Guidelines

for the establishment of the Natura 2000 network in the marine environment. Application of the Habitats and Birds Directives

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May 2007

This document aims to reflect the views of the Commission services on this issue and is not of a binding nature.

NATURA 2000

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1. INTRODUCTION AND BACKGROUND

Why the need for a guidance document?

The need to fully apply the Habitats[1] and Birds[2] Directives to the offshore marine environment of the European Union, especially with regards to the establishment of the Natura 2000 network, represents a key challenge for EU biodiversity policy in the coming years.

The establishment of a marine network of conservation areas under Natura 2000 will significantly contribute, not only to the target of halting the loss of biodiversity in the EU, but also to broader marine conservation and sustainable use objectives.

To date there have been relatively few Natura 2000 sites identified for the offshore marine environment and this represents the most significant gap in the Natura network. Implementation of the Birds and the Habitats Directives in the marine environment presents substantial challenges, especially in relation to the offshore (as opposed to the coastal) marine environment due to the lack of scientific knowledge on the distribution/abundance of species and habitat types.

At a meeting of the Nature Directors' of Member States, which took place in October 2002, it was agreed that further work was needed to develop a common understanding of the provisions for designating and managing marine Natura 2000 sites. The European Commission was asked to establish an *ad hoc* working group under the Habitats Committee, with a view to providing guidance on this subject.

Since March 2003, a Marine Expert Group has been working to "develop a common understanding of the provisions of Natura 2000 relating to the marine environment in order to facilitate the designation and future management of these areas". As such, it should help the Member States to achieve this important task and to provide useful reference material for other stakeholders. The document will also be of value to the Commission services in the contemplation of any action in this field. It will also provide principal stakeholders with valuable information and more security for planning and development as the Commission opinion on several key aspects of the implementation of Birds and Habitats Directives in the marine environment will be more widely known.

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[1] COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

[2] COUNCIL DIRECTIVE of 2 April 1979 on the conservation of wild birds (79/409/EEC)

Scope of the guide

The guide responds to an immediate need to make progress in establishing Natura 2000 in the marine environment. As such its primary focus is on marine species and habitat types that are covered by the site based provisions of the Birds and Habitats Directives. These are the habitat types listed in Annex I and species listed in Annexes II of the Habitats Directive and bird species listed in Annex I as well as migratory bird species covered by the Birds (79/409/EEC) Directive for which marine Natura 2000 sites need to be designated, protected and managed.

The guide aims to explain the relevant legal and technical concepts needed to underpin the establishment of Natura 2000 throughout the marine area of application of the (79/409/EEC) Birds and (92/43/EEC) Habitats Directives. It covers both the inshore and offshore marine environments.

For the purposes of this document, "inshore marine environment" is that which occurs in the internal waters and the territorial sea, as defined by UNCLOS[3], of a coastal Member State; "offshore marine environment" is that which occurs in marine zones extending beyond territorial sea limits where Member States exercise some type of sovereignty rights.

The conservation of the marine habitats and species of European conservation concern will not be achieved solely through designation and good management of Natura 2000 sites. There will also be a need to deal with human pressures on the marine environment beyond such sites as part of a broader marine conservation strategy.

Structure of the guide

The guide contains the following elements and follows the same logic as the implementation process necessary for the construction of the marine component of Natura 2000:

- Chapter 2 considers the process for establishing Natura 2000 in the broader context of EU environmental policies. It provides information about Community and international legislation that is relevant for the establishment of Natura 2000 in the marine environment.
- Chapter 3 clarifies definitions of marine habitat types of Annex I of the Habitats Directive and provides more general information on marine habitats and species, including their occurrence in inshore and offshore waters of Member States.
- Chapter 4 provides information on the best means of locating and assessing marine habitats and species as well as a rationale for site selection.
- Chapter 5 provides guidance on management issues relevant to marine Natura 2000 sites.
- Chapter 6 looks more closely at the relationship between fisheries management and the *"Birds"* and *"Habitats"* Directives.

[3] *UNCLOS, United Nations Convention on the Law of the Sea* http://www.un.org/Depts/los/index.htm

Limits of the guide

The guide is intended to be bound by and faithful to the text of the Birds and Habitats Directives and the wider principles underpinning Community environmental law. It is not legislative in character (not making new rules but providing guidance on the application of those that exist). As such, the document reflects only the views of the Commission services and is not of a binding nature.

It should be stressed that it rests with the EU Court of Justice to provide definitive interpretation of Community law. Therefore, the guidance provided will need to evolve in line with any emerging jurisprudence on this subject.

The guide intends to fully respect the existing case law of the Court. This determines aspects of the guide, especially where clear positions have already been established by the Court. The guide also aims to explain some legal aspects of the law of the sea and other different principles that support the designation process and future management of the marine component of the Natura 2000 network.

It is not possible for this guide to be exhaustive on all the issues related to Natura 2000 in the marine environment, especially as regards the management and protection of the sites. However, it aims to focus on the key issues related to the establishment of the network using available information. Further guidance may be necessary for specific topics at a later stage.

**Caretta Caretta* [4]

Photo: M. Melodia. LIFE99 NAT IT/006271

[4] *Caretta caretta*: is a priority species of Community Importance listed in annexes II and IV of the Habitats Directive. EN: loggerhead turtle; FR: tortue de carouane; ES: tortuga boba; DE: Unechte Karettschildkröte

2. BROADER CONTEXT

2.1. The context of EU marine biodiversity and protected areas policy

EU policy for marine biodiversity, including protected areas, is developing in the context of commitments at global, EU and regional levels.

At the EU level, EU Heads of State and government have made a commitment 'to halt the loss of biodiversity [in the EU] by 2010'. And at the global level, they have joined some 130 world leaders in making a commitment 'to significantly reduce the current rate of biodiversity loss [worldwide] by 2010.' Faced with evidence of the continuing and even accelerating loss of biodiversity and of critical ecosystem goods and services – as recently highlighted in the Millenium Ecosystem Assessment - the European Council has repeatedly called for accelerated efforts to meet these commitments.

The 6th Environmental Action Programme of the European Community identifies 'nature and biodiversity' as one of the priority themes for action. Objectives and priority areas for action on nature and biodiversity laid down by the European Parliament and the Council in the 6th Community Action Programme[5] include:

- Establishing the Natura network and implementing the necessary technical and financial instruments and measures required for its full implementation and for the protection, outside the Natura 2000 areas, of species protected under the Habitats and Birds Directives (Art 6.2.a. 7th indent)

- Further promote the protection of marine areas, in particular with the Natura 2000 network as well as by other feasible Community means (Art. 6.2.g. 4th indent)

As a contracting party to the Convention on Biological Diversity (CBD) the European Community has prepared an EU Biodiversity Strategy and Biodiversity Action Plans which aim, *inter alia*, to integrate biodiversity considerations into other Community policies. Marine biodiversity issues are addressed by both the Biodiversity Action Plan (BAP) for Natural Resources, and the BAP-Fisheries. Marine issues have also been raised in relation to the impact of European fishing fleets in international waters.

A 2003-2004 review of EU Biodiversity Policy assessed the implementation, effectiveness and appropriateness of the EC Biodiversity Strategy and Action Plans, in particular within the context of the 2010 targets. The review culminated in the Malahide conference on Biodiversity and the EU, held in May 2004 under the Irish Presidency[6] of the Council of Ministers. The resulting 'Message from Malahide' achieved a broad degree of consensus on priorities towards meeting the 2010 targets. These include completing the Natura 2000 network at sea by 2008, and agreeing and instigating management for all Natura 2000 sites by 2010.

Acting on many of the priorities identified in the Message from Malahide, the Commission adopted in May 2006 a Communication on *Halting the Loss of Biodiversity By 2010 — And*

[5] Decision No. 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 laying down the Sixth Community Environment Action Programme (OJ L 242, 10.9.2002, p.1)

[6] http://ec.europa.eu/environment/nature/biodiversity/develop_biodiversity_policy/malahide_conference/index_en.htm

Beyond [COM(2006) 216 final][7], which sets out an ambitious policy approach to halting the loss of biodiversity by 2010. In particular, it provides an EU Action Plan with clear prioritised objectives and actions to achieve the 2010 target and outlines the respective responsibilities of EU institutions and Member States. In coherence with the above process, the first action identified in this EU Biodiversity Action Plan[8] is to accelerate efforts to finalise the Natura 2000 network. This states: "complete marine network of Special Protection Areas (SPA) by 2008; adopt lists of Sites of Community Importance (SCI) by 2008 for marine; designate Special Areas of Conservation (SAC) and establish management priorities and necessary conservation measures for SACs [by 2012 for marine]; establish similar management and conservation measures for SPAs [by 2012 for marine]". This Action Plan also specifies indicators to monitor progress, and a timetable for evaluations.[9]

This Biodiversity Communication has been broadly welcomed by other Community Institutions, including December 2006 Environment Council, which invited the Commission and Member States to proceed urgently with implementation of the Biodiversity Action Plan.

The Communication and Action Plan take account of various existing international commitments relating to marine protected areas including:

- The World Summit on Sustainable Development commitment to establish a globally representative system of marine and coastal protected areas by 2012.

- decisions on marine and coastal ecosystems and protected areas arising from conferences of the CBD, in particular the COP7 decision to establish (by 2012) and maintain a network of marine and coastal protected areas that are effectively managed, ecologically based, consistent with international law and based on scientific information.

- for the Atlantic and Baltic seas the Commitment of the Joint Ministerial Meeting of the Helsinki and OSPAR Commissions (Bremen 2003) to complete by 2010 a joint network of well-managed marine protected areas that, together with the Natura 2000 network, would be ecologically coherent. Both, HELCOM and OSPAR agreed that the marine Natura 2000 sites qualify for the inclusion into the OSPAR/HELCOM network of marine protected areas.

- for the Mediterranean Sea the 1995 Protocol of the Barcelona Convention Concerning Mediterranean Specially Protected Areas and Biological Diversity in the Mediterranean which provides for the establishment of a List of Specially Protected Areas of Mediterranean Interest (SPAMI List)

- in the Black Sea, the Biodiversity and Landscape Conservation Protocol to the Convention on the Protection of the Black Sea against Pollution was signed in Sofia, Bulgaria in 2003 (ratification process is ongoing). This protocol aims *inter alia* to maintain the Black Sea ecosystem in a good ecological state and its landscape in the favourable conditions, to protect, to preserve and to manage in a sustainable way the biological and landscape diversity of the Black Sea in order to enrich its biological resources.

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7 See Communication from the Commission. Halting the Loss of Biodiversity By 2010 - and beyond http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006_0216en01.pdf

8 See action A1.1.1 of Annex 1 to the Biodiversity Communication http://ec.europa.eu/environment/nature/biodiversity/current_biodiversity_policy/biodiversity_com_2006/pdf/sec_2006_621.pdf

9 See http://europa.eu/rapid/pressReleasesAction.do?reference=IP/06/667&format=HTML&aged=0&language=EN&guiLanguage=en

As regards sites to be protected under the Birds Directive a major conference held under the Netherlands presidency in November 2004 at Bergen-op-Zoom identified significant gaps in designation marine protected areas for birds and consistent with Malahide, recommended the full extension of the SPA network to the marine environment (2008), establish an effective protection regime, put management objectives into place and initiate these for all sites by 2010. DG Environment webpage hosts the report of the Bergen op Zoom conference and other important documentation produced as part of the celebrations or relevant to them. [10]

2.2. The Strategy for the Protection and the Conservation of the Marine Environment: an ecosystem-based approach to ensure conservation of biodiversity and sustainable use of natural resources

The 6th Environmental Action Programme of the Community[11] considered the conservation and the protection of the marine environment a complex issue that required a broad and multidimensional approach and requested the Commission to prepare a Thematic Strategy dealing with it. The Commission adopted the Marine Thematic Strategy, including a proposal for legislative action, in 2005.[12]

The Strategy adopted is based upon an ambitious new approach to the protection and management of marine ecosystems and promotes sustainable use of marine resources. It addresses major threats that were already identified in a previous Communication: [13] an inadequate framework for the management of the seas, given institutional and legal complexities and the number of actors concerned; insufficient basic knowledge, due to insufficient links between research areas in need of action and priorities; and lack of a dedicated policy.

The vision proposed by the Strategy is to protect and restore Europe's oceans and seas and ensure that human activities are carried out in a sustainable manner so that current and future generations enjoy and benefit from biologically diverse and dynamic oceans and seas that are safe, clean, healthy and productive. This new approach develops an integrated policy towards the implementation of a single, integrated and coherent set of measures for the conservation and protection of the marine environment.

The Commission proposes to implement progressively an ecosystem-based approach for the management of human activities affecting the marine, including goals and targets, to ensure biodiversity conservation and sustainable use of marine resources. This approach takes into account the concepts of favourable conservation status and good ecological status as required by the Habitats and Birds Directives and the Water Framework Directive.

Council and Parliament had supported the approach proposed by the Strategy, and have now the responsibility of adopting the proposed legal instrument. Thereafter, Member States will have to ensure that good environmental status in the marine environment is achieved by the year 2021 at the latest, and to continue the protection and preservation of that environment and the prevention of its deterioration.

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10 See http://ec.europa.eu/environment/nature/nature_conservation/focus_wild_birds/25year_birds_directive/index_en.htm

11 DECISION No 1600/2002/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 July 2002 laying down the Sixth Community Environment Action Programme, *Official Journal L 242 , 10/09/2002 P. 0001 - 0015*

12 COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND TO THE EUROPEAN PARLIAMENT. Thematic Strategy on the Protection and Conservation of the Marine Environment and Proposal for a Marine Strategy Directive, COM(2005)504 and COM(2005)505

13 COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT "Towards a strategy to protect and conserve the marine environment", COM(2002)539

According to the proposed Directive, actions to be taken by Member States to deliver good environmental status have to be based on sound and reliable assessments of the impact of human activities on the marine. The proposal makes every effort to ensure that proper systems of monitoring and assessment are set. These systems will include current monitoring obligations defined by the Habitats and the Birds Directives.

ECOSYSTEM APPROACH

The elaboration of guidelines for the implementation in the marine environment of the so-called Ecosystem Approach has been one of the activities undertaken under the aegis of the European Commission during the preparation of the Environmental Marine Strategy.

In this context, the Ecosystem Approach is embedded in the concept of sustainable development, which requires that the needs of future generations are not compromised by the actions of people today. The Ecosystem Approach puts emphasis on a management regime that maintains the health of the ecosystem alongside appropriate human use of the marine environment, for the benefit of current and future generations.

The Convention on Biological Diversity[14] defines the Ecosystem Approach as "a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way" and the ecosystem can be defined as "an interacting complex of living communities and the environment, functioning as a largely self sustaining unit." It recognizes that humans, with their cultural diversity, are an integral component of ecosystems".

To provide greater specificity for the purposes of the European Marine Strategy the Ecosystem Approach is described as 'a comprehensive integrated management of human activities based on best available scientific knowledge about the ecosystem and its dynamics, in order to identify and take action on influences which are critical to the health of the marine ecosystems, thereby achieving sustainable use of ecosystem goods and services and maintenance of ecosystem integrity.' This description clearly places humans as part of natural ecosystems, and stresses that human activities in these ecosystems must be managed so that they do not compromise ecosystem components that contribute to the structural and functional integrity of the ecosystem.

HELCOM and OSPAR Conventions have adopted other more specific interpretation of the Ecosystem Approach. Full text of this interpretation can be found in
http://www.helcom.fi/stc/files/BremenDocs/JointEcosystemApproach.pdf

2.3. EU Maritime Policy

The above-referred European strategy for the protection and the conservation of the marine environment referred in point 2.2 is to be seen within the broader context of the development of a new EU Maritime Policy.

On 7 June 2006, the European Commission adopted a Green Paper[15] on a Future Maritime Policy for the European Union. This Green Paper is the result of over a year of consulting with stakeholders, identifying gaps between sea-related sectoral policy areas and attempting to adopt best practice and learn from obstacles and challenges. The need for such a policy stems from the economic, social, and environmental importance of the maritime dimension in Europe. The vision is that of a Europe with a dynamic maritime economy in harmony with the marine environment supported by excellence in marine science.

[14] http://www.biodiv.org/programmes/cross-cutting/ecosystem/default.asp
[15] http://ec.europa.eu/maritimeaffairs/policy_en.html

The strategy for the protection and the conservation of the marine environment referred to in point 2.2 will directly contribute to the work on the future EU Maritime Policy.

2.4. Links between the marine coastal environment and the EU Water Framework Directive

The EU Water Framework Directive[16] (WFD) establishes a framework to enhance the protection and to improve the aquatic environment of continental, transitional, and coastal waters.

Coastal waters are defined as a one nautical mile strip extending from the baseline used to define the breadth of territorial waters. The general objectives of the WFD are to prevent any further deterioration in status and to achieve "good status" of all waters by 2015. The concept of water status comprises both "ecological status" and "chemical status". As regards chemical status the scope of WFD is extended to cover all territorial waters.

In these water bodies Member States shall achieve compliance with any standards and objectives by 2015, unless otherwise specified in the Community legislation under which the individual protected areas have been established. Where more than one of the objectives relates to a given body of water, the most stringent shall apply.

In order to achieve the environmental objectives, the WFD foresees the development of a programme of measures as part of a wider river basin management plan. The first of such plans is due in 2009. The planning scale is the river basin district, which comprises one or several neighbouring river basins together with their associated coastal waters. In drawing up the management plans, active public participation from all stakeholders should be encouraged by the competent authorities.

The WFD classification scheme for water quality includes five status categories: high, good, moderate, poor and bad. 'High status' is defined as the conditions associated with no or very low human pressure. This is also called the 'reference condition' as it is the best status achievable - the benchmark. These reference conditions are type-specific, so they are different for different types of rivers, lakes or coastal waters so as to take into account the broad diversity of ecological regions in Europe. Assessment of quality is based on the extent of deviation from these reference conditions, following the definitions in the Directive. 'Good status' means 'slight' deviation, 'moderate status' means 'moderate' deviation, and so on. These definitions are expanded in Annex V to the WFD.

The assessment of water status is based on biological, chemical and hydromorphological quality elements. In case of transitional and coastal waters, the biological elements that should be taken into account include phytoplankton, aquatic flora, benthic invertebrate fauna and fish fauna. Hydromorphological quality elements include features such as wave exposure, structure of the intertidal zone or depth variation. Transparency, oxygenation conditions or nutrients are examples of chemical elements that should be included in the assessment.

[16] DIRECTIVE 2000/60/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 October 2000 establishing a framework for Community action in the field of water policy, OJ L327/00, 23.12.2000. http://eur-lex.europa.eu/pri/en/oj/dat/2000/l_327/l_32720001222en00010072.pdf

This framework Directive establishes that as regards Natura 2000 protected areas and all other areas requiring special protection by specific Community legislation their environmental objectives have to be integrated into the relevant River Basin Management Plans. These Plans will include the transitional and coastal areas for which the River Basin Authority is competent.

2.5. The challenge of constructing the Marine Natura 2000 Network. Planning a system of marine protected areas

The marine component of the Natura 2000 network will be an integral component of the overall Natura 2000 European ecological network. As for the terrestrial environment, the marine network will aim to protect sites of European conservation importance for (i) natural habitat types listed in Annex I and (ii) the habitats for the species listed in Annex II of the Habitats Directive, in order to ensure that these features can be maintained or, where appropriate, restored at a favourable conservation status in their natural range.

The marine component of Natura 2000 network will also need to include a coherent network of Special Protection Areas (SPAs) classified pursuant to the Birds Directive. These will be the most suitable territories in number and size for the conservation of marine birds listed in annex I of Birds Directive as well as migratory marine birds, taking into account their protection requirements.

Whereas the species scope of the Birds Directive is already comprehensive for the marine it is recognised that the present Annexes of the Habitats Directive have limited focus on marine species and habitat types, especially those that occur in the offshore marine environment. Notwithstanding, an important first step in protecting the marine environment will be the full implementation of the existing marine Natura 2000 commitments.

This work may need to be complemented in the near future with the listing of additional marine habitat types and species, which would provide a legal basis for extending the scope of the marine network. In the framework of the Marine Strategy, the Commission has proposed a framework for the development of a rational approach for the full implementation of Natura 2000 at sea with a view to consider potential proposals for adapting the annexes to the Habitats Directive to strengthen them with regard to marine habitats and species.

This process is intended to provide the basis for the protection of other relevant habitat types and species. This challenging problem needs to be solved in a cooperative manner at EU level. There are a number of marine habitat types and species of European conservation concern that are not covered at present by the Habitats and Birds directives but which need protection to ensure their favourable conservation status. Many of these habitats and species are identified and listed by regional organisations such as OSPAR, The Helsinki Convention and the Barcelona Convention. Further scientific knowledge and evaluation will be needed to complement these listings.

2.6. Different marine zones. Application of Nature legislation in the European seas.

Member States have an obligation to apply nature legislation in waters under their jurisdiction and, outwards, in waters where they exercise sovereign rights. The Habitats and Birds Directives apply in the European territory of the Member States[17]. Therefore, waters adjacent

[17] see Birds Directive, Art 1

to the French overseas departments (DOM) and to the territories mentioned in Annex II to the Treaty establishing the European community[18] are excluded.

2.6.1. Definition of different marine zones

Under international law coastal states establish several jurisdictional marine zones as the Territorial Sea, the Exclusive Economic Zone (EEZ) and the Continental Shelf. Some coastal states establish other areas in which they claim exclusive sovereignty rights over natural resources such as "fishing protection zones", "environment protection zones"…

The European Community itself accepted the international rules on maritime zones adopted in the 1982 of the United Nations Convention on the Law of the Sea (UNCLOS).

The **Territorial sea** is the adjacent belt of sea where the sovereignty of a coastal State extends, beyond its land territory and internal waters. Under article 3 of UNCLOS all states have the right to establish the breath of the territorial sea up to a limit of 12 nautical miles.[19]

The **Territorial sea** is the adjacent belt of sea (up to 12 nautical miles) where the sovereignty of a coastal State extends, beyond its land territory and internal waters.

Marine waters on the landward side of the baseline of the territorial sea form part of the **internal waters** of the State (see detailed definition of internal waters in UNCLOS, article 8)[20] In the internal waters and the territorial sea, jurisdiction extends to the air space, the water column, its bed and subsoil.

The **exclusive economic zone (EEZ)** is defined by the UNCLOS[21] as an area beyond and adjacent to the territorial sea (from 12 to 200 nautical miles[22]) in which the coastal State has sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil. The coastal state also jurisdiction with regard to marine scientific research and the protection and preservation of the marine environment in the EEZ.

The Continental Shelf [23]

Under international law, coastal states also exercise sovereign rights over the non-living resources and sedentary living organisms in the 'continental shelf'.

The term 'continental shelf' is used by marine geologists generally to mean that part of the continental margin which is between the shoreline and the shelf break or, where there is no noticeable slope, between the shoreline and the point where the depth of the superjacent water is approximately between 100 and 200 metres.

Furthermore, this term is defined in Article 76 of UNCLOS according to a complex formula. According to it, "*the continental shelf of a coastal State comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural*

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18 Official Journal C 325 , 24/12/2002. http://eur-lex.europa.eu/LexUriServ/site/en/oj/2002/c_325/c_32520021224en00010184.pdf

19 A nautical mile is 1' of arc on the equator; 40.000 km/360/60= 1 nautical mile=1,852km; 12nm= 22,2km

20 http://www.un.org/Depts/los/index.htm

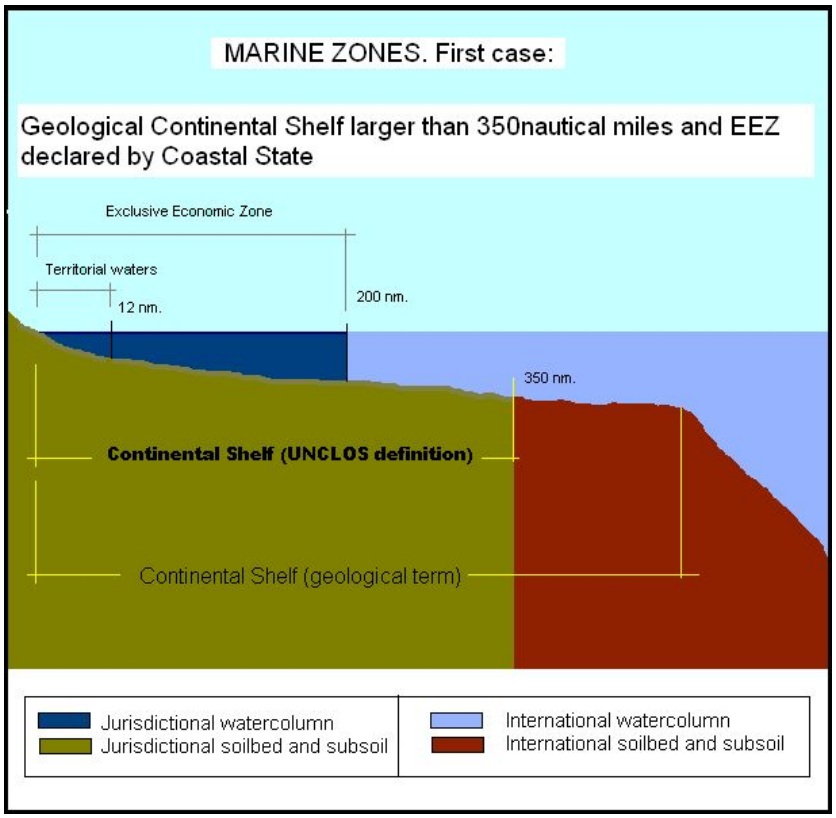
21 *UNCLOS, United Nations Convention on the Law of the Sea, Article 55.* The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured. (UNCLOS, article 56) http://www.un.org/Depts/los/index.htm

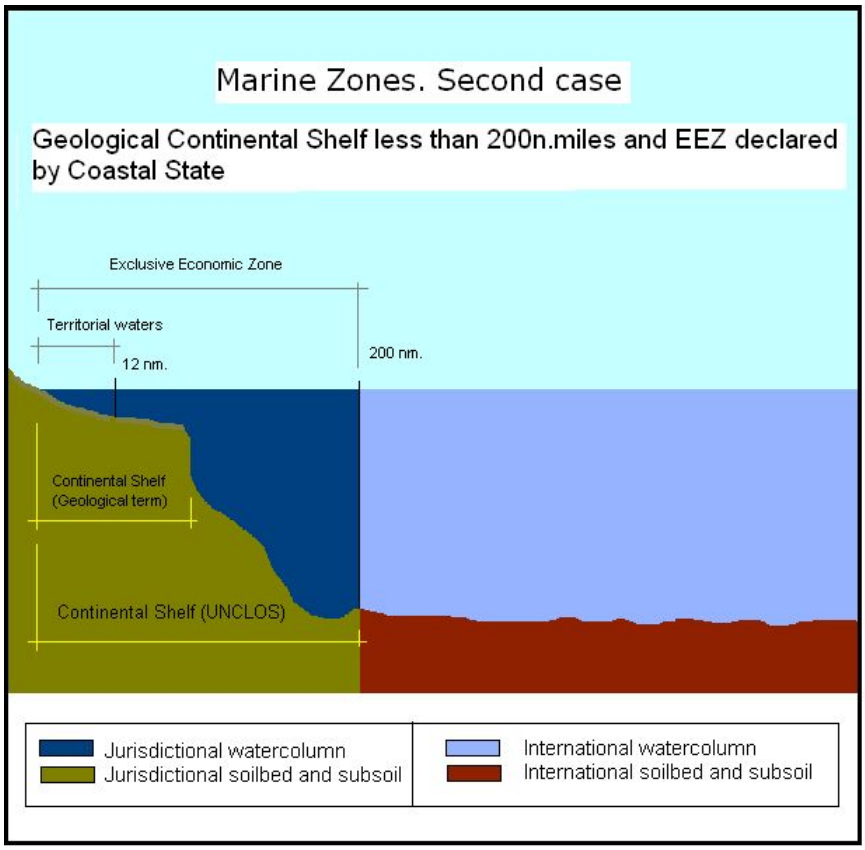
22 From 22,2 to 370,4km

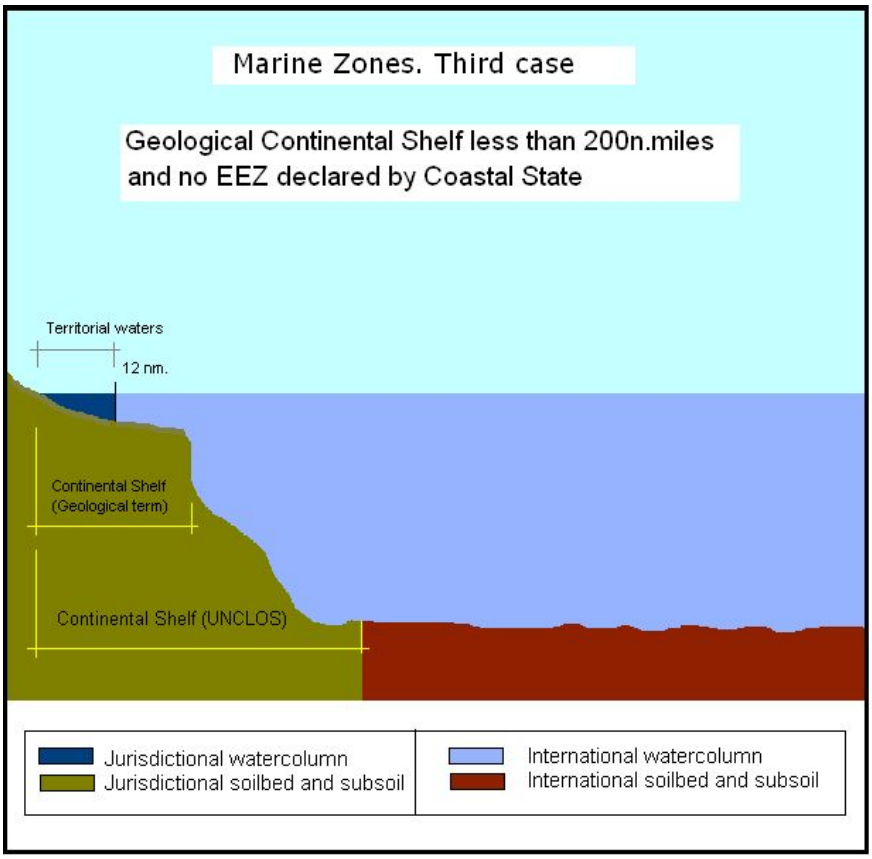
23 Note that Continental Shelf is distinct from the EEZ

prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance".

Therefore, Continental Shelf extends for at least 200nm in the open sea. It may not extend beyond 350nm. The Continental Shelf is the seabed and the subsoil, not the superjacent water column. The term Continental Shelf used in this document is the legal term as defined in the previous paragraph (UNCLOS definition).




Marine Zones. Second case
Geological Continental Shelf less than 200n.miles and EEZ declared by Coastal State
Exclusive Economic Zone
Territorial waters
12 nm.
200 nm.
Continental Shelf (Geological term)
Continental Shelf (UNCLOS)
Jurisdictional watercolumn
Jurisdictional soilbed and subsoil
International watercolumn
International soilbed and subsoil


Marine Zones. Third case
Geological Continental Shelf less than 200n.miles and no EEZ declared by Coastal State
Territorial waters
12 nm.
Continental Shelf (Geological term)
Continental Shelf (UNCLOS)
Jurisdictional watercolumn
Jurisdictional soilbed and subsoil
International watercolumn
International soilbed and subsoil

A detailed case by case Coastal State database can be founded in UNCLOS website: http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/index.htm, with all legal references. Several illustrative maps of marine areas are included in: http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/MAPS/

2.6.2. Applicability of Nature Directives in the Sea. To what extent do Habitats and Birds directives apply?

History of discussions about geographical scope of the directives

The initial position of a number of Member States was to see their obligations restricted to territorial waters, i.e. up to 12 nautical miles from the baselines. The Commission has consistently challenged this, arguing for a more extensive scope since, clearly, the protection of marine habitats and species, which are included in the annexes of the Directives, cannot be adequately achieved in such a limited area. After a number of years of debate and following discussions between the Legal Services of the Commission and Council, the Council recognised the need for implementation of the nature directives in the EEZ as a key element for the protection of the marine ecosystem (See Fisheries Council conclusions Luxembourg, 2001[24]). This acknowledgement supports the application to the exclusive economic zone which in the case of the Atlantic seaboard extends up to 200 nautical miles (370,4km) from the coastline for different Member States.

