Agenda Item 5.4

Implementation of the Triennium Work Plan (2010-2012) – Other Issues
Management of Marine Protected Areas

Document 5-10

Marine Protected Areas

Action Requested

- Take note
- Comment

Submitted by

Sea Watch Foundation / WDCS

MARINE PROTECTED AREAS

1. INTRODUCTION

Cetaceans are covered under a variety of legal acts or conventions, e.g. HELCOM, the UN Law of the Sea, OSPAR, the EU Habitats Directive and Marine Strategy Framework Directive, CMS, ASCOBANS and ACCOBAMS. Under some of these international commitments, one of the means to protect small cetaceans is the establishment of Protected Areas.

In April 1999, the European Cetacean Society held a workshop to consider the scope for establishing Marine Protected Areas for cetaceans in Europe (Evans & Urquiola Pascual, 2001). Since then, particularly through Natura 2000 of the EU Habitats Directive, a number of Special Areas of Conservation have been designated by European countries for two cetacean species, the bottlenose dolphin and harbour porpoise, whilst area-based protective measures have been formalized for other cetacean species (e.g. the Pelagos Sanctuary for Mediterranean marine mammals in the Ligurian Sea and the Irish Whale and Dolphin Sanctuary in that country's EEZ).

In recent years, much progress has been made in survey and monitoring techniques, and these have been used to identify important areas for cetaceans, whilst some Marine Protected Areas have been in existence long enough to make at least some preliminary assessment of their efficacy.

In spite of these advances, specific criteria/guidelines for the identification of sites important for small cetaceans were lacking, and so in April 2007, the European Cetacean Society in collaboration with the two regional conservation agreements, ASCOBANS and ACCOBAMS, held a workshop in San Sebastien, Spain, to analyze and discuss the development, the scope and appropriateness of possible criteria such as high-density areas, feeding or breeding sites, and migration corridors, including methods to identify those sites. The workshop aimed to explore the efficacy of Marine Protected Areas in conserving cetaceans, drawing upon information on the criteria applied for indicating sites designated for the protection of cetaceans (e.g. through Natura 2000) for applied reasons of designation/sufficiency; as well as the results of existing research indicating important areas. The workshop was attended by around 125 persons from 22 countries, and sections 2 & 3 below are reproduced from the Proceedings, which distil the information presented at the meeting, the general conclusions, and specific recommendations arising from the discussions (see Evans, 2008 for full details).

2. CRITERIA FOR SELECTING AREAS AS MPAs FOR CETACEANS

While MPAs are widely accepted as a powerful tool to achieve marine conservation objectives, particularly for spatially limited populations, traditional MPAs may not be the most appropriate mechanism for some species and situations. Examples include cetacean populations that range very widely with no obvious regular feeding or breeding areas, or that face anthropogenic activities with large-scale impacts where focus upon the impact itself might be more effective. It is also important to bear in mind that establishment of an MPA takes some considerable time and may meet with resistance from local communities if they perceive it as restricting their

activities. Thus if a conservation action is needed urgently, this should be applied independently of area protection.

It is important to determine whether an MPA will provide added value or if a wider measure will be more efficient at conserving the species of concern. The identification of threats is an essential first step, followed by an assessment of what would be the most suitable conservation actions and if they require to be implemented within an MPA or more broadly. Goals of MPAs typically have included biodiversity protection, a multipurpose function (e.g. inclusive of fishery enhancement), re-establishment of the species, raising awareness and/or promoting scientific research. On some occasions, declaration of an MPA has been done simply for political popularity and has not been accompanied by the conservation actions necessary to make it work. Of crucial importance is that management and conservation objectives are clearly identified. They should be specific and quantifiable, accompanied by a realistic monitoring programme, and with management proposals involving all stakeholders since we must not forget that it is human activities rather than cetaceans themselves that are being managed. Both scientific data and information on present and possible future human activities should be considered in the site selection process, and there should be a transparent audit trail of justification for it.

Although cetaceans in European seas do not generally appear to exhibit discrete identifiable breeding areas or migratory routes such as those found elsewhere in the world, especially for largely coastal species such as gray, right and humpback whales, several areas in Europe contain important high density areas or migratory routes. Examples can be found in the Macaronesian region with year-round populations of deep-diving species such as sperm whales, pilot whales and/or beaked whales; the richness of the Strait of Gibraltar-Alborán Sea, including a small population of killer whales and one of the few healthy populations of common dolphins in the Mediterranean Sea; or the Mediterranean Sea itself, that holds a genetically isolated population of fin whales. Generally, high-density areas are used both as feeding areas and breeding/nursery grounds, and it is difficult to establish their primary functions temporally and geographically. Thus in developing criteria for site selection of MPAs, a valuable first step will be to identify areas of high density for the particular species under consideration, and confirm its regular presence over a long time series (ideally decadal).

