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Implementing N2000 in the marine environment
Marine IBAs: Lisbon-Vilanova conclusions

NATURA 2000

1- Background information
a. The Marine IBAs LIFE Project launched by SPEA, LIFE04NAT/PT/000213

2004-2008

Objective

To contribute to the implementation of the Birds Directive in the marine environment through the detailed inventory of the most significant marine areas for seabirds included in Annex I of the Birds Directive in Portugal, including the adequate methodological criteria for the identification and delimitation of IBAs in these areas. The final objective is to contribute to the future designation of Special Protected Areas in coastal and pelagic waters in Portugal and ultimately in other EU countries.

Specific objectives

1) To characterise each area with GIS cartography, identify the main threats and propose conservation measures;

2) To define a standard and demonstrative methodology for the identification of boundaries of marine IBAs, which can potentially be applied to marine SPAs in Portugal;

3) To identify those species of the Annex I of Birds Directive for which the delimitation of marine IBAs (and SPA) is appropriate;

4) To follow a global perspective for Iberia and Macaronesia, through close collaboration with a similar project being undertaken by SEO- BirdLife Partner in Spain, also with funding from LIFE- Nature 2004 (Áreas Importantes para las aves (IBAs) marinas en España).

The means to obtain seabird data are of two types: 1) data loggers on C. d. borealis in Azores, Madeira and Berlenga and radio-tracking on the smaller Procellariiformes (*Pterodroma feae, Bulweria bulwerii, Puffinus assimilis, O. castro e Pelagodroma marina*) and possibly Sterna dougallii in Azores, Madeira and Berlenga (O. castro); and 2) visual census by boat and aerial surveys of the wintering species in the mainland, through the platform to pelagic waters. Marine data will be obtained through the relation between seabird concentrations at sea and oceanographic variables (upwellings, termocline), biotic variables (plankton abundance, turtles and marine mammals' distribution) and human based activities (fisheries). This information is obtained through the available means (satellite photos, available reports) and in loco during the surveys.

b. The Marine IBAs LIFE Project launched by SEO, LIFE04NAT/E/000049

2004-2008

Objective

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. The inventory will include a characterisation of each IBA, with GIS geo-referenced cartography, a description of the main threats affecting it and number of conservation measures proposed. At the same time, a standard methodology for the identification and delimitation of IBAs at sea will be developed and disseminated so that it can be applicable to other countries. 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.

Specific objectives

1) 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. Two types of analysis will be carried out: specific monitoring of certain species (those for which it is technically feasible), and identification and generic sampling of the most favourable areas. Specific actions consist on: satellite tracking of 40-44 *Calonectris diomedea* and 20-24 *Larus audouinii*; radio tracking of 26-30 *Bulweria bulwerii*, 16-20 *Puffinus assimilis*, 26-30 *Oceanodroma castro* and 26-30 *Phalacrocorax aristotelis desmarestii*; analysis and mapping of the 16.000 recoveries of ringed seabirds in Spain; to survey coastal waters around *Larus* and *Sterna* breeding colonies in the Ebro delta and Albufera de Valencia (2000 hrs during breeding season); use of observers on board fishing vessels (>300 days in various fisheries); create and analyse data base of beached birds.

2) Identify and map the various factors (oceanographic: physical & biotic, and anthropic) that determine the distribution patterns of seabirds at sea.

3) 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.

4) 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".

Introduction

1- Constructing the Marine Natura 2000 Network.

The future marine component of the Natura 2000 network has to be part of a coherent European ecological network, composed of sites selected for, under the Habitats Directive, (i) the natural habitat types listed in Annex I and (ii) the habitats for the species listed in Annex II. This will enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored to a favourable conservation status in their natural range.

The Natura 2000 network will include also Special Protection Areas classified pursuant to the Birds Directive 79/409/EEC. These are to be the most suitable territories in number and size for the conservation of birds listed in Annex I of Birds Directive and migratory birds, taking into account their protection requirements.

The application of the Birds and Habitats Directives in the marine environment presents more challenges than originally expected, especially regarding the offshore marine environment. The main difficulties in proposing Natura 2000 Sites relate to a lack of scientific knowledge and the high costs of carrying out research and survey in offshore marine areas.