This opinion was confirmed by the position of the European Court of Justice delivered in the judgment of case C-6/04 of 20 October 2005, and other Member States Courts' positions (e.g.: the UK Case nºCO/1336/1999 The Queen -v- The Secretary of State for Trade and Industry ex parte Greenpeace Limited[25])

Legal principle

In relation to the exploitation and the conservation of the natural resources, the opinion of the Commission is that recognition by a coastal state of exclusive rights in a maritime zone brings not only rights but obligations. Exclusive right to exploit natural resources implies a similar duty to preserve natural resources. Therefore, community law relative to the conservation of natural resources applies in all maritime areas where Member States exercise such rights. That includes the following maritime areas:

- The internal waters and the Territorial Sea,
- The Exclusive Economic Zone (EEZ) and/or to other areas where Member States are exercising equivalent sovereign rights (fishing protection zones, environmental protection zones…)
- The Continental Shelf.

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[24] Extract from the Annex to Council Conclusions on the Strategy for the Integration of Environmental Concerns and Sustainable development into the Common Fisheries policy, -Luxembourg, 25 April 2001: Point *15. The Habitats and Birds Directives(5), and specially the associated network of protected sites in the marine environment "Natura 2000", constitute a key element for the protection of the marine ecosystem which may have consequences on fisheries. Member States are encouraged, in co-operation with the Commission, to continue their work towards the full implementation of these directives in their exclusive economic zones.*

REF: *http://ue.eu.int/ueDocs/cms_Data/docs/pressData/en/agricult/ACF20DE.html*

[25] http://www.defra.gov.uk/wildlife-countryside/ewd/rrrpac/marine/06.htm#fn

This principle is in line with:

- Council Regulation 2913/92 "Customs Code" (Art 23) in which the definition of *"goods wholly obtained or produced in one country "* includes products taken from the sea-bed or beneath the sea-bed outside territorial waters, if that country has, for the purposes of exploitation, exclusive rights to such soil or subsoil. This regulation incorporates the same definition of goods wholly obtained in a country as previous Council regulation 802/1968. At this early stage, the Community already included into its scope of application the continental shelf that does not belong to the territory of the Member States. The common definition of the origin of goods which provides that produced goods and other products extracted from the sea-bed beyond the territorial sea are goods which are entirely produced in one country provided that the country exercised exclusive rights over the sea-bed for the purpose of its exploitation. Thus, according to this interpretation, the Community Law is applicable in the continental shelf and the EEZ of the EU Member States.

- Council Conclusions on the Strategy for the Integration of Environmental Concerns and Sustainable development into the Common Fisheries policy, -Luxembourg, 25 April 2001, which include the following considerations (Point 15): *The Habitats and Birds Directives (5), and specially the associated network of protected sites in the marine environment "Natura 2000", constitute a key element for the protection of the marine ecosystem which may have consequences on fisheries. Member States are encouraged, in co-operation with the Commission, to continue their work towards the full implementation of these directives in their exclusive economic zones.*[26]

- Jurisprudence of the European Court of Justice (mainly Court case judgement C-6/04[27] and other Member States Court's position delivered in different Court Cases (e.g.: UK: The Queen -v- The Secretary of State for Trade and Industry ex parte Greenpeace Limited, Case no: CO/1336/1999[28])

Duties for Member States

Member States have the duty to apply Community law in the above-mentioned areas, which includes the application of the Habitats and Birds Directives. Therefore, it is expected that Member States propose in the coming years the necessary sites to complete the marine component of Natura 2000 by application of the Birds and the Habitats Directives in their internal waters, Territorial Sea, as well as in their EEZ or other similar declared zones and in their Continental Shelf area.

For management purposes, Member States will take measures for the regulation of activities falling under their responsibility. For other activities, Member States will take the necessary actions to request the appropriate competent authority to take action. In particular cases where the need to regulate fishing activities is necessary to protect a Natura 2000 site in maritime areas under Member States sovereignty or jurisdiction is dealt with in extent in Chapter 6 of this Guidelines document. The general principle is that actions are to be taken in the context of the Common Fisheries Policy and in accordance with its rules. The relevant basic rules are enshrined in Regulation 2371/2002.

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[26] *See: http://ue.eu.int/ueDocs/cms_Data/docs/pressData/en/agricult/ACF20DE.html*

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

[28] http://www.defra.gov.uk/wildlife-countryside/ewd/rrrpac/marine/06.htm#fn

In areas beyond Member States sovereignty or jurisdiction, the Community shall, where appropriate, promote actions to be taken through appropriate international fisheries conventions.

There is a special case where the Continental Shelf extends beyond the EEZ or where no EEZ has been declared. In this case, the soil and subsoil, which are covered by Community law, are lying under an International water column. In this case, the duty to protect the marine environment of the seabed needs to be made compatible with the need to respect the international legislation of the upper water column (mainly regulated by the UNCLOS framework).

It is necessary to clearly distinguish in that particular case what natural resources are subject to community law and what are subject to international law. The natural resources of the continental shelf to which Member States have sovereign rights are defined in Part VI of UNCLOS relative to the Continental Shelf (art 77.4): *The natural resources referred to in this Part consist of the mineral and other non-living resources of the seabed and subsoil together with living organisms belonging to sedentary species, that is to say, organisms which, at the harvestable stage, either are immobile on or under the seabed or are unable to move except in constant physical contact with the seabed or the subsoil*.

Therefore, it appears that where the continental shelf is lying under an international water column only the provisions of Habitats Directive as regards habitats and sedentary species would apply, as Community law applies only to the seabed but not to the water column or surface. For the same reason the Birds Directive and provisions of the Habitats Directive related to conservation of non-sedentary species[29] do not apply in this case.

This is particularly relevant in the Mediterranean Sea where Member States -except Cyprus- have not declared an EEZ. It may also be relevant in some parts of the Atlantic Ocean where a coastal Member States claims a Continental Shelf going beyond 200 nautical miles.

In the case of the Mediterranean Sea, any action aiming at the regulation of fisheries activities beyond territorial waters should be taken in line with the policy declaration of the "Declaration of the European Community ministerial conference for the sustainable development of fisheries in the Mediterranean" Venice 25-26 November 2003.

This declaration recognizes that the creation of fisheries protection zones permits the improvement of conservation and control of fisheries and thus contributes to better resource management. However, it is considered that the process for designation of these protected zones should follow a concerted and regional approach. In order to progress in this direction, the Mediterranean States shall cooperate at the appropriate regional level.

In this context, it is useful to also mention several fisheries regulatory measures taken by international organizations as the ICCAT with regard to the Mediterranean Sea and easter Atlantic[30] (e.g.: Recommendations by the ICCAT to establish a multi-annual recovery plan for some fish species as the bluefin tuna…)

[29] which includes *swimming* species of turtles, cetaceans or fish

[30] See http://www.iccat.es/

Maritime zones in the Mediterranean Sea[31]

The situation of different maritime areas in the Mediterranean Sea is particularly complex.

The European Community as well as all its Member States have ratified UNCLOS. Most third States riparian to the Mediterranean Sea[32] have also ratified it (All except Turkey, Morocco, Libya, Israel and Syria)

Cyprus is the only Member State to have declared an EEZ in the Mediterranean. However, France, Spain and Malta have declared different types of protection zones that extend beyond their territorial waters (fishing protection zones, environmental protection zones…)

Tunisia has also declared an EEZ in the Mediterranean Sea in June 2005. Croatia has declared equivalent sovereign rights regrading the exploitation and conservation of living resources beyond its territorial waters.

2.7. Some legal aspects related to the implementation of environmental legislation to marine environment. Some Management issues in the context of different competencies and responsibilities

There is no legal difference between marine and terrestrial environments as regards duties of Member States in relation to the implementation of the Birds and Habitats Directive. The final obligation of delivering a favourable conservation status for species and habitat types of Community Importance is the same in both environments. The obligations of Member States are also the same in relation to the need to ensure that the site designation process is exclusively based on scientific criteria.

As regards areas to be protected under the Birds Directive, the Court of Justice has emphasised that the selection of sites and the delimitation of boundaries should be carried out on the basis of exclusively ornithological criteria[33].

As regards the Habitats Directive, case law confirms that site selection by Member States should be exclusively based on the ecological criteria of Annex III of the directive[34].

Therefore, future management challenges should not be a determining element in this process.

Potential effects on marine species and habitats from human activities that are regulated at the Community or International level are greater in the marine than in terrestrial environment. In such a scenario, it is particularly relevant to consider in which marine zone the protected site is situated, in order to identify the appropriate management approach, as different legal regimes are to be considered for the three above mentioned marine zones *(point.2.6; territorial sea, Exclusive Economic zone, Continental shelf*).

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31 References: i) "*Gobernanza en el Mar Mediterráneo. Estatus legal y perspectives"*. IUCN 2005. ii) *"Marine Specially protected areas, the General aspects and the Mediterranean Regional Sysytem"* Tullio Scovazzi 1999

32 A complete regularly updated data base on ratifications may be found at http://www.un.org/Depts/los/reference_files/status2006.pdf

33 (judgement of 2 August 1993, Commission v Spain, C-355/90 ECJ reports, p.4221, especially points 26-27; judgement of 11 July 1996, Regina v Secretary of State for the Environment, ex parte: Royal Society for the Protection of Birds, C-44/95, ECJ reports, p.3805, especially point 26)

34 (judgement of 11 September 2001, Commission v France, C-220/99, ECJ reports, p.5831; judgement of 11 September 2001, Commission v Ireland, C-67/99, ECJ reports, p.5757; judgement of 11 September 2001, Commission v Germany, C-71/99, ECJ reports, p.5811)

For each marine site, the responsible National Authority[35] has to establish the necessary conservation measures to ensure the favourable conservation status of the species and habitats types for which the site is designated. Depending on the site location and the type of action, the responsibility for the implementation of those measures can be different. These measures may have to be taken at Federal, National, European Community or International levels.

Actions to be taken at national and at Community level to regulate human activities in marine Natura 2000 sites will be in accordance with UNCLOS and other relevant international legislation. This is particularly relevant for the offshore marine environment.

Therefore, National Authorities have to identify the necessary conservation measures and the subsequent actors responsible for their implementation and enforcement. Each National Authority shall implement all measures of its own competencies and ask other responsible bodies to take action for measures falling under their own competencies.

A clear example is the Common Fisheries Policy, which is an exclusive Community competency. Point 6 below of this document is dedicated to this issue, given its relevance in relation to the management of the Natura 2000 sites in the marine environment. Shipping is another sector in which competencies also depend on site location.

Limits of competencies

A coastal State has different competencies in different sea zones. In global terms, the further offshore one goes, the less the Coastal State's exclusive competencies are to legislate and/or to enforce legislation. Some of the competencies are shared at Community level. Commercial fishing is a relevant policy where the Community has exclusive legislative jurisdiction. Some activities like military, mining or petrol prospecting/exploitation fall under national competencies over the entire Continental Shelf. Other sectors such as marine transport have different regulatory regimes for different marine zones, with different regulatory authorities. The international legal framework is defined by the *United Nations Convention on the Law of the Sea (UNCLOS).* Relevant bodies in this sector are the *International Seabed Authority (ISA)* and the *International Maritime Organization (IMO).*

2.8. Links with Regional and International Organisations and Agreements

Regional environmental marine organisations and agreements like the Helsinki Convention, OSPAR, Barcelona, and Bucharest Conventions are developing different networks of marine protected areas. The Commission welcomes all these initiatives that concur with EU nature conservation policy developments. Looking for a coherent and complementary approach in the identification process of Natura 2000 sites and other networks of marine protected areas would be a favourable measure that would enhance the global coherence of the network.

As described above (point 2.5), work being carried out by these Regional Organisations / Agreements on marine habitats and species of conservation concern will be relevant inputs to be considered in the first stages of the process of possible future adaptations of the Habitats Directive annexes in terms of the marine environment.

The Helsinki Commission (HELCOM) and the Commission for the Protection of the Marine Environment of the North East Atlantic (OSPAR) have adopted a joint work programme on the

[35] The National Authority responsible for the management of a Natura 2000 site is the administrative body designated in the Standard Data Form that Member States transmit to the Commission for each Natura 2000 site in accordance with 97/266/EC Commission Decision of 18 December 1996 *(Official Journal L 107 , 24/04/1997).*

creation of a network of marine protected areas. This programme aims to ensure that by 2010 there is an ecologically coherent network of well-managed marine protected areas for the maritime areas of both the Helsinki Convention and OSPAR. To this end, they have agreed several actions, which include the development of a common proposal for a programme aimed at enhancing the protection of species and habitats in European marine waters, in order to produce suggestions for consideration by the European Community for amendments to the annexes to the Habitats and Birds Directives. (Full information is to be found in report documents -annex 7- of the first joint ministerial meeting of the Helsinki and OSPAR Commissions, Bremen: 25 - 26 June 2003 http://www.ospar.org/eng/html/welcome.html; **Joint HELCOM/OSPAR Work Programme on Marine Protected Areas**)

The parties of the Barcelona Convention agreed a protocol in 1995 concerning specially protected areas and biological diversity in the Mediterranean establishing common criteria for the choice of protected marine and coastal areas to be considered as specially protected areas of Mediterranean importance (SPAMI, http://www.rac-spa.org/index1.htm). The conservation of the natural heritage by the protection of threatened species and their habitats is the basic aim that must characterize a SPAMI[36]. The listed SPAMI and their geographical distribution will have to be representative of the Mediterranean region and its biodiversity.

2.9. Trans frontier issues for site designation and management

As the conservation of habitat types and habitats for species can have a trans-frontier dimension, it will also be necessary to ensure the coherence of proposed *Sites of Community Importance (SCI)* and *Special Protection Areas (SPA)* designated by different Member States to be incorporated into the Natura 2000 network. This task will be undertaken by the Commission in partnership with the Member States concerned and with the scientific support of the European Environment Agency.

Any future protection of a feature having an international dimension under the Habitats Directive would require the designation of different SACs in the different EEZs, each country being responsible for its own area. This will be determined by an appropriate assessment to be carried out by each MS for their areas. The appropriateness to propose its part of the feature as Site of Community Importance will be determined by:

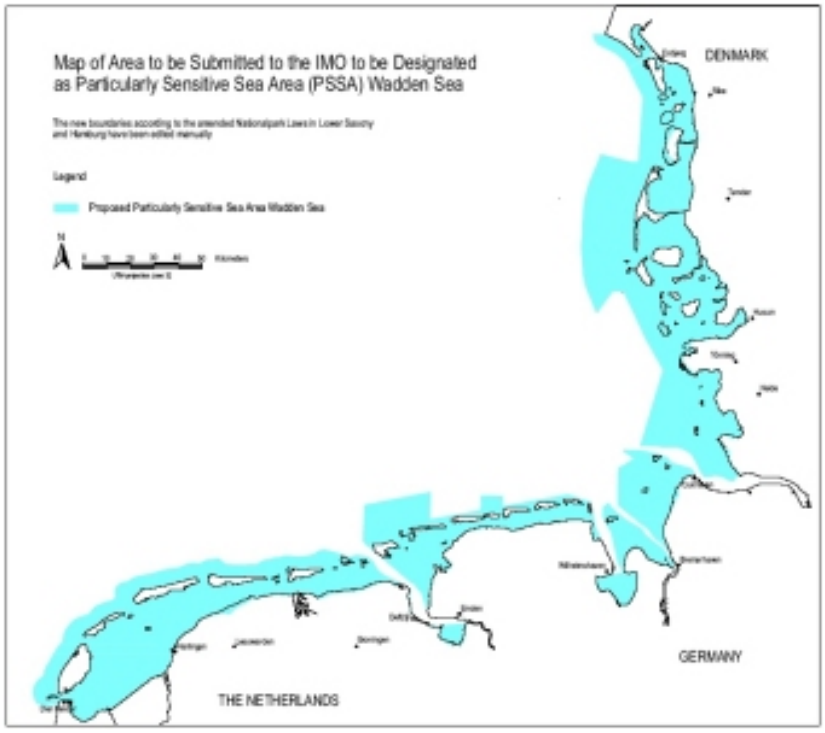
- The assessment criteria of Annex III of Habitats Directive (including sufficient representation of this Habitat type in the network and ensuring representatively of the site at national level)

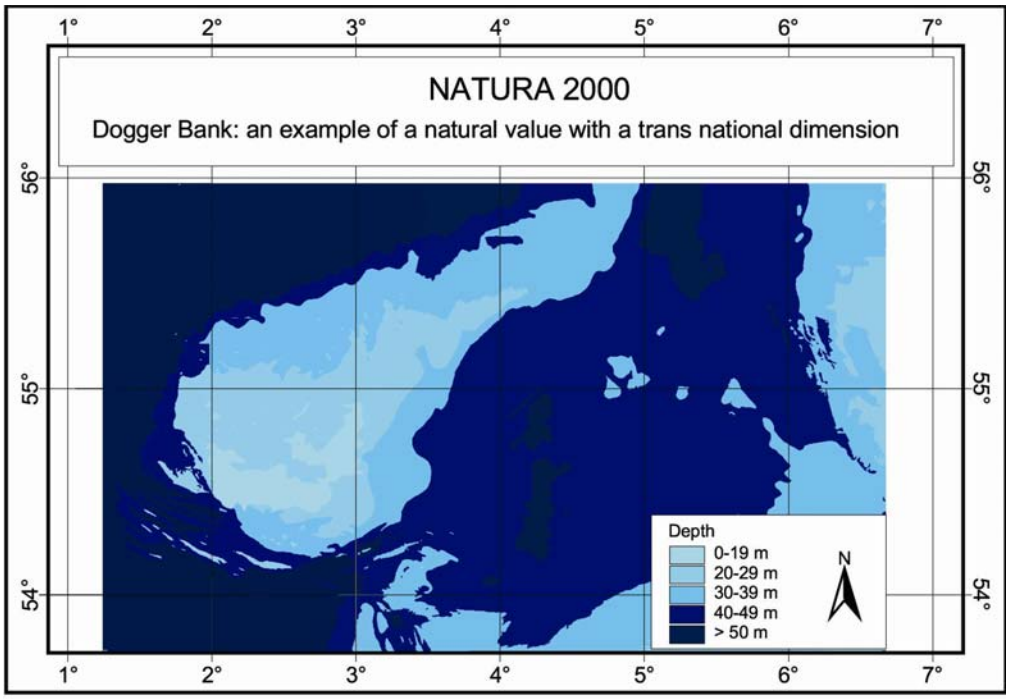
- The interest in ensuring the overall integrity of natural features of Community interest that have a trans-border dimension.

The aim is to ensure that a common approach is taken where a feature has a transboundary dimension to ensure that the sites proposed/designated by the Member States concerned adequately protect this feature in Natura 2000. Such an approach (involving common recognised features and coherent boundary shapes) will favour better management schemes, ensuring the protection of the sites by the implementation of more simple and effective measures.

[36] Protocol concerning specially protected areas and biological diversity in the Mediterranean, art 8

The Wadden Sea is a typical example of a coastal/inshore natural area of international dimension hosting species and habitats types of Community Importance. Shared by Denmark, Germany and the Netherlands, it is one of Europe's largest marine wetlands. It contains numerous features that require protection under the Birds and the Habitats Directive including habitats necessary for species protection: Wild birds listed in Annex I of the Birds Directive as well as migratory bird species, Marine mammals and fish species listed in Annex II of the Habitats Directive. Protection is also required for habitats types included in Annex I of the Habitats Directive: sandbanks which are slightly covered by sea water all the time, estuaries, mudflats, salt marshes and sand dunes...





The Dogger Bank, in the North Sea, is a natural feature that extends through the EEZ of several Member States. The top of the feature is at less than 20 metres depth and is found in UK waters close to the EEZ boundary with NL. The feature continues in a North-Easterly direction stretching through Dutch and German waters and with the water depth progressively increasing.

2.10. Implementation of the Natura 2000 network. Administrative steps from identification to designation of marine Natura 2000 sites.

Marine sites of the Natura 2000 network will provide protection to some of the following natural values:

1. Marine birds in accordance with the provisions of the Birds Directive: bird species listed in Annex I (article 4.1) and other migratory birds (article 4.2).

2. Habitats listed in annex I of the Habitats directive: including all habitats types classified under code 11*("Open seas and tidal areas") and 12* ("Sea cliffs and shingle or stony beaches") and habitat type 8330 (Submerged or partially submerged caves). Four habitat types relevant to marine designation of sites are listed in annex I and present in offshore waters: 1110 Sandbanks which are slightly covered by sea water all the time , 1170 reefs, 1180 structures made by leaking gases and 8330 Submerged caves

3. Species listed in annex II (18 marine species, including fish, reptile, cetacean, and seal species)

4. Marine species listed in annex IV of the Habitats Directive. Sites are not designated based on the presence of annex IV species. However, they will also need to be protected under the provisions of Article 12 of Habitats Directive.

5. Marine species listed in annex V of the Habitats Directive. As above, sites are not designated based its presence. Nevertheless, they will also need to be protected under the provisions of Article 14 and 15 of Habitats Directive.

Sites designated in accordance with Birds Directive provisions

Special Protection Areas (SPA) are identified and designated in accordance with the provisions of the Birds Directive. In Article 4 of this Directive, it is established that Member States shall classify in particular the most suitable territories in number and size as SPAs for the conservation of these species, taking into account their protection requirements in the geographical sea and land area where this Directive applies. Not withstanding the fact that the identification and designation of SPAs is a Member State responsibility, it must be carried out on the basis of ornithological criteria and result in the selection of all the most suitable territories[37].

Once a site is designated as an SPA the legal protective requirements defined in Article 6 (2) (3) and (4) of the Habitats Directive apply to it.

Member States must send to the Commission all relevant information so that it may take appropriate initiatives to ensure that the SPA network forms a coherent whole.

Sites designated in accordance with the Habitats Directive provisions

First step: elaboration of a list of Sites of Community Importance. The criteria for selecting sites eligible for identification as Sites of Community Importance (SCI) are in accordance with annex III of the Habitats Directive and relevant scientific information. Member States will identify and carry out an assessment at national level of the relative importance of sites for each natural habitat type in Annex I and each species contained in Annex II (including priority natural habitat types and priority species). On that basis, each Member State proposes a list of SCI. The list, including appropriate information for each site, is transmitted to the European Commission[38].

Second step: adoption of the list of pSCI. The list of proposed SCI is to be adopted by the Commission in accordance with a procedure laid down in article 21 of the Habitats Directive. This step gives formal legal effect to the protective safeguards defined in Article 6 (2) (3) and (4) of the Habitats Directive.

Third step: designation of special areas of conservation (SAC). Once a site of Community importance has been adopted, the Member State concerned shall designate that site as a special area of conservation (SAC) as soon as possible and within six years at most, establishing priorities in the light of the importance of the sites for the maintenance or restoration, to a favourable conservation status, of a natural habitat type in Annex I or a species in Annex II and for the coherence of Natura 2000, and in the light of the threats of degradation or destruction to which those sites are exposed.

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[37] See key conclusions of the Court of Justice in its landmark judgement, delivered on 19 May 1998, in this important test case for the implementation of the directive.

[38] a map, its name, location, extent and the data resulting from application of the criteria specified in Annex III provided in a standard format (c.f..: Commission Decision of 18 December 1996 concerning a site information format for proposed Natura 2000 sites *Official Journal L 107 , 24/04/1997).* This format also applies to sites designated under the Birds Directive.

In the marine environment, obligations of Member States are the same as in the terrestrial environment. Therefore, the provisions of the Habitats Directive related to the site designation process are the same: the site designation process is exclusively based on scientific criteria. Future management challenges (related to any future activity such as fisheries, energy generation or distribution…) should not be a determining element in this process.

More information on this topic can be found on the Nature Conservation and Biodiversity webpage of the Commission http://ec.europa.eu/environment/nature/home.htm

2.11. Update on implementation of Natura 2000 network in marine areas. An overview of existing marine SPA and SCI

By June 2006, Member States had designated 480 sites which contain marine waters- (64.754 km^2) as SPAs under the Birds' Directive and 1249 sites (77.784km2) as pSCIs under the Habitats' Directive.

An updated Natura 2000 barometer may be found at the following address: http://ec.europa.eu/environment/nature/nature_conservation/useful_info/barometer/index_en.htm

Most existing marine designated/proposed sites are located in territorial waters. Therefore, present and future efforts of Member States will need to mainly focus on the completion of the Natura 2000 network in the offshore environment.

In this regard, Germany has already proposed a significant contribution to the marine component of Natura 2000 in its offshore environment (10 new sites). Two of these areas have been designated as SPAs and are also protected since September 2005 under German national legislation as nature reserves.[39]

Other Member States are in the process of identifying sites for protection under both Directives. For example in the United Kingdom the Joint Nature Conservation Council (JNCC) has delivered scientific advice to the national authorities (DEFRA) to support *'the identification of offshore marine Special Areas of Conservation and Special Protections Areas'* in the offshore UK waters. This relevant document contains a useful approach and rationale for the identification and future selection of Natura 2000 sites (It may be found in the following address. http://www.jncc.gov.uk/page-2412)

[39] An overview and detailed descriptions of the German process leading to the actual nominations are given in English language by a website (www.habitatmarenatura2000.de) and in the book "Progress in marine Conservation in Europe" (von Nordheim et al. (eds.) 2006). Habitat marenatura2000" http://www.habitatmarenatura2000.de/en/aktuelles-summary-nature-conservation.php

3. HABITAT TYPES AND SPECIES REQUIRING MARINE NATURA 2000 SITES.

3.1. Marine Habitat types' definitions. Update of "Interpretation Manual of European Union Habitats".

At present, only nine marine habitat types are listed in Annex I of the Habitats Directive as natural habitats types of community interest whose conservation requires the designation of special areas of conservation (SAC's).

92/43 Habitats Directive. Annex I ***Open sea and tidal areas natural habitats types of community interest whose conservation requires the designation of special areas of conservation (SAC's)***	
1110	Sandbanks which are slightly covered by sea water all the time
1120 *	Posidonia beds (*Posidonion oceanicae*)
1130	Estuaries
1140	Mudflats and sandflats not covered by seawater at low tide
1150 *	Coastal lagoons
1160	Large shallow inlets and bays
1170	Reefs
1180	Submarine structures made by leaking gases
8330	Submerged or partially submerged sea caves

One of the objectives of the Marine Working Group has been to review the applicability of the existing definitions of marine habitats to the offshore environment and adapt these, where necessary, as a basis for extending the network of protected areas across all the European maritime areas where Member States exercise jurisdiction.

From a first review, it was considered that only three of the above listed habitat types needed a more complete definition in the Interpretation Manual of European Union Habitats[40]. The work of the experts therefore focused on these habitats types:

- 1110 "*sandbanks which are slightly covered by sea water all the time*"
- 1170 "*Reefs*", and
- 1180 "*submarine structures made by leaking gases*"

[40] The Interpretation Manual of European Union Habitats - EUR25 is a scientific reference document adopted by the Habitats Committee.

The main elements in relation to the definitions for each of the habitat types are indicated below. There are also substantial additions to the background information supporting these definitions (see Appendix 1 of this document).

3.1.1. Habitat type 1110 "sandbanks which are slightly covered by sea water all the time"

Based on previous work of the Marine Expert Group, an independent panel of marine experts, co-ordinate by the European Environment Agency (EEA), reviewed the definition of this habitat type in June 2006. The EEA did this with the support of European Topic Centre on Biological Diversity[41], the ICRAM[42] and several other experts on this topic. As a final output of this process, the EEA submitted the following definition, in accordance with the opinion of the above scientific panel.

1110 Sandbanks which are slightly covered by sea water all the time

Definition:

Sandbanks are elevated, elongated, rounded or irregular topographic features, permanently submerged and predominantly surrounded by deeper water. They consist mainly of sandy sediments, but larger grain sizes, including boulders and cobbles, or smaller grain sizes including mud may also be present on a sandbank. Banks where sandy sediments occur in a layer over hard substrata are classed as sandbanks if the associated biota are dependent on the sand rather than on the underlying hard substrata.

"Slightly covered by sea water all the time" means that above a sandbank the water depth is seldom more than 20 m below chart datum. Sandbanks can, however, extend beneath 20 m below chart datum. It can, therefore, be appropriate to include in designations such areas where they are part of the feature and host its biological assemblages.

This definition is based on the best available science and is consistent with the approach already established in the habitats interpretation manual. In delivering this opinion, the above-referred independent panel had full regard of the need for a definition that is valid and operational for all marine waters covered by the EU nature directives. Further to the review of the definition, the panel of experts made several recommendations, which include:

- When identifying and defining sandbanks in inshore and offshore environments, it is likely that Member States will need to use different scales, as variations in natural conditions occur at a much larger scale in offshore than in coastal environments. Sandbanks are generally larger natural features in offshore than in coastal environments.
- It is worth underlining that further expert judgment will be needed when appraising this habitat type at national level.

[41] The European Topic Centre on Biological Diversity. A Topic Centre of the European Environment Agency. See http://biodiversity.eionet.europa.eu/ .

[42] ICCRAM (Istituto Centrale per la Ricerca scientifica e tecnologica applicata al Mare, Roma, Italy) is part of the ETC consortium) http://www.icram.org/

- Section 4 of this guidance provide further examples of the means and methods that can be used to identify the sandbank feature, including with regard to the top level and slopes.

- As for most other habitat types in the interpretation manual, the examples contained in the section 2 on 'characteristic animal and plant species' do not represent an exhaustive list and are not necessarily restricted to this habitat type (See complete definition of this Habitat type in Appendix 1)

In the offshore environment, most of the sandbanks are elevated features arising from the seabed. A sandbank consists predominantly of sandy sediment mainly within a defined range of grain sizes[43]. Larger grain sizes, including boulders and cobbles as well as smaller grain sizes, including mud, may be found on the sandbank, but only in small quantities.

For considering a sandbank as being a feature "slightly" covered by water, it has been decided to define the arbitrary depth of 20 meters below chart datum for the top of the sandbank: other parts of the feature may be found at deeper depths. Effectively, it is appropriate to also include sections of the sandbank extending below 20m in depth where these are an integral part of the overall sandbank feature.

Such features may cover a substantial area, and some of them have a trans-frontier dimension. The Doggerbank in the North Sea is a typical case of a sandbank feature that extends across the marine zones of several Member States.

3.1.2. Habitat type 1170 "Reefs"

In relation to **reefs**, the following definition has been agreeded:

1170 "Reefs"

Definition of the habitat:

Reefs can be either biogenic concretions or of geogenic origin. They are hard compact substrata on solid and soft bottoms, which arise from the sea floor in the sublittoral and littoral zone. Reefs may support a zonation of benthic communities of algae and animal species as well as concretions and corallogenic concretions.

Clarifications:

- *"Hard compact substrata"* are: rocks (including soft rock, e.g. chalk), boulders and cobbles (generally >64 mm in diameter).
- *"Biogenic concretions"* are defined as: concretions, encrustations, corallogenic concretions and bivalve mussel beds originating from dead or living animals, i.e. biogenic hard bottoms which supply habitats for epibiotic species.
- *"Geogenic origin"* means: reefs formed by non biogenic substrata.
- *"Arise from the sea floor"* means: the reef is topographically distinct from the surrounding seafloor.
- *"Sublittoral and littoral zone"* means: the reefs may extend from the sublittoral uninterrupted into the intertidal (littoral) zone or may only occur in the sublittoral zone, including deep water areas such as the bathyal.
- Such hard substrata that are covered by a thin and mobile veneer of sediment are classed as reefs if

[43] For the application of this definition, sand includes grains having a diameter in the range of 1/16mm (= 0.0625mm) to 4.76 mm (passing U.S. standard sieve no. 4). This size range is in accordance with most common geotechnical standard classifications on this field.

the associated biota are dependent on the hard substratum rather than the overlying sediment.

- Where an uninterrupted zonation of sublittoral and littoral communities exist, the integrity of the ecological unit should be respected in the selection of sites.
- A variety of subtidal topographic features are included in this habitat complex such as: Hydrothermal vent habitats, sea mounts, vertical rock walls, horizontal ledges, overhangs, pinnacles, gullies, ridges, sloping or flat bed rock, broken rock and boulder and cobble fields.

