



## **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 inshore<sup>1</sup> 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 Habitats Directive beyond territorial waters over which the UK exercises sovereign rights of exploitation and exploration of natural resources<sup>2</sup> was confirmed by a judgment of the London High Court of Justice of 5 November 1999. The same reasoning can be applied to the Birds Directive. The European Commission had already assumed that this was the case although Member States have not yet been pursued to designate sites under the Directives. The Court ruling has been accepted by the British government, and the growing interest in other countries indicates that this step has been or will be followed by other Member States (i.e. BE, DK, DE, NL, PT, SE; situation June 2001<sup>3</sup>). Apart from the EU perspective other instruments like the OSPAR convention<sup>4</sup>, the Helsinki Convention<sup>5</sup> and the Barcelona Convention<sup>6</sup> 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 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.

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<sup>1</sup> 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).

<sup>2</sup> 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)

<sup>3</sup> An up-to-date overview of the current situation in 11 Member States and Malta can be found in Turnbull et al. (2002)

<sup>4</sup> 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)

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

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



### **Marine habitats**

3. Marine habitats are normally defined by relevant topographical or oceanographical features. The EUNIS Habitat Classification<sup>7</sup> 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-covered<sup>8</sup>. The latter is subdivided in continental shelf<sup>9</sup> 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**

4. 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 declared<sup>10</sup>. 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.

### **What are IBAs?<sup>11</sup>**

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:

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<sup>7</sup> 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).

<sup>8</sup> 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.

<sup>9</sup> 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).

<sup>10</sup> 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.

<sup>11</sup> 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).



### **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 IBAs<sup>12</sup>**

7. The marine environment<sup>13</sup> 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 congregate at

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

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



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).<sup>14</sup> 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.).

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<sup>14</sup> 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).



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 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 km<sup>2</sup>. The application of the MCC requires the precise delineation of the borders of species aggregations by the use of standard GIS routines<sup>15</sup>. 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 wetlands<sup>16</sup> 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 the UK 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. While some Member States do include areas beyond the low water mark in their Special Protection Areas, this has not been the case in the UK. 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 UK 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

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<sup>15</sup> 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).

<sup>16</sup> 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”.



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.

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 it's colony IBAs, cannot be implemented. Obtaining this data would require considerable time and expenditure of limited conservation resources (Huggett 2001)<sup>17</sup>.

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<sup>17</sup> 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.



## 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 shelf<sup>18</sup>. 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), Stercoraridae (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 (29<sup>19</sup>) (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 5<sup>20</sup>. 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 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).

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

<sup>19</sup> 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).

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



## IBA2000 criteria

18. Seabirds are covered by the following IBA2000 criteria<sup>21</sup>:

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 line<sup>22</sup> 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 seabirds the delimitation of marine sites may be difficult.

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

<sup>22</sup> 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.



## Four types of marine IBAs

20. Four types of bird distribution patterns can be distinguished in the marine environment:
- 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;
  - Non-breeding waterbird concentrations: coastal areas, which hold feeding and moulting concentrations of waterbirds<sup>23</sup> in particular divers, grebes and benthos feeding ducks;
  - 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;
  - 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”<sup>24</sup>. 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.

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<sup>23</sup> note the definition of the term “waterbirds” in paragraph 11

<sup>24</sup> 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.



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 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 coastline<sup>25</sup> 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.

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 Policy<sup>26</sup>. 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.**

<sup>25</sup> 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

<sup>26</sup> see [http://europa.eu.int/comm/fisheries/doc\\_et\\_publ/pub\\_en.htm#map](http://europa.eu.int/comm/fisheries/doc_et_publ/pub_en.htm#map)



### 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”<sup>27</sup>. The corresponding global criterion (A1iv) includes a threshold of 20,000 for all these species combined<sup>28</sup>. 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 respectively<sup>29</sup>. 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 clarification<sup>30</sup>. 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 larger<sup>31</sup> 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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<sup>27</sup> The EU criterion C5 is the same except that the word “over” has been replaced by “at least” twice (as in A41iv!).

<sup>28</sup> 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.

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

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

<sup>31</sup> 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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## Document History

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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
<b>Total area of these 20 areas</b>	c. 20,000,000			
<b>Total area of North Sea, Channel &amp; Kattegat</b>	<b>75,000,000</b>			

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 - Rodsand 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 Union<sup>32</sup> 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.

