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THE ACCOBAMS PROGRAMME OF WORK ON MARINE PROTECTED AREAS (MPAS)

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Note: The ACCOBAMS programme of work on marine protected areas and the related appendixes, as presented during its Fourth Scientific Committee Meeting (Monaco, 5-8 November 2006), are compiled in this document to provide the complementary information to the Draft Guidelines for the Establishment and Management of Marine Protected Areas for Cetaceans document (UNEP(DEPI)/MEDWG.308/8).

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1. Introduction

Setting up marine protected areas (MPAs) is one of the means recommended by ACCOBAMS to protect cetaceans. The Agreement invites Parties to create and maintain a network of specially protected areas in order to achieve and maintain a favourable conservation status for cetaceans. These MPAs should be established in areas which serve as habitats for cetaceans and/or which provide important food resources for them.

It should be noted, however, that the ACCOBAMS Agreement is not a treaty that is specifically directed at the legal requirements for MPAs. It states clearly that developing protected areas for cetaceans should be done within the framework of the Convention for the Protection of the Mediterranean Sea against Pollution, 1976, and its relevant protocol, or within the framework of other appropriate instruments.

At their last Ordinary Meeting (Palma de Mallorca, 2004), the Contracting Parties to the ACCOBAMS Agreement issued Resolution 2.14 "Protected Areas and Cetacean Conservation" by which they charged the Scientific Committee to:

- Draft criteria for the selection of special protected areas for cetacean conservation;
- Prepare a special format for the proposal of protected areas for cetaceans, adapted from the existing format for the proposal of SPAMIs from the Barcelona Convention, and considering the above mentioned criteria;
- Gather knowledge of the existence and location of sites containing important cetacean habitat in the Agreement area, in cooperation with the Sub Regional Co-ordination Units. Such sites may be located either within territorial waters or beyond them, or in both places, as appropriate.

Establishing a network of MPAs dedicated to cetacean conservation in the ACCOBAMS area could help reduce the rate of degradation and loss of cetacean habitats and thus contribute to achieving the CBD 2010 targets. These targets aim to "achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth" (the EU specifically aims to cut biodiversity loss in half as its contribution to CBD 2010 targets). In this context, ACCOBAMS, during the Third meeting of its Bureau (Monaco, December 2005), recommended paying special attention to the conservation of cetacean habitats and using to this end the ACCOBAMS' protected areas programme being prepared as a follow-up to Resolution 2.14 "Protected Areas and cetacean conservation". The Secretariat was encouraged to provide its assistance to the Parties in achieving the 2010 targets with a special focus on cetacean habitat conservation. It strongly recommended the coordination

within existing initiatives for natural sites conservation (especially the Natura 2000 and the SPAMI networks) and integration of cetacean habitat protection into the existing networks before considering the creation of new protected areas.

2. Objectives

The ACCOBAMS programme of work on MPAs proposed in this document is a response to Resolution 2.14, in order to facilitate the implementation of its provisions. In addition to the criteria for the selection of specially protected areas for cetacean conservation and the format for the proposal of protected areas for cetaceans, the proposed programme of work includes activities to be carried out at regional and national levels. Its objective is to launch a coherent and coordinated process for identifying sites of special interest for cetaceans with the view of granting them protection status that will give them long-term protection. The ultimate goal of the programme of work is to set up a network of MPAs that will help achieve and maintain a favourable conservation status for cetaceans in the ACCOBAMS area.

The programme also aims at helping countries in the ACCOBAMS area achieve the CBD's 2010 targets.

This work programme was crafted bearing in mind the information on the subject that was available, particularly the pertinent programmes of the countries and other concerned organisations.

3. Actors to implement the work programme

This programme is particularly aimed at the national authorities concerned about cetacean conservation, at the level of both government administrations and research institutions. It is also aimed at non-governmental organisations and other bodies and the Secretariats of relevant international treaties and conventions. The ACCOBAMS Secretariat is one of the main actors for implementing this programme of work, assigned to act as a catalyst, coordinating regional actions and helping those countries which so request to implement this programme of work.

To implement this programme experts and other kinds of qualified staff are needed. In the Appendix 1 to this work programme a list of experts appears who could help in implementing the work programme nationally and internationally. The list is not exhaustive and thus should be supplemented and regularly updated.

4. Actions to be implemented at the national level

4.1. National inventory of sites that are important for cetacean conservation in the area covered by the Agreement

Identifying sites that are important for cetaceans is the first step in setting up a marine protected area network that is balanced as regards to geography, species and type of habitat covered. It is important to note that for the Mediterranean and the Black seas, cetacean populations have not been sufficiently studied, and there is incomplete information on their habitats and geographical distribution, and, in several parts of these two seas, no information at all. However, studies by Cañadas (2006), Cañadas et al (2002, 2005), Panigada (in progress) and Fortuna (in progress, 2006) are using the latest habitat modelling techniques to more precisely identify cetacean habitat. A special session of the subgroup meeting on cetacean MPAs will be dedicated to this topic during the Fourth Meeting of the Scientific Committee of ACCOBAMS.

In many places in the Agreement area, however, such modelling studies have yet to be initiated. In these cases, there are some basic criteria that could be used to decide whether a site is important for cetaceans, based on ecological and behavioural

studies. While these criteria are not specific to the Mediterranean and Black seas, they must take into account the special features of each of these seas and, especially, of the species that live here. Similarly, the specific threats that cetacean populations encounter here must be taken into account.

Sites of importance for cetaceans are:

- sites with critical habitats for cetacean species and
- sites where interactions between cetacean and human activities are reported to occur or to constitute threats or potential threats to cetaceans.

Cetacean critical habitat has been defined as “a place or area regularly used by a cetacean group, population or species to perform tasks essential for survival and maintaining a healthy population growth rate” (Hoyt, 2005). This is a helpful starting point but it may be useful for the Scientific Committee to discuss and refine its understanding in order to come up with its own working definition. Various countries have definitions of critical habitat (US, Australia) and Harwood (2001) discussed critical habitat. We suggest that the following criteria be used to identify sites with critical habitats for cetaceans and which could be considered strong candidates for protection status:

- Areas used by cetaceans for feeding, breeding, calving, nursing and social behaviour
- Migration routes and corridors and related resting areas
- Areas where there are seasonal concentrations of cetacean species
- Areas of importance to cetacean prey
- Natural processes that support continued productivity of cetacean foraging species (upwellings, fronts, etc.)
- Topographic structures favourable for enhancing foraging opportunities for cetacean species (canyons, seamounts)

The following criteria are suggested for the identification of sites in need of protection due to the occurrence of significant interactions between cetaceans and human activities: areas containing cetacean critical habitats, where

- conflicts between cetaceans and fishing activities have been reported, or
- significant or frequent bycatch of cetaceans is reported, or
- intensive whale watching or other marine tourism activities occur, or
- navigation presents a potential threat to cetaceans, or
- pollution runoff, outflow or other marine dumping occur, or
- military exercises are known to routinely occur.

The issue of inventorying sites that are of conservation interest has been dealt with in other pertinent multilateral instruments and treaties for the ACCOBAMS area; it is recommended for the requirements of the present work programme that the tools and inventory systems that have been adopted in these multilateral instruments and treaties be used. These systems are:

- the Natura 2000 network instituted by the EU Habitats Directive,
- the Emerald network instituted in the context of the European Council, and
- the SDF¹ system adopted in the context of the Barcelona Convention.

The inventory of sites that are important for cetaceans can be organised using the form appearing in the Appendix 2 to this programme of work. The form has been prepared in accordance to Resolution 2.14 and adapted from the existing format for the proposal of SPAMIs that was adopted in the context of the Barcelona Convention.

¹ Standard Data-entry Form for inventorying natural sites of conservation interest

4.2. Creating national protected areas

Alongside the work of inventorying sites of special importance for cetaceans (4.1), each Party will implement a programme of creating marine protected areas in order to grant, as quickly as possible, legal protection to those sites that have already been identified in areas under its jurisdiction as being particularly important for cetaceans. A draft list or preliminary inventory of the sites to be considered for recommendation by the ACCOBAMS Scientific Committee appears in Appendix 3.

While using their own national procedures that can be applied to create marine protected areas, it is recommended that the Parties follow the example of the guidelines and other pertinent tools that are available in the context of international conventions and organisations. For example, for national areas that could be expanded or included in proposals for larger high-seas or transboundary areas, a SPAMI proposal should be considered. On request, ACCOBAMS can help facilitate the integration of national MPAs into the structures of international conventions and networks, as well as help assess and facilitate high-seas and transboundary proposals. Technical support would also be available from RAC/SPA, IUCN MED, and WCPA MMED.

4.3 An evaluation strategy for creating MPAs

To evaluate the criteria for selecting cetacean protected areas (as noted above), and to develop a process for identifying which critical habitats to recommend for MPAs – as well as to determine whether MPA protection will be useful at all – it may be helpful to employ an MPA evaluation strategy. Such a strategy could be developed and followed by the ACCOBAMS Scientific Committee for its own use in deciding which areas containing critical habitats to recommend for MPAs, and it could also be used by individual countries to aid their selection process.

The following is a first draft attempt at an “evaluation strategy”:

1. Poll experts (Appendix 1) and read literature to obtain candidate critical habitat areas, best research on them, preliminary threats and conflicts, evaluation and recommendations on specific areas as critical habitat and rationale for protection (as summarized in Appendix 3).
2. Expert working group or Scientific Committee (SC) should assess inventory data (Appendix 1) and literature for gaps in cetacean and threats information.
3. Commission research needed on cetaceans and threats with emphasis on spatial modeling, though weighing costs as well as time implications of delaying actions against urgency of precautionary protection. The SC can choose to rely on its own or invited expert opinion and precautionary approach in making its recommendations.
4. After research or deciding that sufficient information is available, go back to expert working group or SC and refine critical habitat prescriptions and data in Appendix 3.
5. Following data analysis, apply data to create cetacean habitat maps, using physiographic features, habitat modeling and other tools.
6. Evaluate the application of the various legal and other tools of conservation available in the Agreement Area, country by country as well as region-wide, to address cetacean threats and alleviate or solve cetacean problems. How best can the conservation problems and conflicts be solved?
7. Is an MPA one of the appropriate conservation tools? Expert working group or SC should evaluate pragmatically how an MPA might be utilized to help in the solution of no. 6, but recognizing that it will not be the complete answer to all conservation problems, and in some cases may not be worth pursuing at all. If an MPA is determined to be part of the solution, then this step would include design of the MPA,

- researching the legal basis, looking at socioeconomic issues, and so forth.
8. Suggest or assist in creating a formal MPA proposal which would include the key points of the appropriate conservation plan. What is the most appropriate type of MPA proposal: SPAMI, SAC, local or national nature reserve, or other designation?
 9. Try to identify a body or person(s) who could help build the bridge between ACCOBAMS Scientific Committee Recommendations and Implementation of these recommendations by each country or region, as appropriate. Cooperate and even collaborate as may be useful with Greenpeace, WWF, WDCS and other groups concerned with MPA conservation to help develop broadest public support. Some of these groups have MPA proposals of their own which should be examined for shared priorities.
 10. Participate in the public process to create such an MPA, to assist in the implementation of conservation plans and to help set up management plans with zoning, education programmes, enforcement, monitoring and periodic review, both in terms of cetacean conservation and overall success of the MPA. Zoning refers to two things, both of which the SC needs to be involved in: (a) Selecting highly protected no-take zones based on best science for cetacean critical habitat and prey areas, and (b) Helping to establish appropriate transition and human-use zones (where artisanal and some kinds of other fishing activities, whale watching tours, general marine tourism, ferries and shipping traffic, may be able to occur but with restrictions.)

5. Actions to be implemented at the regional level

5.1. In the Agreement area, identifying areas that are important for cetaceans but lie outside state jurisdictions

A large part of the distribution area of the species covered by ACCOBAMS lies in the High Seas and thus is not subject to the jurisdiction of individual States. The available data has revealed concentrations of certain cetacean species on the High Seas, and action is required to protect them. In 2000, a landmark international protection area was indeed created in the Mediterranean to protect cetacean habitats. The Pelagos Sanctuary for Mediterranean Marine Mammals, was jointly created by France, Italy and Monaco, and it was put on the SPAMI List in recognition of the portion of the sanctuary located on the high seas. It should also be noted that France and Italy have created ecological protection zones which may have an impact on High Seas protection measures outside the Pelagos Sanctuary.

Additional important high seas areas should be identified in future, and evaluation can be made along the lines suggested in 4.3. Cañadas et al (2005)) proposes such areas for the Alborán Sea. The survey planned in the ACCOBAMS context for the Mediterranean and the Black Sea may help facilitate the identification of additional areas.