Previous interpretation considered "reefs" as basically "*rocky substrates and biogenic concretions which arise from the sea floor"*. Given the importance of this habitat type for the designation of offshore Sites of Community Importance under the Habitats Directive, a clarification was needed to include all existing different types of reefs in EU waters.

Rocky substrates include complex habitats such as seamounts or hydrothermal vents. Biogenic concretions includes encrustations, corallogenic concretions and bivalve mussel beds originating from dead or living animals, i.e. biogenic hard bottoms which supply habitats for epibiotic species.

3.1.3. Habitat type 1180 "submarine structures made by leaking gases"

In relation to **1180 *"submarine structures made by leaking gases"***, the new interpretation distinguishes more clearly two subtypes of such a structure known as "bubbling reefs" and "structures within pockmarks".

1180 "submarine structures made by leaking gases"

Definition of the habitat

Submarine structures consist of sandstone slabs, pavements, and pillars up to 4 m high, formed by aggregation of carbonate cement resulting from microbial oxidation of gas emissions, mainly methane. The formations are interspersed with gas vents that intermittently release gas. The methane most likely originates from the microbial decomposition of fossil plant materials.

The first type of submarine structures is known as "bubbling reefs". These formations support a zonation of diverse benthic communities consisting of algae and/or invertebrate specialists of hard marine substrates different to that of the surrounding habitat. Animals seeking shelter in the numerous caves further enhance the biodiversity. A variety of sublittoral topographic features are included in this habitat such as: overhangs, vertical pillars and stratified leaf-like structures with numerous caves.

The second type are carbonate structures within "pockmarks". "Pockmarks" are depressions in soft sediment seabed areas, up to 45 m deep and a few hundred meters wide. Not all pockmarks are formed by leaking gases and of those formed by leaking gases, many do not contain substantial carbonate structures and are therefore not included in this habitat. Benthic communities consist of invertebrate specialists of hard marine substrata and are different from the surrounding (usually) muddy habitat. The diversity of the infauna community in the muddy slope surrounding the "pockmark" may also be high.

To facilitate better use of this document, a complete definition of the marine habitats types from 1110 to 1180 and 8830 is enclosed in Appendix I.

3.2. Identification of existing marine Habitat types and Species of European importance for different Member States.

The Marine Working Group has compiled general information related to the occurrence of habitats types and species which require protection through the elaboration for the three European Seas of the EU (Baltic, Atlantic and Mediterranean), of different tables showing presence per Member State of:

1. Marine Habitat types listed in Annex I of 92/43 Habitats Directive
2. Marine species listed in Annexes II 92/43 of Habitats Directive
3. Marine birds Listed in Annex I and migratory species.

These lists also distinguish between presence in offshore and inshore waters (internal waters and territorial sea). Draft lists have now been compiled. Those lists are enclosed in Appendix 2 of this document. Once they will be completed, these lists will be considered as reference elements to be submitted to the Habitat + Ornis Scientific Working Groups for their consideration. Member States that have not yet provided the necessary information may send it to the Commission for a future revision of the text.

* *Monachus monachus* [44]

Photo: M.Om. LIFE96 NAT GR/003225

[44] *Monachus monachus* is a priority species of Community Importance listed in annexes II and IV of the Habitats Directive. EN: Monk seal; FR: phoque moine; ES: Foca monje;

4. AN APPROACH FOR LOCATING AND SELECTING MARINE NATURA 2000 SITES.

This chapter has two main objectives:

1. To propose the best means of locating and assessing Habitats Directive Annex I habitat types and Annex II species, AND Annex I and migratory bird species under the Birds directive, for which marine Natura 2000 sites should be considered

2. To propose a site selection rationale(s).

The guidance on designation and information provided in the following sections focuses primarily on habitats and species found away from the coast and in offshore waters, as many Member States have already identified coastal and inshore Natura 2000 sites, along with guidance and information on their designation. The aim of this chapter is to reflect best available guidance on the methods for locating and selecting marine Natura 2000 sites. It does not provide details on the amount of information required, nor on how to assess the completeness of the resulting network of Natura sites.

4.1. Locating and assessing Annex I Habitats

Given the lack of more detailed biological data than, the identification of Natura 2000 sites in marine areas away from the coast has to be based on more general geological, hydrological, geomorphological and biological data than is the case for coastal or terrestrial areas. For all of the marine habitats on Annex I to the Directive, methodology exists for identifying the location and undertaking physical and ecological assessment of the areas required, although existing data may be sparse or absent in some sea areas (particularly in deep waters hundreds of miles from the coast).

Where the location of sub-littoral Annex I habitat types is not already known, they can be located in two steps using available data. Broad scale geophysical or oceanographic information is often available for large sea areas, and can be used as the first step in the selection of Natura 2000 sites by helping to identify the location of potential Annex I habitats. Step two then involves focussed information gathering or new surveys, directed to those specific areas where existing information indicates that an Annex I habitat is present or is likely to be present. This approach is particularly useful for Member States with large sea areas and deep waters, where detailed biological information is likely to be sparsely distributed. The two steps involve:

1. Using available physical information mapped at a regional scale, such as modelled geological seabed data, bathymetric data (e.g. IOC *et al.* 2003), physical oceanographic data, navigation or naval charts (where they show seabed type), to predict the location of potential Annex I habitat. Table 1 shows the general availability of such data for each Member State, Table 2 indicates which type of broad scale data may be suitable for locating each Annex I habitat type, and Section 4.2.1 describes data sources in more detail;

2. Refine and add to this information using more localised remote sensing datasets such as side scan sonar, acoustic ground discrimination system (AGDS) surveys, multibeam bathymetric survey, aerial photography or satellite images (for some habitats in very shallow water only, such as seagrass beds or maerl). Such remote sensed data will need to be validated in the field (ground truthed) by direct sampling of sediment

and/or biota (grab/core sampling, diver survey, benthic trawls) or by remote observation (video, photography, ROV [Remote Operated Vehicle]). As well as ground validation, data obtained from direct sampling will also be used to assess the biota of the Annex I habitat directly. Section 4.2.2 below gives more detail of methods, and a summary of suitable methods for each habitat type is presented in Table 3.

4.1.1. Regional scale physical data

Potential Annex I habitat types can be identified using existing, broad-scale, physical seabed information. This approach will enable those Member States with large sea areas and deep waters, where detailed biological information is likely to be absent or sparsely distributed, to focus in on a more limited number of areas for the collection/collation of more detailed data. Broad-scale physical data are available in many Member States, but with varying spatial resolution and varying coverage. Table 1 shows, in very general terms, the availability of broad scale datasets for each Member State.

Examples of such datasets which can be used include geological maps of the seabed, bathymetry data (including data from navigational charts, although note that for areas of potential conservation interest outside important navigation areas bathymetry may be very generalised), oceanographic data (such as temperature, salinity, stratification, water currents, turbidity etc.) to enable the identification of different water masses, and in some cases, satellite images. Regional scale datasets used for this purpose tend to be at a scale of approximately 1:250,000 to 1:1,000,000 to cover wide areas, and are generally produced by modelling of data from point samples, seismic tracks, etc. Regional scale data have generally been collected for purposes other than identification of biotopes or habitats, and so may use classification systems which do not fit exactly with the Annex I habitat definitions, therefore, there are limitations to their use, which depend on the habitat or sub-habitat being considered. For example, use of satellite imagery and aerial photography to identify habitats such as *Posidonia* beds is limited to shallow waters (down to approx. -15m water depth under good conditions). Broad scale data may not always be publicly available at a national level (e.g. Spain), or may only be available in paper form, however some digital data is available for wide areas such as the General Bathymetric Chart of the Oceans http://www.ngdc.noaa.gov/mgg/gebco/gebco.html . Table 2 gives an overview of which types of regional scale data can be used in the first step of locating different types of marine Annex I habitat.

Table 1 Availability of broad scale seabed habitat data for each Member State

Table 1 Type of data	Broad scale data availability or coverage throughout most of Member State's waters (out to EEZ/200nm or Continental Shelf)																	
	B	CY	D	DK	E	EST	F	FIN	UK	GR	I	IRL	LT	LV	M	NL	PL	P	S
Geological seabed maps (approx. 1:250,000 scale)			Yes[4]	Yes[5]			Yes[6]	Scarce	Yes[2]		Yes			Yes[1]		Yes			Yes[3]
Bathymetry >200m depth (GEBCO)			Yes	Yes			Yes	Yes	Yes		Yes			N/A		N/A			Yes
Bathymetry <200m depth			Yes	Yes			Yes	Yes	Yes		Yes			Yes		Yes			Yes
Satellite images				?			Yes	Yes	?		Yes			No		Yes			Yes
Other (see notes)			Yes[4]																

Notes:

1 LV: Gulf of Riga: 100%; Baltic Proper: 63% of Territorial waters (or 16% of Continental Shelf), (1:200,000 scale)

2 UK: approx. 95% of inshore waters and out to Continental Shelf designated area

3 SE: less than 50%

4 DE: Geological seabed maps approx. 75% coverage. Also Navy charts, historical and recent fishing charts

5 DK: Geological seabed maps approx. 60% coverage.

6 FR: Partially

Table 2 Type of broad scale data	Broad scale data useful to identify and locate habitat or habitat sub-type?							
	1110 Shallow sandbanks	1170 Reef (bedrock)	1170 Reef (stony)	1170 Reef (biogenic)	1170 Reef (Hydro-thermal)	1180 Submarine structures	8330 Sea caves	1120 Posidonia beds
Geological seabed maps/data	Yes	Yes	Partially	No	Yes	Partially	Partially	Partially
Bathymetry	Yes	Partially (won't distinguish between some sub-types of reef)				Partially	No	Partially
Oceanographic data (temp, currents, turbidity etc)	No	No	No	Partially	Partially	No	No	Partially
Satellite images & aerial photography (shallow waters only)	Partially	Partially (won't distinguish between sub-types of reef)			No	No	No	Partially

NOTE: Point or line sampling data, such as benthic grab, dredge, video or photographic sampling can also be used in conjunction with geostatistical analyses to identify habitats.

4.1.2. Local or regional scale remote sensed and physical and biological sample data

The second step to identify and locate Annex I habitat, is to collate any existing physical and biological information on both known areas of Annex I habitat, and on those areas of potential Annex I habitat identified in step 1. Where existing information on habitats is lacking, new survey can be focussed on areas of Annex I habitat identified in step 1, thus avoiding the need to survey vast areas of seabed. Collation of data should involve examination of scientific archives and data from relevant academic, government, NGO, and industry stakeholders. This information can include historical charts of relevant seabed features and fishing grounds.

As well as physical information on the location and extent of an area of Annex I habitat, biological data with which to assess the flora and fauna of a potential site is essential, however, the quantity and quality of data required is difficult to define. As a guide, the information required to be able to complete the Natura 2000 data form[45] must be regarded as the minimum level required. Commission Decision 97/266/EC summarises the information, which must be collected by Member States, and defines the data format for the transmission of information for Natura 2000 sites. There are obligatory fields in the Natura 2000 data form that must be completed: 4.1 "General site character" and 4.2 "Quality and importance". Inclusion of other relevant site-specific biological information is desirable for Section 3.3 "Other important species of flora and fauna". Information necessary to complete these fields would include information on the presence of Red Data book species and species listed on

[45] Standard Data Form. Is defined by 97/266/EC Commission Decision of 18 December 1996 concerning a site information format for proposed Natura 2000 sites *Official Journal L 107, 24/04/1997. See* http://ec.europa.eu/environment/nature/nature_conservation/natura_2000_network/standard_data_forms/index_en.htm

international conventions as well as key and typical species present on the site. Information that is confined to a few easily observed and widespread or common species is generally not sufficient to make an evaluation.

Collated data from archives, existing maps and data from a variety of sources, including from stakeholders, are likely to exist in a wide variety of formats and at different levels of detail. All biological data relevant to marine Annex I habitats should be collated and can be plotted in a geographic information system (GIS) and overlain upon the maps of seabed type or other broad scale physical or hydrographic data. Existing results of benthic mapping programmes using the EUNIS classification should be used, to the highest possible level, to help in characterising habitats biologically (Dahl et al 2004). Historical maps and charts (e.g. of fishing grounds) may also be used to help provide information for certain habitats. Marine habitat survey and mapping has become increasingly common and widespread over the past 5-10 years, spurred on by both improvements in technology and the increasing demand for this type of information. Whilst the purpose for doing the mapping varies considerably (e.g. industry environmental assessments, conservation, fisheries, planning), the underlying techniques and type of data collected have a great deal in common. Table 3 gives examples of the type of data likely to exist and be useful to help in both locating the position of habitat types, estimating the geographical extent of the habitat, and assessing biodiversity.

In Table 3, data obtainable from different types of survey method are shown against different marine habitat types and sub-types likely to be found in offshore waters. In the table, a note is included to indicate whether each type of data could be used:

- to determine the location on the seabed of Annex I habitat types or habitat sub-types ('locate');

- to map the extent on the seabed of the Annex I habitat or habitat sub-type ('extent'); or

- to provide information on the biodiversity of that habitat or habitat sub-type ('biodiversity').

In practice, different types of survey method may be used to provide information on different types of habitat depending on various factors including the financial and time resources available and the depth and area of sea to be covered. Remote sensing methods can be used to cover large areas of seabed, but will need validation by direct sampling such as photographic or grab sampling. Some methods (e.g. satellite images or aerial photography) are only suitable for use in very shallow waters. A few of the direct sampling methods (those which dig-in to the seabed) can be destructive of fragile habitats such as biogenic reefs or seagrass beds, and therefore their use should be restricted to where obtaining a sample (for example to examine infauna) is necessary, and such methods should not be used to determine the extent of a sensitive habitat. For such destructive sampling methods, existing data obtained using these methods may be used to help provide information on areas of seabed, but if new survey is planned, then less destructive survey methods should be used.

Various publications and references give further details of useful methods for mapping and characterising marine habitats. Bäck et al 1996 and 1998 describe methods used for mapping and monitoring marine habitats in the Baltic Sea. Davies et al 2001 provide information on techniques for monitoring marine SACs in the UK, including consideration of the approximate costs of different techniques, and many of the methods can also be used for locating subtidal Annex I habitats and assessing their biodiversity as potential SACs.

Table 3 Type of data	Data useful to locate, determine extent and assess biodiversity of habitat or habitat sub-type?							
	1110 Shallow sandbanks	1170 Reef (bedrock)	1170 Reef (stony)	1170 Reef (biogenic)	1170 Reef (Hydro-thermal)	1180 Submarine structures	8330 Sea caves	1120 Posidonia beds
Remote methods:								
Side scan sonar[1]	Locate, extent?	Locate, extent	Locate, extent	Locate, extent	?	Locate, extent	Not applicable	Applicable
Multibeam bathymetry[1]	Locate, extent	Locate, extent	Locate, extent	Locate, extent	Locate, extent	Locate, extent	Not applicable	Applicable under conditions
AGDS (acoustic ground discrimination systems)[1]	Locate, extent	Locate, extent	Locate, extent	Locate, extent	?	Locate, extent?	Not applicable	Locate, extent
Satellite images[1, 2]	Locate, extent	Locate, extent (won't distinguish between sub-types of reef)			? Locate, extent	Not applicable	Not applicable	Locate, extent
Aerial photography[1, 2]	Locate, extent				Not applicable	Not applicable	Not applicable	Locate, extent
Direct sampling or observation methods:								
Grab/core sampling[3]	Extent Biodiversity	Not applicable	Biodiversity (limited application)	Biodiversity (not recommended)	Not applicable	Biodiversity (limited application	Not applicable	Biodiversity (not recommended)
Diver sampling	Biodiversity	Biodiversity	Biodiversity	Biodiversity	Biodiversity	Biodiversity	Biodiversity	Biodiversity
Towed video[3]	Extent	Extent	Extent Biodiversity (not	Extent	Not recommended	Biodiversity (limited	Not applicable	Extent

	Biodiversity	Biodiversity	recommended	Biodiversity		application		Biodiversity
Drop-down video/photo-graphy/ROV	Extent Biodiversity	Extent Biodiversity	Extent Biodiversity	Extent Biodiversity	Extent Biodiversity	Extent Biodiversity	Biodiversity	Extent Biodiversity
Epibenthic trawls/dredges[3]	Biodiversity (limited application)	Not applicable	Not recommended[3]	Not recommended[3]	Not applicable	Not recommended[3]	Not applicable	Not recommended

Notes:

[1] For all remote sensing, distinguishing habitats from each other and from the surrounding seabed depends on the resolution of the sampling method – higher resolution will provide better data to distinguish habitats, but covers smaller areas and is more expensive to collect and process than lesser resolution data.

[2] Aerial photography and satellite images are restricted in use to shallow waters (6-7m depth), depending on water clarity and other factors.

[3] Grab/core sampling and benthic trawling/dredging are relatively destructive sampling methods. These methods can provide useful data, but extensive use of these methods is not recommended for assessment of habitats sensitive to physical damage (e.g. biogenic reef, seagrass and maerl beds), and should not be used to identify their extent. Towed video can also be destructive of fragile habitats , if it impacts with the seabed, and is not recommended in these cases.

4.2. Site selection rationale for SACs/SCIs for Annex I Habitats

Article 3.1 of the Directive (92/43/EEC) states that "a coherent European ecological network of special areas of conservation shall be set up", and that "This network, composed of sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, shall enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range". The network shall also include special protection areas classified by Member States under the Birds Directive (79/409/EEC).

As set out in Article 4.1 of the Habitats Directive, site selection criteria for Annex I habitats are prescribed by Annex III of the Directive text. Stage 1 assessment criteria (listed below for habitats) and are applied at a national level to assess the relative importance of sites for each habitat listed on Annex I to the Directive, as amended in 1997 and 2004.

Stage 1A:

a) "Degree of representativity of the natural habitat type on the site;

b) Area of the site covered by the natural habitat type in relation to the total area covered by that natural habitat type within the national territory;

c) Degree of conservation of the structure and functions of the natural habitat type concerned and restoration possibilities;

d) Global assessment of the value of the site for conservation of the natural habitat type concerned.

Each of these criteria is discussed below.

Once sites are identified by Member States at Stage 1, their Community Importance is assessed, as set out in Article 4.2 and using the Stage 2 criteria included in Annex III to the Directive, by the Commission, with the help of the European Environment Agency and others, and in agreement with each Member State. This assessment is applied to the lists of sites irrespective of whether they have been identified for Annex I habitats or Annex II species or a combination of both. Assessment of the Community Importance of the sites included on the national lists using the Stage 2 criteria for Annex II habitats will take account of :

a) "Relative value of the site at a national level;

b) Geographical situation of the site in relation to migration routes of species in Annex II and whether it belongs to a continuous ecosystem situated on both sides of one or more internal Community frontiers;

c) The total area of the site;

d) The number of natural habitat types in Annex I [and species in Annex II] present on the site; and

e) The global ecological value of the site for the biogeographical regions concerned and/or for the whole of the territory referred to in Article 2, as regards both the characteristic of unique aspect of its features and the way they are combined."

The assessment at Stage 2 has been carried out for terrestrial and inshore sites so far with reference to the biogeographical regions listed in Article 1(c)(iii) of the Directive. The terrestrial boundaries of these regions were derived based on terrestrial ecology. However, for the marine environment it appears reasonable to consider an approach based on the major sea areas. Therefore, when assessing at stage 2 the global ecological value of the proposed marine sites, the marine areas (Internal waters, Territorial Sea, EEZ and Continental Shelf) to consider for each biogeographical region could be the following:

- Marine areas surrounding the three European Macaronesian archipelagos to the Macaronesian biogeographical region
- North East Atlantic Ocean and the North Sea to the Atlantic biogeographical region
- Baltic Sea to the continental and the boreal biogeographical regions.
- Mediterranean sea to the Mediterranean biogeographical region.

The adhesion of Bulgaria and Romania, and future potential adhesion of Turkey, requires considering the Black Sea separately. For management purposes, borders between seas and oceans should be established in accordance with existing borders of regional marine organizations. Division between Baltic and Atlantic will be as defined by HELCOM[46].

4.2.1. Representativity of the natural habitat type on the site

This criterion is a measure of how typical a site is for a particular habitat. The explanatory notes to the Natura 2000 data form (EC 1995) specifically state that it should be linked to the Interpretation Manual of Annex I habitats (EC 1999), as this provides a definition, list of characteristic species and other relevant information for each habitat. The additional information on habitat interpretation for marine habitats provided in Section 3 of these guidelines should also apply. In considering the degree of representativity of Annex I habitat types on individual sites, Member States should take account of the best examples in extent and quality of the main type and its main variants (Hopkins and Buck 1995).

According to Article 3.2 of the Directive, sites should be selected to represent the range of habitat types present within the territory of the Member State. The meaning of territory of the Member State applied to the marine environment is explained in section 2.6 of this document. It includes all marine areas areas where Member States exercise sovereignty or jurisdictional rights (internal waters, territorial sea, Exclusive Economic Zone (EEZ) and/or to other areas where Member States are exercising equivalent sovereign rights and the Continental Shelf.

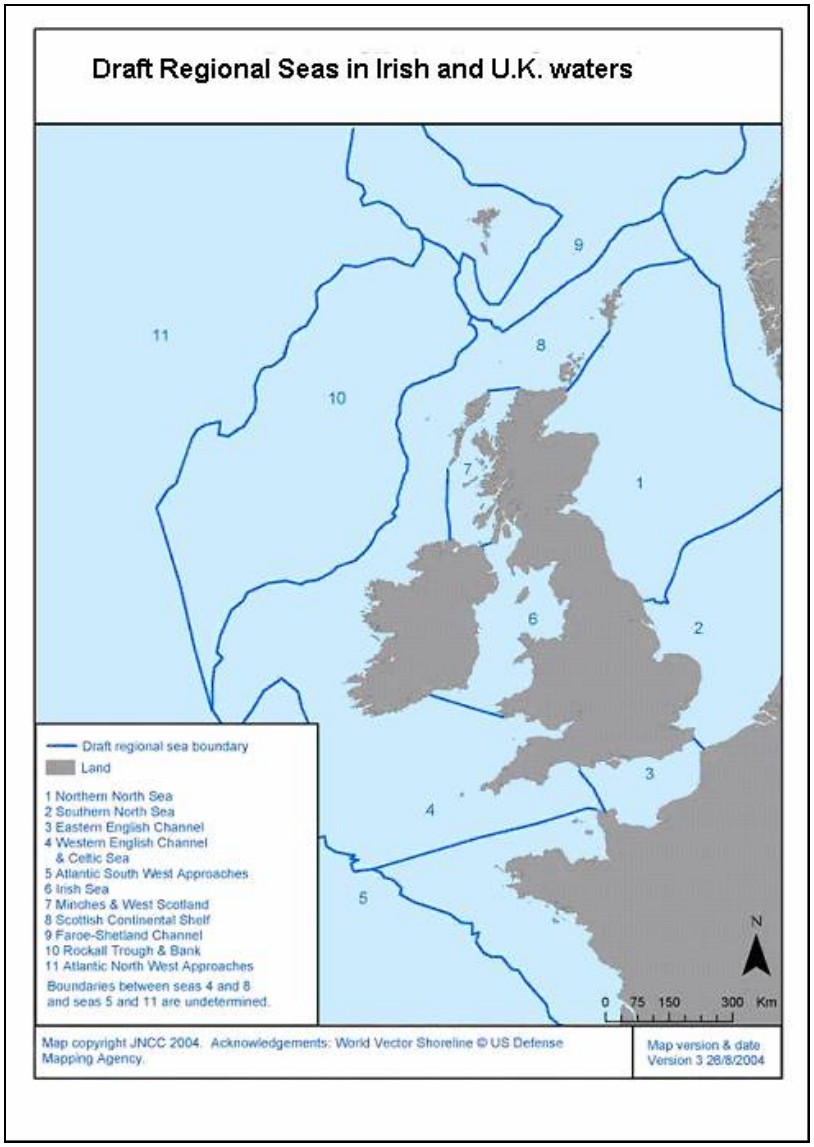
Because the marine habitat types listed in Annex I to the Directive are very broad, a number of different habitat 'sub-types' may be present within the jurisdiction of a Member State. The range of sites selected for a particular habitat may be selected to represent the range of habitat sub-types present, as well as the geographical natural range of the habitat itself. For example, within the habitat type 1170 reef, sub-types of bedrock reef, stony reef and biogenic reef (constructed by various species) are likely to occur.

In order for the suite of sites identified by each Member State for each Annex I habitat type to represent both the ecological and geographical range of variation present in the marine part of its territory, possible sites, can be identified firstly in terms of the geographic location of areas

[46] (This comment has been supported by representatives of Sweden and Denmark in the Scientific working group of Habitats Committee, February 2006)

of habitat types in national waters, and secondly in terms of their physical and ecological characterisations. For possible sites in offshore waters, note should also be taken of possible sites in neighbouring Member State waters where an area of habitat may straddle national boundaries.

Major marine biogeographical regions can be further sub-divided into regional seas or sub-regional seas as an aid to assess representativity in terms of geographic location. These sea areas should be based on physical and ecological characteristics of seabed and water masses, using topographic form, structural character and substratum type as well as oceanographic characteristics such as depth, water temperature, stratification, salinity, etc. A draft example (Figure 1) has been produced for Regional Seas within the Atlantic biogeographic region, centred on Irish and UK waters (Vincent *et al.* 2004), and sub-regions have also been developed for the Baltic region. Any specifically marine regions developed should be ecologically based, not based on administrative or national boundaries.



4.2.2. Area of habitat types

The Explanatory Notes to the Natura 2000 Standard Data Form (EC 1995) explain that one needs to measure the surface covered by the habitat type on the site, and the total surface of the national territory that is covered by the same habitat type, to be able to select a suitable proportion of the habitat type as SAC/SCI. Although this is evident, it can be extremely difficult to make these measurements, especially those concerning the reference national surface. EU decision 97/266/EC recognises the difficulties in using all the criteria, especially those criteria referring to national territory. For this reason, data entries can be made in broad classes e.g. for the estimation of the relative surface of habitats in an SAC/SCI three classes are sufficient (A: 100>p>15%, B: 15>p>2% and C: 2>p%). A rough estimate of the total surface of the relevant habitats for offshore waters can be obtained where geological maps of the seabed exist, supplemented by other data sources.

When using these classes for broad habitat types such as 1170 reef and 1110 shallow sandbanks, which may be widely distributed in Member State waters with large sea areas (such as UK) most offshore sites are likely to fit into class C, and even very large sites (of the order of 50,000ha) may only fall into category B.

Consideration of area of habitat for candidate site selection is related to other principles used for site selection, for example, structure and functions (see below) are most often best conserved in sites that are extensive (McLeod *et al.* 2002).

With regard to selection of sites at Community level, the Commission has provided a reference document (Hab 97/2 rev4) to assist this process. This indicates certain percentage thresholds for examination of Member States proposals in biogeographic seminars. Where a proposal covers less than 20% of the resource this would normally be considered inadequate. Where it covers more than 60% it would normally be considered sufficient. For proposals that cover between 20 – 60%, the conclusions would need to be based in expert judgement in relation to the particular habitat or species concerned. Priority habitats and species would normally be expected to have the biggest level of representation in the network. However, document Hab 97/2 rev 4 is not a specific reference document for the marine environment, and the figures mentioned are not specific targets for national contribution to the Natura 2000 network, which need to be assessed on a case by case basis.

Different methods used for identification of Natura 2000 sites in the marine environment are described in detail in the book "Progress in marine Conservation in Europe" (von Nordheim et al. (eds.) 2006).[47]

[47] http://www.habitatmarenatura2000.de/en/aktuelles-summary-nature-conservation.php

Swedish practices on selecting Marine Protected Areas, including Natura 2000 sites

in the marine environment

The practice for selecting MPAs and marine Natura 2000 sites in Sweden is a modification of the system suggested by IUCN (Kelleher and Kenchington, 1992). Some conclusions:

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

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

In the management of a MPA/Natura 2000 site zonation is a way to set management practices and regulations for different activities in different parts of a MPA. (More details in Appendix 4.1)

4.2.3. Conservation of structure and functions

Article 1e to the Habitats Directive refers to conservation status of a natural habitat type, including structure and functions. The Explanatory Notes to the Natura 2000 Standard Data Form (EC 1995) explain that this criterion comprises three sub-criteria:

1. Degree of conservation of structure
2. Degree of conservation of functions
3. Restoration possibilities

Although these sub-criteria could be evaluated separately, they should nonetheless be combined for the requirements of selection of sites as they have a complex and interdependent influence on the evaluation process (EC 1995). Sites selected (and their boundaries) should take into account the structure and function requirements of the particular habitat.

In general, knowledge of the structure and functions of marine habitats is sparse and incomplete. For marine habitats which depend on certain aspects of the wider marine environment for maintenance of their structure (for example, biogenic reef formed by *Sabellaria* spp. depends not only on the presence of the species itself, but on tidal conditions and sediment supply), site selection (and in particular boundary definition) should take account of this.

An indirect method to estimate conservation of structure and functions is to assess the naturalness of the habitat using information on location and intensity of damaging activities, and by comparison with historical data for certain habitats. Use of models can be an effective tool if correlation between pressure factors and important elements of structure and function is established (Dahl et al. 2004). All available data on natural variability and likelihood of damage or vulnerability of the habitat need to be taken into account for assessing the conservation status.

4.2.4. Global assessment

This criterion is used to assess the previous three criteria in an integrated way, and to take into account the different weights they may have for the habitat under consideration (EC 1995).

4.2.5. Additional selection principles

Additional selection principles, such as those outlined below, may be used to assist in the site selection process.

- Priority/non-priority status (see Habitats Directive Article 1 (d));
- Geographical range (see Articles 1 (e) and 3.1);
- Special responsibilities (see Article 3.2);
- Multiple interest (Annex III Stage 2.2(d));
- Rarity;
- Ecological coherence of the Natura 2000 network(Annex III Stage 2.2)

EXAMPLE OF SITE SELECTION FOR ANNEX I HABITAT TYPE REEF (CODE 1170) IN THE GERMAN EEZ
"(BOEDEKER ET AL. 2006)"

SELECTION PRINCIPLES

(1) The first step in achieving a complete suite of potential reef sites in the German EEZ was to produce the following national mapping guidance and explanations for the habitat type:

> "Elevations permanently submerged or at low tide emerging, consisting of hard substrates like rocks, littoral rock beds, till (moraine material), biogenic hard substrates (e.g. mussel beds and Sabllaria-reefs), including also fields of boulders and blocks on submarine moraine-ridges. Due to the specific glacial and postglacial development in the North Sea and Baltic Sea complex mosaics with habitat type 1110 (sandbanks) frequently occur. Elevations of mixed substrates (e.g. sands, mud, marl, till) are also classed as habitat type 1170, if hard substrates dominate".

(2) The second step was to identify where the Annex I reef habitat type is present within the North Sea (Atlantic Biogeographic Region) and the Baltic Sea (Continental Biogeographic Region). The following steps were carried out to produce a GIS map of potential reef habitats:

- Identification of potential reefs through analysis of existing maps on sediment distribution, fishery charts, and an evaluation of scientific archives.
- Verification of potential reef sites using sidescan-sonar and/or video profiles.
- Assessment of grain sizes of cobble fields with underwater video recordings (laser measurement), and in some areas scientific diving.
- Ascertainment of biological features through bottom dredge trawls (benthic samplings), and/or video profiles, and in some areas scientific diving.
- Photo and video documentation of habitat types by video profiling and scientific diving.

(3) The third step was to achieve a complete suite of ecologically valuable reefs within pSCI-proposals, which also reflect the different ecological forms and features of the habitat types in a representative way. The following forms of reef habitats occur in the German EEZ:

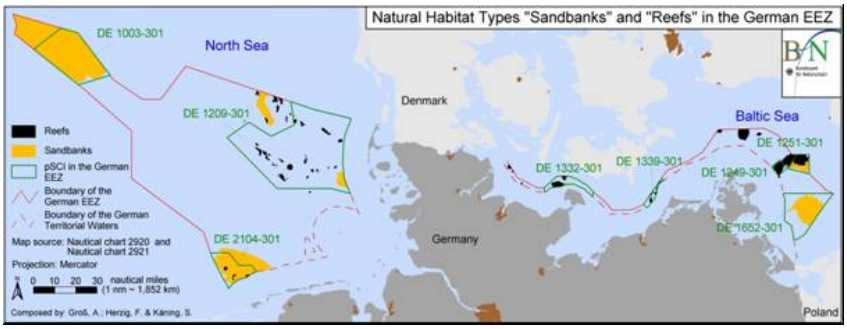
a. North Sea (Atlantic Biogeographic Region):

- Reefs in the form of boulder or cobble fields, which arise from the sea floor in the central part of Amrum Bank. stony reef bands along the slope of the glacial Elbe Valley and scattered stony reefs (Borkum-Riffgrund).

b. Baltic Sea (Continental Biogeographic Region):

- Stony reefs and mussel beds at the slope of Fehmarn Belt with high salinity (up to 25 psu) and with macrophyte vegetation.

