larger areas. Species which are feeding long distances away from the colony (like petrels) are less well protected but their dispersive nature and wide feeding range make them generally less vulnerable. Otherwise such areas have to be considered as "type d" areas (areas for pelagic species).

25. The main criticism refers to the risk of inclusion of areas which are not important for the birds concerned, so that unnecessary constraints are put on the human use (in particular fisheries) and new projects (e.g. oil exploration, wind parks) within such areas. However, the reverse situation (damage to SPA populations that should be protected) may result in a breach with the Directive and is equally unacceptable. In our view the precautionary principle should be applied, which in this particular case means that proof of evidence (important numbers of birds using the area or not) is moved from the designation process to the assessment procedures of article 6. In fact it really does not matter whether a certain marine area within the feeding range of a SPA designated for its colonial breeding seabirds is inside or outside the boundaries. In the latter case the obligation also exists to assess whether any human activity taking place or planned does not jeopardize the integrity of the SPA (including its seabird populations) concerned. If research indicates that the sea area concerned is not important for the SPA's seabirds the site's integrity is not affected and the human activity can continue (or started).

26. For this category of marine IBA's amendment or extension of the IBA2000 criteria is not necessary because it concerns only a methodology of delimiting the seaward boundaries of IBA's selected on the basis of the existing criteria (i.e. A4iii, Bii, C2, C3, C6).

Non-breeding waterbird concentrations

27. Some species of waterbirds stay in large numbers or even exclusively in shallow marine areas. These include benthos feeding ducks like *Aythya marila*, *Melanitta nigra*, *Somateria mollissima*, *Clangula hyemalis* and piscivorous species like *Gavia stellata*, *Podiceps grisegena* and *Mergus serrator*. In particular in the Baltic Sea quite a few other waterbird species are also using marine areas in important numbers: grebes *Podiceps* (3 species), swans *Cygnus* and geese *Anser* (6), dabbling ducks *Anas* (5), other ducks (9), and Coot *Fulica atra* (number of species refer to the German part, Gellermann et al. 2002). These species are not listed in tables 4 and 5 because they are not considered as species that are largely dependent on the marine environment during at least part of their annual cycle. Naturally this does not preclude their role in the selection and delimitation of marine IBA's.

28. Along the North Sea these species are mainly found close to the coastline²⁵ so that the seaward delimitation of IBAs can often be related to sea depth and is not too difficult. In the Baltic Sea such shallow areas are also found further from the coast because of the presence of banks separated from the coastline by deeper waters. Delimitation of such areas is more difficult than along the North Sea and the Marine Classification Criterion (MCC) might be an appropriate method to standardize site selection and delimitation. In any case the Baltic Sea report (Skov *et al.* 2000) provides data on 169 coastal and marine sites covering a relatively small proportion of the Baltic Sea and Kattegat. These sites could be considered IBA's as meant by BirdLife International. However, the problems noted in Appendix II apply also, although may be less prominent.

²⁵ A notable exception are the shallow waters of IBA Eastern German Bight (listed as DK123 only) which extend up to 40 nm from the coastline of Schleswig-Holstein



29. The term “European region” plays an important role in the application of criterion C6 (see para 18) because it determines the maximum number of sites that can be selected under this criterion. However, the division of EU NUTS regions used for this criterion is largely based on administrative boundaries on land and it does not cover the sea (except coastal zones). It is suggested that a division is made between Baltic Sea, North Sea, NE. Atlantic, SE. Atlantic and Mediterranean. The boundaries between these regions can be based on those used by the International Council for the Exploration of the Sea (ICES). The same division is used by the EU in the framework of the Common Fisheries Policy²⁶. For most small countries this means one region (e.g. Portugal SE. Atlantic) and for large countries two regions (e.g. Germany: Baltic Sea and North Sea).

30. The application of the MCC for waterbirds at sea can be done under the existing set of criteria. It can fall within the scope of criteria B1i, C2, C3 and C6 as it is merely considered a tool to delimit sites with waterbird concentrations. If it is not possible to use the MCC methodology the delimitation of sites can also be made manually, in particular because most marine waterbird concentrations outside the Baltic Sea region are presumably more or less linearly distributed along coast lines.

Migration hotspots

31. The IBA2000 criteria include a separate criterion (B1iv) for migration bottlenecks for selected groups of terrestrial species: “The site is a ‘bottleneck’ site where over 5,000 storks, or over 3,000 raptors or cranes regularly pass on spring or autumn migration”²⁷. The corresponding global criterion (A1iv) includes a threshold of 20,000 for all these species combined²⁸. The most obvious European examples of bottleneck sites for seabird passage are the Strait of Gibraltar and the Bosphorus (Turkey). These “hotspots” have been included in IBA2000 under criteria B1i/ B1ii and B1ii respectively²⁹. Nevertheless the introduction of a separate criterion for “marine” bottleneck sites (or extension of the existing bottleneck criteria to cover marine birds) would be useful to distinguish these sites from breeding, wintering and staging areas. This may be also necessary because doubts can be raised whether the verb “to hold” applied in criteria B1i and B1ii covers also birds on passage at bottleneck sites.

32. The bottleneck criterion for seabirds could be similar to B1iv, for example:

The site is a “migration hotspot” where at least x seabirds or 20,000 waterbirds regularly pass through a narrow strait or along a headland during spring or autumn migration.

Apart from narrow straits the criterion covers also headlands along which marine birds funnel during migration. The local topography of such sites needs further clarification³⁰. The threshold for waterbirds equals the threshold in criterion A4iii. The threshold for seabirds has not yet been determined (“x”). Presumably the seabird threshold will be larger³¹ than those for waterbirds and seabirds (10,000) in criterion A4iii. The thresholds need to be tested (and resident birds to be excluded) against site data to establish what is appropriate.

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²⁶ see http://europa.eu.int/comm/fisheries/doc_et_publ/pub_en.htm#map

²⁷ The EU criterion C5 is the same except that the word “over” has been replaced by “at least” twice (as in A41iv!).

²⁸ The site is known or thought to be a ‘bottleneck’ site where at least 20,000 storks (Ciconiidae), raptors (Accipitriformes and Falconiformes) or cranes (Gruidae) regularly pass during spring or autumn migration.

²⁹ the same sites are also bottlenecks for migratory terrestrial species qualifying under criterion A1iv and/ or B1iv for storks and raptors

³⁰ The African IBA Book (Fishpool & Evans 2001) gives a helpful explanation of bottleneck sites used by terrestrial migrants (box 7, page 14).

³¹ SEO has commented as follows: “The two most important migration hotspots in Spain hold incredibly big numbers: >150,000 Cory’s Shearwaters through Straits of Gibraltar twice a year (plus many other species), >300,000 seabirds along Estaca de Bares (Galicia) each autumn. The figure of 20,000 is probably much too low: the Ebro delta population of Audouin’s Gull, for example, numbers in excess of 28,000 birds and most of these migrate S along the coastline.”



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Table 1. Areas considered of international importance for marine birds in the North Sea, Channel and Kattegat. Sum of proportions is the total percentage of populations occurring within the area in internationally important concentrations (from Skov *et al.* 1995).

Area name (see figure 1)	Area size (ha)	Depth (m)	No. species	Sum of proportions
1 Northern Kattegat	1,100,000	0-60	10	96,7%
2 Orkney – Shetland	2,200,000	0-200+	7	93.0
3 Moray Firth – Aberdeen Bank - Tees	4,900,000	0-100+	9	71.7
4 Skagerrak – Southwest Norwegian Trench	4,850,000	20-400	6	47.3



5 Eastern German Bight	1,280,000	0-30+	6	47.3
6 Cap Gris Nez – Schiermonnikoog	1,600,000	0-20+	7	35.4
7 Flamborough Head and the Hills	1,600,000		7	27.8
Other 13 areas (total area estimated)	2,400,000		1 – 3	1.0 – 10.9
Total area of these 20 areas	c. 20,000,000			
Total area of North Sea, Channel & Kattegat	75,000,000			

Table 2. Selected large marine IBA's in the Baltic and Kattegat (data from Skov *et al.* 2000).

Code	Area name	Area (ha)	Depth (m)	Main species	Population	% Flyway
SE050	Inshore area East Gotland	152,500	0-40	Long-tailed Duck	164,000	3,6%
SE065	Hoburgs Bank	157,900	10-40	Long-tailed Duck	872,000	19,0%
SE066	Northern Midsjö Bank	85,760	10-40	Long-tailed Duck	65,000	1,4%
SE067	Southern Midsjö Bank	81,430	20-40	Black Guillemot	770	1,7%
SE072 DK129	Lille Middelgrund	126,000	10-50	Kittiwake Razorbill Guillemot	99,000 93,500 93,000	1,2% 6,9% 1,6%
FI045	Merenkurkku Archipelago	223,652	0-10	Velvet Scoter Long-tailed Duck	100,000 100,000	10% 2,2%
EE049	Irbe Strait	378,900	0-50	Long-tailed Duck Black Guillemot	700,000 3900	15,6% 8,7%
LV059	Seashore at Palanga	113,000		Steller's Eider	1400-2300	4,7-7,7%
LT001 RU220	Seashore at Nida	77,000		Velvet Scoter Long-tailed Duck	80-160,000 68,000	8-16% 1,5%
PL080	C. Polish Inshore waters	272,500		Long-tailed Duck	217,000	4,7%
DE040	Pomaranian Bay	623,500		Long-tailed Duck	837,000	18,2%
DK083	Hyllekrog - Rødsand and Fehmarn belt	100,000		Tufted Duck Red-br Merganser	22,000 4100	2,2% 3,3%
DK128	Northwestern Kattegat	580,000		Common Scoter Eider	360,000 264,000	22,5% 19,6%
DK130	Smålandsfarvandet	135,300		Tufted Duck	16,880	1,7%

Table 3. Marine boundaries around seabird breeding colonies for three categories of feeding ranges of species breeding in the British Isles (RSPB 2000).

GROUP I	GROUP II	GROUP III
Radius 5 km	Radius 15 km	Radius 40 km
<i>Stercorarius parasiticus</i>	<i>Puffinus puffinus</i> (rafts only)	<i>Catharactes skua</i>
<i>Sterna albifrons</i>	<i>Phalacrocorax carbo</i>	<i>Larus argentatus</i>
<i>Cephus grylle</i>	<i>P. aristotelis</i>	<i>L. fuscus</i>
	<i>Larus canus</i>	<i>L. marinus</i>
	<i>Sterna paradiseae</i>	<i>Rissa tridactyla</i>
	<i>Sterna hirundo</i>	<i>Uria aalge</i>
	<i>Sterna sandvicensis</i>	<i>Alca torda</i>
	<i>Sterna dougalli</i>	<i>Fratercula arctica</i>

Table 4. Threatened bird species at the global level, in Europe (SPEC 1-3 and/ or in the European Union³² which are wholly or partly dependent on the marine environment. This indicative list is confined to species that (may) regularly occur in EU waters in important numbers (thus excluding species largely confined to the Arctic). Species which may be most relevant for the identification of marine IBA's across European marine waters (thus excluding rare and localised species) tentavily set in bold type.

³² Species that will be included in Birds Directive Annex I with the extension of the EU within parentheses



Species	Globally	SPEC	Annex I	Non-breeding ³³	Where mostly in Europe ³⁸
<i>Gavia stellata</i>		4	4	Coastal	NE. Atlantic, Baltic
<i>Gavia arctica</i>		4	4	Coastal	NE. Atlantic, Baltic
<i>Gavia immer</i>		P	4	Coastal	NE. Atlantic
<i>Pterodroma feae</i>	4	4	4	Pelagic	Macaronesian
<i>Pterodroma madeira</i>	4	4	4	Pelagic	Macaronesian
<i>Bulweria bulwerii</i>		4	4	Pelagic	Macaronesian
<i>Calonectris diomedea</i>		4	4	Pelagic	All, except Baltic
<i>Puffinus puffinus</i> s.s.		4		Pelagic	NE. Atlantic
<i>Puffinus mauretanicus</i> ³⁴	4	P	4	Pelagic	Mediterranean, NE. Atlantic
<i>Puffinus yelkouan</i>		(4)	(4) ³²	Pelagic	Mediterranean, NE. Atlantic
<i>Puffinus assimilis</i>		4	4	Pelagic	Macaronesian
<i>Pelagodroma marina</i>		4	4	Pelagic	Macaronesian
<i>Hydrobates pelagicus</i>		4	4	Pelagic	NE. Atlantic, Mediterranean
<i>Oceanodroma leucorhoa</i>		4	4	Pelagic	NE. Atlantic
<i>Oceanodroma castro</i>		4	4	Pelagic	Macaronesian
<i>Morus bassanus</i>		4		Pelagic	NE. Atlantic, Mediterranean
<i>Phalacrocorax a. desmarestii</i>		³⁵	4	Coastal	Mediterranean
<i>Aythya marila</i>		4		Coastal	Baltic, NE. Atlantic
<i>Polysticta stellerii</i>	4	4	(4)	Coastal	Baltic
<i>Melanitta fusca</i>		4		Coastal	Baltic, NE. Atlantic
<i>Phalaropus lobatus</i>		P	4	? ³⁶	NE. Atlantic
<i>Larus minutus</i>		4	(4)	Coastal	All
<i>Larus melanocephalus</i>		(4)	4	Coastal	Mediterranean, East Atlantic
<i>Larus genei</i>		P	4	Coastal	Mediterranean
<i>Larus audouinii</i>	4	4	4	Coastal	Mediterranean, East Atlantic
<i>Larus fuscus fuscus</i>		(4)		Coastal	Baltic, Mediterranean
<i>Larus canus</i>		4		Coastal	Baltic, NE. Atlantic
<i>Sterna caspia</i>		4	4	Coastal	Baltic, Mediterranean
<i>Gelochelidon nilotica</i>		4	4		Mediterranean
<i>Sterna sandvicensis</i>		4	4	Coastal	NE. Atlantic, Mediterranean
<i>Sterna dougallii</i>		4	4	Coastal	NE. Atlantic, Macaronesian
<i>Sterna hirundo</i>			4	Coastal	All
<i>Sterna paradiseae</i>		P	4	Pelagic	Baltic, NE. Atlantic
<i>Sterna albifrons</i>		4	4	Coastal	E. Atlantic, Mediterranean
<i>Cephus grylle</i>		4		Coastal	NE. Atlantic, Baltic
<i>Fratercula arctica</i>		4		Pelagic	NE. Atlantic
<i>Uria aalge ibericus</i>		P	4	?	NE. Atlantic

Table 5. Non-threatened bird species in Europe which are wholly or partly dependent on the marine environment (main occurrence not filled in for Black Sea). This indicative list is confined to species which (may) regularly occur in EU waters in important numbers. The most important candidate species for the identification of marine IBA's have been tentatively set in bold type.