The Secretariat of the Agreement could act as an important catalyst for identifying High Seas areas that are important for cetaceans or areas that are trans-boundary or lie outside of a single state's jurisdiction. As part of this work programme, the Secretariat has invited the collaboration of the Parties to prepare an inventory of such areas. In this activity, the Secretariat would also consult with the relevant international and/or regional organisations. It would also make an analysis of the legal and institutional systems and where necessary make suggestions for harmonization that are likely to facilitate the creation and management of MPAs.

5.2. Elaboration of guidelines for the management of existing MPAs concerning the conservation of cetaceans

The preparation, enactment and enforcement of management plans is the essential process that turns a newly created “paper MPA” into a real, functioning MPA. This is perhaps the most important, yet often neglected aspect of creating MPAs. The process should ensure, among other things, that there is zoning with IUCN Category I areas for protection of critical habitat and prey spawning areas, and that the various threats to cetaceans be evaluated and addressed within the context of the MPA and/or through other means. The ACCOBAMS Scientific Committee could usefully provide guidelines and assistance in preparing management plans covering these and many other aspects within the framework of the implementation of the work programme.

To ensure that management measures for cetacean populations within MPAs are properly designed and implemented in the ACCOBAMS area, the CP of ACCOBAMS charged the Scientific Committee to draft guidelines (MOP2, Resolution 2.14). These guidelines will be elaborated as part of the work programme during the next triennium 2008-2011, taking into account the existing guidelines for the management of MPAs prepared by international organisations and ensuring proper harmonisation with these tools. During the MPA workshop at the Fourth Meeting of the Scientific Committee of ACCOBAMS, the Committee is expected to discuss how to prepare the guidelines (including scope, partners to involve, etc.).

5.3. Training of managers

MPA managers and management staff will require training to plan and implement management measures. Training opportunities should be made available in Agreement area countries to help them enhance their national capabilities concerning the planning and the management of cetacean MPAs. The following activities are recommended as a first step:

- To compile an inventory of existing training courses about cetacean population monitoring and management. The list of such training courses should be made available on the ACCOBAMS web site (including course description and attendance conditions)
- To prepare a training module on cetacean MPA planning and management and use it to organise national training sessions in the Agreement area.

References

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Hoyt, E. 2005. Marine protected areas for whales, dolphins and porpoises. Earthscan, London, 516pp

Panigada, S. (in process)

Appendix 1:

Cetacean and MPA Experts for the ACCOBAMS Area

Following is a list of experts who could help in implementing the ACCOBAMS MPA work programme at the national and regional level. This list comprises cetacean and habitat use/MPA experts arranged according to cetacean species, population, and geographical area. Additional MPA general researchers are also included as well. The list should be supplemented and regularly updated.

A. List of cetacean habitat researchers in the Mediterranean and Black Seas:

sperm whale

Violaine Drouot, violainedr@hotmail.com

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Giuseppe Notarbartolo di Sciara, IUCN Red List draft assessments, disciara@tin.it

Luke Rendell, ler4@st-andrews.ac.uk

harbour porpoise, bottlenose dolphin and short-beaked common dolphin (Black Sea)

Alexei Birkun, IUCN Red List draft assessments, alexeibirkun@home.cris.net

harbour porpoise (Med Sea)

A. Frantzis, IUCN Red List draft assessments, afrantzis@otenet.gr

bottlenose dolphin (Med Sea)

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Toni Raga, Projecto Mediterráneo, Universitat de Valencia, toni.raga@uv.es

Erika Urquiola, SEC, urquiola@cetaceos.com

short-beaked common dolphin (Med Sea)

Giovanni Bearzi, bearzi@inwind.it

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fin whale

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Mohamed Nejmeddine Bradai, mednejmeddine.bradai@instm.rnrt.tn

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Margherita Zanardelli, marghez@tin.it

Cuvier's beaked whale

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long-finned pilot whale

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Risso's dolphin

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Ada Natoli, IUCN Red List draft assessments, ada.natoli@gmail.com

striped dolphin

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Vincent Ridoux, vridoux@univ-lr.fr

killer whale, or orca

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Christophe Guinet, guinet@cebc.cnrs.fr
Miguel Iñiguez, Miguel.iniguez@wdcs.org
Renaud de Stephanis, IUCN Red List draft assessments, renaud@stephanis.org

humpback whale

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Giuseppe Notarbartolo di Sciarra, IUCN Red List draft assessments, disciara@tin.it

false killer whale

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rough-toothed dolphin

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minke whale

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Pelagos Sanctuary for Mediterranean Marine Mammals:

(fin whale, sperm whale, striped dolphin, Risso's dolphin, bottlenose dolphin, short-beaked common dolphin, Cuvier's beaked whale, long-finned pilot whale)

Christophe Guinet, guinet@cebc.cnrs.fr

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Philippe Robert, p.robert@pnpc.com.fr

Kvarneric/ Losinj Dolphin Reserve, Croatia:

(bottlenose dolphin)

Giovanni Bearzi (Tethys, Italy), bearzi@inwind.it
Caterina Fortuna (Italy), fortuna.cm@tiscali.it
Drasko Holcer (Croatia), Blue World and Croatian Natural History Museum, Drasko.Holcer@hpm.hr
Peter Mackelworth (UK), University College of London & Blue World, ucfapcm@ucl.ac.uk

Regno di Nettuno MPA:

(bottlenose dolphin, short-beaked common dolphin, striped dolphin, Risso's dolphin, long-finned pilot whale, fin whale, sperm whale)

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Southern Crete Sperm Whale MPA, proposed (Greece):

(short-beaked common dolphin and bottlenose dolphin)

Alexandros Frantzis, Pelagos Cetacean Research Institute, afrantzis@otenet.gr

Kalamos proposed MPA (Greece):

(short-beaked common dolphin, bottlenose dolphin)

Giovanni Bearzi (Tethys, Italy), bearzi@inwind.it

Amvrakikos Gulf proposed MPA, (western Greece):

(bottlenose dolphin)

Giovanni Bearzi (Tethys, Italy), bearzi@inwind.it

North Dodecanese MPA Project (Greece):

(monk seal, short-beaked common dolphin, striped dolphin, bottlenose dolphin; Risso's dolphin)

Anastasia Miliou, anastasia@archipelago.gr

Other MPA proposals (short-beaked common dolphin, bottlenose dolphin, etc) in Greek waters:

Giovanni Bearzi (Tethys, Italy), bearzi@inwind.it

Sicilian Channel MPA, proposed (Italy, Tunisia, Malta):

bottlenose dolphin and fin whale – builds on Pelagie Islands MPA proposal

Simone Canese, s.canese@icram.org
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Giancarlo Lauriano, g.lauriano@icram.org

SACs in Spanish waters:

(bottlenose dolphin)

Toni Raga, Projecto Mediterráneo, Universitat de Valencia, toni.raga@uv.es
Erika Urquiola, SEC, urquiola@cetaceos.com

Proposal for MPAs for cetaceans in Turkish waters, including Turkish Straits System (Bosphorus, Marmara Sea and Dardanelles):

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(Dr.) Ayaka Ozturk, mmonachus@ttnet.net.tr

Proposals for MPAs for cetaceans in Moroccan waters:

Abdellatif Bayed, Université Mohammed V – Agdal Institut Scientifique Unité d'Océanologie Biologique, bayed@israbat.ac.ma

Proposals for MPAs for cetaceans in Maltese waters:

Nature Trust Malta, mlcg@waldonet.net.mt
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Proposals for MPAs for cetaceans for Alborán Sea/ Strait of Gibraltar:

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Christophe Guinet, guinet@cebc.cnrs.fr
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Proposals for MPAs for cetaceans in the Black Sea, especially Ukraine:

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Proposals for MPAs for cetaceans in Bulgarian waters of the Black Sea:

Konstantin Mikhailov, konstantinmikhailov@yahoo.com

Proposals for MPAs for cetaceans in Russian waters of the Black Sea:

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Proposals for MPAs for cetaceans in Georgian waters of the Black Sea:

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Proposals for MPAs for cetaceans in Romanian waters of the Black Sea:

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Additional useful memberships to draw upon:

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Appendix 2:

DRAFT ACCOBAMS FORMAT FOR THE PROPOSAL OF PROTECTED AREAS FOR CETACEANS

INTRODUCTION

During MOP2, the Contracting Parties to ACCOBAMS asked the Scientific Committee to prepare a special format for the proposal of protected areas for cetaceans, adapted from the existing format for proposing SPAMIs under the Barcelona Convention.

The draft data-entry form below is based on the SPAMI template. It is comprised of the following 6 main sections:

- Area identification
- Executive summary
- Site description
- Statement about the importance of the area for the cetacean species
- Description of known or potential threats to cetaceans
- Human population and use of natural resources
- Protection regime

The Scientific Committee of ACCOBAMS is expected to review this Form during the Fourth Meeting (Monaco, November 2006) and to modify it as appropriate with the view of submitting it to the next MOP.

**Agreement on the Conservation of Cetaceans of the Black Sea,
Mediterranean Sea and contiguous Atlantic Area**

**FORMAT FOR THE PROPOSAL OF
PROTECTED AREAS FOR CETACEANS**

1. AREA IDENTIFICATION

1.1. COUNTRY/COUNTRIES (in the case of transboundary areas)

--

1.2. ADMINISTRATIVE PROVINCE OR REGION

--

1.3. NAME OF THE PROPOSED MPA

--

1.4. GEOGRAPHIC LOCATION

(Please describe the co-ordinates here and make a separate annex with a map and a description of geographical co-ordinates for the proposed area).

--

1.5. SURFACE AREA OF THE PROPOSED MPA (total)

(in national unit)	(in ha)

1.6. LENGTH OF THE ADJACENT COAST (km)

--

2. EXECUTIVE SUMMARY (maximum 3 pages)

Supply a summary of the information contained in sections 3 to 9.

3. SITE DESCRIPTION

3.1. TYPOLOGY OF THE SITE

Marine surface area (sq. km):

Marine internal wa

Territorial seas

High seas

3.2. MAIN PHYSICAL FEATURES

3.2.1. Geology/Geomorphology

Give a brief description of: (i) geological aspects (lithologic and tectonics); (ii) processes of sedimentation and erosion observable in the area; (iii) coastal geomorphology and (iv) island system. Indicate sources.

--

3.2.2. Other interesting physical features: Such as hydrodynamics, volcanic formations, caves, underwater formations, etc.

3.3. BIOLOGICAL FEATURES

3.3.1. Habitats: A brief description of dominant marine habitats, on the basis of the habitat classifications adopted within the framework of MAP (and their coverage in ha)

3.3.2. List of regionally/globally important species (flora and fauna)

List here ONLY those species protected by international agreements which are present in the area. Any other species may be listed if they are clearly considered of regional importance and have high representation in the area. Put the species list under separate headings for Marine Plants, Terrestrial Plants, Marine Invertebrates, Fish, Amphibians and Reptiles, Birds, and Mammals. For each species state:

- a) its relative abundance as Common (C), Uncommon (U) or Occasional (O),
- b) Its global status as rare (r), endemic (e) and/or threatened (t), and
- c) its status as an important resident population (R), or important for its breeding (B), feeding (F), wintering (W) or migratory passage (M)

SPECIES	Rel. Abundance (C) (U) (O)	Global STATUS (r) (e) (t)	Local STATUS (R) (B) (F) (W) (M)

3.3.3. Flora: Describe in a few sentences the main plant assemblages significant in the area.

3.3.4. Fauna: Describe in a few sentences the main fauna populations present in the area.

S,

Empire and other treasures.

b) In what ways do these cultural features contribute to the importance of protecting the area?

4. Describe how the area is important for cetacean species

(use where possible the criteria set in section 4.1 of the ACCOBAMS programme of work on MPAs)

5. Describe here the known or potential threats to cetaceans

6. HUMAN POPULATION AND USE OF NATURAL RESOURCES

6.1 Human population

Description of local residents and visitors

Main human settlements and their populations

6.2 Current human use and development

a) Briefly describe the current use of the area for subsistence, artisanal, commercial and recreational fishing, tourism and other economic sectors.

b) Enter how many of the users depend on these resources, seasonality of use, and provide an assessment of the social and economic importance of their use and of the perceived impact on the conservation of the area, in a score of 0-1-2-3 (meaning null, low, medium, high).