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

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

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

<sup>34</sup> 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)

<sup>35</sup> Subspecies not assessed by Birds of Europe (1994)

<sup>36</sup> Pelagic in its tropical winter quarters.



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.

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

<sup>37</sup> 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)

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

<sup>39</sup> Only small proportion at coastal sites in the East Atlantic



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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
<b>Breeding seabirds</b>											
Number of IBAs identified for breeding seabirds	0	1 <sup>40</sup>	1 <sup>40</sup>	7	1	46+	c. 60	15	39 <sup>41</sup>	c. 23 <sup>42</sup>	3
Number of qualifying seabird species in these IBAs	0	1	C7 <sup>43</sup>	5	3	18	18	12	19	11-12	3
Any data on feeding ranges?	n.a.	yes	?	yes	?	yes	yes <sup>44</sup>	no	yes	no <sup>45</sup>	no
<b>Waterbird concentrations</b>											
Number of nearshore IBAs identified for waterbirds	7	6 <sup>46</sup>	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 <sup>47</sup>	90-95%	yes	90%	100%
Regular counts made?	no	yes?	yes	yes	?	yes?	no <sup>48</sup>	yes	yes	no	no
<b>Dispersed pelagic birds</b>											
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 <sup>49</sup>	?	no
Any known seabird concentrations?	no	yes	no?	no?	?	yes?	yes? <sup>50</sup>	yes	yes <sup>51</sup>	?	no
Any attempts made to identify such IBA's?	yes	yes	yes	yes	yes	yes	no	no	yes <sup>52</sup>	no	no

<sup>40</sup> excluding tern and gull colonies

<sup>41</sup> North Spain 6, Mediterranean 21, Canary Islands 11

<sup>42</sup> Azores 14, Madeira 9, mainland coast 1

<sup>43</sup> site included under IBA criterion C7

<sup>44</sup> 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

<sup>45</sup> only data on tern species feeding close to breeding colonies

<sup>46</sup> 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)

<sup>47</sup> distribution inshore/ offshore not well known

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

<sup>49</sup> 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.

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

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

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



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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 km<sup>2</sup> in the quoted MCC inventories<sup>53</sup>). It would be interesting to see the effects of different maximum areas (e.g. 1000 and 2000 km<sup>2</sup>) on population coverage and total IBA area selected<sup>54</sup>.
- ◆ MCC uses very low densities of birds over wide areas to establish important areas (as low as 100 birds/km<sup>2</sup>). 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).

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<sup>53</sup> 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?

<sup>54</sup> 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 1000-3000km<sup>2</sup>)” (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 km<sup>2</sup>.

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 watelets, 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 <sup>2</sup>	11 000 km <sup>2</sup>	10 500 km <sup>2</sup>	5800 km <sup>2</sup>
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 km<sup>2</sup> area 'Lille Middeldgrund', 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]

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## 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 km<sup>2</sup> 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 km<sup>2</sup> 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 Ornis 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 km<sup>2</sup>.

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**

<b>Species group</b>	<b>A = 3000</b>	<b>A = 2000</b>	<b>A = 1000</b>
Divers	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**

<b>Species group</b>	<b>A = 3000</b>	<b>A = 2000</b>	<b>A = 1000</b>
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