- Stony reefs and mussel beds on and along the slopes of the Darss Sill representing “deeper reefs” with a medium salinity of 10 – 18 psu with macrophyte vegetation. Stony reefs and mussel beds on a deeper bank with low salinity and without macrophyte vegetation (Rönne Bank).
- Reefs in the form of boulder or cobble fields, which arise on the top of a shallow bank with low salinity and rich macrophyte vegetation (Adler Grund).



4.3. Locating and assessing Annex II species

Article 3.1 of the Habitats Directive states that a coherent European ecological network of sites hosting the habitats of species listed in Annex II shall be set up. However, Article 4.1 of the Habitats Directive also states that for aquatic species which range over wide areas, SACs will be proposed only where there is a “clearly identifiable area representing the physical and biological factors essential to their life and reproduction”.

For those Annex II species which spend time in recognised areas on land to breed or moult, e.g. seals and turtles, such areas clearly represent areas essential to the life and reproduction of the species’ concerned, and should therefore be considered for SAC selection. This section of the guidance focuses on the identification of sites at sea away from the coast for marine Annex II species, especially for those species which range over wide sea areas in part or all of their life cycle or geographical range.

For species such as cetaceans or fish which do not spend time on land, and for parts of the life cycle of those species that do, it can be difficult to identify areas of sea “essential to their life and reproduction”. This is partly because such species are mobile within the water column and difficult to observe, and partly because data concerning their distribution patterns while at sea are sparse, and such research is expensive and needs to be conducted over long time periods. However, data are available for some Annex II species in some sea areas, and further research including relatively new methods such as use of PODs (porpoise detectors) and satellite tracking of individual animals (seals, cetaceans and turtles) can provide data on aggregation patterns which may be used to identify areas for consideration as SACs. Geo-statistical techniques, similar to those proposed for identification and delimitation of aggregations of birds at sea (see Section 4.6) may also be used to identify densities and distribution centres in space and time for mobile species such as cetaceans (Schieidat et al 2002). These methods have been used for the identification and delineation of concentrations of harbour porpoise and shad in territorial and offshore waters.

- To assist with identifying SAC sites for migratory species such as harbour porpoise (*Phocoena phocoena*), an *ad hoc* meeting was convened by the European Commission on 14 December 2000 (EC (2001) Habitats Committee, Hab. 01/05) The meeting concluded

that "it is possible to identify areas representing crucial factors for the life cycle of this species" (see below). These areas would be identifiable on the basis of:

- The continuous or regular presence of the species (although subject to seasonal variations);
- good population density (in relation to neighbouring areas);
- high ratio of young to adults during certain periods of the year.

Additionally, other biological elements are characteristic of these areas, such as very developed social and sexual life."

In addition to any protection provided within SACs, or where SACs cannot be identified for these species, Articles 12 and 14 of the Habitats Directive provide mechanisms for the protection of those mobile marine species listed in Annexes IV and V (which include those listed also under Annex II) in the wider sea area.

4.3.1. Data availability for Annex II species

The availability of data at a regional scale on the distribution of Annex II species is very sparse, and data are not available for all marine areas. Types of data which may be used for identification of sites for Annex II species may include:

- Records of cetacean sightings from Seabirds at Sea surveys (in the North Sea and Skagerrak and Kattegat, e.g. Reid *et al.* 2003);
- SCANS survey for parts of the North Sea, Skagerrak and Belt sea (Hammond *et al.* 2002) and additional areas for SCANS II (see box);
- Specific aerial surveys (e.g. Scheidat *et al.* 2004);
- Stationary acoustic device (POD) surveys (for cetaceans, Verfuß *et al.* 2004);
- Satellite tracking of individual animals (for seals e.g. McConnel *et al.* 1999, turtles, Matthiopoulos *et al.* 2004, and cetaceans e.g. Dietz *et al.* 2003, Teilmann *et al.* 2004);
- Statistics from national fish surveys (often data for non-commercial fish are obtainable, but not collated or analysed);
- Incidental sightings and strandings data;
- Satellite images and ice cover maps (specifically for those species such as Baltic ringed seal using sea ice for breeding or moulting);
- Data from dataloggers with capability for reconstruction of movement in space by dead-reckoning (running calculation of estimated position from measurements of speed and travel direction); Ref. Adelung and Wilson, Univ. Kiel, and
- Passive acoustic dataloggers, either as towed arrays behind survey ships or hull-mounted systems on ferries etc. Towed array e.g. Gillespie and Chappell (2002). Hull mounted system not yet developed.

Small Cetaceans in the European Atlantic and North Sea (SCANS I and II)

SCANS I generated the first large-scale abundance estimates for the harbour porpoise, and other small cetaceans throughout the North Sea, Kattegat, Skagerrak and Celtic Sea, in 1994. These estimates were relatively precise and unbiased due to the extensive survey area and methodology used. Using the abundance estimates for harbour porpoise, bycatch levels in the North Sea and Celtic Sea were calculated and shown to be unsustainable by the IWC criteria. This project was largely a success due to the coordinated effort between UK, Denmark, France, Germany, Ireland, Sweden, Norway and the Netherlands.

A follow up on this project is the presently ongoing **SCANS II**, which benefits from the participation of twelve countries. Its three principle objectives are:

- to determine the absolute abundance of small cetacean populations, namely the harbour porpoise (*Phocoena phocoena*), bottlenose dolphin (*Tursiops truncatus*) and common dolphin (*Delphinus delphis*). In addition to the area previously surveyed, SCANS II will also **cover continental shelf waters** to the west of Britain, Ireland, France, Spain and Portugal.

- to develop and test methods to monitor cetacean populations. SCANS-II will develop and test potential methods and recommend a suite of monitoring protocols tailored by species and area.

- to develop a framework for management of by-catch. SCANS-II will develop a management framework based on abundance estimates and other available information to enable conservation objectives to be met in the short and long-term.

First results came in June 2006 and the final report in December 2006 including management recommendation. In 2007 an offshore surveys west of the existing survey area will be started. Results form this project are expected in 2008.

See http://biology.st-andrews.ac.uk/scans2/

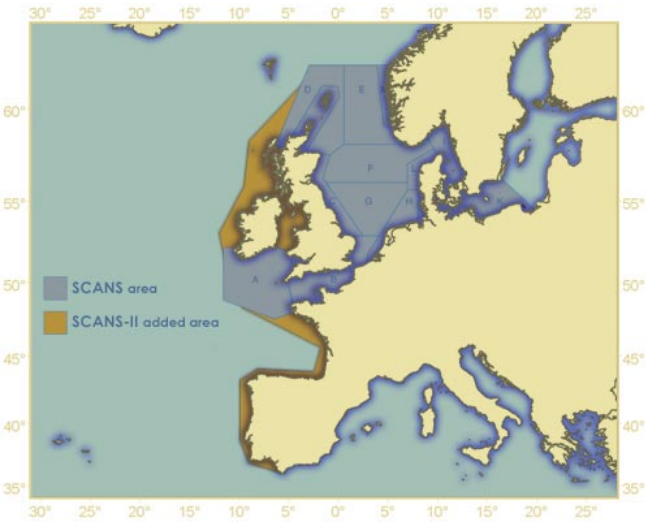


Table 4 Availability of broad scale data on distribution of marine species at sea for each Member State

Type of data	Broad scale data availability or coverage throughout most of Member State's waters (out to EEZ/200nm or Continental Shelf)																		
	B	CY	D	DK	E	EST	F	FIN	GB	GR	I	IRL	LT	LV	M	NL	PL	P	S
Specific aerial and boat surveys of animals at sea (sightings)			Yes	Yes[10]	Yes	Yes[2]	Yes[4]	Yes[2]	Yes[4]							Yes			Yes[2]
SCANS survey for parts of the North Sea (Hammond *et al.* 2002);			Yes	Yes	Yes[5]		Yes[4]		Yes[4]							Yes			
European Seabirds at Sea (ESAS) survey cetacean sightings (Reid *et al.* 2003)				Yes					Yes							Yes			
Stationary acoustic device (POD) surveys (for cetaceans, Scheidat *et al.* 2004);			Yes	Yes[10]					?							Yes[8]			
Satellite telemetry (tracking)			Yes	Yes[11]	Yes[6]	Yes[3]	Yes[4]	Yes[3]	Yes[4]							Yes[9]			Yes[2]
Incidental sightings or strandings				Yes	Yes				Yes[4]							Yes			
Satellite images	n/a	n/a	?	n/a	Yes[7]		n/a		n/a	n/a	n/a	n/a			n/a	n/a		n/a	
Ice cover maps	n/a	n/a	?	n/a	n/a		n/a	Yes[1]	n/a	n/a	n/a	n/a			n/a	Yes		n/a	

Notes: n/a = not applicable

1 Fin: In Finnish waters, ringed seals breed on sea ice in open sea rather than on land. The location and extent of the sea ice varies.
2 Fin: For grey and ringed seal
3 Finland and Estonia: for ringed seal, sporadic in Finland
4 UK and FR: Limited data for few areas and data available for a small number of animals.
5 E. Data related to SCANS II in Atlantic sea areas - Gulf of Cádiz (south-western Spain) and Cantabric Sea (northern Spain).
6 E: For beaked whale in the central-east Atlantic Sea (Canary Islands) and sea turtles in the Mediterranean Sea (south-eastern Spain).
7 E: Specific data for the habitats selection for cetaceans and sea turtles in the Mediterranean Sea (south-eastern Spain).
8 NL: Limited to potential wind park areas
9 NL: Harbour (common) and grey seals
10 DK: Systematic surveys for porpoises in western Baltic. Small-scale systematic surveys for monitoring at offshore wind farms and other developments.
11 DK: For porpoises, harbour and grey seals in areas of inner Danish waters, Skagerrak, Danish Waddensee and other areas.

Member States that have not yet provided the necessary information, may send it to the Commission for a future revision of the text

Table 5

Type of data	Data useful to assist in site identification for Annex II species at sea			
	Seals	**Cetaceans**	**Turtles**	**Fish**
Specific aerial surveys of animals at sea (sightings)	No[1]	Yes	Yes	No
Specific boat surveys of animals at sea (sightings)	No[1]?	Yes	Yes	No
SCANS surveys for parts of the North Sea (Hammond *et al.* 2002) and Atlantic;	No	Yes	Yes	No
European Seabirds at Sea (ESAS) survey cetacean sightings (Reid *et al.* 2003)	Partly useful (no possible differentiation at species level)	Yes	No	No
Stationary acoustic device (POD) surveys (for cetaceans, Scheidat *et al.* 2004);	No	Yes	No	No
Satellite telemetry (tracking)[2]	Yes	Yes	Yes	?
Incidental sightings or strandings[3]	Supplementary information only	Supplementary information only	Supplementary information only	Supplementary information only
Satellite images/ice cover maps[3]	Yes (ringed seal breeding areas only)	Yes Supplementary information only	No	No
Fishing catch/bycatch records	Supplementary information only	Supplementary information only	Supplementary information only	Yes ?
National fish surveys	Supplementary in some countries	Supplementary in some countries	Supplementary in some countries	Partly

Notes:

[1] Aerial survey provides site exact location for ringed seals on ice only during their moulting season (in Finland). Aerial survey is very reliable, but resource costly with a limited number of repeats. Boat surveys are cheaper and can cover longer periods and have more repeat surveys, but give less precise records.

[2] Very exact but costly method for a limited number individual animals, but may provide estimates of habitat use through predictive use of spatial models.

[3] Information may be used to supplement data used for identification of a site (e.g. identification of high productivity sea areas), but cannot be used to determine the extent of a species aggregation nor to identify a site for that species.

4.4. Site selection rationale for SACs/SCIs for Annex II species

As noted in Section 4.3 of these guidelines, Article 3.1 of the Directive (92/43/EEC) states that "a coherent European ecological network of special areas of conservation shall be set up", and that "This network, composed of sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, shall enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range". The network shall also include special protection areas classified by Member States under the Birds Directive (79/409/EEC).

As set out in Article 4.1 of the Directive, site selection criteria for Annex II species are prescribed by Annex III of the Directive text. Stage 1 assessment criteria (listed below for species) and are applied at a national level to assess the relative importance of sites for each species listed on Annex II to the Directive, as amended in 1997 and 2004.

Stage 1B:

a) Size and density of the population of the species present on the site in relation to the population present within the national territory;

b) Degree of conservation of the features of the habitat which are important for the species concerned and restoration possibilities;

c) Degree of isolation of the population present on the site in relation to the natural range of the species;

d) Global assessment of the value of the site for conservation of the species concerned.

Each of these criteria is discussed below. Once sites are identified by Member States at Stage 1, their Community Importance is assessed, as set out in point 4.2 and using the Stage 2 criteria included in Annex III to the Directive, by the Commission, with the help of the European Environment Agency and others, and in agreement with each Member State. This assessment is applied to the lists of sites irrespective of whether they have been identified for Annex I habitats or Annex II species or a combination of both. Assessment of the Community importance of the sites included on the national lists using the Stage 2 criteria for Annex II species will take account of:.

a) "Relative value of the site at a national level;

b) Geographical situation of the site in relation to migration routes of species in Annex II and whether it belongs to a continuous ecosystem situated on both sides of one or more internal Community frontiers;

c) The total area of the site;

d) The number of [natural habitat types in Annex I and] species in Annex II present on the site; and

e) The global ecological value of the site for the biogeographical regions concerned and/or for the whole of the territory referred to in Article 2, as regards both the characteristic of unique aspect of its features and the way they are combined."

Further guidance on interpretation of the above criteria, which includes some relevant to marine species, has been developed during Biogeographical Region meetings from 1994 to

2004[48].Site selection for species should include sites or areas important for different aspects of the life cycle of the species (EC 1995). These categories relate primarily to birds, but are also applicable to marine species:

- Resident (to be found throughout the year on the site);
- Breeding/reproducing (uses the site to nest and raise young);
- Staging (site used on migration or for moulting outside breeding grounds); and
- Wintering (uses the site during the winter).

This information must be included in the Standard Data Form (97/266/EC Commission Decision of 18 December 1996 concerning a site information format for proposed Natura 2000 sites Official Journal L 107, 24/04/1997). Explanatory comments on this form may be found in section 4.1.2 of this document

4.4.1. Proportion of Member State population

Where population estimates are available for a species, the proportion of the national population present on the site (or within the area) can be estimated. Defining boundaries for 'sites' in offshore waters which support a given percentage of the national population of some mobile species may be difficult due to the lack of obvious natural boundaries (such as coast, topographical boundaries, etc.) in the open sea. This criterion is also challenging to use in the offshore marine environment where populations may often be distributed across several national boundaries. However, recent progress in the use of geo-statistical techniques to identify densities and distribution centres in space and time for mobile species such as cetaceans (Scheidat et al 2002) and birds (Garthe & Skov 2004, Skov et al 1995 and 2000) can support the site selection process for mobile species. Use of these techniques can normally provide data of sufficient resolution to estimate which of the three population size classes applies: A: 100%>p>15%; B: 15%>p>2%; C: 2%>p>0% (EC 1995)

Where Annex II species populations are too small to be naturally viable, or where they occur only as vagrants, Member States may exclude them from consideration for site selection.

4.4.2. Conservation of features of habitat important for species and restoration

This criterion comprises the two sub-criteria:

- Degree of conservation of the features of the habitat important for the species; and
- Restoration possibilities.

To define sites using this criterion it is necessary to understand which habitat features are of importance for the species being considered. For wide ranging marine species, identifiable sites used for breeding and feeding are obviously important to that species' life and reproduction. There may also be identifiable sites used for other purposes (e.g. moulting) which may be important for the species. However, whether any such site is "a clearly identifiable area representing the physical and biological factors essential to the life and

[48] Additional 'guiding principles' to aid in interpretation of the Stage 1A criteria were produced by UK following the 1994 Atlantic biogeographical region meeting, and these are reproduced in Hopkins & Buck.

reproduction" of the relevant species (Habitats Directive Article 4.1) will need to be determined, for example, by expert opinion.

If a site's features are seen to be in average or partially degraded condition then an evaluation of how possible it would be to restore the features to a well conserved condition needs to be made.

Monk Seal *Monachus monachus* – **Example of site selection rationale**

A Life-Nature project conducted fieldwork in four areas recognised as important strongholds for the monk seal population in Greece. Monitoring actions and fieldwork were undertaken enabling an estimation of the population size, an inventory of biotic and abiotic factors, an identification of threats and an assessment of the importance of each site.

Of these four sites, **two key sites** were identified on the islands of *Kimolos-Polyaigos* and *Karpahos-Saria.* Together these sites represent over **10% of the world population** and therefore are important conservation areas both nationally and internationally.

Based on these results, the island of *Kimolos* was included into the neighbouring Natura 2000 site of *Polyaigos* due to its importance for monk seal breeding habitats. The *Karpathos-Saria* island complex has now also been designated as a Natura 2000 site

See Appendix 4 for more details.

source: www.alonissos.com/ monk_en.htm

Example of site selection for Harbour porpoises (*Phocoena phocoena*) in the German EEZ of the North Sea

(Krause et al. 2006)

In application of the criteria of Art. 4.1 of the Habitats Directive only one pSCI in the German EEZ of the North Sea was identified and in major parts delineated for Harbour porpoises. The identification and demarcation was possible using the three criteria of the "ad hoc" meeting convened by the EC (EC 2001) (see text) and one additional: high proportion of sensitive behaviour, i.e. resting.

Selection Principles:

(1) **Data collection**: Harbour porpoises occurrence, distribution and behaviour was studied by quasi synoptical aerial transect surveys. In areas with higher occurrence of harbour porpoises additional flights with a higher resolution of line transects were carried out.

These data were completed and verified by long time data sets from the observations in the seabird-at-sea database (SAS), observations of local aerial data collections for environmental impact assessments, data from SCANS I, and data from porpoise detectors (POD). The last method was used successfully in the Baltic Sea only.

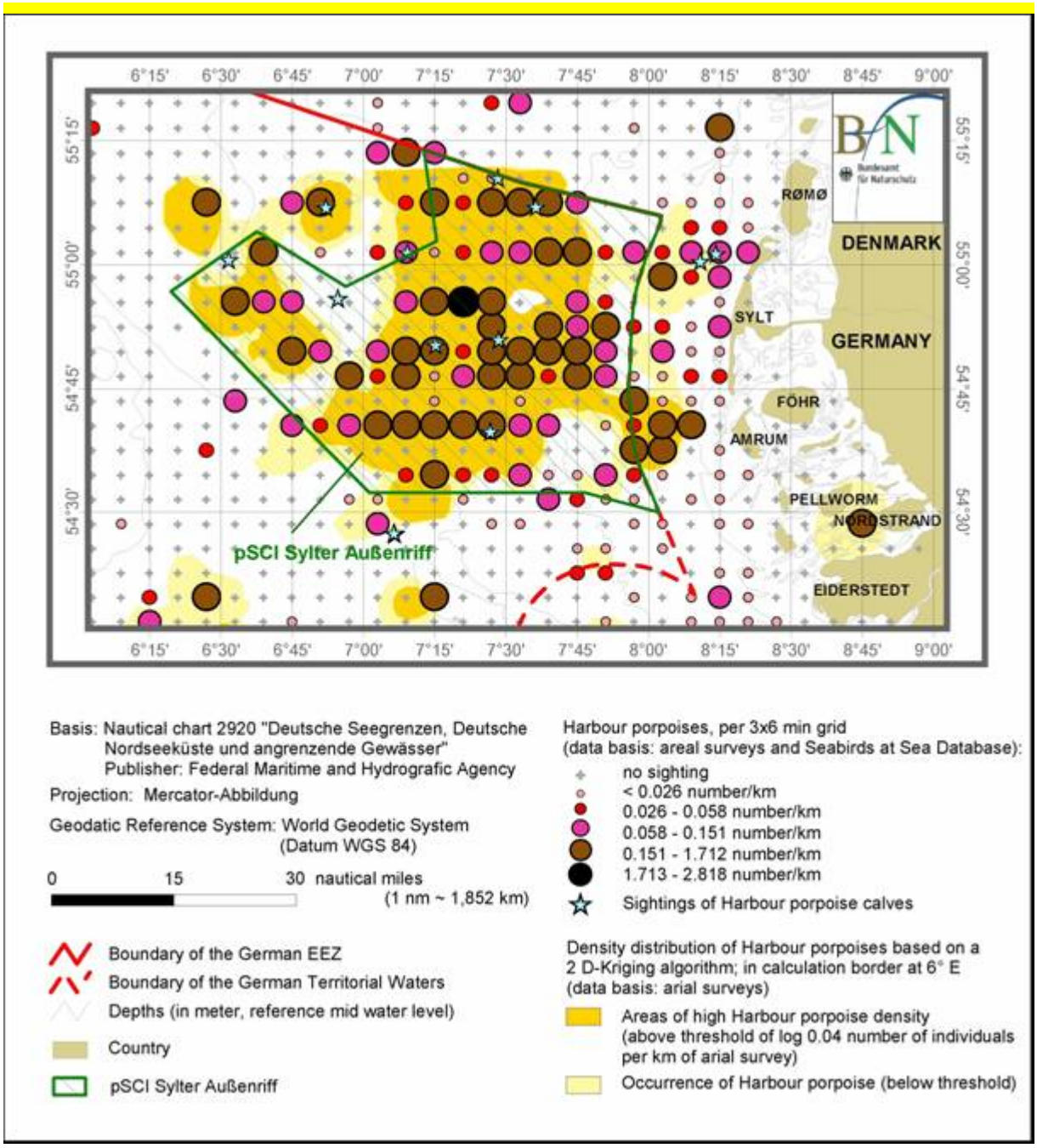
(2) **Species distribution maps.** Harbour porpoise concentrations from May to August (reproduction time) were modelled by geo-statistical methods, based on variogram analysis and ordinary kriging, and were visualised as distribution maps in a GIS:

(3) **Concentration areas:** Concentration boundaries were identified by using density threshold suggested by a marine mammals expert (log 0.04 per km² transect).

(4) **Population size estimation:** Within the pSCIs and for the whole German North Sea the population size was calculated and the proportion of harbour porpoises within given borders was estimated.

(5) **Selection and demarcation:** Only one concentration site with an up to 10 fold higher population density of harbour porpoises during the important time span for reproduction was selected. Demarcation of this pSCI was mainly according to the density gradient of harbour porpoises. However, also the distribution of the habitats "sandbanks" and "reefs" were important delineation criteria.

Finally the boundary lines were simplified and straightened in order to ensure simple and secure marking of sites at sea. In most of the other German pSCIs harbour porpoises occur regularly, but were registered in EU data forms as "present" only, because their population density do not fulfil the criteria named in Art. 4.1.



4.4.3. Isolation of species populations

This is an approximate measure of the contribution of a given population to the genetic diversity of the species and of the fragility of the specific population at the site being considered (EC 1995). Using a simplistic approach, the more isolated a population is, the greater its contribution to genetic diversity of the species concerned. Consequently, the term 'isolation' should be considered in a wider context, applying equally to strict endemics, to subspecies, varieties or races, as well as sub-populations of a meta-population (97/266/EC). In this context, the following grading should be used:

A: population (almost) isolated;

B: population not isolated, but on margins of area of distribution;

C: population not isolated within extended distribution range (EC 1995).

Where Annex II species populations are too small to be naturally viable, or where they occur only as vagrants, Member States may exclude them from consideration for site selection.

4.4.4. Global assessment

This criterion is used to sum up the previous criteria and also to assess other features of the site thought to be relevant for a given species using best expert judgement (EC 1995). Such other features may vary from species to species and might include human activities on the site or in nearby areas which are capable of influencing the conservation status of the species, land management, the statutory protection of the site, ecological relations between the different types of habitats and species, etc. (97/266/EC).

4.4.5. Additional selection principles

Additional selection principles, such as those outlined below which were developed at Biogeographical Region meetings[49], may be used to assist in the site selection process.

- Priority/non-priority status (see Habitats Directive Article 1 (d) and Annex II);
- Geographical range (see Articles 1 (e) and 3.1);
- Special responsibilities (see Article 3.2);
- Multiple interest (Annex III Stage 2.2(d));
- Rarity;
- Ecological coherence of the Natura 2000 network(Annex III Stage 2.2)

These criteria are in principle very useful, but in practice it is often very difficult to compare different areas on a quantitative level, as there may be lack of data from some areas, and more importantly, data collected by different methods (ship-based and aerial surveys, incidental sighting, passive acoustic monitoring etc.) and under different conditions (time of year, sea state, trained vs. untrained observers etc.). There is a great need for coordinated efforts in the direction of collecting quantitatively comparable data, such as SCANS and SCANSII. Coordination needs to be at both national and trans-national levels.

4.5. Identifying Special Protection Areas for seabirds and other waterbirds

Articles 4.1 and 4.2 of the Birds Directive require Member States to classify "the most suitable territories in number and size as special protection areas" for those bird species included in Annex I of the Directive and also for regularly occurring migratory species of bird, taking account of their protection requirements at sea as well as on land.

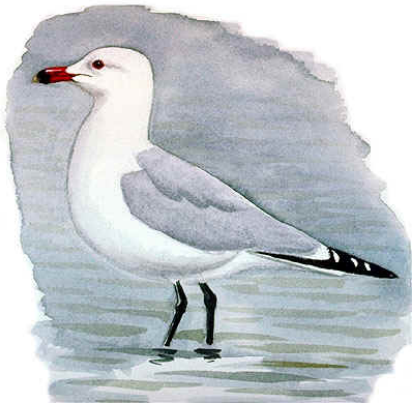
Breeding colonies of seabirds and coastal, wintering or resting areas for waterbirds on migration are clearly among the 'most suitable territories', and are relatively easy to identify. However, a variety of Annex I and migratory birds use benthic and pelagic habitats, from the sea bed through the water column to the sea surface, in areas near and distant from the coast, for a variety of purposes, including feeding, resting, and moulting. Such usage occurs throughout the year, and areas of particular importance need to be considered for inclusion in the Natura 2000 network as Special Protection Areas (SPAs).

[49] E.g: Hopkins JJ & Buck AL 1995 The Habitats Directive Atlantic Biogeographical Region. Report of Atlantic Biogeographical Region Workshop, Edinburgh, Scotland, 13-14th October 1994. Joint Nature Conservation Committee Report 247, Peterborough, 31pp

Box A. A complementary approach to the identification of SPAs.

BirdLife International (2004) has prepared a document proposing a general approach to the identification of marine areas that are important for the conservation of birds in Europe. It is included in appendix 4.1 of this guidance document.

Relevant issues for the identification of IBAS as boundary definitions and the use of Marine Classification Criterion are well covered.



Birds are observable on the sea surface for much longer time periods than is the case for those marine species accorded special protection under the Habitats Directive. However, some of the scientific problems encountered when attempting to identify sites for wide-ranging marine mammals at sea are very similar to those that arise when attempting to identify non-coastal marine sites for seabirds and other waterbirds. These relate largely to the scarcity of suitable data for many areas, and of how to robustly determine specific areas ("most suitable" for birds, or "essential to the life and reproduction" of Habitats Directive Annex II species) for species that are highly mobile and may be very widely distributed. In practice, some areas identified for marine species under the Habitats Directive and for seabirds under the Birds Directive are likely to overlap, for example, where they exploit the same food resources or use the same habitats.

For these and other reasons, approaches adopted for the identification of SPAs on land are not easily transferable to the marine environment. Marine habitats, for example, have a greater three dimensional quality. Habitat boundaries are often unseen, may be much more dynamic, both spatially and temporally, and may extend across small to very large scales. Consequently, it can be extremely difficult to define discrete sites, to estimate bird numbers within them, and thereby assess their relative or absolute importance to the birds.

However, seabirds, and other birds that use the sea, distribute themselves in a non-random way when at sea, often showing strong associations with habitat features. These could be the distribution of other birds, marine mammals or other taxa, but also physical and/or biological processes and features. The distribution of prey will clearly be a major determinant of the distribution of feeding birds. Such factors governing bird distribution at sea, along with the biology and ecology of the birds themselves, will also determine the spatial nature of bird concentrations; for example, birds may form large, dense flocks or be more loosely aggregated. The nature of important aggregations will in turn determine the attributes of SPAs such as size and boundary locations.

Therefore, the scales at which seabird and other waterbird dispersion occur in the marine environment vary from very small, tens of metres for example in some non-breeding concentrations of seaduck, to tens or even hundreds of kilometres, such as the dispersion of some procellariids. Nevertheless, at whatever scale, bird distribution will be associated with the distribution of physical habitat features, such as water depth, sea substrate, and other dynamic features such as fronts, as well as biological features such as food resources. So it is

important that where possible, ecosystem processes and functioning be considered when distinguishing such areas because, even if birds use them transitorily (perhaps spending significant periods travelling or at breeding colonies or terrestrial roosts), they may be essential for the survival and reproduction of their populations. That such areas might be used only seasonally or for a short time does not diminish their importance. If Annex I or migratory species occur in numbers that satisfy site selection criteria (see below), then this should be sufficient to determine qualification of the site for SPA status, irrespective of whether the species are accorded special protection under any other international instruments.

However, the process of identifying SPAs in the marine environment will vary among Member States, although the general principles to be applied will be very similar. Application of these guidelines will be determined *inter alia* by the physical and biological nature of the sea territory of each Member State and the bird complement it hosts.

4.5.1. Designation of SPAs: Court of Justice clarifies some Member States' duties

Member States are obliged to classify as Special Protection Areas (SPAs) all the sites, which applying ornithological criteria, appear to be the most suitable for the conservation of bird species listed in Annex I of the Birds Directive. This is the key conclusion of the Court of Justice in its landmark judgement, delivered on 19 May 1998[50], in this important test case for the implementation of the directive. It upheld the Commission's claim that a Member State had clearly failed to classify a sufficient number and area of SPAs.

This case focused on the key duty under Article 4(1) of the directive for the protection of endangered and vulnerable bird species. This requires Member States to '*classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species, taking into account their protection requirements in the geographical sea and land area where this directive applies*'. It was the first time that the Court was confronted with a case relating to the overall nature of the duty to classify SPAs.

This and other judgements have confirmed the importance of ornithological criteria. Scientific criteria for identifying important bird sites had already been elaborated as early as 1981 when the first inventory of important bird areas in the European Community was prepared. During the 1980s the European Commission had also set up a working group, which led to the identification of Community-wide criteria for the selection of SPAs.

The Commission, whilst fully recognising that other conservation measures are required for many Annex I birds, including wider land or waterside measures for dispersed species, argued that these cannot be a substitute for classifying the most suitable territories as SPAs. This failure to classify effectively meant that such areas would not be subject to the protection regime, now defined in Article 6 of the Habitats Directive2, that applies to all SPAs.

[50] Case C-3/96, Commission v Netherlands, supported by Germany. http://curia.europa.eu/jurisp/cgi-bin/form.pl?lang=en&Submit=Submit&alldocs=alldocs&docj=docj&docop=docop&docor=docor&docjo=docjo&numaff=C-3%2F96&datefs=&datefe=&nomusuel=&domaine=&mots=&resmax=100

Main conclusions of the Court

The judgement of the Court of Justice in case C-3/96 includes the following key elements:

- Article 4(1) of the directive requires Member States to classify as SPAs the most suitable territories in number and size for the conservation of the species mentioned in Annex I, an obligation which it is not possible to avoid by adopting other conservation measures
- economic requirements mentioned in Article 2 of the directive may not be taken into account when selecting an SPA and defining its boundaries.
- the margin of discretion that Member States have in choosing the most suitable territories for classification as SPAs does not concern the appropriateness of classifying as SPAs the territories which appear the most suitable according to ornithological criteria but only the application of those criteria for identifying the most suitable territories for conservation of the species listed in Annex I of the directive .
- consequently Member States are obliged to classify as SPAs all the sites, which applying ornithological criteria, appear to be the most suitable for conservation of the species in question
- the IBA inventory, though not legally binding on the Member States concerned, represents a list of sites of great importance for the conservation of wild birds in the Community.
- in this case the IBA 89 had proven to be the only document containing scientific evidence making it possible to assess whether the defendant State had fulfilled its obligation to classify as SPAs the most suitable territories in number and area for the conservation of the protected species.