³³ "coastal" refers to marine waters less than 20 m deep and "pelagic" to marine waters deeper than 20 m.

³⁴ named *Puffinus puffinus mauretanicus* in Annex I of the Birds Directive (also considered conspecific with *yelkouan* in Birds of Europe (1994) and IBA2000). BirdLife International has reviewed the taxonomic status of *Puffinus mauretanicus*, which is now listed, as Near-Threatened, in its Threatened Birds of the World 2000)

³⁵ Subspecies not assessed by Birds of Europe (1994)

³⁶ Pelagic in its tropical winter quarters.



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an exploration by the Birds and Habitats Directives Task Force

Species	SPEC ³⁷	Breeding	Non-breeding	Dispersion	Where mostly Europe ³⁸
<i>Fulmarus glacialis</i>	P	4	Pelagic		NE. Atlantic
Puffinus gravis	P		Pelagic		NE. Atlantic, Macaronesian
<i>Puffinus griseus</i>	P		Pelagic		NE. Atlantic
<i>Oceanites oceanicus</i>			Pelagic		NE. Atlantic
<i>Phalacrocorax carbo carbo</i>		4	Coastal		NE. Atlantic
<i>Phalacrocorax carbo sinensis</i>		4	Coastal		Baltic, Mediterranean ³⁹
<i>Phalacrocorax aristotelis aristotelis</i>	4	4	Coastal		NE. Atlantic
<i>Aythya fuligula</i>		4	Coastal	Congregatory	Baltic
<i>Mergus serrator</i>	P	4	Coastal	Congregatory	Baltic, NE. Atlantic
<i>Clangula hyemalis</i>	P	4	Coastal Pelagic	Congregatory	Baltic
<i>Somateria mollissima</i>	P	4	Coastal	Congregatory	Baltic, NE. Atlantic
<i>Melanitta nigra</i>	P	4	Coastal	Congregatory	Baltic, NE. Atlantic
<i>Stercorarius parasiticus</i>	P	4	Pelagic		NE. Atlantic
<i>Stercorarius longicaudus</i>	P		Pelagic		NE. Atlantic
<i>Catharactes skua</i>	P	4	Pelagic		NE. Atlantic
<i>Larus argentatus</i>	P	4	Coastal		NE. Atlantic
<i>Larus cachinans</i>		4	Coastal		All, except Baltic
<i>Larus marinus</i>	4	4	Coastal		Baltic, NE. Atlantic
<i>Larus fuscus graelsii</i>	4	4	Coastal		NE. Atlantic
<i>Rissa tridactyla</i>	P	4	Pelagic		NE. Atlantic
<i>Uria aalge</i> (excl. ssp. ibericus)	P	4	Pelagic		NE. Atlantic, Baltic
<i>Alca torda</i>	4	4	Pelagic		NE. Atlantic, Baltic
<i>Alle alle</i>	P		Pelagic		NE. Atlantic

Table 6. Categories of species which are used to identify Important Bird Areas

Category	Explanation	IBA criteria
Species of conservation concern	Species of global conservation concern Species with an unfavourable conservation status in Europe Species with a favourable conservation status in Europe, but concentrated in Europe (Sub-)species listed in Annex I of the Birds Directive	A1, C1 B2 B3 C2, C6
Congregatory species		A4, B1, C3, C4, C5
Assemblages of restricted range species	Species whose breeding distribution define an Endemic Bird Area or a Secondary Area [terrestrial in Europe]	A2
Assemblages of biome-restricted species	Species whose breeding distribution are largely or wholly confined to one biom [terrestrial in Europe]	A3

Appendix I. Identification of marine IBA's, species and data availability in 11 European countries (data provided by participants of BirdLife's seminar on marine issues, Brussels, 30 May 2002)

Country	LV	DK	DE	NL	BE	UK	IE	FR	ES	PT	MT
<i>Breeding seabirds</i>											
Number of IBAs identified for	0	1 ⁴⁰	1 ⁴⁰	7	1	46+	c. 60	15	39 ⁴¹	c.	3

³⁷ Species of Conservation Concern, category 4 (not threatened or declining but concentrated in Europe);

a "P" indicates non-SPEC priority species of marine habitats in Europe according to Tucker & Evans (1997)

³⁸ Division of NE. Atlantic (North and West European seas) and Macaronesian seas taken from Tucker & Evans (1997)

³⁹ Only small proportion at coastal sites in the East Atlantic

⁴⁰ excluding tern and gull colonies

⁴¹ North Spain 6, Mediterranean 21, Canary Islands 11



breeding seabirds										23 ⁴²	
Number of qualifying seabird species in these IBAs	0	1	C7 ⁴³	5	3	18	18	12	19	11-12	3
Any data on feeding ranges?	n.a.	yes	?	yes	?	yes	yes ⁴⁴	no	yes	no ⁴⁵	no
Waterbird concentrations											
Number of nearshore IBAs identified for waterbirds	7	6 ⁴⁶	21	2	1	?	0	?	1	0	0
Number of qualifying waterbird species in these IBAs	8	c. 20	4	4	1	?	4	?	1	0	0
Completeness of inventory in this respect	no	yes	yes	yes	yes	yes?	no ⁴⁷	90-95%	yes	90%	100%
Regular counts made?	no	yes?	yes	yes	?	yes?	no ⁴⁸	yes	yes	no	no
Dispersed pelagic birds											
Number of IBAs identified for non-breeding seabirds	0	2	none	none	none	none	none	none	none	none	none
Any data available of non-breeding occurrence?	yes	yes	yes	yes	yes	yes	no?	yes?	yes ⁴⁹	?	no
Any known seabird concentrations?	no	yes	no?	no?	?	yes?	yes? ⁵⁰	yes	yes ⁵¹	?	no
Any attempts made to identify such IBA's?	yes	yes	yes	yes	yes	yes	no	no	yes ⁵²	no	no

Appendix II. Drawbacks related to the application of the Marine Classification Criterion for pelagically distributed seabirds.

- ◆ The validity of setting maximum area (parameter “A”) must be tested. It is likely that the total area of selected sites and the bird numbers covered depend on “A” (3,000 km² in the quoted MCC inventories⁵³). It would be interesting to see the effects of different maximum areas (e.g. 1000 and 2000 km²) on population coverage and total IBA area selected⁵⁴.

⁴² Azores 14, Madeira 9, mainland coast 1

⁴³ site included under IBA criterion C7

⁴⁴ some data for birds feeding in breeding and post-breeding season (i.e. Roseate and Little Tern); some SPA's include 500 metre zone around breeding colonies

⁴⁵ only data on tern species feeding close to breeding colonies

⁴⁶ includes IBA #083 (100,000 ha), #118 (162,500 ha), #119 (870,000 ha; also Alca torda), IBA #120 (100,000 ha), #122 (120,000 ha), #123 (1,150,000 ha)

⁴⁷ distribution inshore/ offshore not well known

⁴⁸ any regular counts are from the Wetland Bird Survey which would pick up birds nearshore

⁴⁹ some data on movements of Puffinus yelkouan through the Strait of Gibraltar to the Cantabrian Sea for post-breeding concentrations and moulting. Offshore sites located there.

⁵⁰ some evidence of post-breeding concentrations of Little Gull and tern species on offshore banks

⁵¹ yes, for other species than P. yelkouan but more data and scientific evidence needed

⁵² yes, for P. yelkouan, that will probably coincide with feeding areas of other species

⁵³ This figure is based on the feeding range of Razorbills from their breeding colony. This appears to be a rather arbitrary choice and its logic is far from satisfactory: what is the relation between the feeding range of a particular species during the breeding season and the non-breeding dispersion of seabirds in general?

⁵⁴ Meanwhile it appears that this has been done and it is concluded that “the selection of the globally important areas for seabird species with clustered distributions is less sensitive to this parameter (within the range of 1000-3000km²)” (Draft: *A quantitative method for evaluating the importance of marine areas for conservation birds*; see also Appendix IV). However, this refers to the number of sites selected; the effect on the total area of the sites selected is unclear. Furthermore, the data presented in Appendix IV show that this conclusion mostly refer to waterbirds; the numbers of sites selected for gannets and auks indicate a clear effect of reducing the maximum area size from 3000 to 1000 km².



- ◆ MCC uses very low densities of birds over wide areas to establish important areas (as low as 100 birds/km²). Questionable whether this constitutes a congregation or dispersed. Even without the C4 criterion, the areas selected are too large - not consistent with the IBA concept
- ◆ The methodology does not have regard to bird activity/ use of the site. An observed occurrence of birds may not be site specific. It requires repeat counts or behavioural observations to indicate site fidelity.
- ◆ Little is known to which extent the distribution patterns of seabirds vary from year-to-year. If the “concentrations” move in time this would be another factor that enlarge marine IBAs. Anyway the issue of seabird site fidelity is something BirdLife needs to look at more carefully because IBAs require areas to be regularly used.
- ◆ The approach to actually defining site boundaries is unclear. At least 5 'limitations' or variables are identified but the impact of changing these is not known.
- ◆ It is not clear on the basis of what criteria sites are combined (see discussion of IBA Northwestern Kattegat in Appendix III).
- ◆ Technique is too data hungry: it can only be properly applied with a vast amount of survey data that are only available from a very limited number of marine areas in the world.
- ◆ Technique is too complex, requiring specialists to employ it. Its application is complicated because of interpolation of census data and the necessity of a GIS software.
- ◆ The application of the criterion does not lead to consistent results as shown in the Ardea review of Skov *et al.* 2000 (see Appendix III and see Skov’s reaction in Appendix IV).



SKOV H., VAITKUS G., FLENSTED K.N., GIRSHANOV G., KALAMEES A., KONDRATYEV A., LEIVO M., LUIGUJOE L., MAYR C., RASMUSSEN J.F., RAUDONIKIS L., SCHELLER W., SIDLO P.O., STIPNIECE A., STRUWE- JUHL B. & WELANDER B. 2000 - *Inventory of coastal and marine important bird areas in the Baltic Sea* - BirdLife International, Cambridge, 287pp. ISBN 9986-756-97-9, softback, mono-colour, 72 maps. Available from BirdLife Denmark, Copenhagen.

Birdlife International produced yet another report on Important Bird Areas (IBAs), this time again with emphasis on marine or coastal areas, and only in the Baltic Sea. BirdLife International has been rightly praised into heaven for its recent collations of data (e.g. Heath & Evans 2000; Stattersfield & Capper 2000). Their efforts should be acknowledged and their work is very important indeed. The present report is remarkable, however, because it is said to be complementary to Heath & Evans 2000, which was published as a two volume book at about the same time and which

looked like the 'definitive' work for Europe, at least for the time being. Complementary means that the report identifies more IBAs in the Baltic than the book, while some "old ones" have had their boundaries altered. There must be a relationship with two earlier reports, not least because of the overlap in authors, one of which dealt with wintering areas for marine birds the Baltic (Durinck *et al.* 1994), and one of which referred to the North Sea (Skov *et al.* 1995). All publications have dealt with the Kattegat, so that a local manager will have to pick his choice. Does he get the same results in each? As a user, I checked one of the most important areas for consistency in each report. Northern Kattegat is "an exceptionally important area for wintering seaduck and pelagic species (divers and auks). Seaduck are mainly within Danish wats, the pelagic species mainly in the Swedish parts." Moreover, "This is the most important wintering area in north-west Europe for *Somateria mollissima*, *Melanitta nigra*, and *Alca torda*." (Heath & Evans 2000a). A comparison between the reports (see Table):

	Durinck <i>et al.</i> 1994	Skov <i>et al.</i> 1995	Heath & Evans 2000	Skov <i>et al.</i> 2000
surface area	10 500 km ²	11 000 km ²	10 500 km ²	5800 km ²
period	1988-93	1980-93	[-] 1993	1987-93
divers	2900	1150	2900	2160
Red-necked Grebe	2350	1600	2350	1880
Common Eider	400 000	264 000	400 000	264 000
Common Scoter	495 000	396 000	495 000	360 000
Velvet Scoter	82 000	148 000	82 000	76 500
Razorbill	129 000	223 000	129 000	not listed

'Northern Kattegat' is the fourth most important area of the Baltic according to Durinck *et al.* 1994. Numbers of birds are average total wintering numbers based on' survey periods between 1988 and 1993', indicating that 13.3% of the north-western European wintering population of Common Eiders, 38.1% of Common Scoters and 10.8% of Razorbills occurred.