The opinion of the European Commission is that recognition of an Economic Exclusive Zone (EEZ) by a coastal State brings with it an obligation on them to respect Community legislation within their EEZ in the areas where they exercise sovereign authority. The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured. (UNCLOS, article 56)

2- BirdLife International and the IBA Network

The Important Bird Areas (IBAs) programme of BirdLife International seeks to identify, document and conserve sites that are key for the long-term viability of bird populations. BirdLife International has successfully implemented a network of terrestrial Important Bird Areas (IBAs) and has obtained general recognition that these sites represent prime sites for bird conservation. This 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.

With the success of the IBA approach in both the terrestrial and freshwater environment in various continents and the development of new monitoring techniques that favour a better understanding of the marine environment, BirdLife International is well positioned now to turn its attention to adapting and extending the programme to the oceans.

Globally significant IBAs, based on the presence of species of world-wide conservation concern, are selected according to a set of objectives, standardised criteria. These are internationally agreed, standardised, quantitative and scientifically defensible criteria that have proven very effective when tested against a variety of species and habitats. Ideally, each IBA should be large enough to support self-sustaining populations of as many as possible of the key bird species for which it was identified or, in the case of migrants, fulfil their requirements for the duration of their presence.

Workshops conclusions

1- Cross-cutting issues

a) Spatial scale

Many terrestrial IBA definitions can be applied to the marine environment conceptually, but in practice they might result in enormous IBAs. This issue affects discussions about:
i) whether congregations of dispersed pelagic seabirds can be defined as IBAs, ii) whether seaward colony extensions can be used to protect the feeding areas of breeding seabirds, iii) migration corridors along, for example, continental shelves could be declared as IBAs.

There are several reasons for designing an IBA network which occupies a relatively small proportion of the area under consideration: (1) IBAs are intended to be a site-based approach to conservation, which can be combined with a separate landscape-level approach. This implies that IBAs will represent a relatively small hotspot area within a wider landscape (which may itself be of high conservation value). (2) IBAs need to remain 'special', to maintain their credibility. (3) In practice, it may not be possible to manage IBAs that are extremely large. Conversely, it is important that areas holding key concentrations of birds are not omitted from the network simply because they are large.
We also stress the need for BirdLife to pre-define what constitutes a good maximum size/proportion of the total area for IBAs, so that the analytical approaches can be tailored to it.

b) Seabird species for which marine IBAs can be defined

The decisions about which species trigger Marine IBA criteria must be data-driven. Attention should be focused on seabirds, i.e. those species making regular and significant use of the marine environment (including gulls and terns). From the point of view of the global IBA programme, and Natura2000, all birds should be considered but it was felt inappropriate to consider incorporating criteria based on the migration of land birds or marine foraging habitat of land birds.

2- Review of the four potential types of marine IBA

Four types of marine IBAs must be considered for all regions:

a) <u>Seaward extensions of breeding colonies</u>
b) <u>Non-breeding coastal concentrations</u>
c) <u>Migration bottlenecks</u>
d) <u>Offshore foraging areas</u>

a) <u>Seaward extensions of breeding colonies</u>

Species' feeding ranges could sometimes not be consistent across colonies and between years.

As a minimum requirement, extensions for maintenance activity (and foraging activity for any relevant inshore-foraging species), utilising criteria analogous to those developed in the UK[1] is recommended for all appropriate species/IBAs.

Radius around colony (to include foraging and/or maintenance activities)			
5 km	**15 km**	**40 km**	**still unknown**
Stercorarius parasiticus	*Calonectris diomedea* (rafts)	*Catharacta skua*	*Oceanodroma leucorhoa*
Larus genei	*Puffinus puffinus* (rafts)	*Larus argentatus*	*Oceanodroma castro*
Sterna albifrons	*Puffinus mauretanicus* (rafts)	*Larus fuscus*	*Pelagodroma marina*
Sterna nilotica	*Phalacrocorax carbo*	*Larus marinus*	*Hydrobates pelagicus*
Cepphus grylle	*Phalacrocorax aristotelis*	*Larus audouinii*	*Fulmarus glacialis*
	Larus ridibundus	*Rissa tridactyla*	*Morus bassanus*
	Larus canus	*Uria aalge*	
	Larus melanocephalus	*Alca torda*	
	Sterna hirundo	*Fratercula arctica*	
	Sterna paradisea		
	Sterna dougallii		
	Sterna sandvicensis		