Sterna dougallii:[51]

Photo: Bretagne Vivante. LIFE98 NAT F 005250

[51] *Sterna dougallii* is a Bird species listed in Annex I of the Birds Directive ES: Charrán rosado FR: sterne de Dougal; DK: Dougalisterne; DE: Rosenseeschwalbe EN: Roseate tern

CRITERIA USED FOR THE 1989 Inventory of Important Bird Areas (IBA)

Breeding sites

1. Sites supporting 1% or more of the breeding pairs of the biogeographic population.
2. If 1) is not appropriate (e.g. the biogeographic population not known, 1% criterion too high to select important sites), criteria have been based on the specific characteristics of dispersion and habitat preferences of the species
3. If 2) also impossible, all sites with proved breeding (this applied to six very poorly known seabirds only: *Bulweria bulwerii, Puffinus puffinus mauretanicus, Puffinus assimilis, Pelagodroma marina, Oceodroma leucorhoa*, and *Oceodroma castro*)
4. Sites of particular importance for marginal or isolated breeding populations, with criteria based on specific characteristics of dispersion and habitat preferences of the species
5. All regular sites of rare or endangered species or sub-species; or small or endangered distinct biogeographical populations: c.2,500 pairs. (for some colonial species a level of five pairs is used to exclude irregular breeding sites).
6. For widely dispersed species, sites are selected on the basis of high densities or good numbers
7. Regular sites for significant numbers of three or more Annex I species

Sites other than breeding sites

8. Sites having 1% (at least 100 individuals) of the flyway or biogeographical population of one species
9. Sites having (at least) 20,000 waterfowl or 5,000 birds of prey on passage during a migration season
10. Sites with particular importance for marginal populations, with criteria based on specific characteristics of dispersion and habitat preferences of the species
11. Sites which hold 5 (gregarious species 25) individuals of rare and endangered species or sub-species or small and endangered biogeographic populations (less than 10,000 individuals in number).
12. Sites regularly holding significant numbers of three or more Annex I species

Sites were also included if they were amongst the 100 most important in the Community, or among the five most important in a region of the Community for Annex I species or sub-species.

4.5.2. Species for which SPAs should be considered

Broadly, there are two categories of Annex I and migratory species for which SPAs should be considered – seabirds and waterbirds. In Europe, seabirds include species in the following families:

Procellariidae (fulmars, petrels, shearwaters)
Hydrobatidae (storm-petrels)
Sulidae (gannets)
Phalacrocoracidae (cormorants)
Stercorariidae (skuas)
Lariidae (gulls)
Sternidae (terns)
Alcidae (auks)

Waterbirds comprise species in the following families:

Gaviidae (divers)
Podicipedidae (grebes)
Anatidae (ducks)

In addition, it may be necessary to consider Phalaropodinae (phalaropes), whose members make significant use of the marine environment.

A list of species that occur in European marine waters for which SPAs need to be considered is presented in Appendix 2 of this Guidelines document (Table 3). Most, if not all, of these species may be considered to be migratory, thereby justifying their consideration for SPAs at sea. The dispersion scales at which these species migrate seasonally will vary both among and within species. Table 3 of appendix 2 indicates those species included in Annex I of the Birds Directive, and also attempts to indicate the scales over which these species might typically be aggregated when not migrating. Every species potentially might be dispersed from small to very large scales, depending on various environmental and other conditions. In highlighting likely dispersion scales, the Table merely attempts to allow some preliminary assessment of the types of SPA that might be appropriate for the species; a comprehensive assessment in the context of the species ecological requirements and known dispersion patterns must be undertaken in order to fully identify potential types of SPA.

Of course, the list of species in Appendix 2, table 3 may not be exhaustive, and it does not preclude from consideration other potential qualifying seabird or waterbird species that use the marine environment.

4.5.3. Types of SPA

Sites selected as SPAs should be clearly identifiable, which renders it necessary to identify discrete aggregations of seabirds and waterbirds, or indeed discrete patches of habitat that are essential for the survival and reproduction of the species. As these aggregations are scale-dependent (spatially and/or temporally), governed by the species' ecology and biology, various types of bird aggregation may be identifiable. Table 3 in Appendix 2 indeed suggests that different sorts of SPAs are necessary for certain species of seabird and waterbird. Similarities in ecological requirements across species, perhaps within families or other taxonomic groups (but not necessarily), enable the identification of four broad types of possible SPA:

i) Extensions of existing terrestrial SPAs into the marine environment. In many cases, it is appropriate to extend existing coastal and island seabird colony SPAs into the marine environment because the birds already protected within these SPAs make extensive use of the waters adjacent to colonies (out to varying distances from the colony) for a wide range of purposes. This may include important inshore feeding areas in the breeding season for species such as divers, and species-specific seasonal concentrations, such as "rafting" Manx and Cory's shearwaters *Puffinus puffinus* and *Calonectris diomedea* in the breeding season;

ii) Areas hosting concentrations of certain species of birds usually, but not necessarily, in the non-breeding seasons, typically in shallow, coastal and inshore waters. For example, many species such as seaduck, divers and grebes form large aggregations outside the breeding season at predictable locations for resting, moulting and feeding. In some cases aggregations of these species may be catered for by extensions of existing terrestrial SPAs supporting assemblages of non-breeding waterbirds;

iii) Offshore areas hosting concentrations of seabirds. Throughout the year seabirds use the seas around Europe for many purposes, notably feeding. If important foraging areas for pelagic species, which might include highly productive fronts, currents, shelf-break areas, gyres and eddies, and upwellings, can be defined then these should be considered for SPA classification. Such areas might be quite distant from breeding colonies and it could be that such concentrations of birds are aggregated at scales too large to allow identification of discrete sites. However, the extent to which these (large-scale) aggregations of birds occur

regularly and comprise sufficient numbers of birds and species to merit SPA status requires considerable attention; few relevant analyses of existing data have been conducted;

iv) Migration hotspots. For some species, it may be necessary to consider areas where birds gather or travel in significant and regularly occurring concentrations during migration. Such areas could be migration staging posts, bottlenecks or pathways that are crucial for the survival of the species.

4.5.4. Data sources for SPA identification

In common with SACs under the Habitats Directive, analytical aspects of the SPA identification process, including issues of data quality, must be considered with respect to the final outcome of that process. Conclusions need to be sound, as far as possible objectively determined, robust to challenge, and reached using repeatable methods.

Identification of marine SPAs should always be at least partly data-driven, and very often will be entirely determined by analysis of (survey) data. For many species of pelagic seabirds, limited information exists on their habitat requirements and other factors governing their fine scale distribution, thereby rendering it difficult to predict where birds occur. However, many appropriate survey data have already been collected in the seas of north-west Europe and the sorts of data needed to enable a range of approaches to be adopted are relatively easy to collect. It is likely that data will derive from sampling and that further manipulation and analysis will be required to inform SPA identification (see below).

As in the terrestrial environment, the best available data should always be used for the SPA identification process, and treatment of these data should follow as far as possible strict scientific protocols. Site determination may be derived in a variety of ways, from *ad hoc* analyses of existing data to customised analyses of especially collected data. The quality of data needs to be assessed. Several factors are pertinent to the assessment of data quality, among them:

i) experience of observers to minimise errors in the estimation of numbers of birds and in species identification;
ii) survey/study design; data from systematic as opposed to casual or opportunistic surveys and observations are likely to be of higher quality, for example in avoiding over- or undercounting arising from bird movement;
iii) spatial and temporal extent of survey; an assessment of whether all parts of an area suitable for the birds should be made in order to identify possible bias or incompleteness, and allow proper determination of site boundaries. This assessment should include whether the count was made from land, aircraft or ship;
iv) sampling bias; an assessment may be required of the representativeness of samples; for example biased sampling of an area will result if surveying follows transect lines that are oriented parallel to important linear habitats, such as elongated banks, river channels, or some oceanographic fronts;
v) survey or recording conditions; some study results might have been affected by unusual events such as poor weather or a pollution incident;
vi) atypical behaviour of birds; it is important that the behaviour or dispersion of birds is not affected by survey platforms, such as low-flying aircraft, or by invasive techniques such as transmitter or logger attachment;

and the results of early manipulations of the data also need to be treated equally cautiously, for example in:

vii) derivation of population estimates; whether a population estimate derives from a complete count or from sampling may affect the likely accuracy of the estimate;
viii) robustness of population estimates; it may be possible to derive more than one population estimate from a single survey. When this is the case, the most robust population estimate should be used.

Any data considered inadequate for population estimation or for determining dispersion patterns must be treated as such, although it may still be useful in determining the need for more detailed or structured survey work in a particular area. Again, it is difficult to be prescriptive here; there are probably limitations attached to most studies. For example, a well-planned and well-executed aerial sampling survey using experienced observers and distance estimation should yield good population estimates, but additional information may be needed from land-based or boat-based surveys to supply accurate species identification or to count inconspicuous species or those close to the shore. In some situations (e.g. small or enclosed sites), boat-based or systematic land-based surveys might provide better population estimates.

As far as possible data should derive from systematic data collection conducted at appropriate scales, over appropriate time periods, and using robust methods. If lower quality data only are available, they must be used with appropriate caution. To reiterate, the quality of all data must be assessed and the degree to which they are appropriate for SPA determination should always be formally assessed; consideration should be given to the collection of new, better-quality data. However, a careful balance will need to be struck between seeking 'perfect data' and ensuring an area of known importance is afforded SPA protection as soon as practicable. Lack of 'perfect data' should not be argued to delay. Opportunities should be identified to make use of existing surveys to supplement data gaps.

The following table indicates the possible sources of data suitable for the identification of different types of SPA outlined above. Table on next page summarises the availability of data on the dispersion of seabirds and waterbirds in Member States.

Sorts of data that might typically be used in the identification of different types of marine SPAs.

Type of SPA / **Type of data**	**Marine extensions to existing colony SPAs**	**Inshore aggregations of birds usually outside the breeding season**	**Offshore aggregations of seabirds**	**Migration hotspots**
Customised aerial transect	Yes	Yes	Possibly (highly clumped aggregations)	No
Customised boat transect	Yes	Yes	Yes	Possibly
Existing at-sea survey data (e.g.	No	Yes (offshore)	Yes	No

European Seabirds at Sea data)				
Telemetry (radio/satellite)[1]	Yes	Yes	Yes	Yes
Bio-logging	No	Possibly	Yes	Yes[5]
Radar	No	Possibly (inshore)	No	Yes[2]
Land-based sightings	Yes	Supplementary information only[3]	Supplementary information only	Yes (partially)[4]

[1] The relative costs of different methods vary, but satellite or other tracking of individuals provides good data for (typically) few birds at considerable cost, so should not be considered unless other methods prove unsuitable. However, for certain species and specific questions this may be a very apt technique.

[2] Radar surveys can provide specific information on migration pathways, but this is a labour intensive and costly method suitable only for use in certain types of areas.

[3] May be a principal source of data for some enclosed coastal sites or where the broad distribution of target species is confirmed by boat or aerial survey to be within the range of land-based surveyors.

[4] As for Inshore aggregations.

[5] GPS loggers are capable of establishing migration corridors or bottlenecks

The availability of data on the dispersion of seabirds and water birds in each Member State.
Broad scale data availability or survey coverage throughout most of Member State's waters (out to EEZ/200nm or Continental Shelf)

Type of data	B	CY	D	DK	E	EST	F	FIN	GB	GR	I	IRL	LT	LV	M	NL	PL	P	S	SL
Customised aerial transect	Yes		Yes	Yes			Yes[8]		Yes[1]							Yes		Yes		
Customised boat transect	Yes		Yes	Yes	Yes[7]		Yes		Yes[1]							Yes		Yes		
Existing at-sea survey data (e.g. European Seabirds at Sea data)	Yes		Yes	Yes			Yes[9]		Yes[2]							Yes		Yes		
Telemetry (radio/satellite)	No		No	No	Yes[7]		Yes[10]		Yes[3]							No		Yes		
Radar	Yes		Yes	Yes[6]					No							Yes[5]		Yes		
Land-based sightings	Yes		Yes	Yes	Yes[7]		Yes		Yes[4]							Yes		Yes		

[1] UK: only for areas of known wintering bird concentrations; survey is ongoing
[2] UK: database collated for North Sea and parts of Atlantic ocean, database contains data over 25 years
[3] UK: only for a small number of species (Manx shearwater *Puffinus puffinus*, red-throated diver *Gavia stellata*)
[4] UK: from popular coastal areas
[5] NL: near potential windfarms
[6] DK: near potential windfarms
[7] ES: Occasional data from previous survey. Recently survey is ongoing.
[8] FR: the most efficient technique for large areas
[9] FR: Data available for the south-west of France
[10] FR: only for very small number of few species (Cory's shearwater)

4.5.5. Data treatment for SPA identification

SPA identification will most likely be made using distribution and abundance data of birds within study areas. Much of the time these will be existing data, and this will apply largely in those Member States where there is a long history of data gathering. Typically, however, the data will have been collected for purposes other than SPA identification, so they will demand to be analysed in support of SPA identification differently from the ways originally envisaged (and often in novel ways). Similarly, existing data may often be sample data that do not readily act as indicators of total population sizes. In addition, the resolution at which these data have been collected will usually be at a scale too coarse to readily determine site boundaries. Of course, where appropriate data exist these should be used. Care should be taken to ensure the scale at which boundaries are determined reflects the spatial scale at which the qualifying species use marine habitats over time – spatial distribution can vary greatly diurnally, seasonally and between seasons.

Provided existing data are of sufficient quality and quantity, however, it is appropriate that they be used as the basis for further modelling and analysis in order to assess site qualification (in terms of numbers of birds present), as well as boundary determination. Statistical and spatial modelling techniques may also be enhanced by the inclusion of habitat and other environmental data as co-variates within models of bird dispersion. However, if simple count and localised data are adequate to determine the boundary of a site, additional modelling may not be required.

Several modelling techniques exist or may be readily adapted to further interpret bird dispersion data, from simple geographical, through statistical and spatial modelling, or a combination of two or more techniques. In addition to assessing data quality (see above), it is imperative that the data requirements of all statistical and modelling tools applied, including assumptions regarding the underlying distribution of the data, be observed. Whether estimating population size or determining the spatial extent of bird distribution (see below), violations of all test and other methodological constraints should be avoided. However, if it proves necessary to relax test requirements, through lack of data for example, this should be explicitly recognised and the possible consequences for the analysis identified.

Any analysis of marine bird dispersion data should aim to identify potentially suitable areas of high density (or 'hotspots'). In the absence of co-variate data, spatial interpolation methods of various kinds, which apply the inherent spatial structure of observed bird dispersion at a finer resolution throughout the area surveyed, such as kriging (see Boxes E, F), are appropriate Where co-variate data are available, for example habitat information, other modelling tools would also be appropriate, tools that might allow extrapolation of the bird dispersion data to areas outwith the area surveyed.

Whereas most data on the distribution of birds at sea comes from boat-based and aerial surveys, increasingly more data derives from remote (radio and satellite) tracking and biologging. Protocols for the application of such data need to be developed (see Box B). Although methods for the identification of core areas of use have been outlined in BirdLife (2004), some of them, such as kernel analysis, need to be applied with care (Hemson *et al*. 2005) and certainly in consistent ways across relevant research in support of SPA identification. Analytical techniques should be applied at all stages in the determination of site qualification and boundary definition.

Box B. Important Bird Areas for seabirds (marine IBAs) in Spain and Portugal – a multi-faceted approach using novel methods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Between 2004 and 2008, BirdLife International partners in Spain (SEO) and Portugal (SPEA) are conducting two strategic Life-Nature projects to contribute to the implementation of the Birds Directive in the marine environment. The projects will develop a methodology for the analysis of the spatial distribution of offshore and pelagic species. This will be based on the newest methods in marine ornithology (BirdLife International 2004) deriving from telemetry data, density distribution maps, and kernel analysis to identify the areas that birds use most intensively

The projects are carrying out detailed inventories, using objective methodological criteria to determine Important Bird Areas (IBA) at sea for those seabird species listed in Annex I of the Birds Directive that occur in Spanish and Portuguese marine waters, which includes some of Europe's rarest bird species, such as the globally threatened *Puffinus mauretanicus, Pterodroma madeira and Pterodroma feae*, and many seabird species that are of conservation concern, e.g. *Calonectris diomedea*, *Puffinus assimilis, Larus audouinii* and *Sterna sandvicensis*.

The inventory will include a characterisation of the Portuguese and Spanish EEZs, and a detailed characterisation for each IBA, with GIS geo-referenced cartography, and a description of the main threats affecting it. To achieve this, the relationship between oceanographic data and the presence/absence of seabirds will be studied. Monitoring of certain species will be carried out through satellite (*Calonectris diomedea* and *Larus audouinii*) and radio tracking (*Bulweria bulwerii*, *Puffinus assimilis*, *Oceanodroma castro),* survey of coastal waters, analysis and mapping of ringing recoveries in Spain and Portugal, and the creation of a database of beached birds. The identification and generic sampling of the most favourable areas is being carried out based on the oceanographic characteristics of the areas concerned.

The combination of these methods will provide evidence on the key areas for seabird conservation (e.g. as foraging grounds). In contrast to gregarious coastal species, pelagic seabirds may depend on less clearly defined areas for their survival. Those areas need to be identified through mostly indirect methods such as telemetry as traditional methods of counting bird aggregations (e.g. Skov *et al.* 1995) cannot be used for these species.

All European globally threatened seabird species live in Portuguese and Spanish waters. Their behaviour at sea is poorly known and the methodologies used to track them are still under development. Both the SPEA and SEO projects will cross-check data from direct observations at sea (boats, plane surveys) with the seabird-tracking data. However, seabird densities at sea may be far lower than those recorded in the northern seas. A standard methodology for the identification and delimitation of IBAs at sea, based on standardized and quantitative criteria, will be developed; this could be used to identify IBAs off other countries, thereby improving the protection at sea for truly pelagic seabirds.

4.6. Site selection rationale for SPAs

While Article 4 of the Birds Directive does not offer precise criteria for SPA selection, some Member States have produced specific guidance for SPA selection. Selection guidelines should be clearly defined, based on scientific principles, agreed judgements, and easily applied. The aim here is to offer guidelines for the identification of marine SPAs and not to offer prescriptive rules to be applied among all Member States. However, application of selection guidelines within individual Member States should follow a procedure as prescriptive as is feasible, one that is tailored to the individual Member State's requirements.

Present guidelines for the establishment of SPAs in the marine environment aim to be consistent with established guidelines for the terrestrial environment, and be formulated with regard to the overall aim of achieving ecological coherence of the SPA and wider Natura networks as a whole.

The achievement of ecological coherence is likely to be an iterative process, both within and among Member States. The principles of coherence should be based upon knowledge of the ecology of all Annex I and regularly occurring migratory species and should also aim to include consideration of functional assemblages of species.

Understanding the protective requirements of the species (as required by Article 4) is an essential step in deciding what level of contribution the SPA network should make to the conservation of each of the species covered by the Directive requiring SPA designation.

Stroud et al (2001) suggest that the species for which the highest proportions of species' populations should be located within a protected area network are those which:

- occur locally in high densities (congregatory species);
- occur, to a large extent, on natural or semi-natural habitats;
- show predictable occurrence at particular sites regularly between years (i.e. species that are not irregular or dispersive);
- have restricted national or international ranges; or
- have small national or international population sizes.

It will be essential to understand the ecological requirements of each species before deciding on the best approach to adopt for each stage of its life cycle. This is particularly true of some seabird species that do not congregate in the same way some waterbird species do, but are likely to occur at sea in higher densities at predictable spatial and/or temporal scales. In respect of foraging birds from seabird colonies, care should be taken to ensure they do not have to qualify twice for SPA designation i.e. once for the breeding colony and once for foraging areas during the breeding season.

Foraging seabirds from a breeding colony are a good example of where traditional percentage thresholds e.g. 1%, should be applied with care, as they may not always give the best indication of whether a particular seabird species is amenable to a site-based approach for part of its life cycle. For example, only one-third of a breeding guillemot colony typically forages at any one time and so may never form congregations of 1% or more of its biogeographic or national population. Yet, it may form feeding concentrations that are spatially stable and predictable in occurrence between years that merit protection to ensure the ecological requirements of a particular breeding colony SPA are secured.

Therefore, assessing the protective requirements of each seabird species will require careful consideration of its ecological requirements and its behavioural characteristics during the different stages of its life cycle.

For example, in the UK, site selection follows a two stage process (Stroud *et al*. 2001). The initial stage, Stage 1, aims at the identification of suitable territories through the application of selection principles based on the objective assessment of the relative numerical importance of the bird populations under consideration. If application of Stage 1 guidelines fails to identify an adequate suite of sites for the conservation of a species, then, Stage 2 judgements must be applied.

Stage 1 Guidelines

Application of Stage 1 guidelines depends on the availability of adequate data for the relevant populations and species being considered for protection within SPAs. If sufficient data are available then important populations should be identified by placing them in an appropriate context.

UK example of Stage 1 guidelines for qualification of areas as SPA

An area qualifies as an SPA if:

(1) it is used regularly by 1% or more of the Great Britain (or all-Ireland) population of a species listed in Annex I of the Birds Directive in any season;
(2) it is used regularly by 1% or more of the biogeographical population of a regularly occurring migratory species (other than those listed in Annex I) in any season;
(3) it is used regularly by more than 20,000 waterfowl (as defined by the Ramsar Convention) or 20,000 seabirds in any season.

Again, Denmark applies very similar Stage 1 guidelines that suggest that an area qualifies if:

(1) it is used regularly by 1% or more of the national population of an Annex I species,
(2) it holds a density of an Annex I species that is more than three times the national average for that species;
(3) it is used regularly by 1% or more of the flyway population of a migratory species;
(4) it holds a density of a migratory species that is more than three times the national average for that species;
(5) it is used regularly by more than 20,000 waterbirds in any season.

In these contexts, "regularity" should be operationally defined. For the most part, the Ramsar definition has been applied:

(1) the requisite number of birds is known to have occurred in two thirds of the seasons for which adequate data are available, the total number of seasons being not less than three; or
(2) the mean of the maxima of those seasons in which the site is internationally important, taken over at least five years, amounts to the required level (means based on three or four years may be quoted in provisional assessments only).

In certain cases, for example for species that are particularly rare or in very remote areas (such as might particularly apply in the marine environment), hotspots might be identified on the basis of fewer data (see Stroud *et al*. 2001).

Population estimates used in the assessment of the importance of potential SPAs should ideally be derived from robust censuses and/or analyses (see above). The basis for designation will naturally be based upon the best available data. Preferably these will be those covering the most recent five years in each appropriate season, but it may be necessary to consider longer series of data (for example 25 years of UK/ Netherlands/ Denmark/ Germany/ Belgian North Sea seabird dispersion data, or 10 years of Belgian nearshore waterbird data). Use of longer time-series can help address the potential problem of long-term (but possibly cyclical) shifts in distribution. This emphasises the need for adequate marine bird monitoring systems to improve understanding of spatial and temporal variations in distribution.

Overall, such Stage 1 approaches offer repeatable and, as far as possible, objective protocols that result in a consistency of solution that might be important in avoiding or countering subsequent challenge.

Stage 2 guidelines

If application of Stage 1 guidelines does not enable the identification of a suitable series of SPAs for any species, for whatever reason, then Stage 2 judgements have to be made. An area

that meets the requirements of one or more Stage 2 guidelines should be considered for SPA classification. These guidelines may (and do in various Member States) accord favoured consideration on the basis of:

(1) Relative population size and density. Areas that host relevant species of birds in greater numbers or higher densities than others should be favoured for selection;
(2) Species range. Areas selected should provide the widest geographical coverage across the range of a species;
(3) Breeding success. Areas of higher breeding success than others should be favoured for selection;
(4) History of occupancy. Areas of known longer history of occupancy should be favoured for selection;
(5) Multi-species areas. Areas holding the larger number of qualifying species under Article 4 of the Birds Directive;
(6) Naturalness. Areas comprising natural or semi-natural habitats should be favoured for selection over those that do not;
(7) Adverse environmental conditions. Areas used at least once every 10 years by significant proportions of the biogeographical population of a species in periods of severe weather or of other unfavourable conditions in any season and which are vital to the survival of a viable population should be favoured for selection.

4.6.1. Alternative approaches to site selection

An alternative approach that combines Stage 1 and Stage 2 judgements is offered by BirdLife International (BirdLife 2005). This approach aims to identify Important Birds Areas in the marine environment. The relevant criteria are presented in Box D.

Box D. Criteria applied by BirdLife International that are pertinent to the identification of Marine Important Bird Areas (see also Box A)

(1) The site regularly holds significant numbers of a globally threatened species, or other species of global conservation concern;

(2) The site is known or thought to hold, on a regular basis, 20.000 waterbirds or 10.000 pairs of seabird of one or more species;

(3) The site is known or thought to hold 1% or more of a flyway population or other distinct population of a waterbird species;

(4) The site is known or thought to hold 1% or more of a distinct population of a seabird species

(5) 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; ("*n" to be defined per country for a given species*)

(6) 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;

(7) 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;

(8) 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;

(9) 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.

4.7. Site boundaries

While the terrestrial model provides a good basis for the identification and classification of Natura 2000 sites, in the marine environment it must be recognised that there are important differences between the two approaches. These relate to:

Site size The boundaries of a potential Natura 2000 site must be defined to ensure that they provide the basis for adequate protection of the features of conservation interest. Where the protected species primarily occurs should be considered the core area of the site, and should be included within the site boundary. Particularly in the case of designation of SPA, where the nature or scale of the species dispersion results in more loose aggregations, resulting in smaller concentrations disjunct from the core aggregation, the decision whether to include such satellite concentrations within a boundary should be made by reference to the overall size of the qualifying interest. It may also be determined by formal rules relating to the regularity with which the satellites qualify as important over several surveys. All concepts introduced here must of course be defined operationally. For the UK working definitions of "satellite", "regularity" of importance, and "importance", see (Webb *et al*. 2004a, b, c; McSorley *et al*. 2004).

Member States might wish to consider the value of identifying buffer zones around Natura 2000 sites. They are not a legal requirement under the Birds Directive of Habitats Directive, although any activities or developments that are harmful to the qualifying feature and which take place outside the site are still subject to the protection and procedural safeguards of Article 6 of the Habitats Directive[52].

Site Shape. In the marine environment, where sites may be far from the coast, it is preferable to have simple site boundaries, based on "straight" lines and convex polygons, which 'box' the qualifying interests. This approach will simplify future management of the site survey and monitoring, and notification of duties to be carried out by other responsible authorities.

4.7.1. Boundary determination for SPAs

The spatial extent of hotspots or bird interest features for which protection is being established must be defined as far as possible by application of objectively defined criteria. Seaward boundaries of sites, may be defined in various ways, but ideally based on the application of "objective", well-established analytical techniques to species dispersion data, and ideally mapped within a Geographical Information System. For example, they may be delimited by isolines that separate regions where the gradient in bird density meets an agreed or operationally defined threshold (e.g. Garthe and Skov 2004; see Box E).

Example of site selection for seabirds in the German EEZ of the Baltic Sea (Krause et al. 2006)

The identification and selection process of Special Protection Areas in the German EEZ of the Baltic Sea results in a single large SPA of ca. 2.000 km² designated and transmitted to Commission in May 2004. This area is defined by overlapping concentrations of more than half a million seabirds, primarily by the distribution and abundance of divers, Slavonia grebe, red-necked grebe, great crested grebe, black guillemot, red-breasted merganser, long-tailed duck, black scoter, velvet scoter, common scoter and common eider.

[52] ICES report on *Distribution of cold-water corals in the North Atlantic and the relation to fisheries in the North East Atlantic. Cooperative research report Nº262. December 2003*

Selection principles:

(1) **Bird species selection for SPA delineation:** Seabird distribution in the Baltic Sea has been studied by aerial transect surveys and from ships. From the total list of 33 species to be considered for the selection of marine SPAs, eleven species of Annex I and migratory bird species were found to occur regularly in offshore areas of the German Baltic Sea and use distinct aggregation areas.

(2) **Species distribution maps:** These bird species concentrations were modelled by geo-statistical methods, based on variogram analysing and ordinary kriging, and were visualised as distribution maps in a GIS.

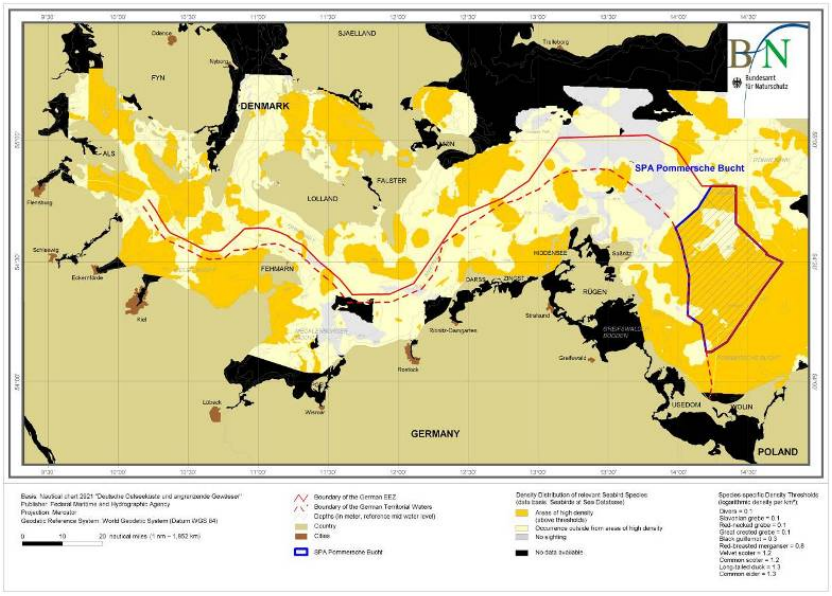
(3) **Definition of important seabird concentrations:** For each of these species, concentration boundaries were identified by gradient analysis (Species-specific density thresholds (logarithmic density per km²) divers 0.1, slavonian grebe 0.1., red-necked grebe 0.1, great crested grebe 0.1, black guillemot 0.3, red-breasted merganser 0.8, velvet scoter 1.2, common scoter 1.2, long-tailed duck 1.3 and common eider 1.3). The density value of the borderlines were used as the species- and season-specific minimum density for each relevant seabird concentration.

(4) **Converting single-species data into multi-species data:** By overlaying the concentration areas of each single species, the most important areas were identified. The respective areas and contour lines were then combined so that a set of areas of potential conservation areas were identified.

(5) **Population size estimation:** Within each concentration area, the mean density and population size for each species were calculated.

(6) **Selection and assessment of SPAs in the German Baltic Sea:** Finally the most suitable areas in number and size for the protection and conservation of species of wild birds that are listed in Annex 1 of the Directive, and of regularly occurring migratory species were chosen. In case of the German EEZ in the Baltic Sea a single large site was sufficient to nominate adequate populations numbers of the relevant Annex I and migratory bird species.