'Northern Kattegat' is the most important area of the North Sea and Kattegat according to Skov *et al.* 1995. Their area is slightly larger, however, while numbers of Common Eiders and scoters, divers and Red-necked Grebes are markedly smaller. The figures are averages again and are said to 'not represent the total number of birds within the area'. So be it, but Razorbills have, mysteriously, nearly doubled in numbers (22.5% of the biogeographic population).

'Northern Kattegat' is listed as Danish IBA 119 in Heath & Evans (2000a). The bird figures of Durinck *et al.* 1994 were copied rather than the update of Skov *et al.* 1995, although both reports were listed in the references. There is no clarification why the first and not the second report was adopted. Data were listed as from 1993, which is

not true given Durinck *et al.* 1994 (average numbers over 1988-93), and the range for minimum-maximum population presented (using Durinck's averages for the lower and higher values) is an error. Skov *et al.* (1995)'s average of 223 000 Razorbills over 1980-93, "a concentration" that "has been observed every year since 1987", has gone.

In the present report, Northern Kattegat has been replaced by 'Northwestern Kattegat'. IBA 128 includes the 'old IBAs' 119 ('Northern Kattegat'), 002 (coast between Dokkedal and Lyngså), and 010, (south Læsø). The area is a lot smaller than previous publications (53% of the 'Northern Kattegat' of Skov *et al.* 1995), while it has identical numbers of Eiders but fewer seaduck, no Razorbills at all, and substantially more divers and Red-necked Grebes as in Skov *et al.* 1995, and higher densities of all species (except Razorbills) than in any earlier publication, except for Velvet Scoter, for which higher densities were reported in a two times larger area by Skov *et al.* 1995. Surveys used: 1987-93 for divers, 1980-93 for seaduck, so the same underlying data were used. In the text for Sweden (IBA 072) as well as in the



text for Denmark (IBA 129) we are now confronted with a 1260 km² area 'Lille Middellgrund', which is a new IRA "selected on the basis of information from offshore habitats", but that in fact used to belong to the 'Northern Kattegat' IBA. Here we find 93 500 Razorbills again (72% of the lowest figure produced earlier for 'Northern Kattegat'), but up come 93 000 Guillemots out of the blue, not mentioned in any of the earlier publications. Survey period for all these data: 1987-93...

So what has happened? Three out of four publications are from BirdLife International, Durinck et al. (1994) is a 'Report to the European Commission' by the National Environmental Research Institute and Ornis Consult in Denmark. All reports seem to have used the same data sets, constantly altering precise borders, occasionally altering total/ average or whatever bird numbers on the basis of which the areas have been given IBA status.

The report reviewed here states that a particular problem for marine IBAs is that there are no "obvious site boundary features" and it therefore promotes a system that could overcome that problem. Is that system different from previous site descriptions? So which report is the most authoritative? Is changing site definitions and numbers of birds within sites at an alarming rate based on the same underlying data an example of proper database analysis? Have we now left out major bird concentrations in comparison to the three earlier publications, or is the new method more conservative in the result? Northern Midsjö Bank (Sweden 066) is a new IBA "selected on the basis of information from offshore areas" (just an example). That data were collected 1992-93, so what's the explanation for the difference with the two-volume book!? The reports do not even try to give explanations for particularly high numbers of birds and why the borders of certain marine areas are where they were drawn. We simply have to rely on the authors, who seem to produce different results every time they're asked. If details are different but while the main conclusions are similar (IBAs are in urgent need for better legal protection), is it perhaps time to stop rewinding old data? Are we satisfied with a site description in which the underlying data are completely out of sight and with the text shortened as a list of facts with no reference to original work? Is it a signal that the present report has 16 authors and only 27 references (none of which is providing background information for any of the data presented in this report)? Browsing through the lists of references in all reports and BirdLife books gives at least the impression that the authors have consulted only their own previous reports and copy (or sometimes mysteriously alter) the numbers of birds listed. Is the recruitment of local knowledge (and hence a long list of 'authors' or an immense,

Acknowledgements' section) a guarantee for high quality data?

The present report is printed as an A4 size paperback in blue tones. The maps are ugly, typical computer generated GIS products with far too much detailed coastal contours and excessively detailed bathymetry. The shading of landmasses does not fit the coastal contours and crucial information is hidden in the same colours (blue tones) and shadings. Most maps are wider than they are high (giving latitudinal degrees the same distance as longitudinal degrees, which is wrong at 60° N), others, showing exactly the same part of the globe, are higher than wide but give a more traditional view of this part of the world. Figure 6 shows nine species-specific, but largely overlapping, IBA polygons as lines in different styles and tones of blue, so that, I guarantee, none could be reproduced in isolation without errors. The text template used is similar to that for descriptions of marine and coastal IBAs as in Heath & Evans 2000, but with no reference to sources of information and therefore no help for anyone trying to work out how reliable the presented information actually is.

My bookshelf is rapidly filling up with massive reports and even bigger books describing and listing IBAs in Europe. 'Major challenges', milestones' and a 'tremendous effort' are terms that BirdLife managers and the authors themselves use to describe their work. I believe that, and I do see a need to identify areas important for birds, I do appreciate the importance of this work (which is the reason why I collect, keep and use these publications), ...but as a tool, not a goal. Understanding bird distribution and habitat requirements leading to effective bird conservation are important goals. Also, milestones should mark one-mile distances, not every one-hundred metres. What do we achieve by a repetition of the same (ca. 10-15 year old) data in different formats and with different figures in a series of glossy reports and book volumes? At least the impression has been given that we have stopped collecting data in marine areas in 1993, which is worrying given the far from fixed population levels and distribution patterns. I would recommend that future IBA overviews are more informative with respect to the original sources, more conservative with respect to boundaries chosen, and that only new, additional data were used to re-assess the status of a particular region. Four partly overlapping reviews, using different methods but the same underlying data, giving different results and abundance estimates, within a time span of only six years is a little over the top and arguably leads to confusion by the end-users.

[References not included]

Kees (C.J.) Camphuysen,
Netherlands Institute for Sea Research,
P.O. Box 59, 1790 AB Den Burg, Texel



Recent development of the Marine Classification Criterion (MCC)

Designation of marine EU Special Protection Areas

The identification of marine IBAs by the use of the MCC in the North Sea (Skov et al. 1995) and the Baltic Sea (Skov et al. 2000) has created a framework for the current designation of marine SPAs by the involved member states. The first truly marine SPA will be the Hoburgs Bank (IBA no. 65), which was designated by Sweden earlier this year. Hoburgs Bank, which is of global importance to Long-tailed Ducks *Clangula hyemalis*, is an offshore bank of about 1200 km² located 25-50 km from the Swedish coast. In general, however, the scale of the maps and the lack of a geo-statistical basis for the definition of IBA boundaries has made it difficult to use the IBA information in the 1995 North Sea report as more than general guidelines for the location of potential SPAs. The selection process by the individual member states is now refining the boundaries using the same techniques as in the Baltic 2000 report. As an example, Germany is just finalising the analyses of seabird data in their part of the Baltic and the North Sea, - the improved methods have resulted in a more fine-scale resolution of the core areas of high densities for the species in question.

Critical size of an area supporting 1%

The critical size of an area supporting 1% of a bio-geographic reference population was preliminarily set to 3000 km² based on the size of seabird concentrations in the North Sea and the Baltic and known feeding ranges of auks around colonies of international importance. Ideally it should be defined on the basis of estimations of marine habitat ranges for species with clustered distributions. With the present knowledge it is possible to model marine habitat ranges for most marine key species, - a priority activity for the team behind the MCC (Mark Tasker, Joint Nature Conservation Committee, Mardik Leopold, Alterra, Jan Durinck and myself from Ormis Consult).

The MCC team has just finalised tests of the effect of changing the critical size on the selection of IBAs as published in Skov et al. (1995) for the North Sea and in Skov et al. (2000) for the Baltic. The result (see table below) shows that of the pelagic species the total selection of IBAs for divers, grebes, seaducks and auks was affected moderately, while the selection of IBAs for gulls and gannets was strongly affected. Due to characteristic pattern of dispersal of the key marine bird species in the two seas, the selection of the more important IBAs is less sensitive towards the choice of the critical size. The major portion of the non-breeding populations of divers, grebes, seaducks and auks concentrate in relatively few, but large areas. Thus, the populations are in fact highly clustered when measured over the entire distribution range. Due to the high proportion of the biogeographic populations present within these concentrations, these areas will meet the MCC even if the critical size is reduced to 1000 km².

The table shows the number of areas selected for different groups of common seabirds occurring during winter in the Baltic Sea and the North Sea when different sizes for A is chosen.

Baltic Sea

Species group	A = 3000	A = 2000	A = 1000
<i>Divers</i>	11	11	8
Grebes	14	14	12
Swans	17	17	17
<i>Aythya</i> ducks	29	29	29
Seaducks	43	42	37
Goldeneye and mergansers	43	41	41
Auks	20	17	14

North Sea

Species group	A = 3000	A = 2000	A = 1000
Divers	14	13	13
Grebes	5	5	5
Cormorants and shags	6	6	5
Gannets	4	4	1
Seaducks	15	14	14
<i>Larus</i> Gulls	11	5	4



Auks	14	12	11
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Accurate delineation of concentrations of birds at sea

Ornis Consult has developed the spatial IBA routines so that the definition of IBA boundaries at sea can now be described as a generic process involving a suite of linked GIS and geo-statistical routines. This means that defining IBA boundaries no longer introduces an element of subjectivity, - the characterisation of distribution patterns and the selection of contours marking the boundaries of an IBA are both computer-driven and can be reproduced by different teams. The application of spatial models has also involved the European Seabirds at Sea Database (ESASD) and we are now offering courses in the use of these techniques to colleagues (like in the case of SPA selection in Germany). As an important by-product of the geo-statistical basis for the mapping routines, the boundaries of IBAs can now be computed with confidence intervals, which will effectively pinpoint areas where boundary definitions are shaky, and where more data are needed.

Application outside the Baltic and the North Sea

It has still to be tested whether the results for the Baltic and parts of the North Sea are unique, - does the MCC apply equally well in the Mediterranean or the Biscay ?. However, the available data on seabird distribution at sea in these two regions is yet inadequate to carry out such tests. There is a great need to improve the ESAS (European Seabirds at Sea) database for these regions, and luckily new data are on the way for the Bay of Biscay. BirdLife International are recommend to push for the development of the knowledge of seabird distribution in these two regions.

Response to a review (published in Ardea) by C.J. Camphuysen of 'Inventory of coastal and marine important bird areas in the Baltic Sea 2000'

Although the review is covering the 2000 marine IBA report, the bulk of it is in fact a comparison between the three different published assessments of important marine bird areas in the Baltic. As such, this comparison is not too meaningful as methods used to select areas have changed significantly during the seven-year period between the first 'Important Marine Areas for Wintering Birds in the Baltic Sea' and the new report. I guess the reviewer can be excused due to the relatively short 'methods' sections available in the three reports, but his mistakes are great. The major differences between the reports can explain all the differences in estimated numbers of bird and area sizes listed. One major difference is the method used for delineation of important areas, which in the 1994 report for the Baltic and the 1995 report for the North Sea was b-spline approximation techniques, while the more rigorous geo-statistical method (kriging) was only used in the 2000 Baltic report. The benefit of applying geo-statistics in the 2000 report as compared to the other two reports is as mentioned above that extrapolation of high densities into poorly surveyed areas is minimised and a more accurate account of the boundary is produced. This explains the reduction in the size of many areas (and the split of the Northern Kattegat into two IBAs) and the increase in average densities within these areas in the 2000 report. Equally important, the databases used are not identical between the three reports, as different seasons are used (November-March in the 1994 report, variable and species-dependent in the two other reports) and more data were included in the 1995 account as compared to 1994 and more data again in 2000 as compared to 1995. In fact, the 2000 Baltic report is the first ever attempt to perform a basin-wide analysis of all coastal (and marine) bird data available and so, despite the meagre appearance (lay-out etc) it contains much more background data than the other two reports. Recent data (1995-2000) were also added to the data. On top of this, the MCC was not applied in the 1994 report, only in the two later studies, and correction factors for undetected birds in transect were only applied using line-transect theory and non-linear functions in the same two reports. Thus, in relation to the current discussion of the definition of IBAs the 1994 and the 1995 reports can only be used as rough indications of areas of importance and in case of the 1994 report estimated densities are generally too low. One can regret that we didn't wait publishing information about important bird areas until the MCC and the geo-statistical basis for delineation of boundaries of high-density areas was developed. However, the development of more fine-scale and statistically sound methods for mapping boundaries of IBAs is a process common to both terrestrial, coastal and marine IBAs. In fact, the boundary of many coastal IBAs in the Baltic Sea can now be regarded as less rigorous than the boundary of marine IBAs, as in many cases coastal counts cover large stretches of coastline with variable levels of densities of waterbirds, and often the boundary of the stretch counted can not be unambiguously determined from the count database. During the production of the 2000 IBA report for the Baltic Sea it became clear that checking boundary errors and utilise GIS mapping routines should be an important part of the work for the coastal IBAs in the next European update. What is not clear to the reviewer is that the assessment of the importance of IBAs and the refinement of mapping techniques is an ongoing process. The rest of the review provides useful criticism of the obviously poor co-ordination between the European 2000 and the Baltic 2000 reports and the 'thin' presentation of methods and underlying data.