## Appendix IV. Information about the MCC – Ornis Consult A/S

### *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

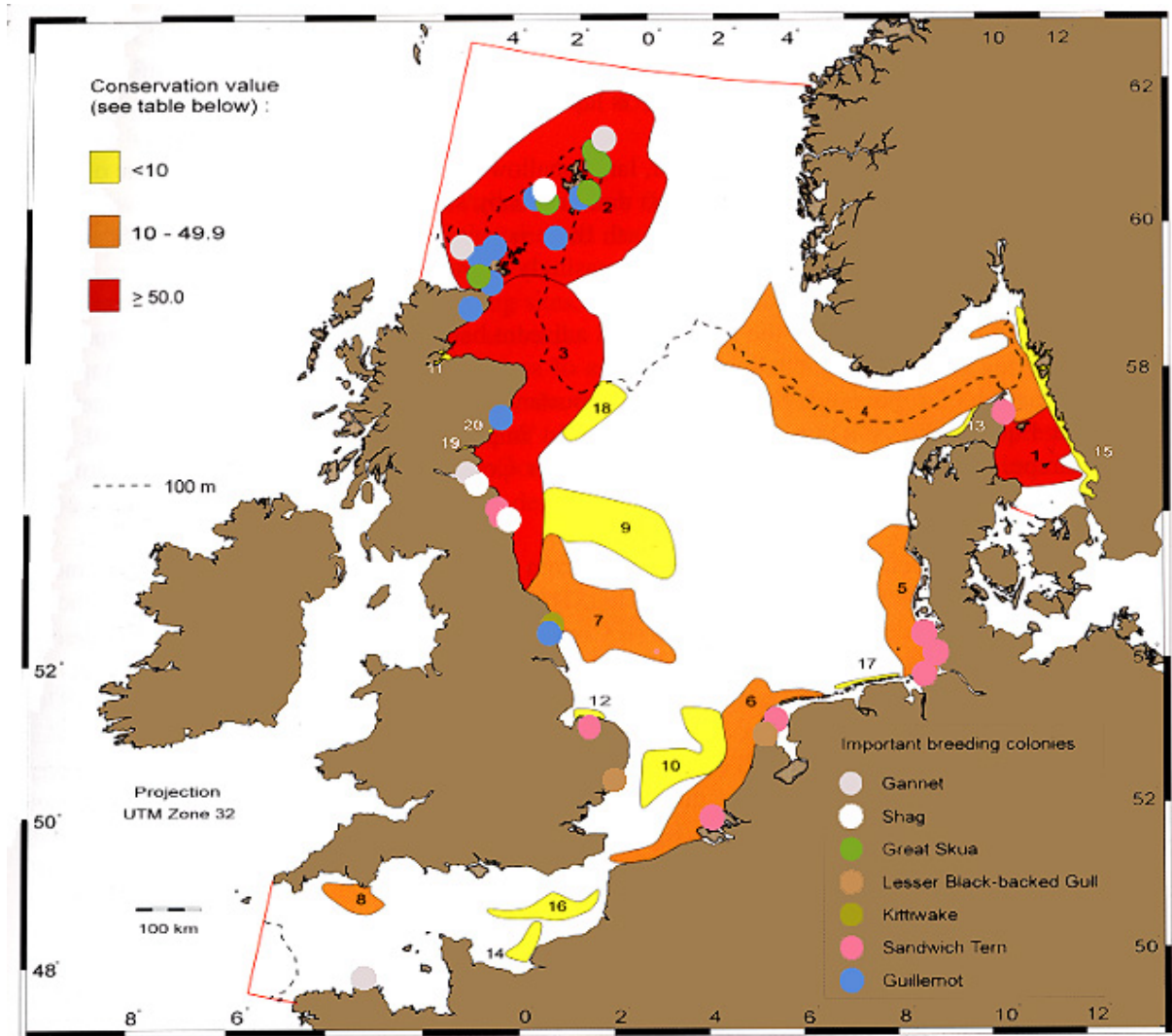


Figure 1. Location and extent of the 20 selected areas and breeding colonies of international importance for seabirds in the North Sea, the Channel and Kattegat (from Skov et al. 1995).