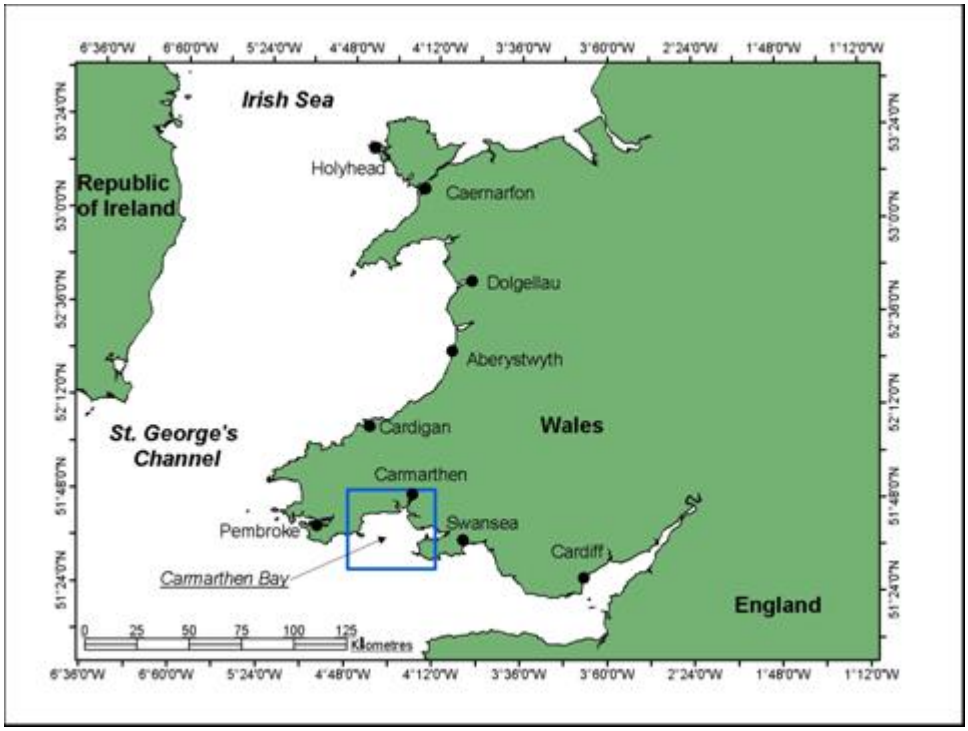
see also : www.habitatmarenatura2000.de



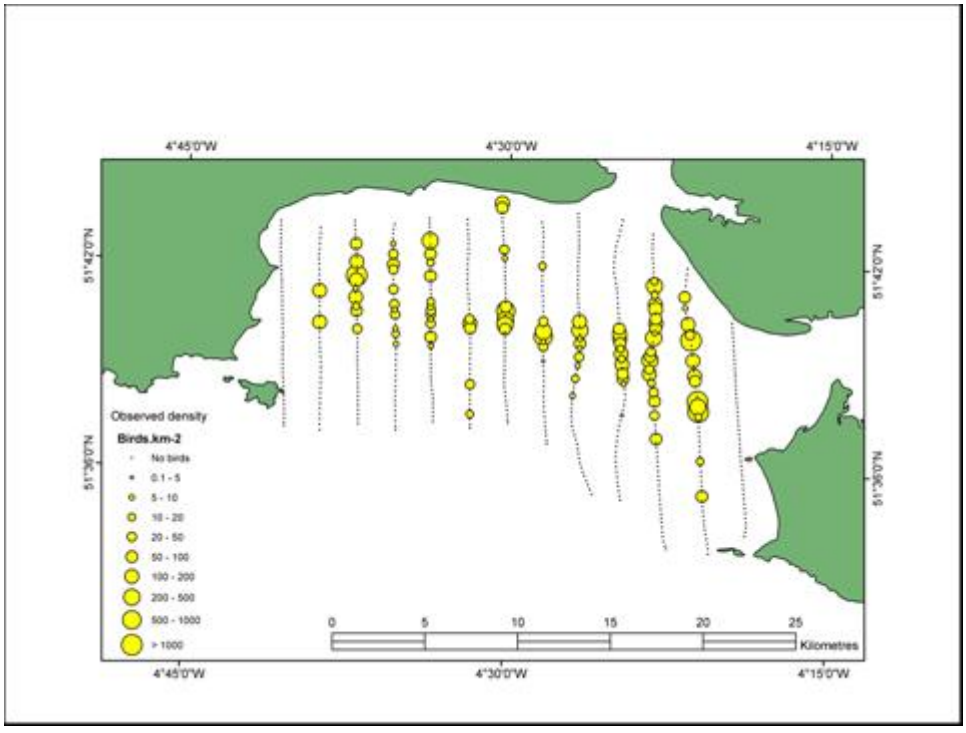
Alternatively, marine SPA boundaries may be identified by that part of the distribution that hosts a similarly agreed or operationally defined threshold of total or total estimated/modelled numbers of birds (e.g. Webb *et al*. 2004a, see Box F).

Box F. Determining the boundary of Carmarthen Bay SPA

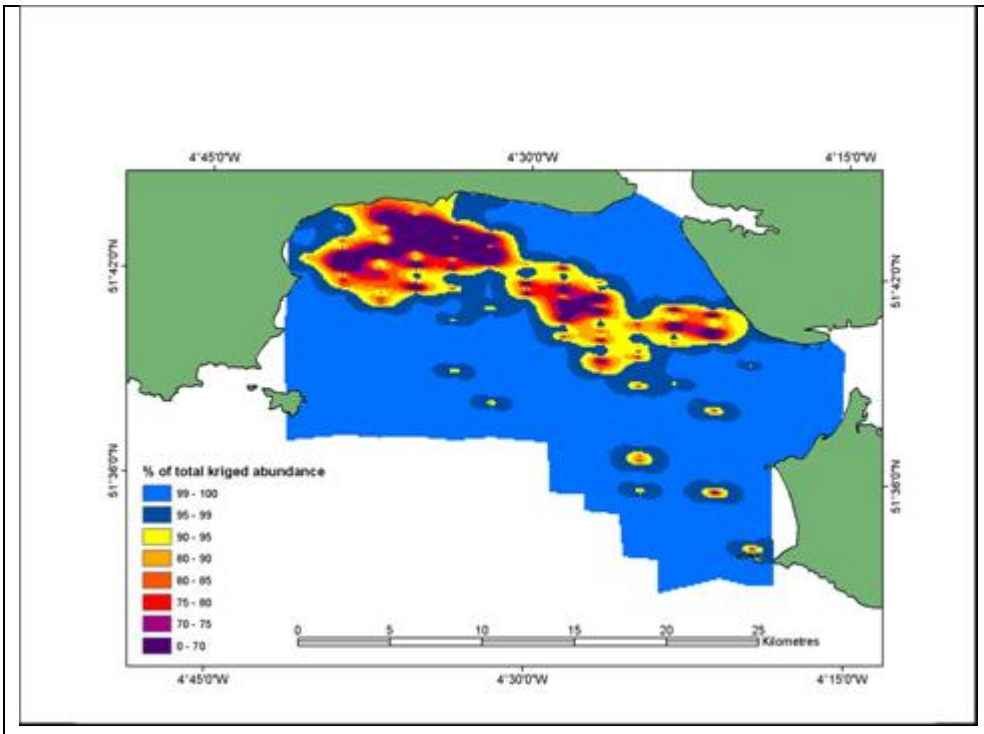
Carmarthen Bay, south Wales, hosts internationally important concentrations of Common scoter *Melanitta nigra* outside the breeding season.



Aerial surveys, deploying a atandardised methodology (Kahlert *et al*. 2000) were undertaken over the area in winter 2001/02. Sampled densities of scoter were converted into total population size using distance methodology (Buckland *et al*. 2001).



Scoter density was modelled throughout the survey area using kriging, a spatial interpolation method based on variography (Cressie 1991).



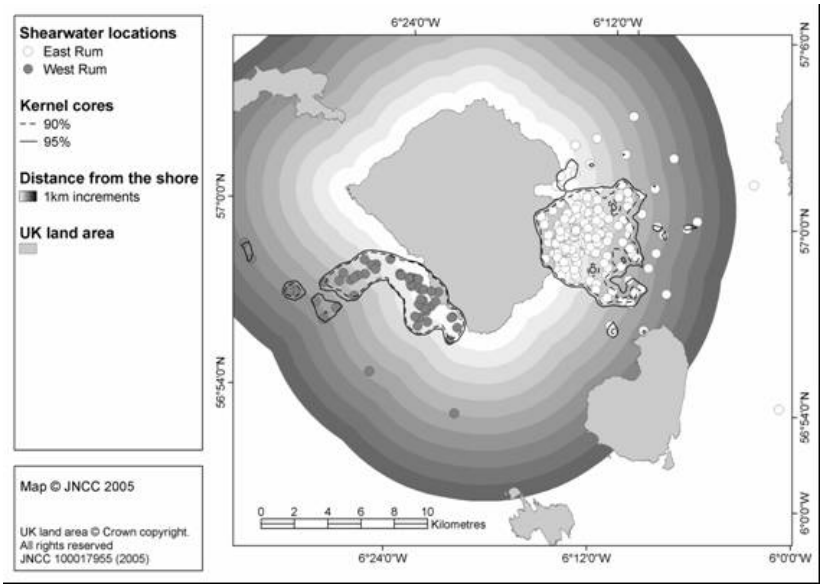
Recommendations for the seaward boundary of the SPA were made, such that 95% of the modelled population was contained within the boundary. See Webb *et al*. (2004a) for full details of this case study. See also McSorley *et al*. (2004) and Webb *et al*. (2004b,c) for further details of the methods applied in identifying sites and boundaries for inshore concentrations of waterbirds outside the breeding season, including rules for the inclusion of satellite aggregations disjunct from the core aggregation.

Again, boundaries might be identified through analyses of the areas of sea that birds use to a "significant" degree (again operationally defined; see Box G).

Box G. Determination of possible SPAs for Manx shearwaters *Puffinus puffinus* using radio telemetry.

Radio transmitters were attached to breeding Manx shearwaters at three existing terrestrial breeding colony SPAs in the UK – Bardsey, west Wales, Skomer, south-west Wales, and Rum, west Scotland. These birds form dense flocks ("rafts") on the sea before dusk before entering the breeding colony.

In order to identify likely boundaries for an extension of the existing SPAs into the marine environment, the results from radio-tracking birds in rafts were analysed using kernel analysis. This method aims to define the home range or area of greatest use of animals (Powell 2000).



Recommendations for seaward extensions to the SPA boundaries at these three colonies have been made based on the areas within which the birds appear to spend 95% of their time (McSorley *et al*. 2005). Although an arbitrary proportion 95% seemed a sensible one for three reasons:
a) there was little difference between the 90% and 95% kernels at all three colonies;
b) 95% is a useful analogy with statistical significance (though it should not be confused with that);
c) it accords with other studies.

Of course, site boundaries may be identified with reference to known boundaries of habitats important for the species under consideration, which clearly depends on the availability of such data. Investigations incorporating two or more of these approaches might be particularly fruitful and lead to more robust solutions.

Where SPAs abut the terrestrial environment then the landward boundary placement may be determined by other, more practical considerations that are peculiar to the site.

Clearly, qualifying numbers of birds (see above) will be present in any area of the sea if that area is sufficiently large, so in order to identify more discrete areas, or the most important hotspots for each species, other optimisation techniques may be applicable to dispersion data from surveys, for example an appropriate formulation of the Marine Classification Criterion (Skov *et al.* 1995). The MCC ensures that qualifying numbers of birds are contained within appropriately sized (i.e with regard to the species' dispersive abilities) potential SPAs.

4.7.2. Cross-border SPA boundaries

Boundaries for any SPA that extends into the maritime zones of two or more Member States will require to be the subject of co-operation between neighbouring Member States in order to ensure the integrity of the site and to avoid discontinuities in the boundary of a single feature. There will need to be agreement on the extent of the feature concerned at the junction of the Member State jurisdiction, as well as co-operation between policy makers of the individual States to aim to achieve some consistency of approach on boundary determination. Similarly, co-operation with non-Member States may be necessary, for example in the Baltic with Russia, in the Atlantic with Iceland and Norway, and in the Mediterranean Sea with several non-EU countries

5. MANAGEMENT MEASURES TO PROTECT MARINE NATURA 2000 SITES.

The management of marine Natura 2000 sites may present particular challenges due to the complexity of some sites as well as costs of working in this environment. The decision process of some actions to be implemented beyond the territorial sea may also be complex as more Community or international institutions are involved. On the other hand, the total number of stakeholders in these areas is normally less than in those close to the coast or on land. Adequate management schemes to address the threats and to ensure that conservation objectives are achieved have to be supported by appropriate monitoring systems.

This chapter considers the general management issues that frequently need to be addressed for marine Natura 2000 sites. It outlines the legal context for such management and protection of the sites, as defined in Article 6 of the Habitats Directive and for which the Commission has already provided interpretative and methodological guidance. A possible structure and content format for management plans is presented as a tool to assist in the management of sites and the management planning cycle considered. Different types of pressures on Marine Natura 2000 sites, relevant to the management and protection of sites, are identified and major human activities potentially affecting Natura 2000 sites are considered. This chapter is not exhaustive. Management issues related to fishing activities and Natura 2000 are considered in the following chapter. Several marine management case studies are given in this chapter. More examples and details are provided in Appendix 4.

5.1. The legal basis for protection. Community legislation's provisions in relation to management of ongoing activities and governing plans and projects for future developments.

The 'Conservation of natural habitats and habitats of species' section of the 92/43/CEE Habitats Directive addresses the establishment and conservation of the Natura 2000 network. Within this chapter, Article 6 sets out provisions which govern the conservation and management of Natura 2000 sites. This article has three main sets of provisions

- Article 6(1) makes provision for the establishment of the necessary conservation measures, and is focused on positive and proactive interventions. The main objective is the maintenance or restoration of habitats and species at "favourable conservation status". Article 6(1) complements Article 4(4) of the Directive, which requires that, within six years from the adoption of EC lists of Sites of Community Importance (SCI), Member States designate SCI as SAC and establish conservation priorities. Within the same deadline, Member States must establish the necessary conservation measures involving, where necessary, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural values present on the sites. As for terrestrial based SACs and SPAs, management plans are a useful tool in managing the marine sites and facilitating the achievement of the objectives of Natura 2000.

- Article 6(2) makes provision for avoidance of habitat deterioration and significant species disturbance. Its emphasis is therefore preventative.

- Article 6(3) and (4) set out a series of procedural and substantive safeguards governing plans and projects likely to have a significant effect on a Natura 2000 site.

Within this structure, it can be seen that there is a distinction between Article 6(1) and (2) which define a general protection and management regime and Article 6(3) and (4) which define a procedure applying to specific circumstances.

The protection requirements regarding Special Protection Areas (SPAs) are given in Article 4(4) of Directive 79/409/EEC which provides that, for those areas, '… *Member States shall take appropriate steps to avoid pollution or deterioration of habitats or any disturbances affecting the birds, in so far as these would be significant having regard to the objectives of this Article …'.*

After the entry into force of Directive 92/43/EEC the above obligations are replaced pursuant to Article 7 of Directive 92/43/EEC which provides as follows: '*Obligations arising under Article 6(2), (3) and (4) of this directive shall replace any obligations arising under the first sentence of Article 4(4) of Directive 79/409/EEC in respect of areas classified pursuant to Article 4(1) or similarly recognised under Article 4(2) thereof…'* Thus, the provisions of Article 6(1) do not apply to special protection areas (SPAs). However, analogous provisions apply to SPAs by virtue of Article 4(1) and (2) of Directive 79/409/EEC. As regards the provisions of Article 6(2), (3) and (4), it is clear from the terms of Article 7 that these now apply to already classified SPAs.

The European Commission has published two reference documents on management of human activities in relation to Natura 2000 sites[53]. The first one is entitled *Managing Natura 2000 sites, the provisions of Article 6 of the 'Habitats' Directive 92/43/CEE*. This document aims at providing guidelines to the Member States on the interpretation of key concepts of Article 6 of the 'Habitats' Directive[54]. The second document *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites* provides methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC in relation to assessment of plans and projects significantly affecting Natura 2000 sites (same rules for marine or terrestrial).

Impact assessment: Other relevant legislation governing the process of future development plans or projects likely to have effects on a Natura 2000 site is that relating to the assessment of the environmental effects of these activities. These Directives are:

- Council Directive 85/337/EEC of 27 June 1985 *on the assessment of the effects of certain public and private projects on the environment*[55] (EIA Directive). The EIA procedure ensures that environmental consequences of projects are identified and assessed before authorisation is given. The public and environmental authorities must be consulted on the application for development consent and the environmental information, and the results of these consultations must be taken into account in the authorisation procedure of the project. The public must be informed of the decision afterwards. The Directive defines which project categories shall be made subject to an EIA, the procedure to be followed and the content of the assessment. It has been amended in 1995 and in 2003 (references in footnote)[56]

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53 http://ec.europa.eu/environment/nature/nature_conservation/eu_nature_legislation/specific_articles/art6/index_en.htm

54 Relevant Appendixes include i) Considerations on management plans ii) Considerations of plans and projects affecting Natura 2000 sites, iii) Standardized forms for submission of information to the European Commission according to Article 6(4), iv) Court case references and v) Examples of LIFE-Nature projects that have involved management

55 Official Journal NO. L 175 , 05/07/1985 P. 0040 - 0048

56 a): Council Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment. Official Journal L 073 , 14/03/1997 P. 0005 - 0015
b): Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC

- Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 *on the assessment of the effects of certain plans and programmes on the environment*[57] (SEA Directive). This Directive requires the environmental effects of certain plans and programmes to be identified and assessed during the preparation of the plan or programme and before its adoption. As with EIA, the public and environmental authorities must be consulted and their comments as well as the environmental report must be taken in to account in the preparation of the plan or programme. Certain information must be provided when the plan is adopted, including details of the arrangements for monitoring the implementation of the plan or programme. A plan which has been determined to require an assessment under Article 6 or 7 of Directive 92/43/EC automatically also requires assessment under Directive 2001/42/EC but in appropriate cases arrangements can be made to combine these assessments into a single procedure complying with both Directives.

- Both Directives 85/337/EEC as amended and 2001/42/EC require consultation with any other Member State that might be affected by the project, or plan or programme as the case may be.

The Commission website[58] provides further information on the European Community's laws on Environmental Impact Assessment of projects and the Environmental Assessment of certain plans and programmes together with other related information, including guidance documents on both the EIA and SEA Directives. As regards Directive 85/337/EEC as amended, guidance documents are available in relation to screening, scoping, the review of environmental information and the assessment of indirect and cumulative impacts, as well as impact interactions. Commission Guidance on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment can also be downloaded from this webpage.

Tursiops truncatus[59]

Photo: GECEM. LIFE03 NAT F/000104

57 Official Journal L 197 , 21/07/2001 P. 0030 - 0037

58 http://ec.europa.eu/environment/eia/home.htm

59 *Tursiops truncatus*: is a species of Community Importance listed in annexes II and IV of the Habitats Directive. EN: Bottlenose dolphin; FR: Grand dauphin; ES:delfin mular; DE: Großer Tümmler

5.2. Conservation objectives

Conservation measures to be established will aim at maintenance or restoration of species and habitat for which the site has been designated, to favourable conservation status. The following box includes the definition of "favourable conservation status" concept, as established in the Habitats Directive provisions.

Favorable conservation status (Habitats Directive provisions, art1)

Conservation status of a natural habitat, in accordance with the Habitats Directive, is considered as the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species. It will be taken as 'favourable' when:

- its natural range and areas it covers within that range are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

Conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations. The *conservation status* will be taken as 'favourable' when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis;

Possible natural features present in a marine Natura 2000 site, for which conservation objectives have to be defined, are found among the following:

1. Marine birds listed on according with Articles 4.1 and 4.2 of the Birds Directive
2. Habitat types listed in annex I of the Habitats directive (codes 11*, 12* and 8330)
3. Species listed in annex II (18 marine species, including fish, reptile, cetacean, and seal species)
4. Marine species listed in annex IV of the Habitats Directive. Sites are not designated on the basis of annex IV species presence basis but, if they are present in the site, they also will have to be protected under the provisions of Article 12 of Habitats Directive.
5. Marine species listed in annex V of the Habitats Directive. As above, sites are not designated based its presence. Nevertheless, they will also need to be protected under the provisions of Article 14 and 15 of Habitats Directive.

These features are identified in the Standard Data Form that Member States send to the Commission by the competent national authority via the national Permanent Representation for special protection areas (SPA), for sites eligible for identification such as Sites of

Community Importance (SCI) and for special areas of conservation (SAC) in accordance with the 97/266/EC Commission Decision of 18 December 1996.[60]

From this point it is the responsibility of the competent authorities in each Member State to define the objectives to be reached in terms of conservation status for these features[61]. A clear definition on conservation objectives with measurable indicators and an appropriate monitoring programme are major elements for the successful management of a Natura 2000 site.

Questions to be answered will include: What is the global objective? What are the specific objectives? What is to be protected and/or restored? What is the final agreed target protection level? What is to be done? Who will do it? In what timeframe? Some of these questions may appear obvious. Nevertheless, they are not always easy to respond to in a clear and operational way.

As for terrestrial based SACs and SPAs, management plans are a useful tool in managing marine sites, facilitating achievement of the Natura 2000 objectives. This is an important tool to help effective management decisions, including those aimed at avoiding significant disturbance.

5.3. Definition of conservation measures

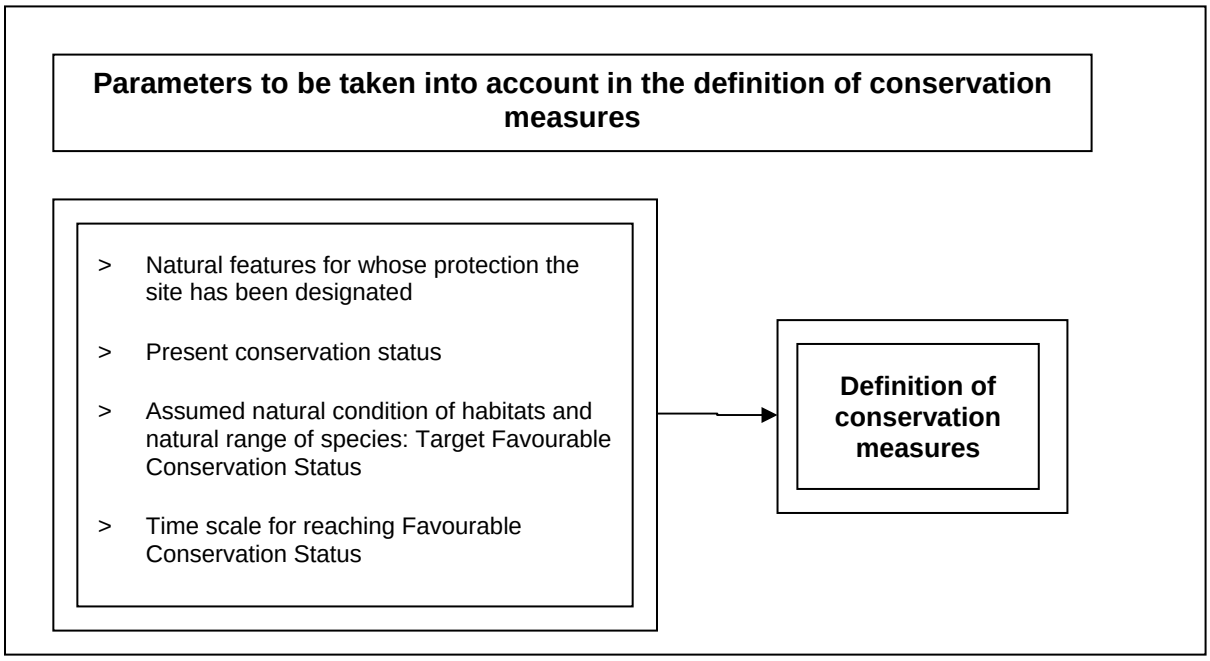
Data from surveillance[62] and monitoring programmes should allow Member States to identify the conservation status of species and habitats present in the sites. Member States will also need to identify potential pressures. Thereafter, they will need to define appropriate maintenance and/or conservation measures to deliver favourable conservation status. In fulfilment of Article 6.1 of the Habitats Directive, they will need to establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites.

For the different features subject to protection in a given site, their conservation status at present, their target status and the time scale to reach it, are the driving elements for the definition of conservation measures to be taken.

[60] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31997D0266:EN:NOT

[61] Competent national authority designated responsible for the management of the Natura 2000 site, as transmitted by Members States in accordance with the 97/266/EC Commission Decision of 18 December 1996 concerning a site information format for proposed Natura 2000 sites *Official Journal L 107 , 24/04/1997. Standard data form in section* 1.6 "RESPONDENT(S):"

[62] According to Article 11 of the Habits Directive, "Member States shall undertake surveillance of the conservation status of the natural habitats and species referred to in Article 2 with particular regard to priority natural habitat types and priority species."



5.4. Application of measures

Measures have to be applied by the relevant competent authorities. The identification of the competent authority depends on the type (e.g.: is it related to transport, geological exploitation, fisheries, tourism…) and the location of the measure to be taken -territorial waters or offshore–

Natural protected features subject to similar pressures need similar protection. Nevertheless, depending on the site location and the type of action, the responsibility for the implementation of these measures may be different. These responsible actors can be federal, national, European community or international institutions.

Therefore, the competent authority[63] in charge of the site has to identify the necessary conservation measures and the subsequent actors responsible for its implementation and enforcement. This Authority has to implement all measures under its competence and ask other responsible bodies to take action in areas for which they are competent. (See point 2.7)

5.5. Management plans-contents

While the Habitats Directive does not specify the content of a management plan, there is already a lot of experience on this subject, which Member States are applying to Natura 2000 sites. In this regard, it is potentially an effective tool to help reach the conservation objectives of the site. Several regional organisations and NGOs have developed useful guidance tools to this end, outlining the structure of a management plan for a Marine Protected Area. One useful example of an outline Structure for a Management Plan is that proposed by OSPAR for

[63] National competent authority responsible for the management of the Natura 2000 site, as defined in the 97/266/EC Commission Decision of 18 December 1996 concerning a site information format for proposed Natura 2000 sites *Official Journal L 107 , 24/04/1997. Standard data form, section 1.6 "RESPONDENT(S):"*

its network of marine protected areas. This is reflected in the following box. It is based on the IUCN model developed for this purpose[64].

Example of a Management Plan:

Outline structure for an MPA of the OSPAR and HELCOM Networks

1. **Executive Summary**
2. **Introduction**
   - 2.1 Purpose and scope of plan
   - 2.2 Legislative authority for the plan (national and international)
3. **Description of the site and its features**
   - 3.1 Regional setting: location and access
   - 3.2 Resources (facts pertinent to management; other data in an appendix or separate document)
     - 3.2.1 Physical: e.g., marine landscape features, currents, bathymetry, hydrology
     - 3.2.2 Biological: ecosystems (e.g., cold water coral reefs, seagrass beds); critical habitats (e.g., feeding, spawning); species (e.g., endangered, commercial, charismatic)
     - 3.2.3 Cultural: archaeological, historical, religious
   - 3.3 Existing uses (description, facilities, etc.)
     - 3.3.1 Recreational
     - 3.3.2 Commercial
     - 3.3.3 Research and education
     - 3.3.4 Traditional uses rights, and management practices
   - 3.4 Existing legal and management framework
   - 3.5 Existing and potential threats and implications for management (i.e. analysis of compatible or incompatible uses, solutions
   - 3.6 Existing gaps of knowledge
4. **The Plan**
   - 4.1 Goals and objectives (general and specific)
   - 4.2 Management tactics
     - 4.2.1 Advisory committees
     - 4.2.2 Interagency agreements (or arrangements with private organizations, institutions or individuals)
     - 4.2.3 Boundaries
     - 4.2.4 Zoning plan
     - 4.2.5 Regulations
     - 4.2.6 Social, cultural, and resource studies plan
     - 4.2.7 Resource management plan
     - 4.2.8 Education and public awareness
   - 4.3 Administration
     - 4.3.1 Staffing
     - 4.3.2 Training
     - 4.3.3 Facilities and equipment
     - 4.3.4 Budget and business plan, finance sources
   - 4.4 Surveillance and enforcement
   - 4.5 Monitoring and evaluation of plan effectiveness
   - 4.6 Time table for implementation
5. **Appendices (Proforma for the OSPAR MPAs Network, etc.)**
6. **References**

As regards Natura 2000 sites, the following considerations are relevant to such a plan structure.

[64] Guidelines for the Management of Marine Protected Areas in the OSPAR Maritime Area (Reference Number: 2003-18). http://www.ospar.org/eng/html/welcome.html. http://www.ospar.org/documents/dbase/decrecs/agreements/03-18e_Guidelines%20management%20MPA.doc. Marine and Coastal Protected Areas. IUCN, Gland: 370pp. and Kellerher, G. 1999.

Purpose and scope (Outline structure, point 2.1),

A clear identification and description of the features for which the area has been selected is a key element of a management plan. The key features for SPA designation are birds listed in annex I of the Birds Directive and migratory birds. The key features for SACs are habitat types listed in Annex I and/or habitats for species listed in Annex II of Habitats Directive. Species listed in Annex IV, if they are present in the site, should also to be taken into consideration in the SAC management requirements[65]. This information should be contained in the Standard Natura 2000 data form[66].

In the case of the marine environment, it would be a good and strategically useful management measure to consider, in addition to the key Natura 2000 features, habitat types and species covered in regional agreements protection lists, and areas containing habitat types and species of conservation concern that may, reasonably, be included in a further adaptation of the Habitats Directive annexes. Clearly, this consideration is not a mandatory obligation that Member States have under Community legislation. However, identification of all these complementary features, during the first marine geological survey campaigns carried out as part of the future SCI selection process, might be a relevant task to avoid duplication of works to be carried out in future. This approach will also favour the coherence of future marine protected areas under Natura 2000 and other sets of protected areas.

This approach will also contribute to enhancing the compatibility between Natura 2000 and other networks established under regional agreements/conventions (OSPAR, HELCOM or Barcelona). It will also facilitate the process of selection and management of future sites resulting from a more complete application of the Habitats Directive in the marine environment.

Legislative authority for the plan (Outline structure, point 2.2)

The Legislative authority ultimately responsible for the elaboration of a Natura 2000 site Management Plan is the National Authority[67]. It has a duty to establish the necessary conservation measures to ensure the favourable conservation status of the site. However, as outlined in point 2.7, responsible actors for the implementation of management measures can be Federal, National, European community or International institutions[68].

The responsible authority implements all measures under its competence and asks other bodies to take action in areas for which they are in charge. Management plan objectives and specific measures to be taken have to be agreed by all relevant actors.

Description of the site and its features (Outline structure, Point 3)

One of the key steps for the management of a Natura 2000 site will be the description and assessment of the conservation status of each of the identified features in the Standard Data Form, ideally with quantitative indicators. The definition of this "base line" is a major element for the definition of measures to be taken and for assessing their future effectiveness to ensure favourable conservation status.

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65 (Sites are not designated on annex IV specie's presence basis but, if they are present in the site, they also will have to be protected under the provisions of Article 12 of Habitats Directive).

66 As defined in the Standard Data Form. (97/266/EC Commission Decision of 18 December 1996 concerning a site information format for proposed Natura 2000 sites *Official Journal L 107, 24/04/1997).*
http://ec.europa.eu/environment/nature/nature_conservation/natura_2000_network/standard_data_forms/index_en.htm

67 Legal basis: 97/266/EC Commission Decision of 18 December 1996 concerning a site information format for proposed Natura 2000 sites *Official Journal L 107 , 24/04/1997*

68 E.g.: Defence, mining, offshore prospecting, research, tourism are national competencies. Fisheries are a community competency. Some aspects of shipping regulation are dealt at international level by the International Maritime Organization (IMO)…

Another key element of a management plan is to understand the nature and interactions of potentially positive and negative external pressures and influences that will affect the global evolution of the conservation status of the features. The use of an impact matrix can be a useful way to gain better understanding of this problem (see chapter 5.8 below).

Summary of LIFE co funded UK marine SACs Project

The UK Marine SACs Project was set up to establish management schemes for selected marine Special Areas of Conservation (SACs). It focused on a selection of twelve coastal marine SACs around the UK and on developing specific areas of knowledge needed for the management and monitoring of European marine sites.

The website (http://www.ukmarinesac.org.uk/index.htm) communicates the experience and knowledge and outputs from the UK Marine SACs Project to a wider audience. All the documents and background information that have been published can be accessed through this site (http://www.ukmarinesac.org.uk/publications.htm). Details in appendix 4

Monitoring and evaluation of plan effectiveness (Outline structure, point 4.5)

Once the site has been designated, Member States will take the necessary measures to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora for which the site has been designated. (Birds Directive Art. 1 and 4; Habitats Directive, arts.1 & 2)

For this purpose, a monitoring programme is necessary to assess the present condition of the site and to inform appropriate maintenance and/or restoration measures. National Authorities[69] are ultimately responsible for monitoring of sites (Habitats Directive, Article 11). Assessment of the effectiveness and appropriateness of enacted measures will permit the Authority responsible for the site to plan new activities to achieve conservation targets and to report on the conservation status of the site in accordance with the requirements of the Habitats Directive (Articles 11, 17…) and Birds Directive (Articles 4, 12..).