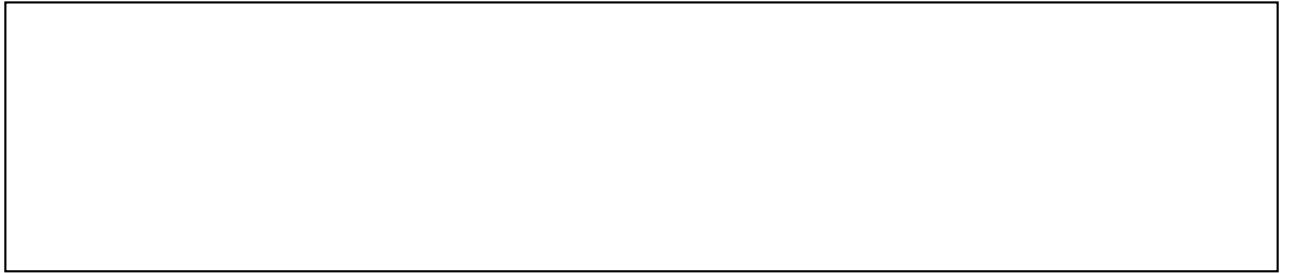
ACTIVITY AND CATEGORY	ASSESS IMPORTANCE OF								Estimated No. of Users	Seasonality
	Socio-economic				Conserv. Impact					
FISHING										
Subsistence	0	1	2	3	0	1	2	3		
Commercial, local	0	1	2	3	0	1	2	3		
Commercial, non-local	0	1	2	3	0	1	2	3		
Controlled recreational	0	1	2	3	0	1	2	3		
Uncontrolled recreational	0	1	2	3	0	1	2	3		
Other										
TOURISM										
Regulated	0	1	2	3	0	1	2	3		
Unregulated	0	1	2	3	0	1	2	3		
Indicate the type of tourism										
- ecotourism	0	1	2	3	0	1	2	3		
- general marine tourism	0	1	2	3	0	1	2	3		
- mass or general tourism										
Tourism facilities	0	1	2	3	0	1	2	3		
OTHER ACTIVITIES										
-	0	1	2	3	0	1	2	3		
-	0	1	2	3	0	1	2	3		

6.3 Traditional economic or subsistence uses

Name any environmentally sound traditional activities integrated with nature, which support the well being of the local human population. E.g. target species, if closed seasons or closed zones are used as management techniques.

6.4 Expected development and trends

6.4 Potential conflicts between users as well as between cetaceans and human activities



7. PROTECTION REGIME

7.1. LEGAL STATUS

7.1.1. Historical background of the protection of the site (if any)

7.1.2. Proposed legal status
(use the national conservation categories)

7.1.3. Objectives
Name in order of importance the proposed objectives.

7.1.4. If the area lies partially or totally on the High Seas, list here the proposed institutional arrangements.

8. PROPOSED MANAGEMENT MEASURES AND RELEVANT INSTITUTIONAL ARRANGEMENTS

Please suggest here how the management of the proposed MPA will be undertaken. Indicate management measures which could be used for the proposed MPA to protect cetaceans and reduce or eliminate conflicts with human use of the area. For example, you could suggest an MPA with zoning and a highly protected critical habitat area and/or you could use other management tools such as regulations to control pollution dumping or boat noise, shipping activities, fast ferries, undersea noise pollution, and dumping activities. Suggestions and a proposal for enforcement can be made here as well. What about educational programmes for public and all users of the area? Which existing institutions, government or other agencies can undertake management and enforcement, or will new agencies need to be created?

Appendix 3:

PRELIMINARY LIST OF SITES IDENTIFIED AS IMPORTANT AREAS FOR CETACEANS

This draft inventory was prepared with the help of various cetacean and habitat use/MPA experts working in the Agreement area, based on knowledge currently available. The inventory covers mainly the areas that have been intensively studied and needs to be carried out in a more formal, detailed way and to be compared with other inventories such as RAC/SPA which was not available yet for comparison, Hoyt (2005) and the latest proposals for protection of dolphin habitat under the EU Habitats Directive. It should be noted that half or more of the Agreement area is not included at all, due to lack of research effort or communication of useful findings.

The purpose of preparing this inventory was to obtain the current, best available, science-based recommendations for important or critical habitat for cetaceans requiring some conservation action, though not necessarily by creating a marine protected area (MPA). The inventory also covers a number of critical habitat areas already declared in part or in whole as an MPA. This is because the work of cetacean conservation usually just begins with its formal designation. In some cases, research suggests expansion of the boundaries or mandates of existing MPAs. And in most cases, what are essentially paper MPAs (“paper reserves”) must then be turned into effective conservation tools, with the development of stakeholder management plans. Such plans should draw upon species conservation plans to address threats to cetaceans as well as to establish the appropriate zoning regime that will confer adequate levels of protection and restriction of harmful activities as needed. Thus, the SC’s involvement should not stop with selection of an area but continue through the process of setting up management plans, monitoring and promoting periodic review.

Experts were asked to provide location and estimated size(s) for suggested areas; the identity, size and behaviour of the cetacean populations; details of threats to the population; and reasons why critical habitat MPA protection might be useful and important (how does an MPA help solve the conservation problems). Although the data collected are incomplete, they still give a substantial insight into the known cetacean critical habitat areas of the northern Mediterranean and the Black seas. Of course, many of these areas have already been brought to the attention of ACCOBAMS SC but it could be helpful to consider them all together in terms of developing future strategies for deciding upon which areas require further work or can be advanced as proposals now (using a combination of existing research, expert opinion and the precautionary approach). This inventory along with species “conservation plans” may also be useful for considerations about creating MPA networks for populations found throughout the Agreement area.

[See attached xls file for Appendix 3]

Critical Habitat	Country	Cetacean Species	Additional Features
CROATIA			
Kvarneric/ Losinj Dolphin Reserve	Croatia	<i>T. truncatus</i>	Griffon vultures on cliffs; sea turtles; 95 species of fish including large predators and swordfishes; marine invertebrates and seaweeds in high diversity
Kornati National Park/ Kornati & Murtar Sea (Central Adriatic)	Croatia	<i>T. truncatus</i>	
Brijuni National Park	Croatia	<i>T. truncatus?</i>	

SLOVENIA			
North Adriatic (Gulf of Trieste, Slovenia)*	Slovenia, Croatia	<i>T. truncatus</i>	

GREECE			
Amvrakikos Gulf (NW Greece)	Greece	<i>T. truncatus</i>	Sea turtles <i>C. caretta</i> abundant
Eastern Ionian Sea and Gulf of Corinth	Greece	<i>D. delphis</i>	
Kalamos, open waters around (NW Greece: Ionian Sea)	Greece	<i>D. delphis, T. truncatus</i>	
Gulf of Saronikos and adjacent waters (Argo-Saronikos and southern South Evoikos Gulf)	Greece	<i>D. delphis</i>	
Waters around Northern Sporades	Greece	<i>D. delphis</i>	
Northern Aegean Sea	Greece	<i>D. delphis</i>	
Southern Crete Proposed MPA	Greece	<i>P. macrocephalus, D. delphis, T. truncatus</i>	
Dodekanese waters*	Greece, Turkey	<i>D. delphis, T. truncatus, S. coeruleoalba, G. griseus</i>	
North Dodecanese MPA Project	Greece	<i>D. delphis, T. truncatus, S. coeruleoalba, G. griseus</i>	monk seal

ITALY/FRANCE/MONACO/HIGH SEAS			
Pelagos Sanctuary for Mediterranean Marine Mammals***	France, Italy, Monaco; High Seas	<i>B. physalus, P. macrocephalus, D. delphis, T. truncatus, S. coeruleoalba, G. griseus, G. melas, Z. cavirostris</i>	Permanent front which favours primary marine productivity (mesopelagic zooplankton)
Pelagos fin whale habitat - 43° + 8°10'E***	France, Italy, Monaco; High Seas	<i>B. physalus</i>	

Critical Habitat	Country	Cetacean Species	Additional Features
Pelagos fin whale habitat - 42°40S + 5°30E***	France, Italy, Monaco; High Seas	<i>B. physalus</i>	

FRANCE			
Port Cros National Park (Le Parc national de Port-Cros)	France	<i>T. truncatus</i>	
Côte Bleue Marine Park (Parc Marin Côte Bleue)	France	<i>T. truncatus, S. coeruleoalba, G. melas</i>	
Cerbère-Banyuls Natural Marine Reserve (Réserve Naturelle Marine de Cerbère-Banyuls)	France	<i>T. truncatus, S. coeruleoalba, D. delphis</i>	
Bonifaccio Marine Reserve (Réserve Marin Bouches de Bonifacio)	France	<i>T. truncatus</i>	
Scandola Nature Reserve (Réserve Naturelle de Scandola), proposed	France	<i>T. truncatus</i>	

ITALY			
Ischia/ Regno di Nettuno	Italy	<i>D. delphis, P. macrocephalus, S. coeruleoalba</i> , (also: <i>T. truncatus, G. griseus, G. macrorhynchus, B. physalus</i>)	Deep canyon incursion into continental slope
Sicilian Channel (incl Pelagic Islands)***	Italy, Tunisia, Malta, High Seas	<i>B. physalus, P. macrocephalus, D. delphis, T. truncatus, S. coeruleoalba, G. griseus</i>	Main deep channel between w and e Med
Pelagic Islands MPA (Isole Pelagie area di reperimento) proposed, in process of designation	Italy	<i>T. truncatus; B. physalus</i>	
Egadi Islands (Isole Egadi) MPA	Italy	<i>T. truncatus</i>	

Critical Habitat	Country	Cetacean Species	Additional Features
Asinara Island National Park	Italy	<i>T. truncatus</i> (others reported occasionally: <i>S. coeruleoalba</i> , <i>D. delphis</i> , <i>G. griseus</i>)	
Lampedusa Island	Italy	<i>T. truncatus</i> (others?)	
Gulf of Trieste (Golfo di Trieste) Miramare MPA	Italy	<i>T. truncatus</i>	
Ventotene and Santo Stefano Islands (Isola di Ventotene e Santo Stefano) MPA	Italy	summer: <i>T. truncatus</i> ; spring-summer: <i>Stenella coeruleoalba</i> ; uncommon: <i>D. delphis</i> , <i>G. griseus</i> ; summer and seasonal: <i>G. melas</i> , <i>B. physalus</i>	
Capo Carbonara MPA	Italy	<i>T. truncatus</i>	
Tavolara and Punta Coda Cavallo (Tavolara – Punta Coda Cavallo) MPA	Italy	<i>T. truncatus</i>	
Capo Rizzuto Island (Isola Capo Rizzuto) MPA	Italy	<i>T. truncatus</i>	
Cinque Terre National Park	Italy	<i>T. truncatus?</i>	
Gulf of Portofino (Golfo di Portofino) MPA	Italy	<i>T. truncatus?</i>	
Tuscan Archipelago (Arcipelago Toscano) National Park with proposed marine extension, in process of designation	Italy	<i>T. truncatus?</i>	

Critical Habitat	Country	Cetacean Species	Additional Features
Capo Testa-Punta Falcone MPA, proposed	Italy	<i>T. truncatus?</i>	
Maddalena Archipelago (Arcipelago della Maddalena) National Park with proposed marine extension, in process of designation	Italy	<i>T. truncatus</i> (others?)	