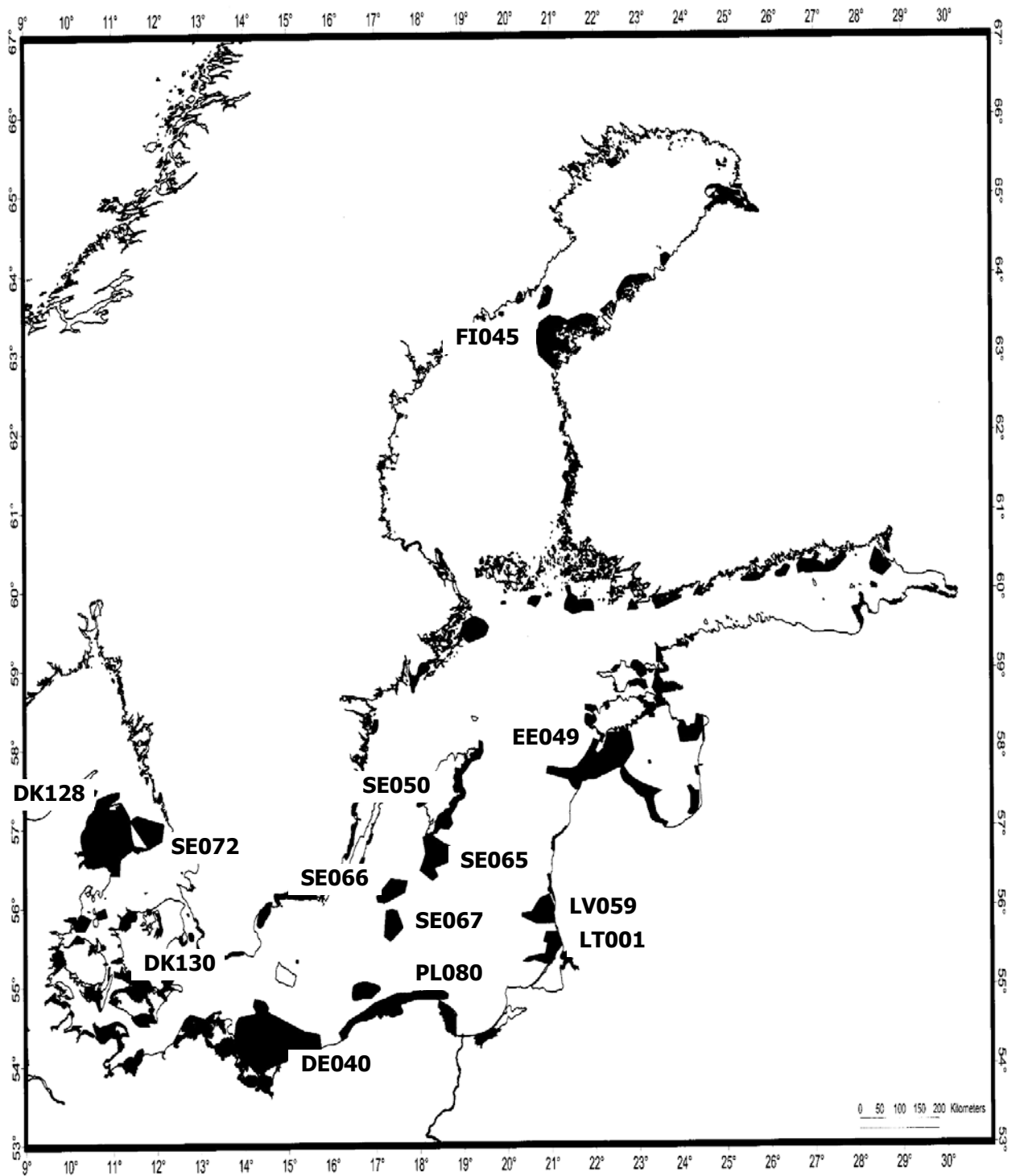


Figure 2: Location and extent of all IBAs identified in coastal and marine areas of the Baltic (from Skov *et al.* 2000; height-width ratio adapted and numbers of IBAs listed in table 2 added)