We recommend the following hierarchy of approaches to maximise the application of available data in order to apply appropriate radii:

1. Species x Site-specific data (either gathered from literature, or through current field based projects, e.g LIFE projects, bearing in mind potential density-dependence due to differences in colony size and other ecological considerations that may determine the size of the radii. In cases where multi-species colonies exist, the species with the largest foraging radius should be used to set the outer radius).
2. Species-specific data.
3. If data are not available to apply 1 or 2, use nearest neighbour or surrogate species.

Before these criteria are used to delimit marine IBAs, a re-evaluation of the statistical basis on which the radii were calculated should be undertaken. We recommend that the values adopted should be based on no less than mean maxima of all data available derived from the empirical data or the upper 95% confidence interval. This is particularly of importance in respect of affording maximum protection to the foraging range of globally threatened species.

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[1] See: McSorley CA, Dean DJ, Webb A, Reid JB 2003. Seabird use of waters adjacent to colonies: Implications for seaward extensions to existing breeding seabird colony Special Protection Areas. JNCC,

b) Non-breeding coastal concentrations

Both workshops considered that although there might be cases for some species to be considered under this type of IBA (ie: high concentrations of Alca torda in the Atlantic coast during winter time), it would not be appropriate for the vast majority of the species/habitats in the Mediterranean, Macaronesian and Iberian regions. If required, it was recommended to study approaches such as the Marine Classification Criterion (MCC).

c) Migration bottlenecks

In identifying migration corridors, there may be practical problems of data availability and conceptual difficulties with capturing all types of migration within a single definition. We also understand that exploring and defining the difference between stopovers, bottlenecks and corridors is critical.

At a few sites, there is a clear bottleneck, with migrants being constrained from both sides into a narrow front (straits). A priority site in the region would be the Straits of Gibraltar, nevertheless other bottlenecks whereby migrating seabirds are constrained by fixed (topographic) or dynamic (oceanographic) features may also be relevant. However, seabird populations migrating along a continental shelf might not be well protected by just a few IBAs at bottleneck sites, but no protection along the rest of the migration front. Although this also goes back to the point that the IBAs are a site-based approach (straits = sites) embedded in a wider landscape that is also of high conservation value (migration fronts along shelves).

Procellariiform tracking indicates that many species do migrate, even pelagically, across relatively narrow corridors. However, data availability limits our ability to define precise migration corridors in open waters, even where these do exist.

Finally, it is recognised that migratory features might constitute IBAs for which management prescriptions for SPAs might operate only at specified times of year.

d) Offshore foraging areas

Both workshops pinpoint the importance of analysing the interactions between the criteria used and the size of potential IBAs. Until empirically based models are developed to explore these interactions and to undertake sensitivity and scenario analysis, it may be difficult to define criteria that can be applied consistently across taxa. Nevertheless, we understand that "Tracking Ocean Wanderers" (and associated database) is a key step forward in establishing and standardising protocols for analysing remote tracking data. A key follow-up step will be to develop techniques for combining these data with ship-based survey data (as both LIFE Projects in Portugal and Spain are doing).

It is recommended that a range of models may be utilised to explore these relationships, including investigating MCC, GLM-based approaches used in the Canadian Arctic and particularly those used with existing data from the Mediterranean region.

There must be a clear aim to come up with a single agreed approach in the end by BirdLife International. We understand that investigating the relation between the oceanographic variables and seabird presence is essential. Modelling software capable of establishing clear patterns for bird distribution according to sea variables is the way forward, and we urge BirdLife to invest time and resources into it.

With regards to the "moveable offshore IBAs", the key issue for identifying sites based on ephemeral concentrations is number of birds and regularity of use. Here, data limitations are a major difficulty to determining regularity of use. Besides, offshore seabird concentrations change in location from year to year, due to environmental variations. The question of whether these spatial shifts are relatively large or small depends on the spatial scale at which they are being considered.