After thorough discussions with Member States, the Commission sent a document (DocHab-04-03/03 rev.3) to the Habitats Committee proposing a framework for assessment, monitoring and reporting of conservation status in view of preparing the 2001-2007 report under Article 17 of the Habitats Directive. This document was approved by the Habitats Committee on 20th

[69] National Authority responsible for the management of the Natura 2000 site, as defined in the 97/266/EC Commission Decision of 18 December 1996 concerning a site information format for proposed Natura 2000 sites *OJ L 107 , 24/04/1997.*

on April 2005. It proposes a reporting format, evaluation matrices, definitions of key terms and a process between Member States and the Commission to accompany that process. More information may be found at: http://forum.europa.eu.int/Public/irc/env/monnat/home

WWF and the World Bank have developed a planning tool for management of protected areas entitled "*Score Card to Assess Progress in Achieving Management Effectiveness Goals for Marine Protected Areas. 2004*"[70]. The following table is included in this document. It has been built to provide some overall guidance in the development of assessment systems and to encourage standards for assessment and reporting.

TABLE 1
Summary of the WCPA Framework

Elements of evaluation	Explanation	Criteria that are assessed	Focus of evaluation
Context	**Where are we now?** Assessment of importance, threats and policy environment	Significance Threats Vulnerability National context	Status
Planning	**Where do we want to be?** Assessment of protected area design and planning	Protected area legislation and policy Protected area system design Reserve design Management planning	Appropriateness
Inputs	**What do we need?** Assessment of resources needed to carry out management	Resourcing of agency Resourcing of site Partners	Resources
Process	**How do we go about it?** Assessment of the way in which management is conducted	Suitability of management processes	Efficiency appropriateness
Output	**What were the results?** Assessment of the implementation of management programmes and actions; delivery of products and services	Results of management actions Services and products	Effectiveness
Outcome	**What did we achieve?** Assessment of the outcomes and the extent to which they achieved objectives	Impacts: effects of management in relation to objectives	Effectiveness appropriateness

Source: Hockings et al. (2000)

Wadden Sea – transboundary or international management

The Wadden Sea is one of Europe's largest marine wetlands and is shared by **Denmark, Germany and the Netherlands.**

It holds numerous habitats that require protection under the Habitats Directive Annex I including:

• sandbanks, estuaries, mudflats, salt marshes and sand dunes

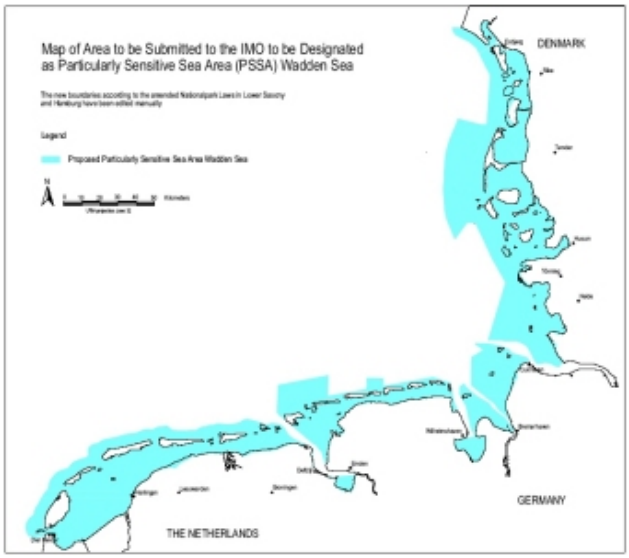
[70] http://www.icriforum.org/mpa/SC2_eng_nocover.pdf. (see Annex V)

These habitats are important areas for conservation as they represent nursery grounds for fish species, feeding areas for migratory birds and support many marine mammals (Harbour Porpoise *Phocoena phocoena*, harbour seal *Phoca vitulina*).

At the 1982 Wadden Conference, where the three concerned governments met, an Agreement was signed that they would consult each other and coordinate efforts in order to implement relevant EU Directives and other international legal intruments such as the Ramsar and Bonn Conventions.

Many conservation actions have been undertaken trilaterally since. The Seal Management Plan (SMP) is an example of a conservation project that arose from this cooperation and was strengthened by it. Among other actions, a number of seal reserves have been set up throughout the Wadden Sea. The SMP has been recognised as having played a big part in saving the harbour seal population and remains a useful tool for conservation.

See Appendix 4 for more information



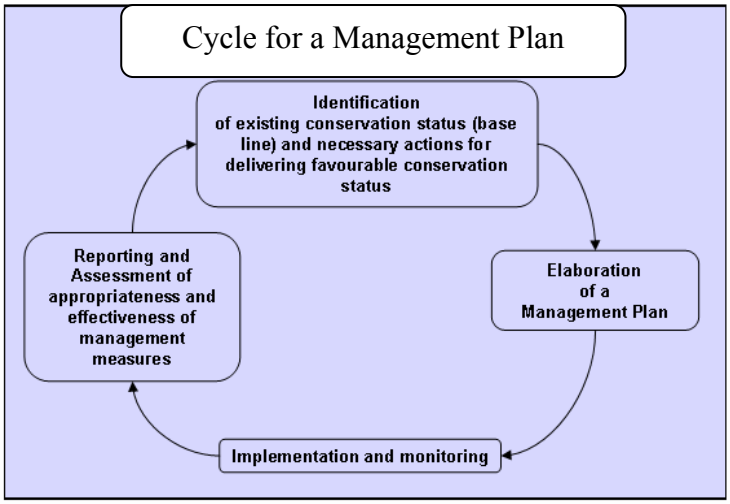
http://www.waddensea-secretariat.org/news/publications/maps

5.6. Time Scale for a Management Plan

Measures considered at the present time as being the most appropriate to maintain or to restore the favourable conservation status of a site will not necessarily be the same in the future. Nature, external forces acting on nature, scientific knowledge and conservation management techniques change over time.

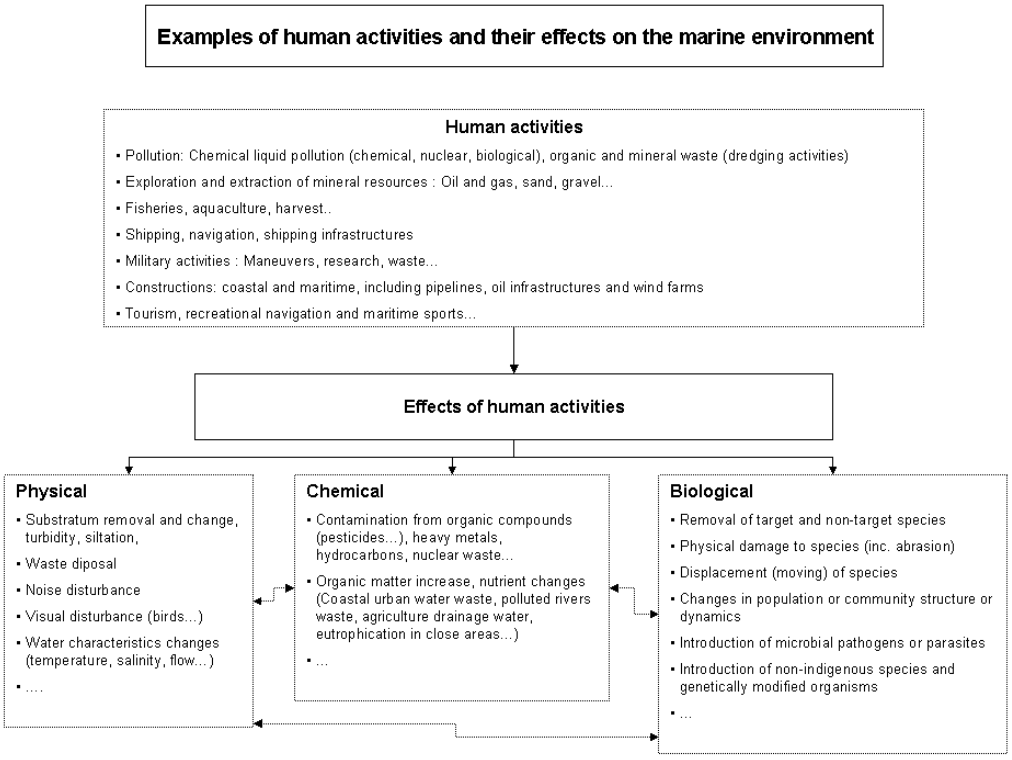
Therefore, management plans have to be revised and/or updated in an appropriate time scale taking full account of changes that have occurred in the site. The plan should have a clear time horizon. Some Member States consider 10 years as a reference period for Management Plans of Nature Protected Areas. Regular monitoring of activities and more periodical assessment of their effectiveness will allow for the taking of intermediate decisions to adapt the action plans.

In general terms, climate change related impacts may be important for the evolution of marine protected Areas. This could be a relevant issue from long term management issues. Environmental changes related to climate change will need to be monitored and management decisions taken with an adaptive approach.



5.7. Pressures and impact of human activities.

A wide range of human activities may affect the marine environment. Several regional seas conventions have developed interesting listings of activities and some of the main effects that they might have on marine habitats and species[71]. The National authority responsible for the Natura 2000 site may need to regulate these activities to ensure the favourable conservation status of the features for which the site has been selected. Some examples of human activities and possible effects are:



[71] http://www.ospar.org/documents/dbase/decrecs/agreements/03-18e_Guidelines%20management%20MPA.doc Adapted from Guidelines for the Management of Marine Protected Areas in the OSPAR Maritime Area (Reference Number: 2003-18)

Habitat restoration in the Azores supported by a Management Plan

The Azores seabird assemblage is characterised by a transition between tropical and temperate birds and for this reason important for biodiversity conservation.

The following Azorian bird species are covered by the Birds Directive:

Madeiran storm petrel (*Oceanodroma castro*), Roseate tern (*Sterna dougallii*), Cory's shearwater (*Calonectris diomedea borealis*), Common tern (*S.hirundo*), Little shearwaters (*Puffinus assimilis*).

These species are threatened by introduced predators, disturbance from tourism, soil erosion and vegetation degradation which has led to a **loss of nesting habitat** and consequently breeding pairs.

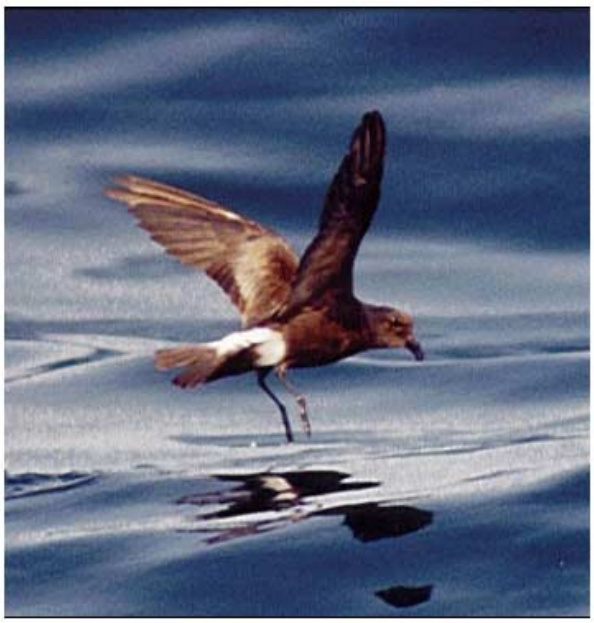
Measures taken to increase populations:

- **Eradication** of the non-native rabbit
- Erosion control and **replantating of native vegetation**
- Contruction of **nest boxes** and artificial nests
- Information panels and nature warden to **raise awareness**.

Breeding numbers are now increasing as a result of these actions.

Praia islet now holds the **largest Common Tern colony in the Azores** with over 1000 pairs.

See Appendix 4 for more details.



Source: Steve McConnell(EEA website)

5.8. Impact assessment. The basic technique of the construction of matrices

Section 5.1, above, describes existing legal instruments concerning the process of assessment of the impact of development activities on the environment. Environmental Impact

Assessment (EIA) is a key instrument of European Union environmental policy. Since the passage of the first EIA Directive in 1985 (Directive 85/337/EEC) both the law and the practice of EIA have evolved. An amending Directive was published in 1997 (Directive 97/11/EC) and the European Commission have published three guidance documents reflecting current EU legislation and the current state of good practice. These documents concern three specific stages in the EIA process: Screening, scoping and EIS Review.

The aim of the above mentioned guidance is to provide practical help to those involved in these stages in the EIA process, drawing upon experience from around Europe and worldwide. By following the screening and scoping guidance, it is hoped that better decisions will be made on the need for EIA and on the terms of reference for the studies that are required, thus starting the EIA process off on a better footing. The EIS Review guidance aims to help developers and their consultants prepare better quality Environmental Impact Statements and competent authorities and other interested parties to review them more effectively, so that the best possible information is made available for decision making. Full information on this is found on the website of the Commission at:
http://europa.eu.int/comm/environment/eia/home.htm

In order to develop a systematic approach to management, it is useful to identify the sort of activities that could have "a priori" significant negative impacts on the site, including listing the activities (e.g: shipping, fisheries, wind parks, oil and gas exploration…) that could interact with the protected features of the site and effect the conservation status of the habitats types and species of community importance.

In such a context, several Member States use matrices as a tool for decision making. Each matrix should clearly show whether different external human activities are expected to have significant effects on specific conservation features. The following matrix is aimed to be considered as an example only. Real cases should be elaborated with existing Natura 2000 site features and foreseen human activities. Such matrices should be worked out and completed by specialists, preferably with the participation of stakeholders and ensuring that appropriate specialised knowledge is represented.

The matrices should contain all ecological features subject to protection and all users. Only relevant uses for that particular area/sub-area have to be indicated. The first dimension of the matrices concerns the ecological features for which the site has been designated.

In some cases it may also be relevant also to include elements (habitats or species) which are necessary for the favourable conservation status of the protected features under the Birds and Habitats Directives (e.g.: fish stock status needed for protected seals or birds…).

Not all individual marine habitats or species from the annexes of the Birds and Habitats Directives need to appear in the matrix, as they may be grouped according to similar sensitivities. Many species are sensitive to similar activities, and many activities have similar effects. For example, all shellfish species may be impacted by a dredger, beam trawl or other sediment disturbing activity.

The second dimension concerns human activities in relation to the specific sensitivity of the ecosystem.

Different activities/ users or stakeholders should be listed and grouped according to their possible interaction with habitats and species. Only relevant uses for that particular area/sub area have to be indicated. When describing the uses and their impacts it is important that specialists from different regions and backgrounds are involved. It is important to underline

that possible interactions refer to tangible (present or planned) activities rather than different economic sectors/ industries considered in global terms.

A matrix showing the two dimensions could look as follows (this is not filled in. For completed examples showing potential effects, see Annex 3 of this guidance document.)

An example of the use of the matrix Site NNN											
Activities related to	**Habitats**			**Species**				**Other elements of conservation concerns but not listed in EC Directives**			
	1110 sandbanks	1170 reefs	1180 leaking	Cetaceans	Birds eating	Birds eating	Phoca vitulina	Large fish	Large moluscs	Natural physical processes	selected species xx
SPACE											
windmills											
Harbours											
Art. islands											
Oil and gas exploration											
Oil and gas exploitation											
Shipping channels											
Pipelines/cables											
Military practice											
Tidal energy											
FISHERIES											
Bottom trawling											
Shell fishery/dredging											
Collection biogenic structures											
Pelagic fishery											
Seines, driftnet, line fisheries											
Set nets											
MINING/DREDGING											
Sand mining											
Gravel mining											
Channel dredging											

Appendix 3 illustrates several examples of the technique of the use of matrices as a management tool for decision making in a Natura 2000 marine protected area.

5.9. Human activities in marine Natura 2000 sites

Human activities in marine Natura 2000 sites are regulated by the same provisions of the Habitats Directives as for the terrestrial areas. The provisions of Article 6 of the Habitats Directive apply if the effect of an activity, or a combination of them is likely to be significant.

The Communication from the Commission to the Council and the European Parliament of 24 October 2005, "Thematic strategy on the protection and conservation of the marine environment"[72] is also a relevant policy document in which different pressures to the marine environment are identified.

This communication takes into account the environmental quality of the seas and oceans, giving a summary and a more extensive description of the situation. It highlights that the marine environment is under a series of pressures. These include loss or degradation of biodiversity, changes in the ecosystem structure, loss of habitats, contamination by dangerous substances and nutrients, and the potential consequences of climate change.

Related pressures include commercial fishing, oil and gas exploration, shipping, water-borne and atmospheric deposition of dangerous hazardous substances and nutrients, waste dumping including dumping of dredged contaminated sediments, under water noise pollution and physical degradation of habitats due to dredging and extraction of sand and gravel.

Without being comprehensive, some possible effects of human activities on the marine environment are illustrated in the following paragraphs.

5.9.1. Alien Species

Invasive alien species are identified as one of the key causes of loss in biodiversity for the EU and the world at large. Alien species can deteriorate natural habitats and disturb natural species found locally, changing natural conditions that can drive to significant economic and social impacts. In some cases, possible effects of alien species will have to be considered by competent national authorities when establishing management measures for a Natura 2000 site or planning future developments. Effectively, provisions of the Habitats Directive state that Member States are responsible:

- to take appropriate steps to avoid the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the area has been designated (Art 6.2),

- to agree to plans or projects only after having ascertained that they will not adversely affect the integrity of the Natura 2000 site (Art 6.3)

A relevant provision in this area is Article 22 of the Habitats Directive, which requires Member States to *"ensure that the deliberate introduction into the wild of any species which is not native to their territory is regulated so as not to prejudice natural habitats within their natural range or the wild native fauna and flora and, if they consider it necessary, prohibit such introduction"*. However, the accidental, non-deliberate introductions and the introductions into non-wild environments would benefit from a more specific legislation.

Furthermore, under the Habitats Directive difficulties might arise if a species protected under a directive is native in one part of the Community but harmful or potentially problematic

[72] [COM(2005)504] http://europa.eu/scadplus/leg/en/lvb/l28164.htm

elsewhere. This was not envisaged when the Habitats Directive was adopted in 1992, but it could be an issue within the enlarged EU.

Ballast water from shipping, species travelling stuck to ship hulls, aquaculture activities are some of the most significant vectors for introduction of alien species in the marine environment.

Ballast water: The International Maritime Organization has adopted in February 2004 the International Convention for the Control and Management of Ships' Ballast Water and Sediments ("Ballast Water Convention"). This Convention is open for signature by Member States from June 2004. Parties to this convention are required to prevent, minimize, and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments.

The Convention provides an international framework for the management of ballast water and sediments, while allowing for regional interests to introduce additional measures to meet specific standards or requirements, consistent with international law. All ships designed to carry ballast water will be obliged to implement a Ballast Water Management Plan approved by the Administration (Flag State) and taking into account Guidelines to be developed by the IMO. By July 2005, three Member States (Finland, The Netherlands and Spain) have signed the Ballast Water Management Convention. More information can be found on the website: http://globallast.imo.org/index.asp.

Aquaculture: In the framework of the Biodiversity Action Plan for fisheries, (COM(2001)162, Vol. IV[73]), the Commission has taken initiatives to evaluate the potential impact of non-indigenous species in aquaculture. It supports the application of the International Council for the Exploration of the Sea (ICES) Code of Practice on introductions and transfer of marine organisms and the European Inland Fisheries Advisory Commission (EIFAC) Code of Practice and Manual of procedures for consideration of introductions and transfers of marine and freshwater organisms.

The Commission has prepared a proposal for management rules on the introduction of alien species in aquaculture in the framework of the Strategy for the sustainable development of European Aquaculture (COM(2002)511)[74], which takes into account the above mentioned considerations. This proposal for a Council Regulation (COM (2006) 154[75]) aims to introduce a permit system to regulate the movement tin aquaculture of alien and locally absent species (absent from a zone within the species' natural range). This proposal is expected to be adopted by the Council in the first half of 2007.

5.9.2. Pollution (including noise)

Pollution of the seas is one of the biggest global threats to the marine environment and biodiversity conservation. It may also be a significant threat at local level. Therefore, the Authority responsible for the conservation status of the Natura 2000 site has to deal with this issue when establishing the necessary conservation measures for the site. In most of the cases, this will imply the involvement of external administrations responsible for management of continental waters, maritime traffic…

[73] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52001DC0162(04):EN:NOT
[74] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52002DC0511:EN:NOT
[75] http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006_0154en01.pdf

In the European environment, most pollution from the sea derives from land-based sources. Therefore, the implementation of the provisions of the Water Framework Directive will play a major role in enhancing the conservation status of the marine environment. This directive deals with all continental, transitional, and coastal water bodies. The global objective of EU Water Policy is to get polluted waters clean again, and to ensure that clean waters are kept in this state. More detailed information can be found on the website of the Commission[76].

Several relevant regional seas conventions, like the OSPAR, Helsinki Convention, Barcelona or Bucharest Convention, have developed strategies to reduce pollution in the sea. These strategies (e.g: Hazardous Substances Strategy adopted by OSPAR) set the objective of preventing pollution of the maritime area by continuously reducing discharges, emissions and losses of hazardous substances.

Pollution types and causes

Pollution can be categorized as *(i)* organic, *(ii)* microbiological, *(iii)* chemical, *(iv)*nutrients *(v)* radioactive and *(vi)* physical (waste disposal, noise pollution…).

Pollution of the sea, the coastal zone and its wetlands by solid and liquid domestic/industrial products is a major problem in many countries as the lack of appropriate treatment is still common among Member States and third riparian countries sharing the same sea with the EU27. In particular, chemical and petrochemical industries concentrated around major coastal cities are a major source of pollution. Agricultural pollution from run-off containing high concentrations of nutrients -fertilizers-, pesticides and other agrochemicals also needs to be taken in consideration. Their combined impact on the health of habitats and on species can be extremely high in some marine areas. However, it should be noted that this is not always an irreversible effect, and biodiversity can be re-established to a considerable degree after the removal of the sources of pollution.

The Commission provides further information on the *Europa* web site[77] on the different pieces of water legislation (and related policies) in the European Community.

The International Convention for the Prevention of Pollution from Ships (MARPOL)[78] is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The MARPOL Convention was adopted on 2 November 1973 at IMO covering pollution by oil, sewage, garbage, chemicals and harmful substances in packaged form.

When planning future management measures, it may be relevant in some cases to address some pollution problems from shipping activities. In such a case, site managers may consider some useful tools provided by the London Convention (the Convention on the Prevention of Marine Pollution by Dumping of Wastes, 1972). The purpose of this Convention is to control all sources of marine pollution and prevent pollution of the sea through the regulation of dumping of waste materials. A so-called "black- and grey-list" approach is applied for waste, which can be considered for disposal at sea according to the hazard presented to the environment. For the blacklisted items dumping is prohibited. Dumping of the grey-list materials requires a special permit from a designated national authority to be undertaken under strict control and only after certain conditions are met. Other materials or substances can be

[76] http://ec.europa.eu/environment/water/water-framework/overview.html

[77] http://ec.europa.eu/environment/water/index.html

[78] http://www.imo.org/Conventions/contents.asp?doc_id=678&topic_id=258#1

dumped after a general permit has been issued. However, this approach, adopted in 1973, will be replaced by the 1996 Protocol (pending four more signatories) which has no such differentiation. This revision is guided by the precautionary approach generally assuming that dumping of any substances could be harmful, unless proven otherwise. The 1996 Protocol has already been signed by many European coastal states. (see http://www.londonconvention.org/; http://www.londonconvention.org/documents/lc72/PROTOCOL.pdf)

Dumping is a human activity that may be considered as a plan or project. Therefore, ad-hoc permits would have to be delivered in accordance with the provisions of article 6 (3) and (4) of the Habitats Directive if it is likely that such a plan or project would have a significant effect on a Natura 2000 site.

Noise pollution

For the United Nations Convention on the Law of the Sea [UNCLOS, Art.1.1(4)] "pollution of the marine environment" means *the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities*. Noise is therefore to be considered as a form of pollution, being an energy, which is introduced in the environment.

Noise in the marine environment may be defined as the deliberate or incidental introduction of acoustic energy into the water column, from point sources or from those of diffuse origin.

There is a growing body of evidence that noise represents a significant pressure in the marine environment. Scientists affirm that low-frequency ambient marine noise levels have increased in the northern hemisphere by more than a hundred times over the last 60 years.[79] Undersea noise pollution comes from a variety of sources including propeller noise of ships, underwater exploration (hydro-acoustic methods), mining seismic operations, underwater constructions (piling, etc.), and various sonar techniques. Some of the key sources of anthropogenic undersea noise are activities in the following areas:

- Oil and gas research and exploitation: e.g Seismic airgun surveys (or similar techniques) to find fossil fuel deposits
- Active sonar systems for military or civilian purposes (e.g.: loud, medium, and low-frequency sounds produced by sonar devices that can travel for hundreds of miles).
- Supertankers cruise the oceans creating a sound pulse of 190 decibels or more at or below the 500Hz range; smaller boats such as tugs and ferries typically create a soundwave of 160-170 decibels[80]

[79] (a) low-frequency (< 1000 Hz) ambient noise levels that have increased in the northern hemisphere by two orders of magnitude over the last 60 years (3dB/decade). http://www.iwcoffice.org/_documents/sci_com/SCRepFiles2004/56SCrep.pdf. DOLMAN, S.J. and SIMMONDS, M.P. Note of some recent developments in the field of marine noise pollution, including controlled exposure experiments.

[80] Supertankers generate sound pressures of 190 dB relative 1 uPa at 1 meter. Decibels (dB) are always relative to a reference (Values in water cannot be compared directly to values in air, and the reference value should always be included to avoid confusion).

- So called "pingers" are devices that emit a shrill sound to scare away marine mammals (and other species) from fishing gears and aquaculture installations.

The above-mentioned different activities need to be regulated in accordance with the provisions of article 6 (3) and (4) of the Habitats Directive if they are likely to have a significant effects on protected features at a Natura 2000 site. Furthermore, the provisions of article 12 of the Habitats Directive, which includes an obligation to avoid deliberate disturbance, are also particularly relevant in such situation, as all cetaceans' species, being listed in Annex IV, benefit from a strict protection regime under the Habitats Directive.

Four zones of influence are commonly adopted in all work on impact of noise on marine animals[81]. This zonation may be relevant when planning the authorisation of some human activities in relation to Natura 2000 sites:

Zone of audibility

This zone is the largest and covers the area over which the noise source can be heard by a particular species. The fact that a sound is audible does not in itself imply that the animal is influenced by the noise. The zone of audibility is often used as a first approximation in determining possible impact, as it can be calculated with reasonably good accuracy, in contrast to the three other zones. However, this approach is likely to considerably overestimate the impact of the noise.

Zone of behavioural disturbance

This zone is the area where behaviour of a particular species is altered by the noise. The change in behaviour can be negative (avoidance), positive (attraction) or neutral (e.g. change of own sounds to reduce influence from noise). This zone is very difficult to estimate, as behavioural reactions (or lack of) may depend greatly on context and individual differences. It is often in this zone, that the significant impact on the animals are found, e.g. deterrence from important resources. It is thus critical to get good estimates of this zone for relevant species and relevant types of noise.

Zone of masking

Masking is a process where the addition of noise to the ever present background noise makes it more difficult for the particular animal to detect a particular sound (communication sounds, echolocation sounds, sounds from prey or predators etc.). Inside the zone of masking communication distances among individuals of a certain species may be smaller than outside the zone.

Zone of physical injury

This zone is only relevant for very high intensity sound sources, such as seismic air guns, explosions, pile driving, and sonars

In general, there is agreement on three main sources of noise in the ocean on a global/regional scale: motorized shipping, seismic exploration and the use of sonar devices for military or civilian purposes (not listed by priority). On a local scale, many other sources may be more significant than the three big ones. It is fundamental to realize that especially low frequency

[81] Richardson et al (1995). Small Takes of Marine Mammals Incidental to Specified Activities; Seismic Hazard Investigations in Washington State [Federal Register: February 7, 2002 (Volume 67, Number 26)] [Page 5792-5796] http://www.epa.gov/fedrgstr/EPA-IMPACT/2002/February/Day-07/i2998.htm.

sound travels very well in water and that loud low-frequency sounds may be audible to animals over very large areas (up to the scale of entire ocean basins).

This may have important implications in relation to management of protected areas, as noise sources imposing significant negative impact on animals inside the protected area could be located tens or hundreds of kilometers away.

5.9.3. Exploration and extraction of Oil and Gas resources

Member States and regional seas conventions have been working for many years regulating oils and gas extraction activities in order to minimise any adverse effects on the marine environment. In June 1988 the then Paris Commission adopted guidelines for monitoring methods to be used in the vicinity of platforms in the North Sea. These guidelines were based on the overall objective of environmental monitoring, namely to assess the effects and extent of discharges of oil-based drilling fluids made at that time.

Since then, the use and discharge of oil-based drilling fluids, the discharge of drill cuttings containing drilling fluid and the discharge of produced water have all been regulated. New field developments have occurred and new production technologies have been introduced. Some installations have turned into biologically diverse and productive reefs, both in terms of biomass and fish. A coordinated chemical and biological effects monitoring programme is essential in identifying the nature and extent of potential environmental impacts.

Several monitoring studies have been carried out and published at national level. Some regional organisations have also developed useful documents providing Guidance for Monitoring the Environmental Impact of Offshore Oil and Gas Activities (e.g.: OSPAR[82]).

For the Mediterranean Sea, it is relevant to note that the Barcelona Convention has given rise to the *Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil* (Pending ratification, not yet in force)[83]

As for other sectoral activities, the effects of new programmes or projects related to oil and gas sector developments need to be evaluated in accordance with the Article 6 provisions of the Habitats Directive. Article 6 (3) and (4) of the Directive provide a balanced framework to ensure that the development of the oil and gas sector activities takes place in a framework which is compatible with the protection needs of the Natura 2000 network. Therefore, the inclusion of a site into the network Natura 2000 does not, a priori, exclude its future economic use.

Negative potential effects of visual impact, noise, disposal of waste material, etc. need to be taken into consideration. Effects of noise produced during research activities also need to be addressed in an appropriate way. Paragraph 5.1 above provides more detailed information related to these provisions of the Habitats Directive.

5.9.4. Fisheries.

In March 2001 the Commission produced a Communication [COM(2001) 143 final] to the Council and the European parliament presenting relevant Elements of a Strategy for the Integration of Environmental Protection Requirements into the Common Fisheries Policy.[84]

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82 http://www.ospar.org/eng/html/welcome.html

83 http://www.unepmap.org/Archivio/All_Languages/WebDocs/BC&Protocols/BCP_originals/ProtocolOffshore94_Eng.pdf

84 http://eur-lex.europa.eu/lex/LexUriServ/site/en/com/2001/com2001_0143en01.pdf

This document illustrates how different fishing activities, including aquaculture, interact with the marine environment in various ways:

- directly, by removing both target and by-catch species, which may lead to an unfavourable conservation status of some of them, possibly leading to their extinction or local extirpation;
- indirectly, by modifying the energy flow through the food web, which may affect the conservation status of other species of the ecosystem (e.g.: the removal of prey items may pose conservation problems to predatory species);
- directly (e.g. bottom trawling) or indirectly (e.g.: sediments or waste from some aquaculture installations) by modifying the physical environment and threatening the diversity of habitats which may in turn have an effect on their potential to host both commercial and non-commercial species;
- environmental changes, either due to natural causes or to human intervention, which in turn affect the productivity of marine ecosystems and hence fisheries.

Many examples of these effects illustrate why there is a need for full integration of environmental considerations into fisheries management. Beyond the legal obligation derived from the Treaty, there is an ethical obligation to ensure that these effects do not become large, unmanageable, or irreversible[85]. The effects of aquaculture may also include:

- Impact related to the transfer of anti-biotic and anti-fouling substances, excess organic matter, nutrients and pathogens between aquaculture facilities and the wild.
- Introduction in the wild of individuals as escapees which are genetically different from the local populations of the same species.