Henrik Skov 2002-07-25

2. GOOD PRACTICES EXAMPLES RELATED TO SITE SELECTION PROCESS OR MANAGEMENT OF DESIGNATED MARINE NATURA SITES

Relevant actions of the NGO, Spanish Cetacean Society, were the creation of a national database and standardized research protocols and the so-called Project: “Identification of Areas of Special Importance for the Conservation of Cetaceans in the West Mediterranean, in Spain” with the collaboration of the former Directorate General for Biodiversity, Ministry of Environment.

The results of three years of research carried out in the context of this Project, in addition of the previous monitoring programme on cetacean and sea turtle, it has highlighted the relevance of the special oceanography conditions of the Alboran Sea and its adjacent Mediterranean and Atlantic waters for the conservation of the three marine pelagic species present in Annex II of the Habitat Directive: *Tursiops truncatus*, *Phocoena phocoena* and *Caretta caretta*. Outcomes of this project were identified as proposals on Special Area for Conservation (SACs) - Habitat Directive - as well as on nominated areas as Specially Protected Area of Mediterranean Importance (SPAMIs) - Barcelona Convention -.

Furthermore Spanish Cetacean Society sets up the LIFE Nature Project: “Conservation of Cetaceans and Sea Turtles in Murcia and Andalusia” in order to provide a follow-up to the abovementioned Project, to contribute to the adequate inclusion of the region in the Natura 2000 network and to ensure the social acceptance of the proposed marine protected areas. Efforts are focused at three levels:

- Development of proposals on management and Conservation Plan for the three pelagic marine species included in Annex II of the Habitat Directive: *Tursiops truncatus*, *Phocoena phocoena* and *Caretta caretta*;
- Development of cost efficient tools for the monitoring of cetacean and sea turtle populations;
- Identifying of management schemes and developing public awareness programmes.

Other global objectives established were identified as follows: to reduce the impact caused by fisheries interactions, maritime traffic and marine debris pollution on target species; to ensure the long-term socio-economic viability of the management and monitoring of these species and their habitats in the region; to create a monitoring GIS tool based on the development of a series cost-efficient long-term research programmes and on the compilation of opportunistic observations of target groups *inter alia* fishermen and maritime police, and on the existing databases from the environmental and fisheries regional and national authorities; to analyse sea turtle migration routes and habitat use; to optimise the sea turtle recovery centres network; and finally, to promote new “environmentally friendly” tourism activities through conservation strategies (whale watching, artisanal fisheries, environmentally friendly scuba-diving activities and water sports).

POSITIVE EXPERIENCES IN RELATION TO FISHERIES TECHNIQUES TO REDUCE BIRD BY-CATCH

With regard to some positive experiences concerning fisheries techniques to reduce bird by-catch, a competition of ideas was organised by SEO/BirdLife (BirdLife International partner organisation in Spain) as a contribution to the *Save the Albatross* campaign. The competition launches as well as the ideas received are part of a programme of considerable scope. It was officially launched in New Zealand (Southern Seabird Solutions) - Jul. '02; Hawaii (II International Fisher's Forum) - Nov. '02; Brazil (Projeto Albatroz) - Jan. '03; Spain (several events) - Mar. / Apr. '03.

Most albatrosses and several other seabird species are heading for extinction. They are being unintentionally drowned in large numbers by "longline" fishing boats. Longlining is the single greatest threat to the world's seabirds. BirdLife's Save the Albatross Campaign is trying to stop the needless slaughter of these magnificent birds by ensuring that relevant international agreements are implemented that will benefit both the birds and the legal fishing industry. Albatrosses and other seabirds often feed by scavenging for food behind fishing vessels and other boats, waiting for prey to be disturbed or scraps thrown overboard. When longlining, fishing boats set thousands of baited hooks on a fishing line to catch fish. Some birds swallow the hooks and are dragged underwater and drown. More than 300,000 seabirds are killed in this way each year. 26 species of seabird, including 17 species of albatrosses, are in danger of extinction because of the deaths caused by longlining. Once set, the hooks are too deep for the birds to reach. To stop birds being needlessly killed, it is essential to stop them having the opportunity to swallow the baited hooks before they have sunk. Many cheap and readily implemented solutions have been, and are being developed. Employing these will be of benefit to the fishermen themselves because the more bait eaten by birds, the smaller the catch of fish.

The initiative was widely publicized in many countries (particularly in New Zealand, US Pacific coast and South America) in magazines, listservers, newsletters, TV and radio. More than 3 months before the closing date (30 June 2003) for entries, over 20 requests from 8 countries were dealt with, and several innovative ideas were already put forward.

Some of the ideas submitted were identified as follows: Visual and sounding bird-scarer - new design of bird-scaring line with simple elements which reflects and sounds as it is towed on the water surface -; taste deterrent - mixing fish bait with simple materials that make it unpalatable for birds -; distraction (food) - system of offal (discards) disposal away from setting boat, to attract birds to a distant point -; visual bird-scarer - towing of simple element that reflects on water -.

Besides the ideas already submitted, it is known that various fishermen from New Zealand and Australia who are experimenting with new designs to increase the hooks' sinking rate. 87 ideas were submitted, 60 of them came from Spain, that means the great importance of the Spanish longline fisheries in the world. Several hundred fishermen have heard of it and, by so doing, have learnt more about the seabird bycatch problem. Fishermen and the specialised media alike, everyone was welcomed SEO/BirdLife's competition as it signals a new, collaborative approach to a serious problem that occurs

every day in the world's oceans. So the fishermen's competition was proving a tool for communication among the fishing community about the unwanted death of large numbers of seabirds in the world's oceans every year.

POSITIVE EXPERIENCES IN RELATION TO OIL SPILL DAMAGE PREVENTION

Mid- and long-term proposals on impact studies due to oil spill damage have accomplished certain conservation measures for “wide ranging” species. Some of these proposals are synthesized as follows: Accurate monitoring on post-oil spill damage, studies deal with the deep knowledge of trend dynamic populations, considering mainly an assessment due to the impact as well as a final damage evaluation on species and habitats. Other proposals concerning conservation measures are not only focused on threatened species but on the most affected areas. Finally, strategies drafting will be carry out applied to target groups and others, and even with the purpose of developing activities related to tourism (i.e. the presence of bird watching tourism in the affected area).

Taking into account that an existing estimate of species affected by oil slick may collect and register from previous environment disaster, it might be implemented recovery measures for the affected species and habitats. The monitoring plan includes a monitoring, control and surveillance programme. Emergency Plan reports a detailed definitions of the recommendations, which are the basis of solving another similar cases that require the develop of appropriate corrective and preventive actions/ measures that can be taken to correct the near-term condition.

The Prevention Plan has been designed in response to a control process that relates to mitigate any potential oil spill damage. The preliminary stage of the proposed Plan has been endorsed for coastal areas. It has been determined that it will be considered as main part of an specific Investment Portfolio by the National Park Unit, and it has been approved yearly. To ensure its efficiency within the determined timeframe, the scope is the identification of preventive measures that could reasonably be expected to reduce or preclude any potential oil spill damage in three different areas: Islas Atlánticas National Park - Atlantic region -, Cabrera National Park -Mediterranean region -, and Timanfaya National Park – Macaronesian region -.

3. Important Bird Areas (IBAs) for seabirds in Spain

Project reference: LIFE2004NAT/ES/000049
Project executor: SEO/BirdLife

CONTEXT

The project focuses on the sea waters of Spain (including the Balearic and Canary islands) and seeks to identify Important Bird Areas (using scientifically-sound criteria) for the seabird species listed in Annex I of the Birds Directive with populations in Spain. This project contributes to the implementation of the Birds Directive in the marine environment and to the future designation of Special Protected Areas (SPAs) in coastal and pelagic waters.

Due to its geographical location and productive marine waters, Spain enjoys one of the richest and most varied seabird faunas in Europe, including species which are endemic to our country and are seriously threatened with extinction. From a biogeographical perspective, three distinct marine regions can be found around Spain: the endemic-rich Mediterranean Sea, the subtropical waters around the Canary islands and the highly productive Atlantic region between Galicia and the Bay of Biscay. All of these regions sustain important fisheries and all are subject to a heavy human pressure.

PROBLEMS TO BE SOLVED

In Spain, as in most other European Union countries, a reasonable network of SPAs protects seabirds on their nesting colonies, which are invariably on land. However, the current number, location and extension of marine SPAs is clearly insufficient to guarantee the survival of the Annex I species in the habitat where they feed, rest, migrate and spend most of their time, the sea.

It is essential to identify the areas of the sea that are most important for the conservation of seabirds. For those areas, all relevant threats need to be known and addressed, so that appropriate action can be taken towards the preservation of healthy ecosystems that can sustain viable populations of seabirds.

OBJECTIVES

- To carry out a complete and detailed inventory, with objective methodological criteria, of the Important Bird Areas (IBA) at sea for the seabird species listed in Annex I of the Bird Directive with populations in Spain.
- To include in the marine IBA inventory a characterisation of each IBA, with GIS geo-referenced cartography, a description of the main threats affecting it and a number of conservation measures proposed.
- To develop a standard methodology for the identification and delimitation of IBAs at sea and to disseminate the methodology so that it can be applicable to other countries.

ACTIONS TO BE UNDERTAKEN

(a) map seabird distribution

Create maps showing distribution at sea and use of space in the marine environment for seabird species listed in Annex I of the Birds Directive with populations in Spain. 2 types of analysis are carried out: specific monitoring (i.e., remote tracking) in the case

of bigger species for which it is technically feasible, and generic sampling of the most favourable areas in the case of smaller species.

Specific actions consist of:

- satellite tracking of 40-44 *Calonectris diomedea* (*diomedea* as well as *borealis*) and 20-24 *Larus audouinii*;
- radio tracking of 26-30 *Bulweria bulwerii*, 16-20 *Puffinus assimilis*, 26-30 *Oceanodroma castro* from the Canary islands, and 26-30 *Phalacrocorax aristotelis desmarestii* from the Mediterranean;
- analysis and mapping of the 16.000 recoveries of ringed seabirds in Spain;
- survey of coastal waters around *Larus* and *Sterna* breeding colonies in the Ebro delta and Albufera de Valencia (2000 hrs during breeding season), in order to establish the feeding radius for each species;
- use of observers on board of fishing vessels (>300 days in various fisheries), to provide data on seabird use of fishing grounds as reliable feeding areas;
- create and analyse a data base of oiled and other seabirds found dead on beaches

(b) predict seabird distribution using oceanographic variables

Identify and map the various factors (oceanographic: physical & biotic, and anthropic) that determine the distribution patterns of seabirds at sea. Using those data, (pre)identify areas of highest probability of holding significant concentrations of seabirds.

(c) develop standard methodology

Develop standard methodological criteria for the identification of marine IBAs:

- organise a specialised workshop on identification of marine IBAs;
- take part in 3 international meetings on marine IBAs;
- formulate final document on standard methodology;
- publish leaflet on identification of marine IBAs and distribute through BirdLife International network

(d) characterise marine IBAs, identify threats, recommend conservation measures

Select and define the limits of marine areas that fit the criteria to qualify as IBAs; characterise each IBA and identify threats, recommending set of conservation measures needed; publish detailed inventory "Important Bird Areas for Seabirds in Spain"

CONCLUSIONS

The present project seeks to identify those areas of the sea that are most important in terms of seabird conservation, and to propose ways of address their current threats and, therefore, to guarantee their preservation. This work is based on scientifically-sound criteria and methods, so that it can be applied objectively to other regions and species groups. The project is aimed at obtaining an inventory of areas of the ocean with high conservation value that warrant SPA designation. The ultimate goal is to have a network of marine SPAs in place that is representative and serves the purpose of conserving healthy seabird populations.

CONTACT:

Carles Carboneras, SEO/BirdLife, Melquiades Biencinto 34, 28053 - Madrid, Spain
Tel. (+34) 91 434 09 10; Fax (+34) 91 434 09 11
ccarboneras@seo.org

10 September, 2004, DG ENV, Brussels

Finland's communication to the Marine working Group of Habitats Committee

14.8.2004

4. Proposal of good practices for SCI/SPA site selection process in Finnish marine offshore areas and experiences in protection of wide ranging species

This document describes practices that are recommendable and conceivable in the offshore site selection process from Finland's point of view, informs WG2 about the legal circumstances and mapping situation of the Finnish offshore areas and measures taken to protect wide ranging species.

Occurrence of Annex I habitats (in practice sandbanks and reefs) and Annex II species of the Habitats Directive (in practice seals, porpoise and salmon) and Annex I species of the Birds Directive in Finnish offshore areas should be examined as soon as possible after enforcement of the Finland's Exclusive Economic Zone (EEZ). The Finnish government bill for the EEZ law is currently in debate in committee, and is expected to come into operation in late 2004.

Potential occurrence of Reefs (1170) can be first assessed based on bathymetric maps. Potential areas for occurrence of Sandbanks (1110) can be assessed from geological data in some inshore parts of the Finnish marine areas, but no systematically collected data exists yet from offshore (future EEZ) areas. Areas where first hand assessments suggest presence of reef or sandbank habitat, more detailed inventories should be carried out using e.g. remote sensing by aerial photography, seismic and echolocation techniques, sediment sampling and underwater videography.

Offshore areas important for Annex II species of the Habitats Directive and Annex I of the Birds directive should be recognized based on long term records kept by national institutes. Whenever possible, these data should be supplemented by records collected by non-governmental organizations.

Finnish authorities and institutes have readiness to use all the mapping techniques brought up in the Marine Expert Group so far. Finland will take into account the procedural recommendations on the site selection process suggested by HELCOM in the Marine Expert Group.