MALTA			
Dwejra Marine Conservation Area	Malta	<i>T. truncatus</i>	
Cirkewwa Marine Conservation Area, proposed	Malta	<i>T. truncatus; D. delphis?</i>	
Delimara Marine Conservation Area, proposed	Malta	<i>T. truncatus; D. delphis?</i>	

ISRAEL			
Israeli Mediterranean Coast	Israel	<i>T. truncatus</i> (many species found offshore, including "unusual" ones such as <i>P. crassidens</i> and <i>S. bredanensis</i>)	

TUNISIA			
Tunisian waters MPA proposals	Tunisia	<i>T. truncatus</i> (possibly also <i>D. delphis</i> , <i>S. coeruleoalba</i>)	
La Galite MPA and SPAMI**	Tunisia	<i>T. truncatus</i> (possibly also <i>D. delphis</i> , <i>S. coeruleoalba</i>)	
Zembra and Zembretta MPA and SPAMI**	Tunisia	<i>T. truncatus</i> (possibly also <i>D. delphis</i> , <i>S. coeruleoalba</i>)	
Kneiss MPA and SPAMI**	Tunisia	<i>T. truncatus</i> (possibly also <i>D. delphis</i> , <i>S. coeruleoalba</i>)	

LIBYA			
Tursiops habitats off Libya	Libya	<i>T. truncatus</i>	

ALGERIA			

Critical Habitat	Country	Cetacean Species	Additional Features
Cap de Garde Marine Reserve	Algeria	<i>T. truncatus</i>	
Bancs des Kabyles (Jijel) Marine Reserve	Algeria	<i>T. truncatus</i>	

MOROCCO			
Al Hocemia National Park (Parc National D'Al Hoceima)	Morocco	<i>T. truncatus</i> , possibly <i>D. delphis</i> , <i>S. coeruleoalba</i>	

SPAIN			
ALBORAN SEA—GULF OF VERA—STRAIT OF GIBRALTAR			
Northern Alboran Sea—Gulf of Vera—Strait of Gibraltar (Golfo de Vera, Mar de Alborán y Estrecho de Gibraltar)*	Spain, Gibraltar (UK), High Seas	<i>T. truncatus</i> , <i>D. delphis</i> , <i>S. coeruleoalba</i> , <i>G. melas</i> , <i>G. griseus</i> , <i>P. macrocephalus</i> , beaked whales (<i>Z. cavirostris</i> , <i>H. ampullatus</i>). (also: <i>O. orca</i> , <i>B. physalus</i>)	
Entire Alboran Sea—Str. of Gibraltar***	Spain, Gibraltar (UK), Morocco, Algeria, High Seas	<i>T. truncatus</i> , <i>D. delphis</i> , <i>S. coeruleoalba</i> , <i>G. melas</i> , <i>G. griseus</i> , <i>P. macrocephalus</i> , beaked whales (Also: <i>O. orca</i> , <i>B. physalus</i>)	
SAC: Strait of Gibraltar (Estrecho de Gibraltar - Barbate)	Spain	<i>T. truncatus</i> , <i>D. delphis</i> , <i>S. coeruleoalba</i> , <i>G. melas</i> , <i>P. macrocephalus</i> (also: <i>P. phocoena</i> , <i>B. physalus</i> , <i>O. orca</i>)	
SAC: Island of Alboran (Isla de Alborán)	Spain	<i>T. truncatus</i>	
SAC: Southern Almeria (Agua Marinas del Sur de Almeria)	Spain	<i>T. truncatus</i> (predicted habitat for <i>D. delphis</i> , <i>S. coeruleoalba</i> , <i>G. griseus</i> , <i>G. melas</i> , <i>P. macrocephalus</i> , beaked whales)	
Área Oceánica del Sur de Almeria**	Spain	<i>T. truncatus</i> , <i>D. delphis</i>	
SAC: Agua Costeras del Sur de Murcia	Spain	<i>T. truncatus</i>	
Agua Oceánicas del Sur de Murcia**	Spain	<i>T. truncatus</i> , <i>S. coeruleoalba</i> , <i>G. griseus</i> , <i>G. melas</i>	
Waters off Malaga (south of Punta Calaburras)	Spain	<i>D. delphis</i> , <i>T. truncatus</i>	
Waters off Granada	Spain	<i>D. delphis</i> , <i>T. truncatus</i>	

Critical Habitat	Country	Cetacean Species	Additional Features
Cetacean Migration Corridor (Corredor de Migración de Cetáceos)	Spain	<i>T. truncatus</i> , <i>S. coeruleoalba</i> , <i>G. melas</i> , <i>P. macrocephalus</i> , <i>B. physalus</i>	
SAC: Cabo de Creus y Cañón de Palamós	Spain	<i>T. truncatus</i>	
SAC: Costa Norte de Mallorca y Menorca y Canal	Spain	<i>T. truncatus</i>	
SAC: Sureste de Mallorca y Cabrera	Spain	<i>T. truncatus</i>	
Balearic Islands	Spain	<i>T. truncatus</i>	
SAC: Sur de Formentera	Spain	<i>T. truncatus</i>	
SAC: Islas Columbretes	Spain	<i>T. truncatus</i>	
SAC: Costa Norte de Alicante	Spain	<i>T. truncatus</i>	
SAC: Sur de la Isla de Tabarca	Spain	<i>T. truncatus</i>	
Cañones del Maresme	Spain	<i>T. truncatus?</i>	
Waters south of Ibiza	Spain	<i>P. macrocephalus</i>	Sea turtles, <i>C. caretta</i>
Waters south of Mallorca	Spain	<i>P. macrocephalus</i> , <i>S. coeruleoalba</i>	Sea turtles, <i>C. caretta</i>
Waters south of the Mallorca channel	Spain	<i>P. macrocephalus</i> , <i>S. coeruleoalba</i>	Sea turtles, <i>C. caretta</i>
Waters south of the Menorca channel	Spain	<i>P. macrocephalus</i> , <i>S. coeruleoalba</i>	Sea turtles, <i>C. caretta</i>
Waters east and north of Menorca	Spain	<i>P. macrocephalus</i> , <i>S. coeruleoalba</i>	Sea turtles, <i>C. caretta</i>

TURKISH WATERS except BS			
Turkish Straits System (Istanbul Strait - Marmara Sea - Canakkale Strait)	Turkey	<i>T. truncatus</i> , <i>D. delphis</i> , <i>P. phocoena</i>	Bluefin tuna, swordfish, bluefish, mackerel, bonito migrate from to the Black corridor from the Aegean and Marmara Sea
Saros Bay	Turkey	<i>T. truncatus</i> , <i>D. delphis</i> , <i>S. coeruleoalba</i>	
Sea cliff off Fethiye (Med coast)	Turkey	<i>P. macrocephalus</i> , <i>T. truncatus</i> , <i>S. coeruleoalba</i> , <i>G. griseus</i>	
Kemer—Antalya coast (Med coast)	Turkey	<i>P. macrocephalus</i> , <i>B. physalus</i> , <i>T. truncatus</i> , <i>S. coeruleoalba</i> , <i>G. griseus</i>	

Critical Habitat	Country	Cetacean Species	Additional Features
Gökçeada Marine Reserve	Turkey	<i>T. truncatus, D. delphis</i>	
(also see Black Sea below)			

BLACK SEA			
Western Black Sea coast (Eur. Side of Turkey)	Turkey	<i>T. truncatus, D. delphis, P. phocoena</i>	
Kerch Strait*	Ukraine, Russia	<i>T. truncatus ponticus, P. phocoena relicta</i>	
Azov Sea, southern part*	Ukraine, Russia	<i>P. phocoena relicta</i>	
Tarkhankut peninsula, NW Crimea	Ukraine	<i>T. truncatus ponticus, P. phocoena relicta, D. delphis</i>	
Cape Sarych to Cape Khersones, SW Crimea	Ukraine	<i>T. truncatus ponticus, P. phocoena relicta, D. delphis</i>	
Coastal Georgian Waters: Cape Anaklia to Sarp	Georgia	<i>D. delphis, P. phocoena relicta</i>	
Sochinskiy National Nature Park	Russia	<i>T. truncatus, P. phocoena</i>	

NOTES: * possible transboundary MPA
 **proposed High Seas MPA
 *** transboundary and High Seas MPA

Critical Habitat	Notes including justification for its importance as Critical Habitat	Size (Total/ proposed for protection/zoning) + Location
CROATIA		
Kvarneric/ Losinj Dolphin Reserve	Resident <i>T. truncatus</i> ; small population	1000 sq km (orig proposal)
Kornati National Park/ Kornati & Murtar Sea (Central Adriatic)	14 photo-IDs and opportunistic sightings only; further investigation and studies needed.	300 sq km
Brijuni National Park	Opportunistic sightings only; further investigation and studies needed.	
SLOVENIA		
North Adriatic (Gulf of Trieste, Slovenia)*	47 photo-IDs of inshore <i>T. truncatus</i> ; further investigation and studies needed.	600 sq km
GREECE		
Amvrakikos Gulf (NW Greece)	Resident <i>T. truncatus</i> with defined area comprising entire habitat for the population; natural laboratory for study (Bearzi, 2004; Bearzi <i>et al.</i> in press); second highest density of <i>T. truncatus</i> in the Mediterranean	400 sq km
Eastern Ionian Sea and Gulf of Corinth	Includes <i>D. delphis</i> habitat	
Kalamos, open waters around (NW Greece: Ionian Sea)	Resident <i>T. truncatus</i> and <i>D. delphis</i>	480 sq km
Gulf of Saronikos and adjacent waters (Argo-Saronikos and southern South Evoikos Gulf)	Includes <i>D. delphis</i> habitat	
Waters around Northern Sporades	Includes <i>D. delphis</i> habitat	
Northern Aegean Sea	Includes <i>D. delphis</i> habitat	
Southern Crete Proposed MPA		
Dodekanese waters*	Includes <i>D. delphis</i> habitat	
North Dodecanese MPA Project		
ITALY/FRANCE/MONACO/HIGH SEAS		
Pelagos Sanctuary for Mediterranean Marine Mammals***	Rich pelagic diversity including baleen and toothed whales and dolphins, tunas, swordfish, sunfish, sharks and giant devil rays	87.492 sq km
Pelagos fin whale habitat - 43° + 8°10'E***	Feeding habitat with productive <i>Meganyctiphanes norvegica</i> , main fin whale food	

Critical Habitat	Notes including justification for its importance as Critical Habitat	Size (Total/ proposed for protection/zoning) + Location
Pelagos fin whale habitat - 42°40S + 5°30E***	Feeding habitat with productive <i>Meganyctiphanes norvegica</i> , main fin whale food	

FRANCE		
Port Cros National Park (Le Parc national de Port-Cros)	Existing protected area with possible cetacean habitat but may be too small for significant conservation benefits for cetaceans	24 sq km (18 sq km marine)
Côte Bleue Marine Park (Parc Marin Côte Bleue)	Existing protected area with possible cetacean habitat but may be too small for significant conservation benefits for cetaceans	100 sq km) with 25 km coastline extending 2 nm (4 km) offshore; park includes two small fully protected marine reserves of 0.85 sq km at Carry and 2.1 sq km at Couronne
Cerbère-Banyuls Natural Marine Reserve (Réserve Naturelle Marine de Cerbère-Banyuls)	Existing protected area with possible cetacean habitat but may be too small for significant conservation benefits for cetaceans	6.5 sq km
Bonifaccio Marine Reserve (Réserve Marin Bouches de Bonifacio)	Existing protected area with possible cetacean habitat but may be too small for significant conservation benefits for cetaceans	
Scandola Nature Reserve (Réserve Naturelle de Scandola), proposed	Proposed MPA. This reserve is included in the Pelagos Sanctuary for Mediterranean Marine Mammals. There may be an opportunity for the sanctuary management plan to incorporate and utilize the protection afforded to dolphin habitat here	9.2 sq km land and 10 sq km marine waters

ITALY		
Ischia/ Regno di Nettuno	Biodiversity around deep canyon incursion into the continental slope, including cetaceans; area of special importance to <i>D. delphis</i> and <i>P. macrocephalus</i> ; <i>S. coeruleoalba</i> is most numerous cetacean	
Sicilian Channel (incl Pelagie Islands)***	Winter feeding habitat for fin whales but habitat needs to be defined; distribution of other cetacean species needs to be defined; waters around Malta and SE Sicily have been identified as <i>D. delphis</i> habitat	10.000 sq km
Pelagie Islands MPA (Isole Pelagie area di reperimento) proposed, in process of designation	Rationale is to protect marine waters and sea floor including biological, geological and cultural features. Research on cetaceans includes photo-ID studies of bottlenose dolphins and tracking of fin whales near Lampedusa Island, but there is limited information on the two species' presence and habitat use. There have been only 12 individual dolphins photo-identified here. Size and location data on the proposed MPA are needed to determine if it is of value to cetaceans.	
Egadi Islands (Isole Egadi) MPA	Rationale is to protect marine waters and the sea floor with biological, geological and cultural features. Research on bottlenose dolphins includes photo-ID and acoustics. Suggested future research should examine dolphin interactions with fishing gear, relative abundance and distribution of Tursiops in MPA. Use of AHDs (acoustic devices to drive dolphins away from nets) needs to be evaluated for harm to dolphins (Notarbartolo and Birkun 2002) and possibly banned at least from the MPA.	538.1 sq km