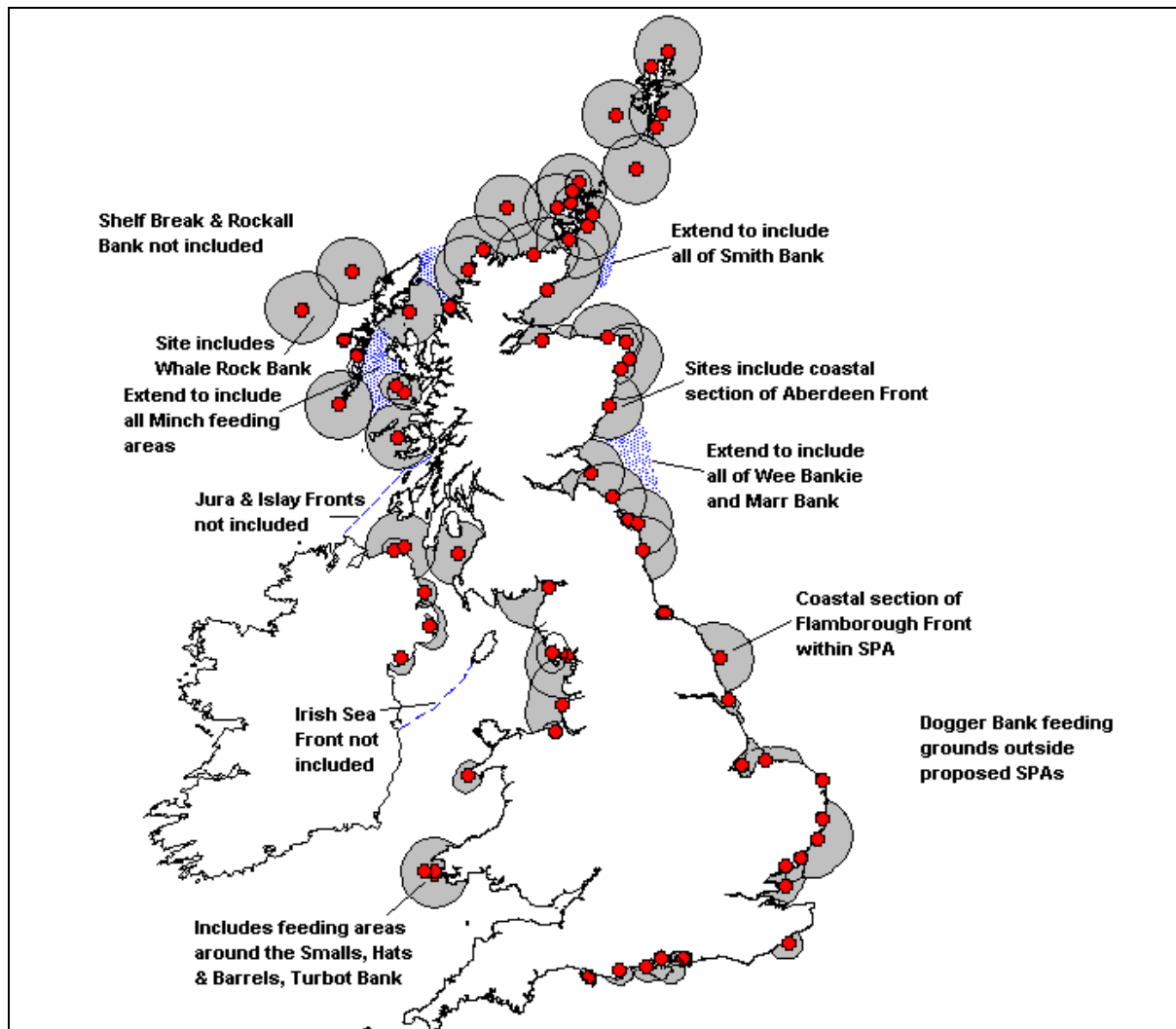


Figure 3. Suggested marine extensions to breeding seabird IBAs in the UK including proposed modifications to take account of known additional feeding areas (from RSPB 2000).