As the boundaries of Marine IBAs could show seasonal and annual variation, ,their outer boundaries should set correspond to the upper 95% confidence interval of the variation involved. Flexibility margins within marine areas (caused by moveable feasts that seabirds follow) could be considered to be buffer zones, and thus included in the IBA (which would then include zones of varying interest/value, spatially and temporally).

This would be far preferable to moveable IBAs, which we would struggle to sell politically and/or to decision makers.

e) Review of the Marine IBA criteria

Both workshops reviewed the existing terrestrial IBA criteria with regards to the marine environment. It was agreed that for the purposes of developing marine IBAs, the existing IBA criteria developed by BirdLife International remains applicable, albeit requiring likely adjustment to the numerical and proportionate thresholds involved.

We also understand it is probably not possible to make significant progress on setting quantitative thresholds at this stage, although some ideas were pinpointed, such as:

- The definitions of A1, C1, and C2 are intended to give a degree of flexibility in interpretation: '*Other species of global concern*' is intended to include 'near-threatened' and 'data deficient'. '*Regular*' is intended to exclude casual use of a site by the species. The phrase '*known or thought to hold*' means that patchy data can be used to make a precautionary assumption that a site holds a significant population.

- Areas with a high bird density are only useful if they also contain a significant proportion of the population. Perhaps one should therefore use the presence of a high density in a given minimal area as a criterion. However, analytical approaches for delimiting the area boundaries need to be developed.

- It may be possible to use preliminary data on bird density to identify potential hotspots and then, attempt to refine and delimit these with further detailed surveys, combined with expert knowledge about the key environmental features that might define the hotspot.

- There are various ways of defining marine biomes: e.g. by climate, by oceanographic features (shelf-edge, open water, neritic, etc), by biogeography. Several schemes already exist for European waters, but are not mutually consistent. For seabirds, the key areas may be the boundaries between regions.

ANNEX I

Review of data requirements and opportunities for Iberian region programmes

The baseline data available for each of the three main subdivisions of the region (Mediterranean, Macaronesia, Atlantic coasts) has been reviewed, and the data to be collected during the LIFE projects planned, in order to identify potential gaps or requirements for supplementary data.

This preliminary review was undertaken at the level of taxon groups (shags, gulls and terns, shearwaters, storm petrels and gadfly petrels, auks) in relation to the main methods of data collection (aerial and ship based surveys, remote tracking (radio, satellite, etc.) and other potential quantitative sources eg isotope data, bycatch records, etc.).

Table 1: Gap analysis for data on seabird use of the marine environment in the Mediterranean Sea.

MEDITER-RANEAN	Base-line	Approach 1	Approach 2	Approach 3	Available info	Priorities for taxa	Recommendations for project
TAXA	Colony Pop.	Colony extens.	Seascape surveys	Focused studies			
SHEAR-WATERS	Good known colony location, relatively good colony size	identify rafting areas	ship-based	- PTT data C. diomedea - kernel analysis PTT data P. mauretanicus - habitat definition analysis	sufficient 1, ongoing 2, some ongoing 3	Oceanogr. habitat analysis for Calonectris. Collect data threatened status P. yelkouan	Gather data from other studies (isotops, diet) as they are published. Full risk assessment imperative for threatened spp.
STORM + GADFLY PETRELS	Good knowledge sites, relatively good colony size	Not relevant?	ship-based		sufficient 1, ongoing 2, poor 3	Colony survey Oceanogr. habitat analysis	Need more accurate information on colony size & trends. Some isotop studies needed. Information on movements needed. Further study of behaviour & ecology (incl. use of waters close to colony) needed.
SHAGS	Good	radiotracking (breeding season)	some aerial	radiotracking	some 1, sufficient 2, some 3 (stable isotops)	Oceanogr. habitat analysis	Refine definition of colony
GULLS + TERNS	Good	find out / define radii	ship-based	PTT Audouin's G	sufficient 1, ongoing 2, some 3	Oceanogr. habitat analysis for *L. audouinii*	Find out foraging range for terns

Table 2: Gap analysis for data on seabird use of the marine environment in Macaronesian waters.