Critical Habitat	Notes including justification for its importance as Critical Habitat	Size (Total/ proposed for protection/zoning) + Location
Asinara Island National Park	Small closed population of <i>T. truncatus</i> . The basic abundance and distribution research on cetaceans here has utilized photo-ID studies of bottlenose dolphins, as well as acoustic tracking and recording. A detailed inventory of the area has been prepared covering biological and cultural features. There has also been a study to look at possible zoning in the marine area, but there are no definite plans for a management plan. The management of the MPA will likely be assigned to the existing terrestrial national park. Rationale is to extend an existing national park to include marine waters and sea floor with biological, geological and cultural features worth protecting.	480 sq km
Lampedusa Island	Small inshore population of <i>T. truncatus</i> , 60% resident	200 sq km
Gulf of Trieste (Golfo di Trieste) Miramare MPA	Rationale is to protect nearshore marine waters/sea floor with biological, geological and cultural features. This MPA, though very small, is an IUCN Category I core zone where fishing and commercial boating activities are not allowed. MPA staff have identified three dolphin species present but more research is needed to determine status and habitat use within as well as all around this small reserve.	1.27 sq km
Ventotene and Santo Stefano Islands (Isola di Ventotene e Santo Stefano) MPA	Rationale is to protect nearshore and some deep marine waters and the sea floor with biological, geological and cultural features. Research on cetaceans includes photo-ID of bottlenose dolphins, acoustic tracking and recording. Further cetacean research must verify possibility that the area is used as a feeding and summering ground as well as the implications of habitat use outside MPA boundaries. Is the current size useful for cetacean protection?	27.9 sq km
Capo Carbonara MPA	A marine geomorphological map has been prepared as part of the zoning process. Inside the core zone, no fishing or navigation is allowed, only limited diving. Rationale is to protect nearshore waters and sea floor including biological, geological and cultural features. Cetacean research has been photo-ID, acoustic tracking and recording of bottlenose dolphins. More studies needed to specify cetacean habitat use, as well as to monitor interactions with human activities. Size and location of reserve needs to be evaluated in terms of cetacean habitat needs.	88.6 sq km
Tavolara and Punta Coda Cavallo (Tavolara – Punta Coda Cavallo) MPA	Cetacean research has been photo-ID studies of bottlenose dolphins. Future useful research could help establish the extent of habitat use. Rationale is to protect marine waters and the sea floor with biological, geological and cultural features	150.9 sq km
Capo Rizzuto Island (Isola Capo Rizzuto) MPA	There has been no research on cetaceans here, but local MPA personnel see dolphins. Rationale is ecological, not specifically for cetaceans.	
Cinque Terre National Park	Located within the Pelagos Sanctuary for Mediterranean Marine Mammals, this nearshore area was recommended for protection for ecological (not specifically cetacean) reasons. More research is needed to determine cetacean habitat use within as well as all around this area.	
Gulf of Portofino (Golfo di Portofino) MPA	Located within the Pelagos Sanctuary for Mediterranean Marine Mammals, this nearshore area was recommended for protection for ecological (not specifically cetacean) reasons. More research is needed to determine cetacean habitat use within as well as all around this area.	
Tuscan Archipelago (Arcipelago Toscano) National Park with proposed marine extension, in process of designation	Located within the Pelagos Sanctuary for Mediterranean Marine Mammals, this nearshore area was recommended for protection for ecological (not specifically cetacean) reasons. More research is needed to determine cetacean habitat use within as well as all around this area.	

Critical Habitat	Notes including justification for its importance as Critical Habitat	Size (Total/ proposed for protection/zoning) + Location
Capo Testa-Punta Falcone MPA, proposed	Located within the Pelagos Sanctuary for Mediterranean Marine Mammals, this nearshore area was recommended for protection for ecological (not specifically cetacean) reasons. More research is needed to determine cetacean habitat use within as well as all around this area.	
Maddalena Archipelago (Arcipelago della Maddalena) National Park with proposed marine extension, in process of designation	Rationale is not stated but not specifically cetaceans. Research on cetaceans includes photo-ID studies of bottlenose dolphins, as well as basic abundance and distribution (tracking) studies. There is a basic inventory of the biological, cultural and other features of the proposed MPA, and a zoning study has been conducted to determine how the area should be managed.	
MALTA		
Dwejra Marine Conservation Area	Nature Trust have received LIFE funds and are managing the project starting with an inventory in 2004 (undertaken by PJ Schembri, Marine Institute, Univ of Malta) and work on conservation and zonation to start in 2005, followed in 2006–7 by guiding and use of a warden; final zonation will depend on the data collected. Research will define dolphin habitat needs.	
Cirkewwa Marine Conservation Area, proposed	Rationale is partly that this is feeding and breeding habitat for bottlenose and short-beaked common dolphins. Proposed 1991 by the planning authority of Malta; monitoring and research underway to define dolphin habitat; Nature Trust has been appointed partners with Malta Environment Protection Authority on the project. Conservation area would need to be greatly expanded to function as an effective MPA for dolphin habitat protection.	3 sq km
Delimara Marine Conservation Area, proposed	Cetacean records are mainly based on strandings; more work needs to be done to see if this area includes cetacean habitat.	
ISRAEL		
Israeli Mediterranean Coast	Inshore <i>T.truncatus</i> dolphin population	
TUNISIA		
Tunisian waters MPA proposals	Inshore dolphin populations; 3rd highest density in the Med at 0.19 per sq km	750 sq km
La Galite MPA and SPAMI**	MPA in national and high seas waters which may include bottlenose dolphin habitat.	
Zembra and Zembretta MPA and SPAMI**	MPA in national and high seas waters which may include bottlenose dolphin habitat.	
Kneiss MPA and SPAMI**	MPA in national and high seas waters which may include bottlenose dolphin habitat.	
LIBYA		
Tursiops habitats off Libya	Critical habitats need to be identified but <i>T. truncatus</i> (?) reportedly abundant close to shore.	
ALGERIA		

Critical Habitat	Notes including justification for its importance as Critical Habitat	Size (Total/ proposed for protection/zoning) + Location
Cap de Garde Marine Reserve	May include important habitat for <i>T. truncatus</i> .	
Bancs des Kabyles (Jijel) Marine Reserve	May include important habitat for <i>T. truncatus</i> .	
MOROCCO		
Al Hocemia National Park (Parc National D'Al Hoceima)	Park covers marine and terrestrial area with a substantial buffer zone roughly the same size as the park. Inventory and planning are still at an early stage; cetacean distribution studies need to be done to determine habitat.	434 sq km, of which 172 sq km is marine
SPAIN		
ALBORAN SEA—GULF OF VERA—STRAIT OF GIBRALTAR		
Northern Alboran Sea—Gulf of Vera—Strait of Gibraltar (Golfo de Vera, Mar de Alborán y Estrecho de Gibraltar)*	Primary route of movement and gene flow for cetacean populations between northeast Atlantic and the Med; resident <i>T. truncatus</i> : highest density in the Mediterranean; greatest diversity and largest populations of cetaceans in the Med; highest encounter rate for <i>G. melas</i> in the Med; includes most important remaining habitat for <i>D. delphis</i> in the Med; strategic area for creating MPA cetacean networks in the western Med.	11,821 sq km (n. Alboran Sea)
Entire Alboran Sea—Str. of Gibraltar***	Proposal was mainly for important highest density <i>D. delphis</i> area but it would provide all the benefits of the more restricted critical habitat listed above for the Northern Alboran Sea.	
SAC: Strait of Gibraltar (Estrecho de Gibraltar - Barbate)	Primary route of movement and gene flow for cetacean populations between northeast Atlantic and the Med; resident <i>T. truncatus</i> : closed population and highest density in the Mediterranean; resident populations of <i>O. orca</i> , <i>G. melas</i> and <i>P. macrocephalus</i> ; migration route for <i>B. physalus</i> ; high densities of <i>D. delphis</i> and <i>S. coeruleoalba</i> ; 1 of only 2 areas where <i>P. phocoena</i> is found in the Med.	1120 sq km; movement and gene flow between NA and Med for some species such as <i>D. delphis</i>
SAC: Island of Alboran (Isla de Alborán)		774 sq km
SAC: Southern Almeria (Aguas Marinas del Sur de Almeria)		2534 sq km
Área Oceánica del Sur de Almeria**		about 1700 sq km
SAC: Aguas Costeras del Sur de Murcia		
Aguas Oceánicas del Sur de Murcia**		
Waters off Malaga (south of Punta Calaburras)	Predicted area of importance for <i>D. delphis</i> and <i>T. truncatus</i> based on habitat models (outside of SAC)	
Waters off Granada	Predicted area of importance for <i>D. delphis</i> and <i>T. truncatus</i> based on habitat models for <i>D. delphis</i> (outside of SAC)	

Critical Habitat	Notes including justification for its importance as Critical Habitat	Size (Total/ proposed for protection/zoning) + Location
Cetacean Migration Corridor (Corredor de Migración de Cetáceos)	Migration corridor for fin whales and possibly other species; also includes <i>T. truncatus</i> habitat	
SAC: Cabo de Creus y Cañón de Palamós		
SAC: Costa Norte de Mallorca y Menorca y Canal		
SAC: Sureste de Mallorca y Cabrera		
Balearic Islands		16,659 sq km
SAC: Sur de Formentera		
SAC: Islas Columbretes		
SAC: Costa Norte de Alicante		
SAC: Sur de la Isla de Tabarca		
Cañones del Maresme		
Waters south of Ibiza	Active breeding ground for sperm whales (presence of mature males as well as calves) with relatively high density	
Waters south of Mallorca	Active breeding ground for sperm whales (presence of mature males as well as calves) with relatively high density	
Waters south of the Mallorca channel	Active breeding ground for sperm whales (presence of mature males as well as calves) with relatively high density	
Waters south of the Menorca channel	Active breeding ground for sperm whales (presence of mature males as well as calves) with relatively high density	
Waters east and north of Menorca	Active breeding ground for sperm whales (presence of mature males as well as calves) with relatively high density	

TURKISH WATERS except BS		
Turkish Straits System (Istanbul Strait - Marmara Sea - Canakkale Strait)	Unique waterway connecting Aegean Sea and Black Sea, thus playing a role in the relationships of Aegean and Black sea populations of three cetacean species; feeding ground for cetaceans during fish migration period in spring and autumn.	No size proposals, but overall sizes are as follows: Istanbul Strait: 31 km long x 1.6 km wide on avg (0.7-3.5 km); Marmara Sea: 295 km long, up to 1390 m deep with surface area of 11,500 sq km; Canakkale Strait (Dardanelles): 63 km long x 1.3 km wide at narrowest part.
Saros Bay	Rich feeding ground for cetaceans in the North Aegean Sea; may play significant role in migration from Black Sea	10 sq km (Öztürk suggestion)
Sea cliff off Fethiye (Med coast)	Deep sea only 2 nm off Fethiye may be good feeding ground for sperm whales (seen regularly May-July)	15 sq km (Öztürk suggestion)
Kemer—Antalya coast (Med coast)	Dolphin habitat; sperm and fin whales seen occasionally.	10 sq km (Öztürk suggestion)

Critical Habitat	Notes including justification for its importance as Critical Habitat	Size (Total/ proposed for protection/zoning) + Location
Gökçeada Marine Reserve	Established in 1999 to protect habitat diversity, this park has a very small core region with two buffer zones, but overall size is too small at present to provide significant protection to cetaceans. All fishing and diving activity and marine traffic is prohibited.	0.37 sq km
(also see Black Sea below)		

BLACK SEA		
Western Black Sea coast (Eur. Side of Turkey)	<i>P. phocoena</i> presence; feeding grounds located in the prime turbot fishing ground for Turkish fishermen; MPA could protect cetacean feeding and migration area	10 sq km (Öztürk suggestion)
Kerch Strait*	Semi-resident <i>T. truncatus</i> ; migration path for several thousand <i>P. phocoena</i> to and from the Azov Sea	862-890 sq km
Azov Sea, southern part*	Shallow southern part is important breeding, calving and foraging area for <i>P. phocoena</i> during warm season	7560 – 40.280 sq km
Tarkhankut peninsula, NW Crimea	Semi-resident <i>T. truncatus</i> (Zatevakhin and Bel'kovich 1996; Birkun 2006); summer presence of <i>P. phocoena</i> inshore and <i>D. delphis</i> mainly offshore	800 sq km
Cape Sarych to Cape Khersones, SW Crimea	Part of network protection for <i>T. truncatus</i> during autumn, winter & spring; photo-ID shows links with summer concentrations; autumn & early spring habitat for <i>P. phocoena</i> ; sporadic use by <i>D. delphis</i>	120 sq km
Coastal Georgian Waters: Cape Anaklia to Sarp	Winter habitat for <i>D. delphis</i> (4.2 individuals/sq km (CV = 31.4%) and <i>P. phocoena</i> (1.5 individuals/ sq km (CV = 26.5%))	2320 sq km
Sochinskiy National Nature Park	Marine component thought to include cetacean habitat; surveys and habitat assessments required. How big is the marine component and does it include valuable cetacean habitat, or could it be extended to cover such habitat.	1,940 sq km includes mainly land areas

NOTES: * possible transboundary MPA
**proposed High Seas MPA
*** transboundary and High Seas MPA

Critical Habitat	Size of Cetacean pops using the area(s) based on photo-IDs; other surveys	Cetacean problems and how an MPA could help
CROATIA		
Kvarneric/ Losinj Dolphin Reserve	100+ <i>T. truncatus</i> (1997 study: 113, CV 0.06, 95%CI 107-121) (2003 more robust mark-recapture study: 102, CV 0.05, 95%CI 92-103)	Dolphins have high contaminant levels and reserve could be part of larger conservation and tourism management efforts in the Cres-Losinj Archipelago; population of <i>T. truncatus</i> has declined in abundance between 1995 and 2003 (Fortuna in prep)
Kornati National Park/ Kornati & Murtar Sea (Central Adriatic)	14+ <i>T. truncatus</i>	Marine traffic
Brijuni National Park		Depredation