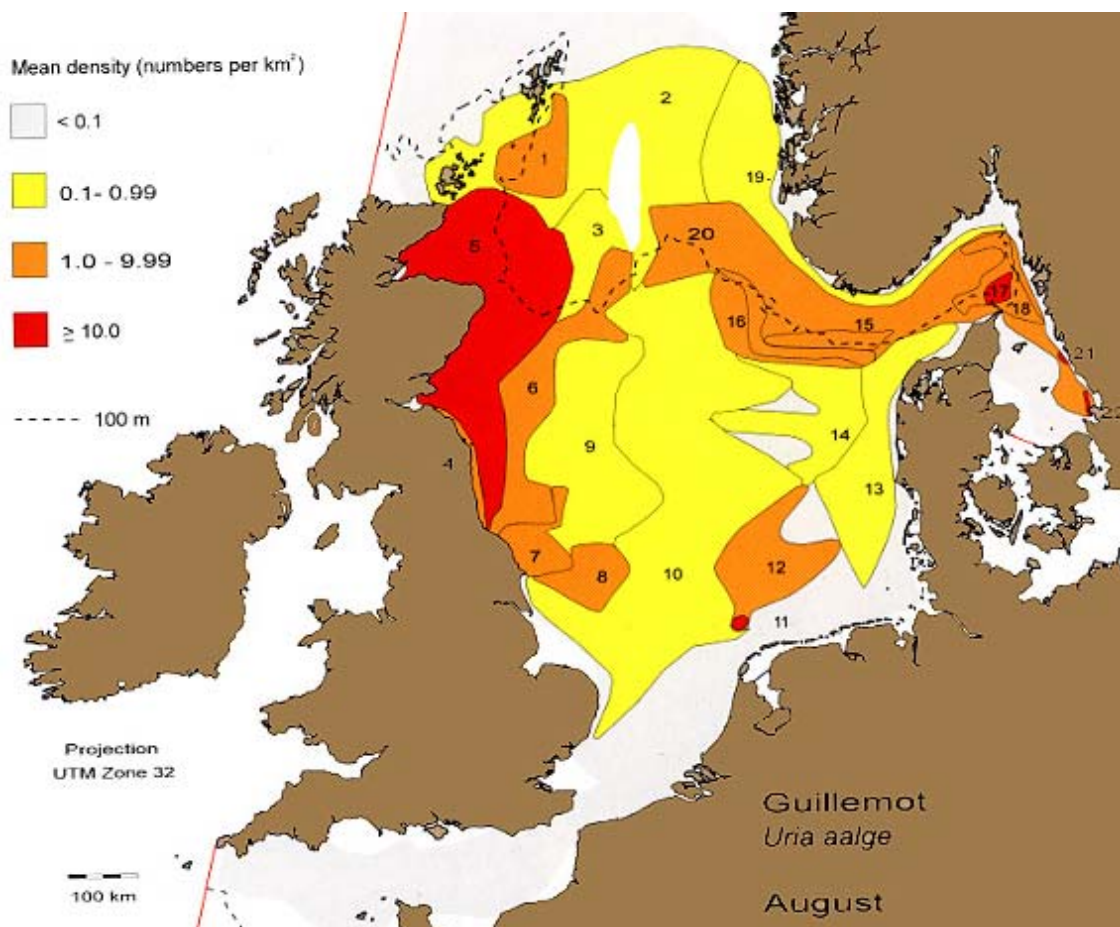
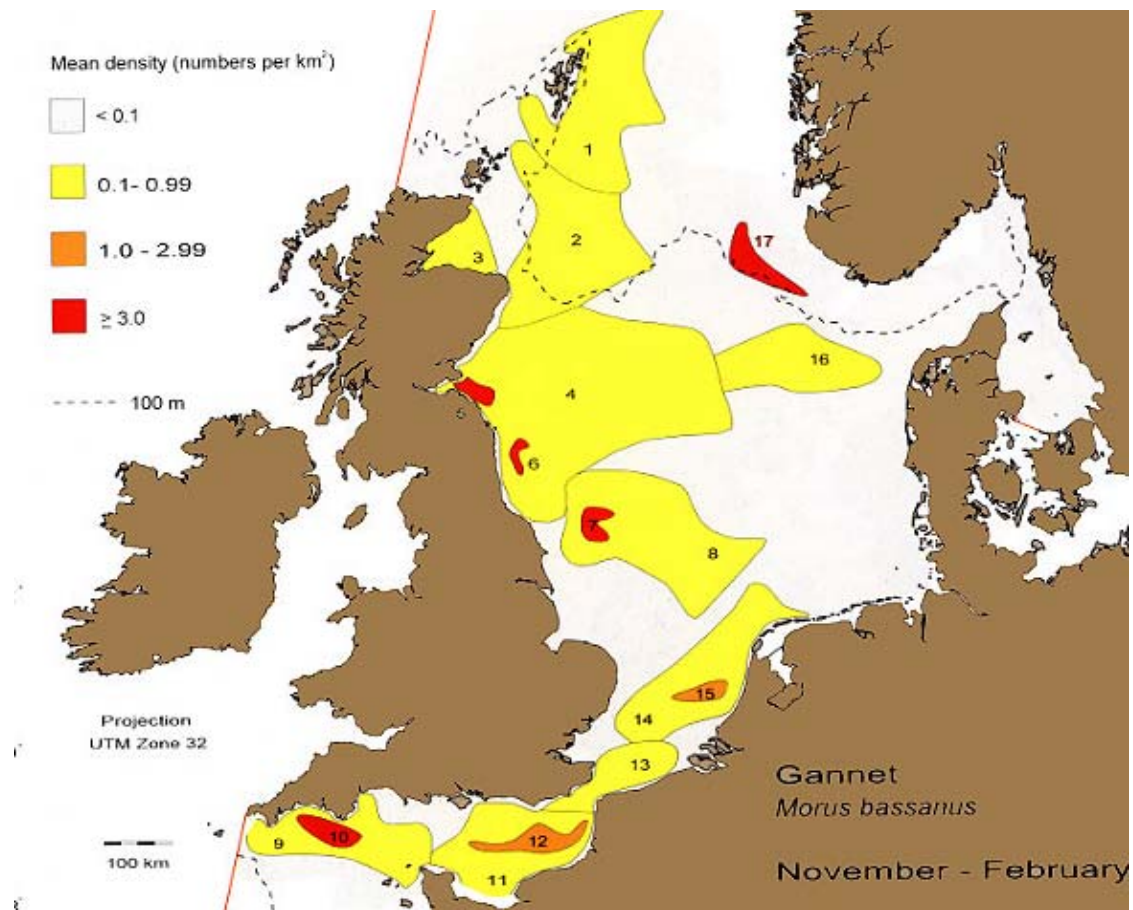