MACARO-NESIA	Base-line	Approach 1	Approach 2	Approach 3	Available info	Priorities for taxa	Recommendations for project
TAXA	**Colony – Pop. nos.**	**(Colony extens.)**	**(Seascape surveys)**	**(Focused studies)**			
SHEAR-WATERS	Some data on location but gaps on numbers	rafts around colonies	breeding season, adaptive surveys of foraging grounds of tracked birds	*P. puffinus* (status?) & assimilis colonies, tracking & surveys for (night-time) rafts around colonies (4 - 9 km away)	some 1 (rafts), some 3 (tracking),	*P. puffinus & assimilis* colony survey, oceanogr. habitat analysis	Recommend colony survey (confirm breeding sites, secondarily colony size). Check out bycatch
STORM + GADFLY PETRELS	Most colony sites known, suspect more exist, little data on breeding pop size	not relevant for *Hydrobates*, possible for *Pterodroma*	varying phenology (summer & winter breeding season), if possible - adaptive surveys of foraging grounds of tracked birds	explore radio tracking options, isotopic analyses of breeding foraging and post-breeding foraging (pelagic vs coastal diet signal)	some 1 (locations)	colony survey, oceanogr. habitat analysis,	
GULLS + TERNS	Good for terns, poor for gulls	radio tracking	breeding season	*S. dougallii & S. hirundo* studies	some1 in literature	surveys	Recommend dedicated surveys, in conjunction with tracking. Consider extending land IBAs

Table 3: Gap analysis for data on seabird use of the marine environment in Atlantic Iberia.

ATLANTIC IBERIA	Base-line	Approach 1	Approach 2	Approach 3	Available info	Prio-rities for taxa	Recommendations for project
TAXA	Colony – Pop. nos.	(Colony extens.)	(Seascape surveys)	(Focused studies)			
SHEAR-WATERS	n.a.	n.a.	at-sea surveys & observations from headlands	some census data on P. mauretani-cus	some 2 (ongoing)	Oceanogr. habitat analysis for *P. maureta-nicus & Calonectris*	Check out bycatch
STORM + GADFLY PETRELS	Many colony sites known, suspect more exist, little data on breeding pop size	n.a.	ship-based surveys		some 1 (locations)	Colony survey Oceanogr. habitat analysis,	
SHAGS	Good		ship-based surveys		some 1 & 2, some 3 (stable isotops)	Oceanogr. habitat analysis	Refine definition of colony Map colonies & calculate 15 km extension radii
GULLS + TERNS	Good		breeding season	Good know. passage & winter distribution	some 1 & 2, poor 3	surveys	Recommend dedicated surveys. Consider extending land IBAs
AUKS	Good	breeding season	ship-based surveys		good 1, some 2, poor 3	Oceanogr. habitat analysis	Follow-up evolution of breeding pop.

ANNEX II

Recommended next steps

o   BirdLife International European office should start scoping opportunities and resources for extending SPEA and SEO/BirdLife Marine IBAs approach to other EU countries (including new and potential accession countries) in the central and eastern Mediterranean.

o   Consideration should also be given to the compilation of relevant data for the remaining parts of the Mediterranean and Macaronesian region, particularly North Africa.

o   BirdLife International European office, in close collaboration with SPEA and SEO/BirdLife, should give high priority to developing a strategy for conversion of marine IBAs to SPAs and the development of appropriate management plans to accompany these. This process should seek to commence once regionally consistent IBAs are developed based on the seaward extension type.

o   BirdLife International, particularly through its Global Seabird Programme, should seek to stimulate the development of marine IBAs in other priority regions, particularly in the light of the development of the marine IBA programme in New Zealand. Close links should be maintained with this programme.

o   At all regional levels, but particularly outside Europe, the development of marine IBAs should be viewed as an integral part of initiatives to establish networks of MPAs suitable for all main groups of pelagic marine taxa. Particular attention should be given to the development of trans-boundary initiatives (across EEZs and spanning EEZ and high sea areas).

NOTE: This document is a summary of the conclusions of two consecutive workshops:
"Implementing N2000 in the marine environment", September 2005, organised by SPEA, BirdLife International in Lisbon (Portugal) and "Conserving our seabirds: how to identify Marine IBAs", November 2005, organised by SEO/BirdLife in Vilanova i la Geltrú (Barcelona, Spain).
Both meetings were organised within twin LIFE Projects in Spain (LIFE04 NAT/ES/000049) and Portugal (LIFE04NAT/PT/000213)

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