5.9.5. Shipping

The greater part of the world's trade by volume is carried by ships. Shipping is one of most energy efficient and least environmentally damaging forms of commercial transport[86]. Nonetheless, when major shipping casualties occur these can have extremely damaging consequences to the marine environment. Worldwide, there have recently been serious incidents involving oil tankers the *Nakhodka* (1997), *Erika* (1999) and *Prestige* (2002). To deal with such eventualities, States can prepare themselves to protect the waters for which they are responsible by taking a range of actions in advance:

- preparing national contingency plans, consistent with the International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (the OPRC Convention)[87]. These contingency plans should include protection measures to prevent/ minimise effects of oil pollution in marine protected areas, in line with the provisions of Art 6.(1) and (2) of Habitats Directive;
- participating in international assistance and co-operation arrangements of a bipartite (e.g. the Manche plan, which is a joint maritime contingency arrangement involving France and the UK), multipartite or regional nature (e.g. the Bonn Agreement, which

[85] http://eur-lex.europa.eu/lex/LexUriServ/site/en/com/2001/com2001_0143en01.pdf, Point 2.
[86] Considering the unitary impact on the environment (e.g.: environmental effects of transporting 1m3 for 1km by ship in relation to rail, road or air transport)
[87] http://www.imo.org/Conventions/mainframe.asp?topic_id=258&doc_id=682

is the regional co-operation agreement of the States bordering the North Sea), again consistent with the OPRC Convention Routing measures;

- achieving agreement in the forum of the International Maritime Organization (IMO) on ships' routing measures to reduce the risk of groundings or collisions;[88]
- establishing shore-based stations to monitor vessel traffic,
- ensuring that powerful tug boats ("emergency towing vessels") are available, so that they can go out and assist vessels which lose motive power; establishing arrangements under which a ship which requires assistance, and whose condition needs to be stabilised, can be brought in to a place of refuge.

All of these actions are valuable as a means of reducing the risk of pollution from a major shipping casualty. Such major accidental ship-source pollution incidents are mercifully rare. However, there are a number of small pollution incidents of an operational nature that are statistically more significant. The key actions that States can take to prevent operational pollution are:

- ensuring that, in their ports, reception facilities are available for the types of waste which are generated on board ship – thereby leaving no excuse for ships to resort to illegally discharging their waste at sea;
- carrying out surveillance (either aerial or satellite) to identify ships carrying out acts of pollution;
- having an effective enforcement regime in place, so that ships identified as carrying out acts of pollution are prosecuted.

The impact on marine life from oil pollution goes beyond the visible effects, such as oiled birds and beaches. Some areas act as spawning or nursery grounds for fish or as harvesting grounds for wildlife populations and human economic activities. By oiling marine and coastal habitats, even temporarily, there can be a significant impact on fish stocks, migratory birds and local human communities that depend on fishing and tourism.

Several maritime areas in Europe [e.g. the Danish straits, Baltic Sea, the English Channel (including the Brittany coast), the Galician coasts, the Straits of Gibraltar and the Aegean Sea] have some of the densest maritime traffic in the world. During recent decades the levels of shipping traffic have not only increased, but the nature of the traffic has also changed. The number of tankers has increased and their size has grown.

There will be areas of overlap between marine Natura 2000 sites and dense maritime traffic areas (some already designated sites are there). In such cases, Member States will have to pay particular attention to ensuring the necessary measures are taken to protect these sites from potentially damaging activities linked to shipping, through preventive programmes and emergency action plans to minimise the negative effects in case of accidental or deliberate ship-source oil spills.

[88] For IMO, creating the conditions in which international shipping can operate safely, securely and with a minimal impact on the global environment remains the Organization's mission.

HELCOM launches the Maritime Accident Response Information System (MARIS)

The MARIS system is used to display available data on response, emergency and aerial surveillance capacities; on the sensitivity of the coastline to oil pollution; on ship traffic and other relevant issues.

MARIS is considered to be a useful tool for the collection and display of information, as well as for risk assessment in the response field. The system can be used to view different oil spill risks and response related datasets over a common background map and indifferent combinations. MARIS also allows officials and other experts in each country to make accurate assessments of maritime risks and response resources in their own areas, based on their knowledge and expertise of local conditions MARIS is now available through the HELCOM web site

(http://www.helcom.fi/gis/maris/en_GB/main/).

Courtesy: HELCOM Press office

In these areas, it may also be appropriate to regulate vessel traffic. In such cases, Member States should ask the International Maritime Organization (IMO[89]) to consider designating a "Particularly Sensitive Sea Area" (PSSA) to include this Natura 2000 site (or group of sites) thus decreasing the harmful effects of international shipping.

A Particularly Sensitive Sea Area (PSSA) is an area that needs special protection through designation by IMO because of its significance for recognized ecological, socio-economic or scientific reasons and which has been demonstrated to be vulnerable to damage by international maritime activities. PSSA status can be used to protect valuable marine and coastal habitats as well as marine wildlife, and to improve maritime safety. Guidelines on designating a "particularly sensitive sea area" (PSSA) are contained in IMO resolution A.927(22). *Guidelines for the Designation of Special Areas under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas.*[90]

A significant policy measure taken by the European Community to increase the marine security has been the establishment in March 2004 of the European Maritime Safety Agency[91].

This Agency will provide Member States and the Commission with technical and scientific assistance in the field of accidental or deliberate pollution by ships and provide additional support, on request, to the pollution response mechanisms of Member States, without prejudice to the responsibility of coastal States to have appropriate pollution response mechanisms in place and respecting existing cooperation between Member States in this field.

89 The International Maritime Organization (IMO) is the international UN body regulating commercial shipping and maritime trade. The United Nations Convention on the Law of the Sea affirms the rights of a coastal State to take measures on the high seas to prevent mitigate or eliminate danger to its coastline from a maritime casualty.

90 http://www.imo.org/includes/blastDataOnly.asp/data_id%3D10469/927.pdf

91 Regulation (EC) No 724/2004 of the European Parliament and of the Council of 31 March 2004 amending Regulation (EC) No 1406/2002 establishing a European Maritime Safety Agency (Text with EEA relevance) Official Journal L 129 , 29/04/2004 P. 0001 – 0005. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32004R0724:EN:NOT

5.9.6. Electricity power generation at sea: Wind farms and other infrastructure types

Electricity power generation at sea has already been studied for decades in European waters. After some initial experiences on coastal energy generation techniques, based on intertidal energy[92], there is now a growing interest in the development of offshore wind-power installations. Experiments are also underway on wave-power and undersea marine current generators.

Wind energy is an important potential source of energy in the context of the EU's target, under Directive 2001/77/EC[93], to ensure that the increase of the overall share of renewable energy in electricity generation rises from 14% in 2000 up to 21% in 2010.

For wind farm development projects, efforts are focused on finding convenient sites with sufficient wind energy and low human population. Wind-power generation is generally cost-effective when average wind speeds exceed 5 – 6 m/s. Problems with this technology include the space required as well as visual and noise impacts[94]. In addition, there may also be the risk to biodiversity specially to birds from collisions, arising from such installations. Some countries (e.g.: Denmark, Spain, Portugal…) have also developed a significant number of terrestrial wind farms some of which are built in coastal areas.

There are plans in several countries to construct offshore wind parks. Denmark, Germany, the Netherlands, UK, Spain and other Member States have significant programmes in this area (with up to 400 turbines per farm) to be built within the next five years.

The effects of these infrastructures need to be properly evaluated in accordance with the provisions of Article 6 of the Habitats Directive for any potential significant effect on species and habitats of Natura 2000 sites. Potential effects, including visual impact, collision, noise, electro-magnetic consequences need to be taken into account.

At present, there is no evidence that noise levels coming from existing wind farms have a significant effect on seals and porpoises (Madsen et al, 2005), but future taller and larger turbines could be noisier. However, important noise intensity levels may be reached during wind farm construction activities. They are of the same nature as those from other off-shore construction activities and are thus not specifically linked to the wind turbines as such.

An *ad hoc* working group on Wind energy and biodiversity has been set up by DG Environment and DG Energy and Transport Commission services with the view to produce a guidance document to help ensure that wind energy developments are compatible with the nature conservation requirements of the EU and other relevant international nature legislation applicable in Europe.

5.9.7. Military activities

Some military activities may significantly effect the marine environment. The most widespread current concerns are about the impact of sonar activities on marine mammals. The military technological sector is developing more and more sophisticated and powerful active sonar systems to identify the increasingly silent submarines. The sound produced by lower frequencies can travel hundreds of kilometres under water. As cetaceans (dolphins and whales) have very sensitive audition, echolocation and vascular systems, the utilisation of

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92 An example of tidal power station (240 MW) is located on the Rance estuary, near St Malo in Brittany; it commenced operation in 1967.

93 Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market. Official Journal L 283 , 27/10/2001 P. 0033 - 0040

94 Kruckenberg and Jaene, 1999. (Zucco and Merck, Ökologischer Effekt von Offshore-Windkraftanlgen, 2004)

powerful sonar systems can be harmful for these species. These sonar sounds may also have an impact on fish and fish behaviour.

All cetacean species, listed in Annex IV of the Habitats Directive, benefit from a strict protection regime under Community legislation in European waters. Therefore, the provisions of article 12 apply to the protection of cetaceans, including the obligation to avoid deliberate disturbance in all EU waters (inside and outside Natura 2000 sites). Different Member State navies have developed policy initiatives for the use of military sonar taking into account the need to minimise potential environmental effects. Several precautionary actions have been carried out on this issue, launching appropriate studies and creating precautionary zones where use of these sonar activities[95] is restricted.

In relation to the protection of Natura 2000 sites, it is to be considered that for new military plans or projects that might have significant negative effects on them, Article 6 (3) and (4) of the Habitats Directive provides a balanced framework to solve possible conflicts of interest between military activities and nature protection issues.

The relevant duties for Member States when applying the Birds and Habitats Directives in the sea are covered in section 2.6.2 and 5.1 above.

Actions to protect the marine environment should be carried out respecting existing international legislation mainly regulated under the UNCLOS framework. This includes specific provisions in relation to particular rights and obligations of warships. Some legal aspects of this section are complex and go beyond the purpose of this document.

LIFE-Nature has financed two large projects where management planning in areas subject to military activities is being developed in a strategic manner and with Natura 2000 in mind. More information on this topic can be found on
http://europa.eu.int/comm/environment/life/infoproducts/lifeandmilitary_en.pdf

5.9.8. Coastal developments. Integrated Coastal Management

Compared with other continents, Europe has a large continental shelf and a relatively long coastline (89 000 km) in comparison to its land area. More than 50% of the European population live within 100km from the coast. Large parts of the coastal zone of Europe have been (or are now being) rapidly converted from a natural to an urbanised state, through housing expansion, construction of economic/recreational and other facilities, and technical infrastructure, such as harbours, airports and road networks.

This results in total destruction and fragmentation of valuable habitats. Most of the constructed and planned infrastructures are devoted to supplying facilities requested by the tourist industry. However, this degrades the very resource on which they rely: the beauty and attraction of a pristine natural environment. In addition, unregulated land use changes generate further problems of conflict with tourist activities.

These infrastructures cause the modification of sedimentary coastal dynamics, affecting the marine environment. This can result in the destruction of large areas of valuable marine coastal habitats, such as *Posidonia oceanica* meadows and maërl beds. Special mention should be made to some unregulated sand extraction activities for the needs of civil works or to build artificial beaches; the potential deleterious effects of this on sensitive marine ecosystems have been repeatedly demonstrated in the Mediterranean littoral. Another case of

[95] (German Symposium on noise disturbance -June 2003; Spain Defence Ministry and Canary Athorities agreement for avoidance of noise disturbance/behaviour modifications of Cuvier's beaked whale -*ziphius cavirostris*- OJ 102 27/04/2004, page16.643 *http://www.boe.es/boe/dias/2004-04-27/pdfs/A16643-16645.pdf*).

the physical alteration of the sea bottom is the effect of installing pipelines and sewage discharge outfalls.

The EU Recommendation on integrated coastal zone management (ICZM) recognises the threat posed to Europe's coastal zones by increasing urbanisation and invites Member States to control additional urbanisation and to ensure that exploitation of the non-urban areas respects the natural features of the coastal environment. In more general terms, the EU ICZM recommendation introduces principles and strategic aspects upon which coastal management should be based. These include:

- the protection of the coastal environment, based on an ecosystem approach and preserving its integrity and functioning, and sustainable management of the natural resources of both the marine and terrestrial components of the coastal zone;

- working with natural processes and respecting the carrying capacity of ecosystems, which will make human activities more environmentally friendly, socially responsible and economically sound in the long run[96].

In relation to tourism in particular, carrying capacity assessment has been developed as a tool to contain development within sustainable limits[97]. Environmental assessment constitutes a major tool to achieve integration of environment concerns into specific development projects, programmes or plans. Coastal zones are among the sensitive areas specified by the Environmental Impact Assessment Directive (Annex III) which need to be taken into account in determining whether project must undergo EIA. The Strategic Environmental Assessment Directive comprises in its scope plans and programmes relating to spatial and land-use planning, tourism, transport, energy, industry and fisheries.[98]

Appropriate assessment and the EIA and SEA Directives are tools in which interference with sedimentary processes can be addressed. The pan-European project *EUrosion* provided for guidance on EIA and coastal erosion.[99]. This Shoreline Management Guide is an initiative that aims at providing coastal managers at the European, National and - most of all - regional and municipal levels with a state-of-the-art of coastal erosion management solutions in Europe. It is based on the review of 60 case studies, deemed to be representative of the European coastal diversity. It illustrates some of the major issues that may be encountered in deciding which coastal erosion management design is best suited to an area.

5.9.9. Dredging. Gravel and sand extraction

Dredging of shipping lanes or extraction of gravel and sands for construction or beach nourishment purposes are human activities that need to be assessed, as regards the possible impacts on and near the place of operations and, in some cases, also as regards possible coastal erosion aspects.

Dredging is recognised as having the potential for significant environmental impact. Whether in the dredging operation or in the disposal stage, care must be taken to minimise disturbance to marine life. Also, the dredged material should not be regarded simply as waste. Consideration has to be given to the potential beneficial use of the material in some cases. With increasing environmental awareness and tightening legislative control, finding a suitable site to relocate the dredged material can be a major constraint on the implementation of a dredging project.

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96 2002/413/EC, OJ L 148, 6.6.2002, p.6 ; Chapter I (a), Chapter II (e), Chapter IV.3 b(i).

97 http://ec.europa.eu/environment/iczm/home.htm ; http://www.pap-thecoastcentre.org/publications.html

98 http://ec.europa.eu/environment/eia/home.htm

99 http://ec.europa.eu/environment/iczm/home.htm; www.eurosion.org

As many of the European ports are located in estuaries that are protected under Natura 2000 there is particular interest in the issue of developing guidance on the management of dredging activities and conservation of this habitat type. The Commission services have undertaken work with Member States and key stakeholder groups to help reconcile these objectives.

In relation to the Natura 2000 network, it is to be considered that possible effects of these human activities need to be properly evaluated in accordance with provisions of Article 6 of the Habitats Directive for their potential significant effect on species and habitats in Natura 2000 sites.

In the last decade, advice by HELCOM, OSPAR and ICES was given on sustainable extraction practices, environmental impact assessment, monitoring and restrictions for the granting permits in sensitive areas. In 1998 HELCOM adopted Recommendation 19/1 on marine sediment extraction in the Baltic Sea (BSEP No. 76, 1999). The ICES working group on the effects of marine sediment extraction (WG EXT) recommended a code of practice, which was updated in 2001 (ICES Coop. Res. Rep No. 247, 2001). The contracting parties of OSPAR agreed in 2003 to adopt the ICES guidelines (OSPAR 03/17/1, reference number: 2003-15).

The Barcelona Convention has adopted in 1994 a *Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil*. [100]

5.9.10. Tourism, recreational navigation, maritime sports, diving…

More than 200 million tourists per year visit the European coasts (most of them the Mediterranean Sea), leading to huge and often uncontrolled development of recreational activities, mainly in coastal areas and shallow water, in particular during summer.

Over-exploitation by tourists of natural, well-conserved sites constitutes a real problem in some coastal plains by their action of trampling, noise, lighting, etc., or more specific issues, such as disturbing turtle nests due to off-road 4x4 vehicles…. In the marine environment, the main problems are the destruction of intertidal and shallow subtidal bottoms, and the presence of divers at unsustainable levels, causing erosion of sensitive ecosystems, such as coral reefs, or the modification of fish behaviour due to feeding practices.

In recent years, the growing success of sea-watching activities is becoming a potential source of impact for whale and other cetacean populations and such activities need to be carefully managed. More information and references may be found in a guidance document published by ACCOBAMS *"Guidelines for commercial cetacean-watching activities in the ACCOBAMS area"* [101].

Tourism and marine nature conservation. Good practices example: **Whalewatching in Ireland.**
Irish waters are among Europe's richest for cetaceans, with

[100] http://www.unepmap.org/homeeng.asp

[101] See the "Guidelines for commercial cetacean-watching activities in the ACCOBAMS area" (available at http://www.accobams.mc/).

24 species recorded to date.

Whalewatching is one of the fastest growing tourism industries in the word and the potential in Ireland is considered hugely under-developed.

The Irish Whale and Dolphin group (IWDG) supports the development of responsible whalewatching in Irish waters.

Whalewatching can bring economic benefits to coastal communities and can enhance the conservation status and public awareness of whales and dolphins. However, as all whale and dolphin species in Ireland are protected (by national and Community legislation), thus in order to achieve the development of responsible whalewatching, which brings positive benefits to people and whales and dolphins, a development plan is necessary.

Whalewatching is one of the most rapidly expanding tourism products in the world and Ireland with its rich diversity and great abundance of whales and dolphins is well placed to exploit this new tourism product.

The IWDG are encouraging national, regional, and local tourism and development agencies to embrace the opportunities for whalewatching and ensure it is developed sustainably and has a positive impact on whales and dolphins as well as coastal communities. A relevant whalewatching policy document may be downloaded in http://www.iwdg.ie/downloads/WWPolicyDocument_final.pdf

6. LINKS BETWEEN COMMUNITY POLICY ON FISHING AND THE *"HABITATS"* AND *"BIRDS"* DIRECTIVES.

In response to a request of the Fisheries Council, a Communication from the Commission [COM (2002) 186 final[102]] was issued in May 2002, setting out a Community Action Plan to integrate environmental protection requirements into the Common Fisheries Policy (CFP). This Action Plan defines guiding principles, management measures and provides a work programme, aimed at promoting sustainable development. It identifies several priority management actions; a number of which support objectives and requirements of the Habitats and Birds Directives. (e.g.: reducing incidental bycatch, impact on habitats…)

This Communication also encourages Member States to fulfil their obligations under the nature protection Directives within the shortest possible period, in particular those relating to the designation and management of marine sites forming part of the Natura 2000 network.

The EC Regulation for conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy (CFP[103]) provides an important tool to improve the protection of nature in the marine environment and the attainment of objectives of the Birds and Habitats Directive. Section 2 above covers other relevant instruments of environmental policy for the improving of the marine environment. These include the Water Framework Directive[104], Environmental Impact Assessment Directive (EIA)[105]…

6.1. The Common Fisheries Policy

Since 1 January 2003, the European Union has a new Common Fisheries Policy. The principal text is Council Regulation (EC) N° 2371/2002 of 20/12/2002 mentioned above. The integration of environmental protection requirements into the Fisheries Policy, pursuant to Article 6 of the EC Treaty, was one of the major objectives of the Community legislator while adopting this Regulation.

The aim of the new Common Fisheries Policy (CFP) is to ensure exploitation of living aquatic resources in a way that provides sustainable economic, environmental, and social conditions. For this purpose, the precautionary principle is introduced, the progressive implementation of an eco-system approach to fisheries management is foreseen[106], as well as the need for the adoption of coherent measures concerning the limitation of the environmental impact of fishing.[107]

In the context of this legal framework, a number of measures have been taken to improve the conservation status of habitats and species in the marine environment during the last few years. These include:

In 2003, the Council adopted the shark finning Regulation ((EC) 1185/2003). It is intended to prevent catches of sharks for the sole purpose of trading the fins.

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102 http://ec.europa.eu/fisheries/doc_et_publ/factsheets/legal_texts/docscom/en/com_02_186_en.pdf

103 CFP: Council Regulation (EC) N° 2371/2002 of 20/12/2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy, OJ L358, p. 59 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002R2371:EN:NOT

104 http://ec.europa.eu/environment/water/index.html

105 http://ec.europa.eu/environment/eia/home.htm

106 Article 2 (1) of Regulation 2371/2002.

107 Article 1 (2), point b of Regulation 2371/2002.

- The three-year sandeel closure in force off the Firth of Forth (Scotland) since 2000 was renewed in 2003 following an expert consultation meeting convened by DG FISH. A study had been completed suggesting that the closure be extended for three more years until new evidence is gathered on the effects of the fishery on the survival of predator populations (birds, marine mammals, large fish).

- In 2003 and 2004 the Commission adopted under the emergency procedure two Commission Regulations ((EC) 1475/2003 and 263/2004) on the protection of deep- water coral reefs from the effects of trawling in the Darwin Mounds (North West of Scotland). These measures were made permanent in 2004 (Council Regulation ((EC) 602/2004)

- In 2004 legislation was put in place on incidental catches of cetaceans in fisheries (Regulation No 812/2004) including compulsory use of acoustic deterrent devices in certain gear and setting up a Community observer programme designed to provide data on by-catch in a large number of fisheries.

- In 2005 legislation was adopted to protect vulnerable habitats such as coral reefs, thermal vents and carbonate mounds from the effects of fishing around the Macaronesian Isles (Council regulation (EC) No 1568/2005). An amendment to the 2004 TAC and Quota Regulation was approved to ensure temporary protection of these habitats in the meantime.

- In 2006 the Council adopted the Mediterranean Regulation ((EC) 1967/2006) which includes measures to protect sensitive habitats such as Posidonia beds and coral aggregations and to ban fishing practices that may damage the physical environment, such as the use of explosives and pneumatic hammers. It includes new technical measures on fishing gear, protection zones and minimal sizes.

- Legislation regulating the use of driftnets in Community fishing vessels (Council Regulations (EC) No 894/97 as amended by Regulation (EC) No 1235/98, (EC) No 812/2004, (EC) No 2187/2005)

- Legislation implementing fisheries restrictive areas to protect vulnerable deep sea habitats in the Mediterranean and in the North East Atlantic is included in Council Regulation (EC) No 41/2006 .

(All the above legislation may be consulted in detail at http://eur-lex.europa.eu/en/index.htm)

The current CFP allows for better integration of environmental protection requirements into fisheries management. It therefore contributes directly to the achievement of the objectives of both the Birds and Habitats Directives. Furthermore, it provides for a system of protection for marine habitats and species from the harmful effects of fishing activities even in cases where the provisions of Natura 2000 do not apply. This is particularly relevant in situations such as the following:

a.) For the protection of nature features not listed in Annexes of the Habitats Directive

b.) For the protection of features that are listed in the Annexes, but occur in areas outside the jurisdiction of Member States.

c.) For the protection of those listed features, located in marine areas under the jurisdiction of Member States but not included in a SCI/SAC (because they are located out of a SCI or waiting for a proposal/designation)

As shown above, the CFP allows for the implementation of fisheries management measures for the protection of the marine environment may already be taken under CFP provisions..

They may be aimed at the protection of sites that are qualified to be designated as SACs or SPA. Fisheries measures may be decided regardless of the stage in which the site designation process would be, as they are not necessarily linked to the implementation of the Habitats or Birds Directives.

However, pressures on the marine environment do not only come from fisheries. Subsequently, designation of Natura 2000 sites is necessary to ensure a global and coherent protection scheme to address the effects produced by other human activities (some of them illustrated in section 5.9.)

Council Regulation (EC) No 1967/2006 of 21 December 20061626/94 of 27 June 1994 lays down certain technical measures for the conservation of fisheries resources in the Mediterranean. This is another example of Community action taken in the context of the Common Fisheries Policy to achieve environmental objectives. Article 43.3 of this Regulation prohibits the use of bottom trawls, seines or similar nets above the Posidonia beds (*Posidonia oceanica*) or other marine phanerogams (it includes some derogations). Posidonia beds are listed as a "priority" habitat type under Annex I of the Habitats Directive	
Full text of the Council Regulation in Eur-Lex: http://europa.eu.int/eur-lex/en/search/search_lif.html Image Courtesy from WWF/ES. More details in: http://www.wwf.es/descarga/informe_posidonia.pdf	

The above examples show how the use of provisions of Common Fisheries Policy plays an important role in marine nature protection, addressing relevant environmental concerns.

Member States have agreed to delegate their national responsibilities in fisheries management to the Community establishing the Common Fisheries Policy as an exclusive Community competence. Therefore, there is a legal obligation to implement measures under the CFP whenever fishing restriction measures at EU level are required in order to address important conservation problems in the marine environment. This is a significant advantage as such measures for conservation purposes may be addressed by a single EU level decision.

A decision taken at Community level will be more efficient than the addition of separate national decisions that would otherwise need to be taken. However, the adoption of Community legislation requires enhanced coordination between Member States, the Commission, and the Council.

 Image from WWF	Taking into account considerations that include relevant provisions of 1) Council Regulation (EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy, and 2) Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, Council regulation (EC) No 812/2004 laid down measures concerning incidental catch of cetaceans in fisheries. This regulation sets out that driftnet fishing will be phased out in the Baltic as from 1 July 2004 until a total gear ban enters into force on 1 January 2008. At the same time, the regulation lays down measures aimed at mitigating by-catch. It advocates the use of acoustic devices and at-sea observer schemes as well as providing technical specifications and conditions of use.
Full text of the Council Regulation: http://eur-lex.europa.eu/pri/en/oj/dat/2004/l_150/l_15020040430en00120031.pdf More details in: http://www.panda.org/about_wwf/where_we_work/europe/where/baltics/threats/fishing.cfm	

6.2. Fisheries management measures

The process of establishment, monitoring and conservation status assessment of Natura 2000 has been developed in previous chapters. The assessment of monitoring data may show, in some cases, the necessity to regulate certain fishing activities in order to avoid the deterioration of the site[108]. In such cases, given that fisheries is an exclusive Community competence, fisheries management measures should be decided in the context of the Common Fisheries Policy and according to its rules. The basic rules are enshrined in the Regulation 2371/2002.

Fisheries management measures must be taken in consultation with stakeholders and, in particular, with the Regional Advisory Councils (RACs) which are becoming an essential instrument of the CFP.

Fishery management measures under the CFP could also be implemented in marine areas once the MS (or MSs) has proposed the relevant area as Site of Community Importance and is waiting for the area to be declared as Natura 2000 site after adoption of appropriate Commission's decision. In such cases, MSs must provide the necessary information justifying the need for temporary protection of the area.

To ensure consistency, non discrimination, and best implementation of regulatory measures, whenever possible, MSs sharing a vulnerable marine feature should coordinate and make proposals of Sites of Community Importance covering the entire valuable feature at the same time. In line with the Habitats Directive, the approach should be regional and not national: the final objective is the establishment of a coherent ecological network of protected areas by marine regions that often extend across several Member States. In order to avoid displacement

[108] 92/43 Directive: Art 6.2*: Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive*. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0043:EN:NOT

of fishing effort to neighbouring areas, management measures should be the same for the entire marine region.

MSs shall ensure effective control inspection and enforcement of the rules of the CFP. Therefore, fisheries management measures proposed in Natura 2000 areas must be controllable in a cost-effective way and should be accompanied by the relevant monitoring and control measures as well as an estimation of the cost of controlling such areas. VMS is the more efficient monitoring tool in the EEZ. Small and scattered areas are very difficult to monitor and should be avoided.

The definition of possible measures regulating fishing activities in a particular site will depend on the combination of many different parameters such as the number and nature of the features to be protected, their conservation status, time scales, the location of the marine site, etc. By combining these parameters, it is possible to find a large number of different nature conservation cases needing some regulation of fisheries activities.

For this reason, it is not possible to develop in this document an exhaustive catalogue of all possible actions to be taken under the CFP, which need to be determined on a case by case basis for which specific technical and legal advice would be required. The information contained here is therefore of general nature.

On the basis of article 37 of the EC Treaty, it is for the Council, based on a proposal from the Commission, to adopt measures regulating fisheries. This applies also to measures regulating fishing activities in order to protect a Natura 2000 site. Measures under the CFP are non discriminatory and permanent and are therefore the best option. However, Articles 8, 9 and 10 of Regulation 2371/2002 delegate some limited powers to the Member States to regulate fisheries.

More specifically, Article 8 allows Member States to take emergency measures, the maximum duration of which is 3 months, if there is evidence of a serious and unforeseen threat to the marine ecosystem resulting from fishing activities. However, due to their limited duration such measures will only exceptionally be considered in the framework of establishment of conservation measures addressing an environmental concern of a more permanent character.

On the basis of Article 9, Member States can take non-discriminatory measures to minimise the effect of fishing on the conservation of the marine ecosystems within 12 nautical miles of their coast if the Community has not adopted measures specifically for this area. If these measures are liable to affect the vessels of another Member State, a consultation procedure with the Commission, other Member States and Regional Advisory Councils concerned is necessary before the adoption of the measures.

Finally, Member States can take measures in waters under their sovereignty or jurisdiction if they apply solely to their fishing vessels (Article 10).

In cases where a Member State considers that a fishing activity has to be regulated in order to protect a Natura 2000 site, but it has not the competence to do so on the basis of the Regulation 2371/2002, it is for the Community to finally take fisheries measures. In practice, the Member State concerned will provide the data at its disposal to the Commission, indicating the measures that it considers appropriate. However, neither the Commission's right of initiative in proposing fisheries measures, nor the Council's broad legislative discretion in adopting such measures, can be legally restricted by the request of the Member State. Nevertheless, the Commission and the Council while exercising their legislative discretion in the fisheries sector have to comply with article 6 of the EC Treaty obliging the integration of environmental protection requirements in all Community policies.

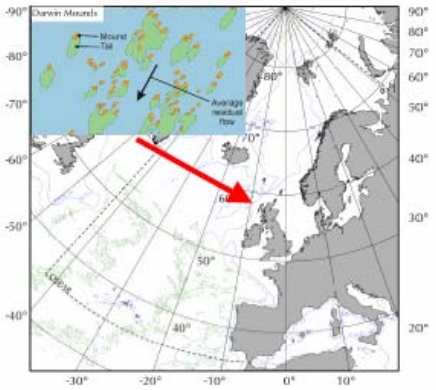
As indicated above, measures taken in the framework of the Common Fisheries Policy (CFP) are decided in a coordinated manner at Community level, which should enhance their coherence and effectiveness.

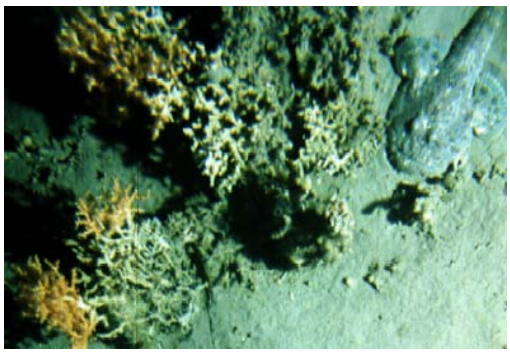
The Darwin Mounds is a deep cold coral reef formation, discovered in 1998, in the offshore waters of North Scotland. The United Kingdom has declared its intention to propose this area as a future Special Area of Conservation in fulfilment of its obligation under the Habitats Directive.

With this intention in mind, and en response to a request from the UK, the European Community adopted a Regulation [(EC) No 602/2004 of 22 March 2004] to prohibit the use of bottom trawls and similar gear, in order to avoid damage to corals, in the area surrounding the Darwin Mounds.

This is an example of Community action taken in the context of the Common Fisheries Policy (CFP) aimed at achieving environmental objectives. Integration of environmental protection requirements into the CFP has spurred this Community measure to be taken in anticipation of future SCI/SAC designation

(Details in Annex 5, EC press release on http://ec.europa.eu/fisheries/press_corner/press_releases/archives/com03/com03_36_en.htm)





Lophelia Pertusa colonies and associated bentic fauna photographed on the Darwin Mounds

(Courtesy of WWF/ DEEPSEAS Group, © Southampton Oceanography Centre).

In February 2006, ICES initiated a new project entitled "Environmentally Sound Fishery Management in Protected Areas" to develop fisheries management plans for each of the ten German NATURA 2000 areas[109]. For each of the ten pSCI/SPA the central questions to be answered are:

- To what extent do the fishing activities in the MPA represent a significant interference with the NATURA 2000 concept and objectives?
- To what extent do the fisheries activities need to be regulated?
- How can such regulations provide a balance between the requirements of NATURA 2000 and fisheries?

[109] See http://www.ices.dk/marineworld/protectedAreas.asp

The answers to these questions will be based on existing and, where appropriate, newly collected data – in particular from cooperation with fishers and the fishing industry. The project intends to significantly improve the data used for evaluation of the potential conflicts between fisheries and nature conservation interests in German waters and will require an analysis of fishing activities of all fishing vessels operating in (and around) the MPAs.