Figure 4A-4B. Distribution and density of (A) *Morus bassanus* in the North Sea, the Channel and the Kattegat from November to February 1980-94 and (B) the same of *Uria aalge*, August 1980-94 (from Skov et. al 1995).

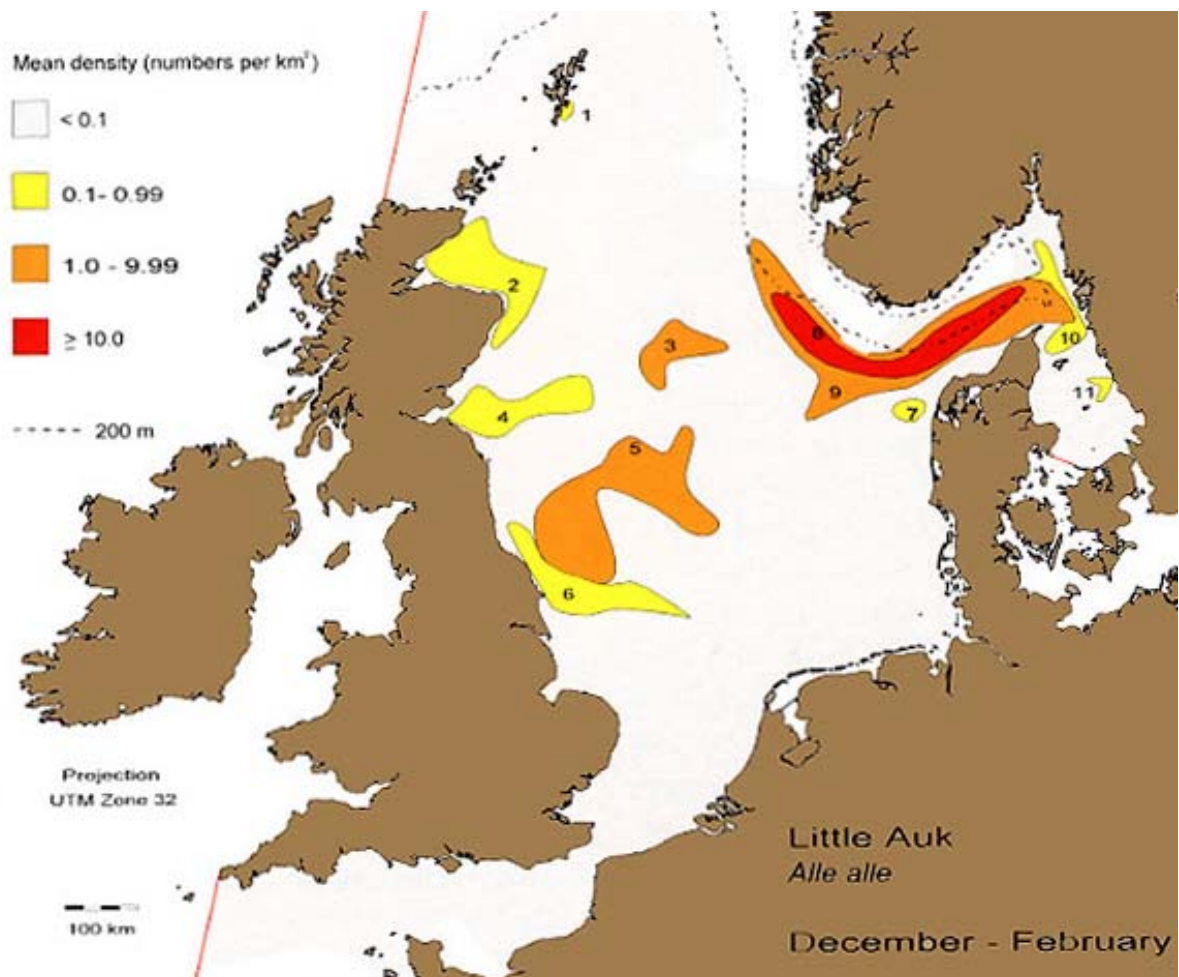