It is desirable that the Finland's national submarine inventory programme launched in 2003 gained resources for and carried out marine habitat inventories in Finnish offshore areas in addition to its primary task, which is to generate comprehensive knowledge on occurrence of marine Annex I habitats in inshore areas and existing conservation areas. Completion of the programme will take up to ten years and it should enable evaluation of the conservation status of the marine Annex I habitats in Finland and ecological coherence of Finnish Marine SAC's. Site designation process in offshore areas should be based on scientific information regardless of the fact that decisions must likely be made prior to the inventory programme's full completion. Exchange of information and co-operation with neighboring Member States (Estonia, Sweden) and with Russia during the site selection process should be encouraged to ensure that selected sites contribute to ecologically coherent network of marine SAC's in the Baltic Sea.

4 Proposal of good practices for SCI/SPA site selection process in Finnish marine offshore areas and experiences in protection of wide ranging species

Measures taken to protect wide ranging Habitats Directive Annex II species in Finland include establishment of sanctuaries in inshore seal resting areas and moving salmon fishery closure during migration to spawning rivers. However, yearly hunting/fishing quota system is in use for grey seal and salmon. Baltic salmon stock is supplemented by reared salmon, but fishing is not restricted to reared stock. Especially offshore fisheries exploit wild salmon relatively heavily. E.g. WWF Finland recommends total salmon fishery closure in Finnish offshore areas as means to ensure existence of the northern Baltic natural salmon stock. Such a measure was ideally taken in joint position with Sweden and Estonia.

5. Swedish practices on selecting marine protected areas, including Natura 2000 sites in the marine environment

The practice for selecting MPAs and marine Natura 2000 sites in Sweden is a modification of the system suggested by IUCN (Kelleher and Kenchington, 1992). The main categories of criteria are naturalness, bio-geographic importance, ecological importance, economic importance, social importance, scientific importance and international or national significance, and practicality/feasibility.

It should be noticed that so far there are only 8 designated marine nature reserves in Sweden, why our experiences are limited.

In the process of selecting MPAs/Natura 2000 sites criteria is used for two purposes:

1. Value criteria: used to evaluate sites
2. Priority criteria: used to set a list of priority among sites (to rank sites)

Marine biological systems are different in certain respects from systems on land, and therefore criteria for selecting MPAs/Natura 2000 sites may differ from those used to select areas for protection on land. Marine systems also tend to be more open than terrestrial systems, why marine protected areas tend to be directed more towards protecting habitats, biotopes or ecosystem functions, rather than individual species.

Marine sites selected for protection are mainly coastal sites, which to a large extent are influenced by natural processes and human activities occurring on land. For that reason the protection of a coastal site may need restrictive measures also for activities on land e.g. in a drainage area. On the Swedish west coast the Gullmarn nature reserve and Natura 2000 area is a fjord, where beside the ordinary restrictions in the drainage area certain additional restrictions have been introduced. In order to reduce the nutrient load to the fjord these restrictions cover sewage treatment plants and agricultural practices in different zones of the drainage area of the river Örekilsälven entering the fjord.

MPAs and marine Natura 2000 sites are usually not well known to the public, or have little aesthetic value. Therefore, the information to the public about these areas is of vital importance.

In the management of a MPA/Natura 2000 site zonation is a way to set management practices and regulations for different activities in different parts of a MPA. A zonation may encompass:

1. A core zone, where changes in present activities may be necessary, and where new uses should be avoided.
2. A buffer zone, where most present day activities are allowed, and where new activities can be allowed after careful evaluation of their effects on the environment.
3. A transition zone, where activities (new or old) can be allowed provided they do not negatively influence the biological values of the core and buffer zones.

The zonation is often easier to implement and control and it is suited for local participation. The alternative to zonation is to have the activities regulated in more detail and encompassing the whole MPA/Natura 2000 site.

Monitoring

Monitoring and investigations have to be carried out once a MPA/Natura 2000 site is declared. The management and the rules for a MPA should be possible to modify in accordance with changed needs and knowledge. The monitoring programme should be responsive to the users of the area as well as to the conservationists. However, a monitoring programme is costly. With scarce resources the monitoring programme should focus on the feature you want to protect. Therefore the monitoring programme should concentrate on the investigation of:

- that the values the MPA was set up to protect really are protected, and
- that the management practices implemented actually contribute to the protection.

The monitoring should start before the MPA is set up and repeated a number of times thereafter. Regulations and zonation of the MPA should then continuously be evaluated, based on the results from the monitoring programme.

Fishing techniques to reduce bird by-catches

Swedish experiences of measures to reduce bird by-catch in fisheries are so far very limited. With regard to oil spill in the seas around Sweden it is already forbidden to disperse oil in the marine environment. The greatest problem we have with regard to oil spill is the illegal oil spills although the Baltic Sea is a Special Protected Area regarding oil. In order to better control the shipping in the area the Baltic Sea countries in an application to IMO have got the Baltic Sea classified as a PSSA area (april 2004). The Baltic riparian countries now have two years to provide IMO with the additional protective measures they want to introduce for the Baltic Sea PSSA.

Management of marine Natura 2000 sites in Sweden – existing experience and ongoing developments

Sweden has several designated Natura 2000 sites in our coastal areas, most in the archipelago areas. Several of these areas have been selected based on already existing nature reserves, where the main reason for the protection is the terrestrial values and to which a water area has been added. Very few of the coastal sites are plain marine sites. Some of them have been investigated appropriately but for most of these sites there is a lack of scientific knowledge of their marine nature values, habitats and species. Basic more systematic inventories on the coastal marine Natura 2000 sites have been planned to start during 2005. With the increasing need to create an ecological coherent network of Natura 2000 sites and other marine protected areas habitat mapping has come up high on the agenda at the national as well as international level. The designation of MPAs/marine Natura 2000 sites demand scientifically based background information of the sites. Therefore it should be a joint interest of member states to co-operate as far as possible in habitat mapping activities, including methodological development, monitoring, quality assurance and surveillance. This joint work, independent of the financial sources, should be connected to/coordinated with the regional marine conventions such as HELCOM and OSPAR.

So far Sweden has designated three marine offshore Natura 2000 sites. These are Hoburgs Bank (outside the territorial boundary) in the Baltic Proper, Lilla Middelhavet (partly outside the territorial boundary) and Fladen (inside the territorial boundary) both in the Kattegat.

The Swedish government has commissioned the Swedish Environmental Protection Agency to start a general inventory of about 20 marine offshore areas all around the Swedish coast. The selected areas are areas, which have been announced being of interest for marine windmill establishments as well as areas that may be of certain interest for marine nature conservation. The inventory started in 2003 and will continue during 2004 and 2005. The results of the inventory will be presented to the government in the beginning of 2006.

The areas that will be investigated are sand banks and reefs down to 30 m. The inventory consists of four parts:

- Marine geology (SGU) – bottom conditions
- Hydrology (SMHI)– circulation and stratification
- Biology (Marine Research Centre of Göteborg, Stockholm and Umeå) - species abundance, coverage and habitat distribution
- Data handling and management (GIS consultant) – GIS application with GIS generalizations, pattern analysis and area estimations.

Implementing Natura 2000 sites as well as MPAs means management of conflicts between interests for protection and other users of coastal and marine resources. Fisheries management is in this respect an especially sensitive issue. The management of different marine user interests demands a more planned management than currently is the case in most countries. In this respect integrated coastal zone management (ICZM) has turned up as a useful tool in the spatial planning process. The concept of integration includes: interaction, involvement, participation, cooperation and co-management. The ICZM-work should provide the basic features of the aim of the management process and the expected achievements in terms of sustainability and quality of available environmental assets and socio-economic conditions.

Integrated coastal zone management is a planning tool not specifically adjusted to planning and management of marine protected areas but a tool for a more comprehensive planning and management in coastal and marine areas. However, the ICZM-process involving interaction, involvement, participation, cooperation and co-management can be used. In Sweden the Environmental Code is the legal instrument for protection of marine nature conservation sites independent of the area is a Natura 2000 site or a MPA. This act is valid in Swedish territorial waters as well as in the Swedish Exclusive Economic Zone (EEZ). The process for planning and management is independent of where a site is situated. However, the involved agencies are different. While the municipalities and County Councils are the main responsible actors inside the territorial boundary the government and central agencies are the main responsible actors in the EEZ. So far we have not made a management plan for a Natura 2000 site or a marine nature reserve in the EEZ. Therefore there are some uncertainties with regard to responsibilities among the central agencies. The Swedish Environmental Protection Agency (SEPA) has proposed a pilot study at Hoburgs Bank, in order to go more closely into the matter of making a management plan for that area.

The Swedish experiences of planning and management of marine sites come from marine nature reserves inside the territorial boundary. Based on the Environmental Code the planning and management of a nature reserve can, in principle, address any human activity that may

have an impact on the nature value you want to protect. The development of a management plan for a protected area is a long and complicated process of participation, involvement, integration, coordination and cooperation. In the Koster-Väderö Natura 2000 site in the Skagerrak a management plan has been developed for the area, in which shrimp trawling is the main threat to the cold water corals to be protected. A group of representatives from public authorities, fishing organizations, individual fishermen and scientists have been working to reduce the damaging trawl effects on the corals. Based on the work of the group an agreement has been reached with the fishermen on how to fish in the area. Certain gear regulations have been introduced and a number of small areas within the Natura 2000 site have been identified as protected zones, where the trawling is forbidden. So far the agreement has been successfully introduced and followed.

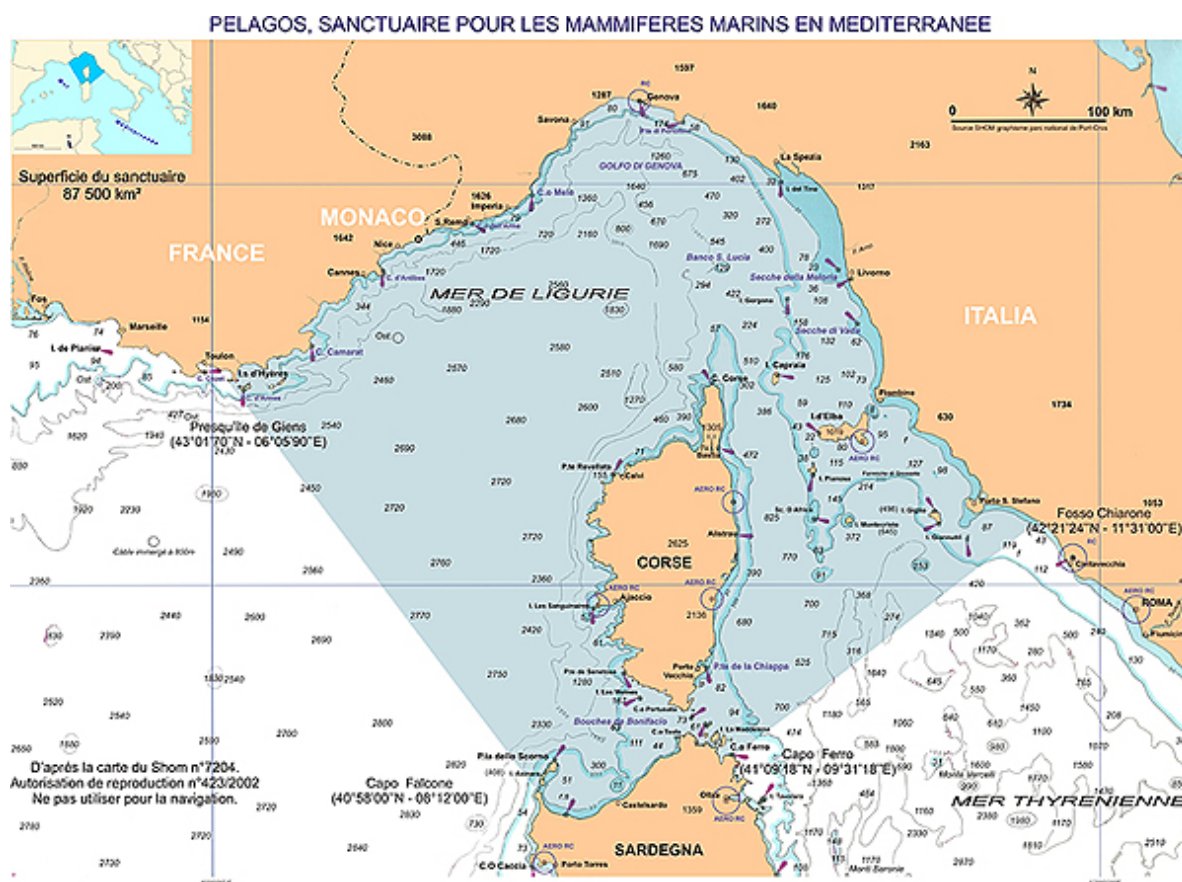
A special issue with regard to marine reserves and Natura 2000 sites is the control of the effectiveness of the management of a site. In this respect the Swedish Coast Guard usually is given special responsibilities for control and enforcement on sites inside the territorial boundary and would most certainly be given the same task outside the territorial boundary.

6. PELAGOS: An international Marine mammal sanctuary in the North-Western Mediterranean sea

The agreement concerning the creation of PELAGOS, a marine mammal sanctuary in the Mediterranean sea, was signed on the 25th of November 1999 in Rome by the governments of France, Italy and the Principality of Monaco. Parties may invite other States or international organisations to participate.