A suite of survey approaches can be recommended for identifying potential sites for selection as MPAs since they complement one another:

- Aerial and vessel-based surveys provide density estimates that can be used to map hot spots; repeating these in different seasons and between years will allow one to establish trends and temporal variability (see, for example, Gilles *et al*., 2011). Where necessary, supplement this with opportunistic effort-related survey data as well as incidental sightings;
- Acoustic surveys can also provide valuable information, particularly in areas difficult to survey due to weather conditions or for more cryptic yet vocal species, like the harbour porpoise or beaked whales; static devices such as T-PODs, sonobuoys, or pop-up hydrophones are a cost-effective method for monitoring the presence of echo-locating or vocal species at specific locations

over long periods of time (and in some cases may be used to identify the use of locations for feeding or mating – see, for example, Sveegaard *et al*., 2011b);

- Individual ranging movements can be established through photo-identification for those species with recognizable individual features (e.g. bottlenose dolphin, fin whale, minke whale, some of the beaked whales, etc), or, in certain circumstances, by radio or satellite telemetry (e.g. harbour porpoises incidentally caught in pound nets – Sveegaard *et al*., 2011a); alternatively, short-term foraging behaviour can be investigated by suction cup tagging using time-depth recorders and other sensors including acoustic ones (as applied to deep diving species such as beaked whales and pilot whales, or to fin whales).

An important use of survey data, particularly in the context of potential MPAs, is incorporating them into spatial modelling approaches (e.g. generalised additive, generalised linear, or mixed models). Spatial modelling makes use of available environmental information and effort-related occurrence data in order to try to map and explain the regional distribution of a particular species and associations with these variables; it also enables one to make predictions about the importance of areas which otherwise may have received little or no survey coverage. Spatial modelling has recently played a major role in SAC site selection in various regions, for example for bottlenose dolphins in the Alborán Sea. Others have identified hotspots for harbour porpoise using spatial modeling (see, for example, Marubini *et al*., 2009; Embling *et al*., 2010; Gilles *et al*., 2011). Ideally, a variety of statistical models should be used in combination, and explanatory variables should be selected that are likely to reflect best the life history needs of the species concerned, using our best available knowledge (e.g. prey availability), where such data exist. Unfortunately, these are not necessarily parameters for which data are easily available or even obtainable. It is crucial that models provide confidence intervals and clarify when there is a lack of data that could prevent a correct interpretation of the apparent absence of a given species. Where possible, it is valuable to use survey data from a number of sources/survey approaches comprising long time series gathered over a large area, taking into account different types of data, their quality and any potential biases. Identifying critical habitats may not be possible until there is a better understanding of the physical, biological and anthropogenic factors affecting the presence of cetaceans and of prey distribution and abundance.

In some cases, traditional visual survey approaches are not necessarily appropriate. Deep divers such as beaked whales are very difficult to survey since they may spend as little as 8% of their lives at the surface, and even then are rarely observed except in calm sea conditions. Thus, it may be necessary to employ other techniques (such as passive acoustics or telemetry) for studying those species. Following a number of case studies in a variety of locations, it may then be feasible to employ more refined spatial modelling to predict areas of importance for these species. However, it must be remembered that large areas of their potential habitat offshore have never been surveyed. Such cryptic species as deep divers should not be overlooked when considering their suitability for MPA establishment. The recent cases of mass-strandings of beaked whales linked to military mid-frequency active sonar might have been prevented if important habitat for those species had received protection (see also Agardy *et al*., 2007). We should therefore adapt criteria to the biology of the species, considering the precautionary principle and increasing research effort on lesser-known species.

Several important conservation and mitigation measures can be applied without necessarily resorting to setting aside specific localities as protected areas. The re-routing of marine traffic in the Strait of Gibraltar to avoid particularly sensitive areas and thus risk of ship strikes is a case in point. This is the basis for the concept of marine spatial planning, where different areas receive different levels of zoning of activities. Similarly, measures to mitigate against by-catch of cetaceans in fishing gear can be applied throughout a region, irrespective of MPA status.

Simply identifying an area as important for one or more cetacean species, and defining appropriate boundaries is not sufficient. For an MPA to be meaningful as a conservation measure it is imperative that the declaration of an MPA is accompanied by a science based management plan, with clear objectives, identifiable targets, a means to implement these through prioritized actions, and a procedure for monitoring progress in achieving those targets (compliance monitoring). Continued work with stakeholders is essential for the success of MPAs in conserving the species for which they were designated. A mechanism must also be put in place for responding to change in terms of population status and distribution, as well as potential impacts. This requires long-term monitoring **within** the site and in **adjacent areas** so that one can understand the dynamics of animal movements in the long-term.