SLOVENIA		
North Adriatic (Gulf of Trieste, Slovenia)*	47+ <i>T. truncatus</i> , photo-ID	

GREECE		
Amvrakikos Gulf (NW Greece)	107 photo-IDs (152; 95%CI=136-186) <i>T. truncatus</i> based on mark-recapture	Increasing eutrophication and sea floor anoxia; pollution
Eastern Ionian Sea and Gulf of Corinth		
Kalamos, open waters around (NW Greece: Ionian Sea)	<25 <i>D. delphis</i> ; < 20 resident <i>T. truncatus</i> ; 48 photo-IDs including non-residents	Ecosystem damage caused by purse seining; MPA must ensure implementation of existing laws; special fisheries management area could include no take areas for purse seiners, trawlers and longliners (but artisanal fishing allowed)
Gulf of Saronikos and adjacent waters (Argo-Saronikos and southern South Evoikos Gulf)		
Waters around Northern Sporades		
Northern Aegean Sea		
Southern Crete Proposed MPA		
Dodekanese waters*		
North Dodekanese MPA Project		

ITALY/FRANCE/MONACO/HIGH SEAS		
Pelagos Sanctuary for Mediterranean Marine Mammals***	350 fin whale photo-IDs; pop. Est.: 1,000 fin whales	Ship collisions, illegal driftnetting, noise, disturbance by boats
Pelagos fin whale habitat - 43° + 8°10'E****		Ship collisions

Critical Habitat	Size of Cetacean pops using the area(s) based on photo-IDs; other surveys	Cetacean problems and how an MPA could help
Pelagos fin whale habitat - 42°40S + 5°30E***		Ship collisions

FRANCE		
Port Cros National Park (Le Parc national de Port-Cros)		
Côte Bleue Marine Park (Parc Marin Côte Bleue)		
Cerbère-Banyuls Natural Marine Reserve (Réserve Naturelle Marine de Cerbère-Banyuls)		
Bonifaccio Marine Reserve (Réserve Marin Bouches de Bonifacio)		
Scandola Nature Reserve (Réserve Naturelle de Scandola), proposed	20 <i>T. truncatus</i>	

ITALY		
Ischia/ Regno di Nettuno		Continued use of driftnets (bycatch); overfishing; collisions and disturbance from fast ferries and hydrofoils; MPA could exclude damaging activities in a key area
Sicilian Channel (incl Pelagic Islands)***		Resource depletion caused by growing fishing activities (Italian and Tunisian vessels); ship collisions for fin whales?
Pelagic Islands MPA (Isole Pelagie area di reperimento) proposed, in process of designation	12 <i>T. truncatus</i> photo-IDs as of 1998	
Egadi Islands (Isole Egadi) MPA		

Critical Habitat	Size of Cetacean pops using the area(s) based on photo-IDs; other surveys	Cetacean problems and how an MPA could help
Asinara Island National Park	22 ((CV 0.26, 95%CI of 22-27) by mark-recapture	
Lampedusa Island	140 <i>T. truncatus</i> estimated through discovery curve, approximately 60% resident, but discovery curve must be combined with other methods to give a reliable estimate.	
Gulf of Trieste (Golfo di Trieste) Miramare MPA		
Ventotene and Santo Stefano Islands (Isola di Ventotene e Santo Stefano) MPA		
Capo Carbonara MPA		
Tavolara and Punta Coda Cavallo (Tavolara – Punta Coda Cavallo) MPA		
Capo Rizzuto Island (Isola Capo Rizzuto) MPA		
Cinque Terre National Park		
Gulf of Portofino (Golfo di Portofino) MPA		
Tuscan Archipelago (Arcipelago Toscana) National Park with proposed marine extension, in process of designation		

Critical Habitat	Size of Cetacean pops using the area(s) based on photo-IDs; other surveys	Cetacean problems and how an MPA could help
Capo Testa-Punta Falcone MPA, proposed		
Maddalena Archipelago (Arcipelago della Maddalena) National Park with proposed marine extension, in process of designation		

MALTA		
Dwejra Marine Conservation Area		
Cirkewwa Marine Conservation Area, proposed		
Delimara Marine Conservation Area, proposed		

ISRAEL		
Israeli Mediterranean Coast	85 <i>T. truncatus</i> (maximum number photo-IDed)	

TUNISIA		
Tunisian waters MPA proposals	?	
La Galite MPA and SPAMI**		
Zembra and Zembretta MPA and SPAMI**		
Kneiss MPA and SPAMI**		

LIBYA		
Tursiops habitats off Libya		Overfishing; illegal fishing

ALGERIA		

Critical Habitat	Size of Cetacean pops using the area(s) based on photo-IDs; other surveys	Cetacean problems and how an MPA could help
Cap de Garde Marine Reserve		
Bancs des Kabyles (Jijel) Marine Reserve		
MOROCCO		
Al Hoceima National Park (Parc National D'Al Hoceima)		
SPAIN		
ALBORAN SEA—GULF OF VERA—STRAIT OF GIBRALTAR		
Northern Alboran Sea—Gulf of Vera—Strait of Gibraltar (Golfo de Vera, Mar de Alborán y Estrecho de Gibraltar)*	584 <i>T. truncatus</i> (CV 0.28, 95%CI of 278-744) by distance sampling and GAMs	MPA could help with stricter enforcement of fisheries legislation (driftnet ban and overfishing); restrict development activities (oil exploration, chemical and noise pollution)
Entire Alboran Sea—Str. of Gibraltar***		
SAC: Strait of Gibraltar (Estrecho de Gibraltar - Barbate)	258 <i>T. truncatus</i> (CV 0.08, 95%CI of 226-316) by mark-recapture (closed pop)	Chemical and other pollution (contaminants, plastic debris and sewage from Gibraltar and Algeciras; oil from ships crossing the Strait and from shipyards and harbours; bilge-cleaning from large tankers; acoustic pollution and ship strikes (intensive marine traffic); whale watching operations.
SAC: Island of Alboran (Isla de Alborán)		Fishing: overfishing, destruction of sea bottom by trawlers, driftnets; uncontrolled diving activities
SAC: Southern Almeria (Aguas Marinas del Sur de Almeria)	279 <i>T. truncatus</i> (CV 0.28, 95%CI of 146-461) by distance sampling and GAMs	Overexploitation of fish resources; mechanical destruction of sea bottom from trawlers, chemical pollution from agriculture; untreated sewage from coastal towns; oil spills and intense marine traffic
Área Oceánica del Sur de Almería**	See SAC: Southern Almeria <i>T. truncatus</i> estimate for inshore and offshore area of 4232 sq km	
SAC: Aguas Costeras del Sur de Murcia		
Aguas Oceánicas del Sur de Murcia**		
Waters off Malaga (south of Punta Calaburras)		
Waters off Granada		

Critical Habitat	Size of Cetacean pops using the area(s) based on photo-IDs; other surveys	Cetacean problems and how an MPA could help
Cetacean Migration Corridor (Corredor de Migración de Cetáceos)		
SAC: Cabo de Creus y Cañón de Palamós		
SAC: Costa Norte de Mallorca y Menorca y Canal		
SAC: Sureste de Mallorca y Cabrera		
Balearic Islands	1,030 <i>T. truncatus</i> (CV 0.35, 95%CI of 415-1849) by distance sampling	
SAC: Sur de Formentera		
SAC: Islas Columbretes		
SAC: Costa Norte de Alicante		
SAC: Sur de la Isla de Tabarca		
Cañones del Maresme		
Waters south of Ibiza		
Waters south of Mallorca		
Waters south of the Mallorca channel		
Waters south of the Menorca channel		
Waters east and north of Menorca		

TURKISH WATERS except BS		
Turkish Straits System (Istanbul Strait - Marmara Sea - Canakkale Strait)	Unknown	Heavy marine traffic (55,000 vessels per year through Istanbul Strait; land and marine based pollution; competition with fisheries; MPA could help exclude damaging activities, assist with education and enforcement.
Saros Bay	?	Bycatch in illegal driftnets; to protect dolphin feeding grounds
Sea cliff off Fethiye (Med coast)	?	Bycatch in illegal driftnets; to protect feeding grounds of sperm whales
Kemer—Antalya coast (Med coast)	?	Bycatch in illegal drfitnets

Critical Habitat	Size of Cetacean pops using the area(s) based on photo-IDs; other surveys	Cetacean problems and how an MPA could help
Gökçeada Marine Reserve		
(also see Black Sea below)		

BLACK SEA		
Western Black Sea coast (Eur. Side of Turkey)	?	Intense turbot fishing; entanglement of young <i>P. phocoena</i> in nets; pollution
Kerch Strait*	76-88 air surveys; 127 boat survey (67-238; 95% CI)	Intensive marine traffic (disturbance); coastal fisheries (bycatch in bottom-set gillnets) and live captures of <i>T. truncatus</i> (Russian waters only)
Azov Sea, southern part*	871-2922 air surveys	Coastal fisheries on turbot and sturgeon with bycatch in bottom-set gillnets
Tarkhankut peninsula, NW Crimea	49-112 <i>T. truncatus</i>	Intensive coastal fisheries (bycatch in bottom-set gillnets are frequent in Apr-Jun)
Cape Sarych to Cape Khersones, SW Crimea	100s <i>T. truncatus</i> photo-ID	Coastal fisheries (bycatch in bottom-set gillnets); some directed killing by fishermen
Coastal Georgian Waters: Cape Anaklia to Sarp	Preliminary: 1 ship survey only for few days in January	Pelagic trawling for anchovy (bycatch of <i>D. delphis</i>)
Sochinskiy National Nature Park		

NOTES: * possible transboundary MPA
 **proposed High Seas MPA
 *** transboundary and High Seas MPA

Critical Habitat	Human problems caused by cetaceans (potential conflicts)	Status of protection
CROATIA		
Kvarneric/ Losinj Dolphin Reserve		ACCOBAMS pilot MPA. *Announcement of designation July 2006
Kornati National Park/ Kornati & Murtar Sea (Central Adriatic)		
Brijuni National Park		
SLOVENIA		
North Adriatic (Gulf of Trieste, Slovenia)*		
GREECE		
Amvrakikos Gulf (NW Greece)	Net depredation and fishing gear damage (no compensation mechanisms)	
Eastern Ionian Sea and Gulf of Corinth		Proposed as part of Med Common Dolphin Conservation Plan
Kalamos, open waters around (NW Greece: Ionian Sea)		ACCOBAMS pilot MPA suggestion
Gulf of Saronikos and adjacent waters (Argo-Saronikos and southern South Evoikos Gulf)		Proposed as part of Med Common Dolphin Conservation Plan
Waters around Northern Sporades		Proposed as part of Med Common Dolphin Conservation Plan
Northern Aegean Sea		Proposed as part of Med Common Dolphin Conservation Plan
Southern Crete Proposed MPA		ACCOBAMS pilot MPA suggestion
Dodekanese waters*		Proposed as part of Med Common Dolphin Conservation Plan
North Dodecanese MPA Project		Proposed as part of Med Common Dolphin Conservation Plan
ITALY/FRANCE/MONACO/HIGH SEAS		
Pelagos Sanctuary for Mediterranean Marine Mammals***		Protected 1999 (ratified 2002); management plan prepared.
Pelagos fin whale habitat - 43° + 8°10'E****		Protected 1999 (ratified 2002); management plan prepared.

Critical Habitat	Human problems caused by cetaceans (potential conflicts)	Status of protection
Pelagos fin whale habitat - 42°40S + 5°30E***		Protected 1999 (ratified 2002); management plan prepared.

FRANCE		
Port Cros National Park (Le Parc national de Port-Cros)		Existing
Côte Bleue Marine Park (Parc Marin Côte Bleue)		Existing
Cerbère-Banyuls Natural Marine Reserve (Réserve Naturelle Marine de Cerbère-Banyuls)		Existing
Bonifaccio Marine Reserve (Réserve Marin Bouches de Bonifacio)		Existing
Scandola Nature Reserve (Réserve Naturelle de Scandola), proposed		Proposed MPA

ITALY		
Ischia/ Regno di Nettuno		Proposed MPA
Sicilian Channel (incl Pelagie Islands)***	Fishing interactions	Proposed MPA; needs more study to characterize habitat? Builds on Pelagie Islands MPA proposal
Pelagie Islands MPA (Isole Pelagie area di reperimento) proposed, in process of designation		Proposed in 1982 (legislation L 979/82) and supposed to be in process of designation as of 2005.
Egadi Islands (Isole Egadi) MPA		Established in 1996 by ministerial decree, this MPA has been managed by the coast guard (Capitaneria di Porto) offices in Trápani. Management is being handed over to the municipality of Favignana. The Marine Protection Service will update the MPA's status based on proposals from the new management body.