Area of application

- PELAGOS is located in the territorial waters of France, Italy and the Principality of Monaco, and extends to areas of the Mediterranean high seas under their national jurisdictions. These areas are rich in biodiversity and are crucial to the conservation of marine mammals. The sanctuary covers an area of 87500 km² and includes 2022 km of coasts. It would host around a thousand whales and 25000 dolphins.
- PELAGOS boundaries are clearly stated in the article 3 of the agreement. It extends from the peninsula of Giens in France to the Toscan archipelago in Italy and includes Corsica.



Objectives

Pelagos aims are to:

- Guarantee a favourable conservation status of all marine mammal species by protecting them, protecting their habitat, and mitigating direct and indirect impacts of human activities.
- Organise the cooperation between States to evaluate periodically the status of mammal populations, mortality causes, threats on their habitats, and more specifically, threats on vital functions such as reproduction and feeding processes.
- Intensify pollution monitoring and control activities.
- Adopt national strategies to suppress progressively toxic wastes that are being dumped in the sanctuary area.

Jurisdictional effects

- Within the sanctuary, Parties :
 - forbid intentional catch or disturbance of marine mammals. They may authorise non lethal catches in emergency cases or for the sake of *in situ* scientific research.
 - Apply the international and European Union legislations, regarding in particular the use of fishing gears that could be detrimental to cetaceans.
 - Set up together regulations regarding the use of fishing gears that might be involved in the accidental catch of mammals or could threaten their food resources, and submit these regulations for adoption to international forums.
 - Regulate mammal sighting tourism
 - Regulate and if necessary forbid motorised contests within the sanctuary.
 - Harmonise all activities mentioned above
- Parties are allowed to adopt national measures that are stricter than those foreseen in the agreement.
- Parties hold frequent meetings to implement the agreement and follow it up. They encourage national sensitisation campaigns (e.g.: prevention of collisions between mammals and boats, how to inform local authorities in case of sighting of a mammal in danger...) and international research programmes to support the implementation of the agreement.
- To ensure the implementation of the agreement, parties organise control mechanisms within the boundaries of the sanctuary. They cooperate to organise the surveillance. They apply simplified procedures to facilitate one another use of their ports and airports.

- Parties invite other non member States that are active in the sanctuary (through fishing or tourism activities...) to respect the measures applied by the parties to protect mammals within the sanctuary.
- The sanctuary has been listed on the list of the Mediterranean specially protected areas (MSPA) of the Barcelona Convention in 2001. A management plan has been adopted by the three parties and institutional dispositions such as the creation of a secretariat, the provision of a budget and the creation of a scientific committee are under way.

First concrete results:

- 230 000 euros have been invested in the French part of the sanctuary on research programmes to reconcile human activities and the presence of cetaceans.
- Speed Boat races within the sanctuary have been forbidden ever since 2001.
- A code of conduct targeting cetaceans watching tourism from boats has been set up.
- The suspension of the use of the 'thonaille', a local fishing gear, has been adopted from the 15th of August till the 15th of September to avoid the frequent by-catch of dolphins that would take place around this period.
- The obligation for fishermen to equip their boats with 'pingers', an acoustic device which frightens dolphins away has been adopted.

7. Habitat restoration on Praia islet, Graciosa (Azores)

Maria C. Magalhães¹, Joël Bried¹, Mark Bolton^{1,2}, Verónica C. Neves^{1,3}, José M. Pereira⁴, Maria José Pitta Groz⁴, Luís Aguiar⁵, Luís R. Monteiro^{1,†} and Ricardo S. Santos¹

¹ Departamento de Oceanografia e Pescas, Centro do IMAR da Universidade dos Açores, 9901-862 Horta, Azores, Portugal

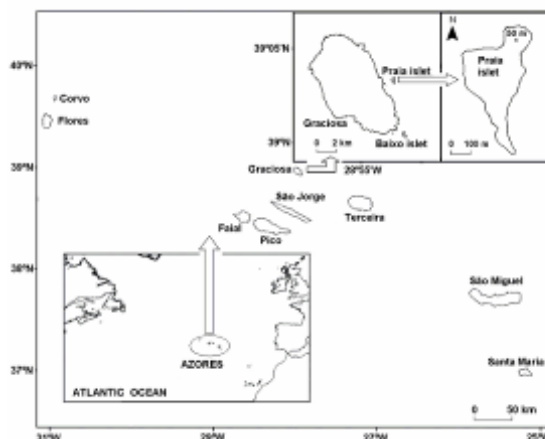
² Royal Society for the Protection of Birds, The Lodge, Sandy, Bedfordshire SG19 2DL, United Kingdom

³ Ornithology Unit, IBLS, University of Glasgow, Graham Kerr Building, G12 8QQ Glasgow, Scotland, United Kingdom

⁴ Direcção Regional do Ambiente, rua Cônsul Dabney, 9900-014 Horta, Azores, Portugal

⁵ Praia, Graciosa, Azores, Portugal

† Deceased



Context

The Azores seabird assemblage represents a transition between tropical and temperate avifaunas. For this reason, it has an international scientific importance. Because seabirds essentially breed on oceanic islands free of native terrestrial predators, these species generally lack adaptations that would enable them to cope successfully with introduced predators or with perturbations of their nesting habitat.

Consequent on the introduction of alien mammals in the Azores archipelago by the Portuguese during the 15th century, most seabird species became extirpated from the main islands and are now restricted to a few islets and remote coastal strips. This is likely to have resulted in higher inter-specific and intra-specific competition for nest sites at this locality. Therefore, one of the priorities was to eradicate introduced mammals and to restore habitat whenever and wherever possible. Due to its accessibility to man and to the richness of its seabird community, Praia islet (0.12 km²), off Graciosa island, was chosen for such an experiment. Praia islet holds more than 40% of the Azorean breeding population of Madeiran Storm Petrels *Oceanodroma castro*, both from hot and cold season populations. Roseate Terns *Sterna dougallii*, Common Terns *S. hirundo*, Cory's Shearwaters *Calonectris diomedea borealis* and Little Shearwaters *Puffinus assimilis* also breed on the islet. All these species are included in Annex I of the EU Wildbirds Directive 79/409 and Annex 2 of Bern Convention.

Problems to be solved

Like at several other localities, the presence of Rabbits *Oryctolagus cuniculus* on Praia islet, has resulted in the disappearance of some native plant species and in increased soil erosion, as well as in the destruction of seabird breeding sites and hence a decrease in seabird breeding numbers.

Objectives

Eradicating the rabbits and restoring the habitat on Praia islet, both in terms of vegetation and suitability for seabirds.

Actions undertaken

Rehabilitation measures were implemented from 1995 onwards. They included rabbit eradication, habitat restoration, installation of artificial nests for terns and storm petrels and educational measures.

Rabbit eradication

Rabbit eradication was conducted from 12 September to 2 October 1997, using brodifacoum, an anticoagulant.

Control of erosion

Due to the presence of the rabbits and the nature (friable substrate) of the islet, erosion was very important in some areas. In order to minimize this phenomenon, branches cut down from trees and debris dams made of rock piles and wooden planks were installed in the erosion scars in 1995 and 1997.

Replanting the native vegetation

The species that should be (re-)introduced on Praia islet were determined from the results of a preliminary study conducted on the neighbouring Baixo islet (*ca* 2 km south of Praia) in 1996. Small plants of 9 native species collected on Baixo islet and on Graciosa island were planted on Praia islet from May 1998 onwards, according to their habitat preferences. Operations are still ongoing.

Measures to increase seabird populations

Construction of nest boxes for roseate terns:

To enhance Roseate Tern establishment on Praia islet, 50 wooden nest boxes (0.4 x 0.4 x 0.2 m) were built and installed on the islet at the onset of the 1996 breeding season in order to increase the number of suitable areas for this species. Since then, nests boxes have been installed every year in early April and removed in September, after all the chicks have fledged.

Construction of artificial nests for Madeiran Storm Petrels:

In 2000 and 2001, 150 artificial nests were installed on Praia islet to increase the breeding populations of the two seasonal morphs of Madeiran Storm Petrels. Since then, these nests have been annually monitored for each seasonal population, monitoring consisting in short visits to the colony (5-10 days) to determine occupancy rate, the number of breeding pairs, and chick productivity. Adults and chicks are ringed.

Educational measures

In 1995, informative panels explaining the impact of human disturbance on seabirds were put on the islet to limit the access by visitors to tern colonies, and awareness campaigns were conducted.

Results:

Rabbit eradication

Rabbit eradication proved to be successful. No evidence of the presence of Rabbits has been found since the end of the 1997 campaign.

Control of erosion

Putting tree branches into erosion scars and building debris dams proved their efficacy in terms of soil retention, and herbaceous plants had already started to colonise the soil in 1998. In 2004, all the erosion scars were partially filled up and contained vegetation.

Replanting the native vegetation

The program is still ongoing due to some difficulties experienced with some species like *Azorina vidalii* or *Solidago sempervirens* which have very low growth rates, whereas other species such as *Festuca petrea* already started to spread. However, the plants of *A. vidalii* introduced in 1998 already produced seeds that have germinated, giving birth to several young plants. Exotic plants that attempt to colonise the islet, (essentially *Carpobrotus edulis*) are removed. Plant introductions and removal of exotic species are currently conducted by the nature warden from Graciosa.

Measures to increase seabird populations

Construction of nest boxes for roseate terns:

Rabbit eradication and the installation of nest boxes resulted in the increase in the breeding populations of terns on the islet, although not immediately. Roseate Terns had been almost totally absent from Praia islet since 1991. Despite the installation of nest boxes, they did not breed between 1996 and 1998. Except for two pairs in 1998, the first noticeable breeding attempts by this species occurred in 2000; since then, breeding numbers have kept increasing, exceeding 300 pairs in 2003.

A few tens of Common Tern pairs have always been breeding on Praia since 1989, except in 1995 and 1996. This species bred again in 1997, before Rabbits were eradicated. Since then, breeding numbers have kept increasing, and Praia islet currently holds the largest Common Tern colony (about 1000 pairs) of the Azores.

Concerning wooden boxes, however, adult terns never used them, but chicks use them as shelters from both predators and weather.

Construction of artificial nests for Madeiran Storm Petrels:

The occupancy rate of artificial nests by Madeiran Storm Petrels has kept increasing since 2000, with 46 breeding pairs for each seasonal morph in 2004. This represents a two-fold increase for the cool season morph and a 3.5-fold increase for the hot season morph. A long-term demographic survey is being conducted to estimate the demographic parameters of each seasonal population.

Educational measures

Every summer, informative panels are still installed on Praia islet. Although visits on the islet are still allowed, they have been discouraged and overnight stays are only permitted to researchers. Although he is not obliged to do it, the nature warden from Graciosa island is present during diurnal visits to inform the public about the sensitivity of seabirds to human disturbance and the vulnerability of the ecosystem of Praia islet.

Conclusion: future work

Praia islet remains a vulnerable area since people come with boats for diurnal visits, most of which occur between May and August, i.e. when the weather is the most settled, but also coinciding with the breeding period of seabirds. However, the nature warden is present during these visits and he keeps the visitors informed about the bird species that are present to ensure that people will not disturb birds during the breeding period. Despite this, people may land on the islet at any time of the day or night (that is, outside the working hours of the nature warden) and cause disturbance inadvertently. Therefore, it is desirable to maintain sessions of environmental education. On the islet, control and/or removal of exotic plants remain necessary. So does the maintenance of the tern nesting habitat (installation of wooden boxes for terns each summer, removal at the end of the breeding season), and that of the storm petrel artificial nests (removing the vegetation at the entrance of the nest boxes).

Further information and contact addresses

Maria Pitta Groz, *Secretaria Regional do Ambiente*, 9900 Horta, Azores, Portugal

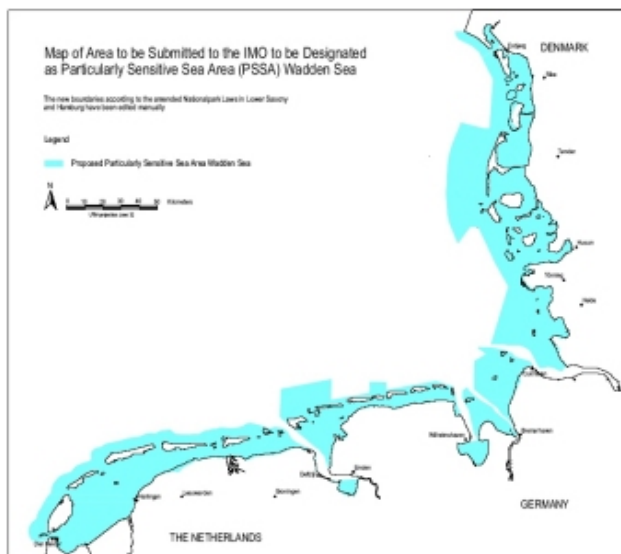
Maria Carvalho Magalhães, *Departamento de Oceanografia e Pescas, Centro do IMAR da Universidade dos Açores*, 9901-862 Horta, Azores, Portugal. Email <mcarvalho@notes.horta.uac.pt>

Joël Bried, *Departamento de Oceanografia e Pescas, Centro do IMAR da Universidade dos Açores*, 9901-862 Horta, Azores, Portugal. Email joelbried@yahoo.com

8. The Wadden Sea : an example for Best-Practices in Marine Conservation

The Wadden Sea - Location, Habitat Types and Species

The Wadden Sea is Europe's largest and most important marine wetland. It is a marine area of outstanding international importance, which is shared by Denmark, Germany and the Netherlands. Nowhere else in the world is there an area on a similar scale and multifaceted, containing such a complex of tidal flats, gullies, salt marshes, dunes and islands. The Wadden Sea is an exceptional, highly dynamic tidal ecosystem and its exceptionality relates to its extensiveness, complexity and interrelationship of habitats and species as well as its high biomass productivity, which provides the foundation for an abundance of species.