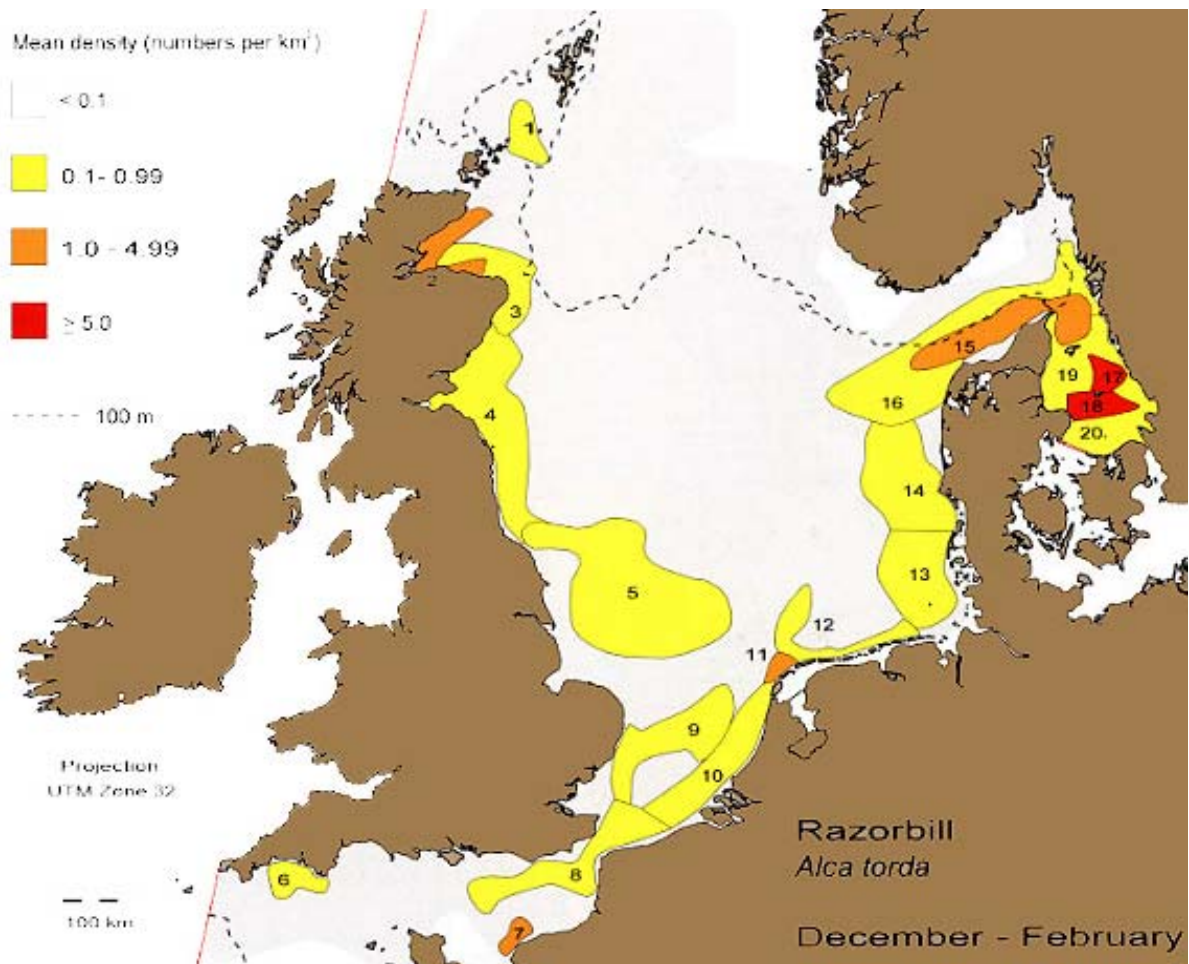


Figure 4C-4D. Distribution and density of (C) *Alca torda* in the North Sea, the Channel and the Kattegat, November-February 1980-94 and (B) the same of *Alle alle*, December-February 1980-94 (from Skov et. al 1995).