Critical Habitat	Human problems caused by cetaceans (potential conflicts)	Status of protection
Asinara Island National Park		National park designated in 1991, currently with proposed marine extension, in process of designation
Lampedusa Island		
Gulf of Trieste (Golfo di Trieste) Miramare MPA		Established in 1986, this MPA is managed by WWF Italy; size of MPA is so small that at present it is unlikely to provide any benefit to cetaceans.
Ventotene and Santo Stefano Islands (Isola di Ventotene e Santo Stefano) MPA		Established 1997 and managed as part of a zoned terrestrial natural reserve by the Municipality of Ventotene; no management plan
Capo Carbonara MPA		Established 1999 and managed by the Villasimius municipality; no management plan
Tavolara and Punta Coda Cavallo (Tavolara – Punta Coda Cavallo) MPA		Established in 1997 by ministerial decree, this area has been managed by the coast guard (Capitaneria di Porto) offices in Olbia but management is being handed over to a local management body assigned to a consortium of the municipalities of Olbia, Loiri, Porto San Paolo and San Teodoro. The Marine Protection Service will update the status of the MPA based on proposals from the new management body. There is no management plan but one may be prepared later.
Capo Rizzuto Island (Isola Capo Rizzuto) MPA		Established in 1991 through legislation L 979/82, this MPA is managed by the Province of Crotona.
Cinque Terre National Park		National park
Gulf of Portofino (Golfo di Portofino) MPA		Existing MPA
Tuscan Archipelago (Arcipelago Toscano) National Park with proposed marine extension, in process of designation		National park with proposed marine extension, in process of designation

Critical Habitat	Human problems caused by cetaceans (potential conflicts)	Status of protection
Capo Testa-Punta Falcone MPA, proposed		Proposed MPA
Maddalena Archipelago (Arcipelago della Maddalena) National Park with proposed marine extension, in process of designation		National park with proposed marine extension, in process of designation. There is also discussion between Italy and France about combining Maddalena Archipelago National Park with Lavezzi Marine Reserve as a single transborder MPA.

MALTA		
Dwejra Marine Conservation Area		Existing conservation area
Cirkewwa Marine Conservation Area, proposed		Proposed MPA is so small that at present it is unlikely to provide any benefit to cetaceans.
Delimara Marine Conservation Area, proposed		Proposed MPA (in process of being confirmed); no data on size.

ISRAEL		
Israeli Mediterranean Coast		No proposals

TUNISIA		
Tunisian waters MPA proposals		Proposals; note that certain parts are already protected as SPAMIs: La Galite, Zembra & Zembretta, Kneiss
La Galite MPA and SPAMI**		Existing MPA and SPAMI
Zembra and Zembretta MPA and SPAMI**		Existing MPA and SPAMI
Kneiss MPA and SPAMI**		Existing MPA and SPAMI

LIBYA		
Tursiops habitats off Libya	Interactions with fisheries reported to be common	No proposals known; studies needed.

ALGERIA		

Critical Habitat	Human problems caused by cetaceans (potential conflicts)	Status of protection
Cap de Garde Marine Reserve		Proposed by Algeria as a SPAMI
Bancs des Kabyles (Jijel) Marine Reserve		Proposed by Algeria as a SPAMI

MOROCCO		
Al Hoceima National Park (Parc National D'Al Hoceima)		Existing national park with some marine component

SPAIN		
ALBORAN SEA—GULF OF VERA—STRAIT OF GIBRALTAR		
Northern Alboran Sea—Gulf of Vera—Strait of Gibraltar (Golfo de Vera, Mar de Alborán y Estrecho de Gibraltar)*		
Entire Alboran Sea—Str. of Gibraltar***		Originally considered for recommendation as a SPAMI (more difficult to obtain than just northern Alboran Sea because more countries involved; studies needed in southern Alboran Sea); Spanish Ministry of Environment, Oceanographic Institute and IUCN are preparing a report with the idea of promoting some kind of MPA, sanctuary or SPAMI for the whole Alboran Sea.
SAC: Strait of Gibraltar (Estrecho de Gibraltar - Barbate)		Under consideration as an SAC by local govt of Andalucía and Spanish Min of Env.
SAC: Island of Alboran (Isla de Alborán)		Under consideration as an SAC by local govt of Andalucía and Spanish Min of Env.
SAC: Southern Almeria (Aguas Marinas del Sur de Almeria)		Under consideration as an SAC by local govt of Andalucía and Spanish Min of Env.
Área Oceánica del Sur de Almeria**		Proposed for Área Oceánica protection to Spanish Ministry of Environment
SAC: Aguas Costeras del Sur de Murcia		Accepted in 2000 by Spanish govt: ES6200048 Medio Marino
Aguas Oceánicas del Sur de Murcia**		Proposed for Área Oceánica protection to Spanish Ministry of Environment
Waters off Malaga (south of Punta Calaburras)		Proposed for protection
Waters off Granada		Proposed for protection

Critical Habitat	Human problems caused by cetaceans (potential conflicts)	Status of protection
Cetacean Migration Corridor (Corredor de Migración de Cetáceos)		Proposed for SPAMI protection
SAC: Cabo de Creus y Cañón de Palamós		Proposed for SAC protection to Spanish Ministry of Environment
SAC: Costa Norte de Mallorca y Menorca y Canal		Proposed for SAC protection to Spanish Ministry of Environment
SAC: Sureste de Mallorca y Cabrera		Proposed for SAC protection to Spanish Ministry of Environment
Balearic Islands		Could be proposed for protection?
SAC: Sur de Formentera		Proposed for SAC protection to Spanish Ministry of Environment
SAC: Islas Columbretes		Proposed for SAC protection to Spanish Ministry of Environment
SAC: Costa Norte de Alicante		Proposed for SAC protection to Spanish Ministry of Environment
SAC: Sur de la Isla de Tabarca		Proposed for SAC protection to Spanish Ministry of Environment
Cañones del Maresme		Proposed for SPAMI protection to Spanish Ministry of Environment
Waters south of Ibiza		Proposed for protection.
Waters south of Mallorca		Proposed for protection.
Waters south of the Mallorca channel		Proposed for protection.
Waters south of the Menorca channel		Proposed for protection.
Waters east and north of Menorca		Proposed for protection.

TURKISH WATERS except BS		
Turkish Straits System (Istanbul Strait - Marmara Sea - Canakkale Strait)		Could be proposed; may need more research to make the proposal
Saros Bay		National Park exists on land only; a marine area in the bay could be proposed to protect this cetacean feeding area
Sea cliff off Fethiye (Med coast)		Could be proposed; may need more research to make the proposal
Kemer—Antalya coast (Med coast)		Could be proposed; may need more research to make the proposal

Critical Habitat	Human problems caused by cetaceans (potential conflicts)	Status of protection
Gökçeada Marine Reserve		Established in 1999, but this MPA is so small that is unlikely to provide any benefit to cetaceans unless it is expanded.
(also see Black Sea below)		

BLACK SEA		
Western Black Sea coast (Eur. Side of Turkey)		Could be proposed; may need more research to make the proposal
Kerch Strait*		Proposed
Azov Sea, southern part*		Proposed
Tarkhankut peninsula, NW Crimea		Proposed
Cape Sarych to Cape Khersones, SW Crimea		ACCOBAMS pilot MPA suggestion
Coastal Georgian Waters: Cape Anaklia to Sarp		Proposed
Sochinskiy National Nature Park		Existing national nature park, declared in 1983 (IUCN Category II).

NOTES: * possible transboundary MPA
 **proposed High Seas MPA
 *** transboundary and High Seas MPA

Critical Habitat	Researchers	NGOs + Local Groups	References
CROATIA			
Kvarneric/ Losinj Dolphin Reserve	D. Holcer, P. Mackelworth, C. Fortuna, G. Bearzi	Blue World, Tethys	Bearzi et al. 1997, 1999; Fortuna et al. 2000; Fortuna 2006 (thesis)
Kornati National Park/ Kornati & Murtar Sea (Central Adriatic)	C. Fortuna (opportunistic)		Impetuoso et al, in press
Brijuni National Park	C. Fortuna (opportunistic)		

SLOVENIA			
North Adriatic (Gulf of Trieste, Slovenia)*	T. Genov, C. Fortuna	Morigenos	Genov & Fortuna 2005

GREECE			
Amvrakikos Gulf (NW Greece)	G. Bearzi, J. Gonzalvo, Zafiroopoulos & Merlini	Tethys	Bearzi 2004; Bearzi et al, in press
Eastern Ionian Sea and Gulf of Corinth		Tethys	Bearzi et al 2004
Kalamos, open waters around (NW Greece: Ionian Sea)	G. Bearzi, S. Agazzi	Tethys	Bearzi et al 2004, 2005, 2006
Gulf of Saronikos and adjacent waters (Argo-Saronikos and southern South Evoikos Gulf)			Bearzi et al 2004
Waters around Northern Sporades			Bearzi et al 2004
Northern Aegean Sea			Bearzi et al 2004
Southern Crete Proposed MPA	A. Frantzis		
Dodekanese waters*			Bearzi et al 2004
North Dodecanese MPA Project	A. Miliou		Bearzi et al 2004

ITALY/FRANCE/MONACO/HIGH SEAS			
Pelagos Sanctuary for Mediterranean Marine Mammals***	S. Panigada, S. Airoldi, A. Azzellino, G. Notarbartolo, P. Robert, S. Panigada, C. Guinet, G. Lauriano, many others	Tethys and various other groups	Many refs.
Pelagos fin whale habitat - 43° + 8°10'E***			

Critical Habitat	Researchers	NGOs + Local Groups	References
Pelagos fin whale habitat - 42°40S + 5°30E***			

FRANCE			
Port Cros National Park (Le Parc national de Port-Cros)			Batisse and de Grissac 1995
Côte Bleue Marine Park (Parc Marin Côte Bleue)			
Cerbère-Banyuls Natural Marine Reserve (Réserve Naturelle Marine de Cerbère-Banyuls)			
Bonifaccio Marine Reserve (Réserve Marin Bouches de Bonifacio)			
Scandola Nature Reserve (Réserve Naturelle de Scandola), proposed			Augier 1985; Evans 1999; Batisse and de Grissac 1995; Liret et al 2001

ITALY			
Ischia/ Regno di Nettuno	B. Mussi, A. Miragliuolo	Delphis	Diaz Lopez et al, 2000; Mussi et al, 1997a, 1997b, 1998, 1999; Mussi & Miragliuolo, 1999; Bearzi et al 2004
Sicilian Channel (incl Pelagic Islands)***	S. Canese, S. Greco	ICRAM, WWF	Canese et al, 2006, Greco et al, 2004; Canese et al 2005; Bearzi et al 2004
Pelagic Islands MPA (Isole Pelagie area di reperimento) proposed, in process of designation			Marini et al 1995; Pace et al 1998
Egadi Islands (Isole Egadi) MPA			Chiofalo et al 2000; Mazzola et al 1995; Quero et al 2000

Critical Habitat	Researchers	NGOs + Local Groups	References
Asinara Island National Park	G. Lauriano		Lauriano et al 2003; Ferreccio et al 1993; Lauriano 1997a, 1997b; Lauriano and Notarbartolo di Sciara 1995; Lauriano et al 1999; Pavan et al 1995; Tunesi et al 1997
Lampedusa Island	Pulcini et al		Pulcini et al 2004
Gulf of Trieste (Golfo di Trieste) Miramare MPA			
Ventotene and Santo Stefano Islands (Isola di Ventotene e Santo Stefano) MPA	B. Mussi	Delphis	Mussi et al 1997a, 1997b, 1998, 2000
Capo Carbonara MPA			Arcangeli and Marini 1999
Tavolara and Punta Coda Cavallo (Tavolara – Punta Coda Cavallo) MPA			Bearzi and Notarbartolo di Sciara 1992; Consiglio et al 1992; Marini et al 1995
Capo Rizzuto Island (Isola Capo Rizzuto) MPA			
Cinque Terre National Park			
Gulf of Portofino (Golfo di Portofino) MPA			
Tuscan Archipelago (Arcipelago Toscano) National Park with proposed marine extension, in process of designation			

Critical Habitat	Researchers	NGOs + Local Groups	References
Capo Testa-Punta Falcone MPA, proposed			
Maddalena Archipelago (Arcipelago della Maddalena) National Park with proposed marine extension, in process of designation			Arcangeli et al 1997; Consiglio et al 1992; Lauriano and Notarbartolo di Sciara 1995; Marini et al 1996; Tunesi et al 1997