Sandbanks, estuaries, mudflats and sandflats not covered by seawater at low tide, large shallow inlets and bays, reefs, salt marsh habitat types and dune habitat types are the main natural European habitat types according to the EU Habitat Directive, which can be found in the Wadden Sea. About 10 to 12 million waterbirds pass through the area to build up the necessary energy reserve for their migration flight. The most numerous native marine mammal species in the Wadden Sea is the Harbour seal with some 10,800 individuals (2003). The Wadden Sea is the main nursery ground for fish species that are hatched in the North Sea. The commercial fishery of the North Sea is dependent on these nursery ground facilities. (see list of relevant Habitat Directive habitats and species in **Annex 1**)

Man settled in the Wadden Sea area more than 2000 years ago. The Wadden Sea of today is partly the result of man's interference with the Wadden Sea environment through land reclamation and altering of the landscape. The Wadden Sea has been subject to a generation of protection and management, also in an international context, as shared by three countries. The trilateral Wadden Sea Cooperation celebrated its 25-year anniversary in 2003. There is hence a long experience in terms of protection and management of a large and complex marine area located in a part of Europe with many pressures and developments impacting the area both in a national and international context.

It has been recognized that the Wadden Sea could only be protected and managed in the context of an overall management of the coastal zone both landward and offshore because

many of the pressures on the area occur outside the area subject to the protection. The Wadden Sea case provides an extraordinary opportunity to examine the management of a large marine protected area on a national and international scale and in the context of a complex coastal zone.

2 Managing the Wadden Sea – The Trilateral Perspective

The collaboration between the three countries on the protection of the Wadden Sea is based on the Joint Declaration, which was concluded at the 1982 Wadden Sea Conference. The three governments declare their intention to consult each other in order to coordinate their activities and measures to implement relevant EU directives and other international legal instruments such as the Ramsar and Bonn Conventions. The Joint Declaration is a political declaration of intent made by the three governments expressing a joint responsibility for the protection of the Wadden Sea as a shared marine wetland area. In 1987 the Common Wadden Sea Secretariat was established to facilitate and support the cooperation.

Wadden Sea Plan: Geographical delimitation - External Impacts

In 1997, the Wadden Sea countries adopted the Wadden Sea Plan, which is the key joint policy and management plan for the overall protection, management and sustainable use of the Wadden Sea. The Wadden Sea Plan is applicable to the Wadden Sea Area as defined by the trilateral Danish-German-Dutch Wadden Sea cooperation as the area between basically three nautical mile offshore and the seawalls on the mainland including the estuaries up to the brackish water limit and the islands. The Wadden Sea Area covers an area of almost 15,000 km² of which almost 12,000km² constitutes the trilateral Conservation Area of the national Wadden Sea nature reserves and national parks (see **Figure**: Map of the Wadden Sea Area and Conservation Area). The Wadden Sea is also subject to international designations such as the designation as candidate Special Areas of Conservation (cSACs) according to the EU Habitat Directive and a Special Protection Area (SPA) according to the Bird Directive and Ramsar Convention. It is important to acknowledge that the Wadden Sea Area geographically covers basically all of the Wadden Sea ecosystem including its natural habitats but also to appreciate that the protection and management regime is in principle confined to this area though the significance of external impacts on the area is well recognized.

Regarding the impact of shipping off the Wadden Sea, the designation of the Wadden Sea as a Particularly Sensitive Sea Area (PSSA) in the year 2002 is a recognition of the vulnerability of the Wadden Sea. The protective measures, which have been taken off the Wadden Sea, are now recognized as associated measures, which serve to protect the Wadden Sea from impacts from shipping.

Trilateral Objective, Management Principles and Targets

The guiding principle of the trilateral Wadden Sea policy is to achieve, as far as possible, a natural and sustainable ecosystem in which natural processes proceed in an undisturbed way (Wadden Sea Plan, §I,8, 1997). This guiding principle is a compelling political statement on the objective of the efforts of the countries to protect and conserve a natural ecosystem for present and coming generations. Seven management principles, such as the precautionary principle have been agreed to, which are fundamental for decisions on activities and projects within the Wadden Sea Area. A list of those shared principles is in **Annex 2**.



The conservation and management is hence directed towards maintaining and achieving the full scale of habitats, which belong to a natural and dynamic Wadden Sea by working towards targets set for habitats, birds and mammals, quality of sediment and water, and landscape and cultural aspects. A list of the Targets is in **Annex 3**. The Targets were developed upon the extensive scientific documentation of the area and the Quality Status Reports of which two have been issued. The Targets are open-end formulated based on the assessment that in order to achieve a natural and sustainable ecosystem the area, which is natural and undisturbed, should be increased. The target approach is concerning one of the few areas, if any, in Europe where such a management approach is applied to and politically accepted. Recently, it was concluded that the Targets complies with the requirements of scientific credibility, management usefulness and suitability for communication with stakeholders.

For each of the Targets a comprehensive set of joint policies and management has been adopted by the countries as encompassed by the Wadden Sea Plan. These policies and management cover all relevant activities and uses in the Wadden Sea Area related to the Targets on landscape, water and sediments, habitats, birds and marine mammals. These includes policies on coastal protection, agriculture, industry and harbour, fisheries, tourism and recreation, extraction of oil and gas, sand and gravel extraction etc. as listed in the Wadden Sea Plan.

3 Implementation on the National Level

The trilateral protection and management scheme as laid down in the Wadden Sea Plan through a coherent system of management principles, targets, measures, monitoring and assessment, constitutes an integrated ecosystem management of the Wadden Sea as one shared ecosystem. A shortcoming in the approach is the legally non-committal nature of the agreements and the institutions.

The implementation of the agreements made in the framework of the trilateral Wadden Sea Cooperation is the task of the national responsible, primarily of the nature conservation authorities but also other authorities, which have a stake in Wadden Sea conservation and management. There are some notable differences between the national protection schemes.

The German national parks have established a unified management of the protected areas through an overall zoning system. The national parks authorities are also strong institutional elements, which potentially guarantee a strong implementation and enforcement of the

stipulations of the national park laws. Its weakness is the lack of integration with the developments and activities in the adjacent land and sea territory.

In opposition to this, the Dutch approach is one, which in principle has integration as a leading principle horizontally and vertically between the authorities and, which take account of developments in the adjacent area. A weakness is potentially the problems in pursuing conservation objectives in conjunction with the lack of a strong institutionalized lead agency for the Wadden Sea. During the developments of the last decades, however, there have been fewer principle differences between the two approaches, also because of the development of common trilateral framework.

The Danish Wadden Sea nature reserve was established by state order since the Danish state has sole responsibility on the sea territory is very similar to the German national parks with a few essential exceptions. The zoning system is activity related and not a fixed system. Furthermore no special authority has been established but the existing state authority of the Danish Forest and Nature Agency is the competent authority for management and issuing of permits and exemptions.



5 *Wadden Sea protection - Assessment and Measures*

The implementation of the trilateral Targets is monitored and assessed by the Trilateral Monitoring and Assessment Program (TMAP) on the basis of a common list of agreed parameters. The TMAP is set up to enable an appraisal of the measures, which have been introduced and, if necessary, to design and introduce new ones if required to achieve the Targets. The Targets, measures, monitoring of the Targets and recurring policy assessment is in principle a very consistent system, which is applicable to all other systems and protected area management schemes.

The 1999 Quality Status Report (QSR) is the most recent comprehensive quality assessment of the Wadden Sea based on the Targets, which has made use of the TMAP data to the extent available. Some essential results as summarized (summary available at www.waddensea-secretariat.org) are

- Water, sediment and biota: phosphate levels have decreased significantly in most parts of the Wadden Sea, whereas this is not the case for nitrate; concentrations of most heavy metals in sediment are approaching background levels but an exception is mercury, which is still three to ten times higher than background levels; also concentrations of PCBs in sediment and HCB and HCH in bird eggs show a steady decrease.

- The tidal area: the target of an increased area and more natural development of natural mussel beds, eelgrass meadows and sabellaria reefs has not been reached; the decline of mature beds of the blue mussel and seagrass meadows has continued in the 90s; as a result of human interference, most notable fixed coastal constructions but also fisheries, dredging, sand extraction and gas extraction – the ability of the system to compensate for sea level rise may have decreased.
- Salt marshes: much has been achieved to in the 90ies to improve the natural situation in salt marshes by the reduction, or phasing out of grazing and artificial drainage.
- Birds: the population of several bird species have increased in the last decades and few have declined; the main factor for the increase of breeding birds are, amongst others, an improved protection during the breeding season; Kentish plover and Little tern populations have decreased, which is due to lack of sufficient undisturbed breeding habitats caused by recreational activities.
- Marine mammals: the Harbour seal population has increased significantly and though the population was affected by an epidemic in 2002 as in 1988, the population may be regarded as viable.
- Estuaries: only few estuaries have remained in the Wadden Sea area and consequently natural transitions of fresh and salt water hardly exist; the anthropogenic impact on the three main estuaries is still increasing as a result of current deepening and the building of a storm surge barrage.

The protection of the Wadden Sea ecosystem has benefited much from the comprehensive and integrated protection scheme, which was launched almost a generation ago. The 1999 QSR points to a number of positive developments in particular with regard to birds and seals and some of the habitats such as the salt marshes. The QSR also identifies a number of areas of concern for which an improvement is needed. This concerns the developments in the tidal area and with regard to the external impacts from pollution and other developments in the coastal zone. The next QSR including the assessment until 2003 is being compiled at the moment and will be published in 2005.



6 The Seal Management Plan

The Wadden Sea seal population slumped in the mid-1970s to about 3,900 individuals – the lowest number ever logged. A ban on hunting was introduced in all three Wadden Sea countries and as a result seal numbers stabilized and began to rise in some places. This positive development was interrupted by a dramatic epizootic at the end of the 1980s caused by the highly infectious phocine distemper virus (pdv). By 1988, the seal population slumped by about 60 percent. It happened again 14 years later, once more reducing the seal population tremendously. Yet in the meantime a positive new factor had entered the equation.

In October 1991, an Agreement was struck between Denmark, Germany and the Netherlands on the Conservation of Seals in the Wadden Sea. It was the first regional Agreement under the Bonn Convention (CMS) and its aim was trilateral cooperation to improve the conservation prospects of seals in the Wadden Sea. After the first pdv epizootic, between 1988 and 2002, seal numbers rallied significantly. Aerial surveys of the entire Wadden Sea in 2002 counted some 20,975 seals. This comeback was attributed to a higher reproductive rate and lower initial juvenile mortality. But later that same year, pdv struck again and half the Wadden Sea's seals (about 10,500) were found dead. One year later, however, the maximum number of surviving seals counted during the moult period in August 2003 amounted to some 10,800 seals. In other words the population was 53 percent below pre-outbreak levels. Though in absolute numbers more seals died than during the earlier epizootic of 1988, the evidence showed that relative mortality was evidently lower this time around.

It was widely acknowledged that the Seal Agreement played a part in turning the tide. The Agreement required Parties to develop a 'conservation and management plan for the seal population' on the basis of scientific knowledge – the Seal Management Plan (SMP). This plan, which was compiled with the support of the results of the EC funding project 'Joint Management Plan for the Wadden Sea Seal Population', has become the key instrument for achieving and maintaining the objectives of the Seal Agreement. Among other provisions, it set up seal reserves throughout the Wadden Sea, which are closed to all activities in periods when the animals are giving birth and nursing young. The environmental conditions of seals, however, are still not satisfactory. The present and short-term conservation status of the seals in the area is primarily determined by pollution and disturbance as results of various human activities are the main problems.

A rise in seal populations may run the risk of conflict with fishermen. It may also challenge the current reserve system if additional reserves are needed to cope with growing numbers. Research projects on the feeding ecology of Harbour seals, and investigations of habitat requirements of seals in relation to recreational demands are the top two priorities for implementation under the revised SMP for 2002-2006 (available at <http://www.waddensea-secretariat.org/>). The SMP remains an essential tool for heading off potential future conflicts of interest in an area with lots of commercial users. It aims to strike a balance between managing the area for human uses, and conserving viable stocks of seals to maintain a natural breeding cycle.



7 Conclusions - Lessons Learnt

Looking back at a generation of Wadden Sea protection it seems justified to conclude that the entire approach in terms of conservation and management of a comprehensive marine wetland has been a very progressive one. The level of environmental protection and management can be characterized as unique in terms of harmonized international and national policies, management arrangements, and integrated environmental monitoring and assessment procedures. The measures have been successful in conserving species and habitats though there still remain issues of concern in particular the quality of water, sediment and biota caused by the input of hazardous substances and nutrients from sources outside the Wadden Sea. This issue can only be addressed in a larger context.

Furthermore, there is much concern related to the possibility for compensating the effects of the sea level rise and responding to accelerated sea level rise, which is also an issue that requires addressing developments outside the Wadden Sea Area. The decline of mature beds of blue mussel and sea grass meadows and the increasing impact in the estuaries are also a major cause of concern. The comprehensive protection and management of the Wadden Sea as a coastal marine area has been a very positive achievement, which needs to be continued. The management of the Wadden Sea has practiced coastal management for a long period along the principles for integrated coastal zone management as outlined in the European Union program.