To cater for temporal variation in range and distribution of the target species, it is prudent to incorporate buffer zones, with temporally flexible boundaries (e.g. seasonal MPAs or MPAs that have flexible boundaries for strict protection every 5-10 years), as well as spatially dynamic boundaries. A network of MPAs across countries, linked where appropriate by corridors, will help to maintain the natural range of the species, whilst an ecosystem approach will be a more robust way of protecting critical habitat.

Adopting these guidelines would go a long way to making Marine Protected Areas a more appropriate management tool for conserving a diversity of cetacean species.

3. MANAGEMENT OF MPAs

"An MPA without a management plan is like a ship without a rudder" (Reeves, 2000). Without an appropriate management plan enforced, the MPA will remain a "paper park" which will only serve to make decision makers look good without any real conservation effect. Even with a management plan, a protected area will be ineffective unless a director is empowered to implement it, i.e. with the necessary legal authority, sufficient financial resources, and adequate staff to proceed with implementation. A management plan should be developed with adequate funding arrangements in place to support its implementation in its entirety.

The management plan will detail the measures enacted to reach the objectives. These include: (a) zoning, to separate highly protected no-entry sites containing cetacean critical habitat from human-use sites where activities such as whale watching, tourism, moderate fishing and vessel traffic may occur in a regulated fashion; (b) regulations and mitigating measures to maintain potentially harmful human activities (e.g., fishing, vessel traffic, military exercises) within acceptable levels; (c) research activities to generate knowledge susceptible to allow management adaptiveness and

increase management effectiveness; (d) enforcement and compliance monitoring to ensure that rules are respected and measures are correctly implemented; (e) monitoring of the status and trends of the target populations and relevant human activities as a feedback mechanism to the management plan, to ensure that the proposed mitigation measures are working as expected; (f) monitoring and periodic review to ensure that the stated objectives are being met; (g) development of risk assessment techniques to take cumulative impact into account and identify emergent risks; (h) promotion of fair decision-making and conflict resolution concerning access to ocean resources within the protected areas; (i) administration, financing and fund-raising; and (j) implementation of education and awareness programmes.

Effective management of an MPA is founded on the articulation of clear and quantifiable objectives to attain the institutional goals, and the implementation of a monitoring system to assess whether these objectives are being met. A significant challenge to the effective management of MPAs dedicated to the protection of top predators such as cetaceans is the need for a framework to guide and assess effectiveness in the context of broader ecosystem-level objectives, which seek to extend conservation benefits from the protected species and their habitats to marine trophic webs and ecosystem-wide processes. Ecosystem-level management requires a clear rationale and a firm knowledge base.

Are the management objectives met? A fundamental step in the management process involves the monitoring and periodic review of activities to assess whether the objectives are being met. A practical way of achieving this result is to devise specific management indicators. Given the complexity involved in selecting appropriate indicators, planning and conducting the evaluation, and consequently adapting further management actions, the entire MPA management evaluation process should be the subject of specific training.

Consensus building and maintenance The creation and maintenance of consensus and public favour is fundamental to the success of an MPA. A cooperative environment will be best achieved through the enrolment of all stakeholders, as well as governmental, intergovernmental and non-governmental organisations in the process as much as feasible.

Existing MPAs in the North East Atlantic and Baltic regions Hoyt (2011) has recently provided a list and descriptions of the MPAs worldwide that are dedicated to cetaceans. This includes a section on the North East Atlantic. In 2005, Hoyt identified 25 existing (eight of which were proposed for expansion) and 25 proposed MPAs, which featured cetacean habitat, many of which related to bottlenose dolphin habitat.

In 2011, the existing MPAs only numbered 19 with those proposed increasing to 28 (and eight of the existing sites proposed for expansion). The reduction in numbers is because Hoyt removed from his list SACs that were too small to even provide minimal protection. Hoyt also commented that SACs urgently require an extension to their remit to cover cetacean species other than harbour porpoises and bottlenose dolphins.

For the Baltic, in 2005, Hoyt (2011) recorded one existing and four proposed MPAs, which included cetacean habitat. By 2011, this had increased to six existing and six proposed sites.

Future Work on Cetacean MPAs by ASCOBANS Given the potential role of MPAs in cetacean conservation, it would be appropriate for ASCOBANS to both monitor their development in the region and offer advice on issues such as suitable boundaries for sites and management guidelines.

This work might be best initiated through a dedicated workshop (perhaps the next in the ECS-ASCOBANS series) focusing upon the development of MPAs for cetaceans to date in the ASCOBANS Agreement Area, and how this situation might be best managed and improved.

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