MALTA			
Dwejra Marine Conservation Area		Nature Trust Malta	
Cirkewwa Marine Conservation Area, proposed		Nature Trust Malta	
Delimara Marine Conservation Area, proposed		Nature Trust Malta	

ISRAEL			
Israeli Mediterranean Coast	A. Scheinin	IMMRAC	Scheinin et al 2005

TUNISIA			
Tunisian waters MPA proposals			Ben Naceur et al 2004
La Galite MPA and SPAMI**			
Zembra and Zembretta MPA and SPAMI**			
Kneiss MPA and SPAMI**			

LIBYA			
Tursiops habitats off Libya	G. Bearzi		

ALGERIA			

Critical Habitat	Researchers	NGOs + Local Groups	References
Cap de Garde Marine Reserve			
Bancs des Kabyles (Jijel) Marine Reserve			

MOROCCO			
Al Hoceima National Park (Parc National D'Al Hoceima)			Batisse and de Grissac 1995

SPAIN			
ALBORAN SEA—GULF OF VERA—STRAIT OF GIBRALTAR			
Northern Alboran Sea—Gulf of Vera—Strait of Gibraltar (Golfo de Vera, Mar de Alborán y Estrecho de Gibraltar)*	R de Stephanis, A. Cañadas, C. Guinet	Alnitak, SEC, CIRCE	Cañadas et al 2005; Cañadas & Hammond 2006, DGCN 2002
Entire Alboran Sea—Str. of Gibraltar***		Spanish Ministry of Environment, Oceanographic Institute, IUCN, Alnitak, others	Bearzi et al 2004; Cañadas et al 2005, DGCN 2002
SAC: Strait of Gibraltar (Estrecho de Gibraltar - Barbate)	A. Cañadas, R. de Stephanis	Alnitak, SEC, CIRCE	Cañadas et al 2005, De Stephanis et al 2005, DGCN 2002
SAC: Island of Alboran (Isla de Alborán)	A. Cañadas	Alnitak	Cañadas et al 2005, DGCN 2002
SAC: Southern Almeria (Aguas Marinas del Sur de Almeria)	A. Cañadas	Alnitak, SEC	Cañadas et al 2005; Cañadas & Hammond 2006
Área Oceánica del Sur de Almeria**	A. Cañadas	Alnitak	Cañadas et al. 2005, Cañadas 2006, DGCN 2002
SAC: Aguas Costeras del Sur de Murcia	A. Cañadas	Alnitak, SEC, University of Valencia	Cañadas et al 2005, DGCN 2002
Aguas Oceánicas del Sur de Murcia**	A. Cañadas	Alnitak, SEC, University of Valencia	DGCN 2002
Waters off Malaga (south of Punta Calaburras)	A. Cañadas	Alnitak	Cañadas et al 2005, DGCN 2002
Waters off Granada	A. Cañadas	Alnitak	Cañadas et al 2005, DGCN 2002

Critical Habitat	Researchers	NGOs + Local Groups	References
Cetacean Migration Corridor (Corredor de Migración de Cetáceos)	J.A. Raga, A. Aguilar	Univs of Barcelona & Valencia	DGCN 2002
SAC: Cabo de Creus y Cañón de Palamós	A. Aguilar	Univs of Barcelona	DGCN 2002
SAC: Costa Norte de Mallorca y Menorca y Canal	A. Aguilar	Univs of Barcelona	DGCN 2002
SAC: Sureste de Mallorca y Cabrera	A. Aguilar	Univs of Barcelona	DGCN 2002
Balearic Islands	J. Forcada, J.M. Brotons	Univs of Barcelona, Fisheries Council of Baleares	Forcada et al 2004
SAC: Sur de Formentera	A. Aguilar	Univs of Barcelona	DGCN 2002
SAC: Islas Columbretes	J.A. Raga	Univs of Valencia	DGCN 2002
SAC: Costa Norte de Alicante	J.A. Raga	Univs of Valencia	DGCN 2002
SAC: Sur de la Isla de Tabarca	J.A. Raga	Univs of Valencia	DGCN 2002
Cañones del Maresme	A. Aguilar	Univs of Barcelona	DGCN 2002
Waters south of Ibiza	L. Rendell, A. Cañadas, C. Mundy	Sea Mammal Research Unit, Alnitak, One World Wildlife	Rendell et al unpublished report
Waters south of Mallorca	L. Rendell, A. Cañadas, C. Mundy	Sea Mammal Research Unit, Alnitak, One World Wildlife	Rendell et al unpublished report
Waters south of the Mallorca channel	L. Rendell, A. Cañadas, C. Mundy	Sea Mammal Research Unit, Alnitak, One World Wildlife	Rendell et al unpublished report
Waters south of the Menorca channel	L. Rendell, A. Cañadas, C. Mundy	Sea Mammal Research Unit, Alnitak, One World Wildlife	Rendell et al unpublished report
Waters east and north of Menorca	L. Rendell, A. Cañadas, C. Mundy	Sea Mammal Research Unit, Alnitak, One World Wildlife	Rendell et al unpublished report

TURKISH WATERS except BS			
Turkish Straits System (Istanbul Strait - Marmara Sea - Canakkale Strait)	Faculty of Fisheries, Istanbul University; Turkish Marine Research Foundation		Öztürk and Öztürk 1996, 1997, 2002; Öztürk 1996; Öztürk and Öztürk (pers. comm.)
Saros Bay	None		Öztürk and Öztürk (pers. comm.)
Sea cliff off Fethiye (Med coast)	Faculty of Fisheries, Istanbul University; Turkish Marine Research Foundation		Öztürk and Öztürk 1998, 2002; Öztürk 1996; Öztürk and Öztürk (pers. comm.)
Kemer—Antalya coast (Med coast)	Faculty of Fisheries, Istanbul University; Turkish Marine Research Foundation		Öztürk and Öztürk (pers. comm.)

Critical Habitat	Researchers	NGOs + Local Groups	References
Gökçeada Marine Reserve	Faculty of Fisheries, Istanbul University; Turkish Marine Research Foundation		Öztürk 1996, 1998; Öztürk and Öztürk 2003
(also see Black Sea below)			

BLACK SEA			
Western Black Sea coast (Eur. Side of Turkey)	Faculty of Fisheries, Istanbul University; Turkish Marine Research Foundation		Tanabe et al, 1997; Madhusree et al 1997; Öztürk and Öztürk 2002; Öztürk 1996; Öztürk and Öztürk (pers. comm.)
Kerch Strait*	A. Birkun		Birkun <i>et al.</i> 2002, 2003, 2004
Azov Sea, southern part*	A. Birkun		Birkun <i>et al.</i> 2002, 2003, 2004
Tarkhankut peninsula, NW Crimea	A. Birkun		Zatevakhin and Belkovich 1996; Birkun 2006
Cape Sarych to Cape Khersones, SW Crimea	A. Birkun		Birkun, pers.comm. June 2006; Birkun and Krivohizchin 2000; Notarbartolo di Sciara and Birkun 2002
Coastal Georgian Waters: Cape Anaklia to Sarp	A. Birkun		Birkun <i>et al.</i> 2006
Sochinskiy National Nature Park			Birkun and Krivohizchin 2000

NOTES: * possible transboundary MPA
**proposed High Seas MPA
*** transboundary and High Seas MPA

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Appendix 4

Recommendation SC4.9 Adopted by the Scientific Committee of ACCOBAMS

Monaco, 8 November 2006

Specially Protected Areas for Cetaceans

The Scientific Committee welcomed and commended the work by Hoyt (SC4/Doc21) and Cañadas et al. (SC4/Inf01), which provided the main background for development of the Committee's response to the MOP Resolution on MPAs.

Criteria for Proposals

The Committee emphasized the importance of following a staged process in identifying and selecting candidate MPA, and it is recommended that proposals should include the following information:

- Clearly stated objectives of the MPA;
- The rationale for choosing an MPA as the appropriate management tool and the particular temporal and geographical boundaries (including specification of the data and analytical techniques used);
- A draft management plan that is linked to documented actual and potential threats to one or more populations of cetaceans;
- Proposals for mitigation measures (and/or research designed to develop such measures), with consideration of appropriate compliance monitoring (to ensure that such measures are correctly implemented) plus scientific monitoring to ensure that each of the proposed mitigation measures (where there are more than one) are working as expected;
- Proposals for overall monitoring to ensure that stated objectives are being met;
- Details of consultation with and views of interested stakeholders;
- Details of legal aspects of the proposed MPA, including co-operation with the appropriate local, national and international authorities must occur.

Format for Proposals

The Committee welcomed the willingness of Cañadas and Sagarminaga to prepare a draft proposal for an Alborán Sea MPA in the format adopted by the Committee, with the expectation that this 'test run' would facilitate needed refinements and improvements to the format before it is considered final for delivery to the next Meeting of the Parties.

Sites for Consideration in the Agreement Area

Four pilot MPAs had been proposed at the first MOP in 2002 and confirmed subsequently by the Scientific Committee:

- (1) Kalamos, Greece for common dolphins;
- (2) Southern Crete, Greece for sperm whales;
- (3) Cape Sarych to Cape Khersones, SW Crimea, Ukraine in the Black Sea, for bottlenose and common dolphins and harbour porpoises; and
- (4) Losinj, Kvarneric, Croatia for bottlenose dolphins.

The Committee noted that the only action that has been taken thus far was in July 2006 when Croatia announced Losinj to be an MPA, although no management or monitoring plans have been specified. While welcoming the decision of the Croatian Government, the

Scientific Committee **strongly recommends** that the national authorities in Croatia work with all stakeholders to create a management and monitoring plan for this MPA. The Committee reminds the Parties of their existing commitment to creating MPAs in the other three areas, and **strongly recommends** that this follows the approach recommended above. In this regard, it draws the Parties **serious concern** to the situation of Kalamos that is discussed further under Item 5.5.2.

As has been stressed above, MPAs should be seen in the context of overall Conservation Plans. In 2004, at MoP2, the Parties welcomed the Mediterranean Common Dolphin Conservation Plan. The Scientific Committee therefore **recommends** that Parties, in co-operation with the Scientific Committee, give full consideration to assessing the value of creating MPAs for the following eight areas included as being of special importance in that Plan, following the criteria above:

- (1) Alborán Sea, Spain-Morocco-Algeria;
- (2) Waters surrounding the island of Ischia, southeastern Tyrrhenian Sea, Italy;
- (3) Waters surrounding the island of Malta and southeastern Sicily, Italy;
- (4) Eastern Ionian Sea and Gulf of Corinth, Greece;
- (5) Gulf of Saronikos and adjacent waters (Argo-Saronikos and southern South Evvoikos Gulf), Greece;
- (6) Waters surrounding the Northern Sporades, Greece;
- (7) Northern Aegean Sea, Greece; and
- (8) Waters surrounding the Dodekanese, Greece.

The Committee notes with concern that to date, no effective conservation actions have been taken in response to this Plan as discussed more fully under Item 5.2.1.

The Committee also considered the revised draft Conservation Plan for Black Sea Cetaceans discussed under Item 5.2.3. In addition to the areas of the Black Sea already referred to at MoP1 (see above), it **recommends** that Parties, in co-operation with the Scientific Committee, give priority to giving full consideration to assessing the value of creating MPAs for the following additional three areas in the Black Sea and adjacent waters.

- (1) Cape Anaklia to Sarp (Georgia) – this represents winter habitat for common dolphins and harbour porpoises; in particular there is a problem with pelagic trawling for anchovy, which has a dolphin bycatch.
- (2) Kerch Strait (Ukraine, Russia) – used by semi-resident Black Sea bottlenose dolphins and as a migration corridor for several thousand harbour porpoises moving to and from the Azov Sea; there is intensive marine traffic and coastal fisheries with bycatch in gillnets and live captures of bottlenose dolphins.
- (3) The Turkish Strait System (Turkey) – used by all Black Sea cetacean species, including harbour porpoises (also present in the Aegean Sea).

Finally, the Committee **recommends** to the Parties two further areas that warrant attention in the context of candidate MPAs:

- (1) Strait of Sicily including associated islands (Italy, Malta, Tunisia, high seas) - preliminary data suggest that this highly productive fishing area which links the eastern and western Mediterranean may be an important wintering ground for fin whales and there is evidence of vessel collisions. It also contains resident bottlenose and common dolphins, as well as other dolphins.
- (2) Amvrakikos Gulf (NW Greece) – about 150 bottlenose dolphins live in this semi-enclosed area that has one of the highest densities of bottlenose dolphins in the Mediterranean.

The Committee agreed that while the above list represents the highest priority areas for consideration as possible MPAs, it is not presented as a comprehensive list. The Committee **recommends** that Parties consider whether there are candidate areas within their waters and in the high seas, taking into account the above suggestions and recommendations for an appropriate approach.