8 Further Information

<http://www.waddensea-secretariat.org/>
<http://www.waddensea-forum.org/>

9 Contact Address

Jens A. Enemark and Bettina Reineking
Common Wadden Sea Secretariat
Virchowstrasse 1,
D - 26382 Wilhelmshaven
Federal Republic of Germany
Phone: +49 (0)4421 9108- 11
Fax: +49 (0)4421 910830
Email: Enemark@waddensea-secretariat.org
Reineking@waddensea-secretariat.org
info@waddensea-secretariat.org

ANNEXES

Figure: Map of the Wadden Sea Area and Conservation Area

Annex 1: List of the habitats and species according to the Habitat Directive Annex I and II occurring in the Wadden Sea

Annex 2: Shared Principles of the Trilateral Wadden Sea Cooperation - Wadden Sea Plan

Annex 3: Trilateral Targets

Annex 1:**List of the habitats and species according to the Habitat Directive Annex I and II occurring in the Wadden Sea****List of Habitats**

- 1110 Sandbanks which are slightly covered by sea water all the time
- 1130 Estuaries
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1160 Large shallow inlets and bays
- 1170 Reefs
- 1210 Annual vegetation of drift lines
- 1310 *Salicornia* and other annuals colonising mud and sand
- 1320 *Spartina* swards (*Spartinion maritimae*)
- 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- 2110 Embryonic shifting dunes
- 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)
- 2130 Fixed coastal dunes with herbaceous vegetation ('grey dunes')
- 2140 Decalcified fixed dunes with *Empetrum nigrum*
- 2150 Atlantic decalcified fixed dunes (*Calluno-Ulicetea*)
- 2160 Dunes with *Hippophaë rhamnoides*
- 2170 Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*)
- 2180 Wooded dunes of the Atlantic, Continental and Boreal region
- 2190 Humid dune slacks
- 4010 Northern Atlantic wet heaths with *Erica tetralix*
- 4030 European dry heaths

List of the species

- A4.1 Common Seal and Grey Seal
- A4.2 Harbour Porpoise
- A4.3 Fish species
- A4.4 Root vole
- A4.5 Fen orchid

Annex 2:**Shared Principles of the Trilateral Wadden Sea Cooperation - Wadden Sea Plan**

The Guiding Principle of the trilateral Wadden Sea policy is "to achieve, as far as possible, a natural and sustainable ecosystem in which natural processes proceed in an undisturbed way" (ED §1). The Principle is directed towards the protection of the tidal area, salt marshes, beaches and dunes (LD §8).

In addition, seven Management Principles have been adopted which are fundamental to decisions concerning the protection and management within the Wadden Sea Area (Esbjerg Declaration §3):

- the Principle of Careful Decision Making, i.e. to take decisions on the basis of the best available information;
- the Principle of Avoidance, i.e. activities which are potentially damaging to the Wadden Sea should be avoided;
- the Precautionary Principle, i.e. to take action to avoid activities which are assumed to have significant damaging impact on the environment, even where there is no sufficient scientific evidence to prove a causal link between activities and their impact;
- the Principle of Translocation, i.e. to translocate activities which are harmful to the Wadden Sea environment to areas where they will cause less environmental impact;
- the Principle of Compensation, i.e. that the harmful effect of activities which cannot be avoided, must be balanced by compensatory measures; in those parts of the Wadden Sea, where the Principle has not yet been implemented, compensatory measures will be aimed for;
- the Principle of Restoration, i.e. that, where possible, parts of the Wadden Sea should be restored if it can be demonstrated by reference studies that the actual situation is not optimal, and that the original state is likely to be re-established;
- the Principles of Best Available Techniques and Best Environmental Practice, as defined by the Paris Commission.

Unreasonable impairments of the interests of the local population and its traditional uses in the Wadden Sea Area have to be avoided. Any user interests have to be weighed on a fair and equitable basis in the light of the purpose of protection in general, and the particular case concerned .

Annex 3:**TRILATERAL TARGETS*****Landscape and Culture***

- Identity - to preserve, restore and develop the elements that contribute to the character, or identity, of the landscape.
- Variety - to maintain the full variety of cultural landscapes, typical for the Wadden Sea landscape.
- History - to conserve the cultural-historic heritage.
- Scenery - to pay special attention to the environmental perception of the landscape and the cultural-historic contributions in the context of management and planning.

Water and Sediment

- Background concentrations of natural micropollutants.
- Concentrations of man-made substances as resulting from zero discharges.
- A Wadden Sea which can be regarded as a eutrophication non-problem area.

Salt Marshes

- An increased area of natural salt marshes.
- An increased natural morphology and dynamics, including natural drainage patterns of artificial salt marshes, under the condition that the present surface area is not reduced.
- An improved natural vegetation structure, including the pioneer zone, of artificial salt marshes.
- Favorable conditions for migrating and breeding birds.

Tidal Area

- A natural dynamic situation in the tidal area.
- An increased area of geomorphologically and biologically undisturbed tidal flats and subtidal areas.
- An increased area and a more natural distribution and development of natural mussel beds, *Sabellaria* reefs and *Zostera* fields.
- Viable stocks and a natural reproduction capacity, including juvenile survival, of the Common Seal and the Grey Seal.
- Favorable conditions for migrating and breeding birds.

Beaches and Dunes

- Increased natural dynamics of beaches, primary dunes, beach planes and primary dune valleys in connection with the offshore zone.
- An increased presence of a complete natural vegetation succession.
- Favorable conditions for migrating and breeding birds.

Estuaries

- Protection of valuable parts of the estuaries.
- Maintaining and, as far as possible, restoring the river banks in their natural state.

Offshore Area

- An increased natural morphology, including the outer deltas between the islands.
- A favorable food availability for birds.
- Viable stocks and a natural reproduction capacity of the common seal, grey seal and harbour porpoise.

Rural Area

- Favorable conditions for flora and fauna, especially migrating and breeding birds.

Birds

- Favorable conditions for migrating and breeding birds:
a favorable food availability;
a natural breeding success;
sufficiently large undisturbed roosting and moulting areas;
natural flight distances.

Marine Mammals

- Viable stocks and a natural reproduction capacity of the Common Seal including juvenile survival.
- Viable stocks and a natural reproduction capacity of the Grey Seal including juvenile survival.
- Viable stocks and a natural reproduction capacity of the Harbour Porpoise

9. Overview of the measures included in the existing management plans of the French marine Natura 2000 sites

Normandy , Brittany, Corsica, Poitou Charentes and Provence Alpes Côte d'Azur as at 20th of June 2005

Below is a synthesis of the measures that are proposed in some French marine Natura 2000 sites that already apply a management plan. The evaluation of their impact will take place in the near future. On the basis of these measures and their effect, a national working group will be proposing additional measures that should be taken into account locally when drafting future management plans.

1. *Public awareness and information :*

Awareness campaigns are being carried out on the need to protect and better manage wild habitats and species and on the existing legislation : development of education tools (guides for sustainable leisure fishing, information on nesting sites, leaflets on Natura 2000 and its legislation, delimitation of sites with informative signs...)

2. *Eco-labelling* of products is being encouraged

3. *Protection activities*

It consists in:

- Promoting nature reserve projects
- Harmonising local legislations
- Protecting and restoring sites that host or could host bird and fish species : spawning and nesting sites, resting sites, feeding grounds
- Controlling invasive species: rats, ravens, ... to limit the predation on marine birds nesting sites, *Caulerpa taxifolia* in Mediterranean sites to protect *posidonia* beds.

4. *Sustainable development*

The following activities are being set up:

- Collaboration with local producers to adapt their activities to a sustainable use of the resource : design of ways suitable for motor vehicles for the exploitation of oysters and mussels that are not detrimental to birds, development of mooring sites outside of *zoostera* and *posidonia* beds, no trawling over fragile habitats, protection of waterways between lagoons and the open sea in the Mediterranean sea...
- Limitation of the use and development of the shores and nearby seawaters located in ecologically rich areas. Projects that could have an impact on the substrata (dredging, etc), on sea habitats (harbour developments, embankments, etc), on water quality and the biological balance of natural habitats (sewage treatment plants, aquaculture farms, etc) are being thoroughly screened.
- Follow up of the impact of fisheries (trawls and dragnets), evaluation of local interrelations between seafood farming and marine habitats, support to sustainable fishing practices (e.g. by avoiding the overexploitation of sea urchins predator fish species or limiting the size of herbivorous species feeding on sea grass beds).
- Maintenance of natural harbours and their biodiversity (by avoiding the accumulation of silts, limiting dredging activities...)
- Promotion of the cleaning of beaches and sea wracks by a selective manual sorting of waste; limitation of the amount of waste from sea food farming activities.

5. Implication in other programmes related to water quality

Support to local water management plans, water quality evaluation schemes. Integration of marine water preservation needs into the set criteria used for the management of the continental watershed.

6. Follow up and evaluation of habitats and species

It consists in:

- Setting up local marine biodiversity observatories
- Further developing inventories of marine habitats and species (though the design of more precise marine habitat maps, the closer follow up of endangered habitats and those that have a rich biodiversity and/or that are under strong pressure...)
- Increasing the knowledge of marine mammal populations (diet, use of water space, ...) and their long term viability (genetic bank...), protecting their resting sites, sensitising the public (tourists, tour operators, fishermen...).
- Protecting migratory fish species through a better knowledge and the suppression of migration obstacles.
- Protecting the feeding grounds of marine species and birds
- Protecting the habitats of the European otter and supporting its installation on the coast line

10. Limitation to the negative interactions between dolphins and human activities (LINDA) Corsica, France

Project Background

The bottlenose dolphin (*Tursiops truncatus*) has a very large distribution range and is found everywhere around European coasts, from the Mediterranean to the North Sea. However, few data exists on the species and its populations, being classified as «data deficiency » by the IUCN. The 3 sites of the project (the 2 marine nature reserves of Bonifacio and Scandola and the Agriates, all of them being proposed Natura 2000 sites) are included in the international marine sanctuary (PELAGOS) and hold half of the total Corsican population, estimated to be between 198 to 242 individuals.

The bottlenose dolphins are essentially gregarious and exploit a large variety of coastal habitats up to 200 meters of depth. They have learnt how to take advantage of man fishing techniques to satisfy their needs, by pilfering directly in fishing nets. However, due to the damages produced this behaviour has led to the hostility of the fishermen. Voluntary aggressions and accidental captures are the consequences of this behaviour. Moreover, the overfishing and the reduction of fish stocks could lead to the accentuation of competition between dolphins and fishermen.

Other threats are maritime traffic and motorboat racing (inducing sound pollution, disturbance, injuries and death by collisions), uncontrolled whale watching activities and pollution.

Project Objectives

The LINDA started in 2004 and will last until 2007. The project aims at maintaining the populations of bottlenose dolphins in Corsica in an accurate status of conservation through securing an harmonious cohabitation between the presence of the species and the economic activities. The main stakeholders, local authorities and tourists collaborate to develop sustainable fishing, yachting and whale-watching practices.

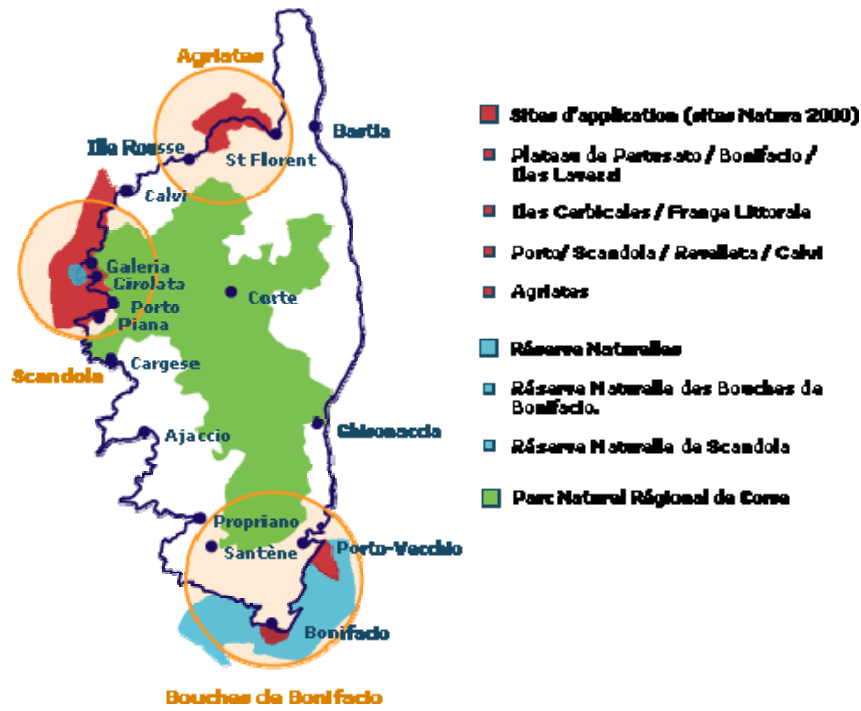
For the achievement of these goals, the LINDA project:

- Monitors the population of bottlenose dolphins and human activities affecting the species (sound pollution, interactions with fishing activities, yachting...) so as to assess the project impact and to produce a regional action plan for the species at the end of the project.
- Implements measures to minimise conflicts between bottlenose dolphins and fishermen (acoustic repellents on fishing nets, alternative fishing practices...)
- Promotes dolphin-friendly management of activities related to water sports (motorboat racing, whale watching and yachting) and launch communication initiatives for public awareness.

More information is available on

<http://www.lifelinda.org>

10. Limitation to the negative interactions between dolphins and human activities (LINDA)
 Corsica, France



Location of the LINDA LIFE project sites

