



Cetacean conservation in the Mediterranean and Black Seas: Fostering transboundary collaboration through the European Marine Strategy Framework Directive



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ABSTRACT

The European Marine Strategy Framework Directive (MSFD) aims at implementing a precautionary and holistic ecosystem-based approach for managing European marine waters. Marine mammals are included as a functional group for the assessment and reporting under Descriptor 1-Biodiversity. Conservation of mobile marine megafauna such as cetaceans requires transboundary cooperation, which the MSFD promotes through regional instruments, such as the Regional Sea Conventions and other regional cooperation structures such as ACCOBAMS (Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area). A questionnaire survey and an exploratory analysis of MSFD implementation in the Mediterranean and Black Seas were conducted. The analysis revealed (i) the saliency of cetacean conservation, and (ii) heterogeneity among countries in the implementation of the MSFD that may hinder transboundary collaboration. ACCOBAMS can stimulate collaboration among scientists involved in cetacean monitoring and can foster transboundary initiatives that would align with MSFD objectives.

1. Introduction

Introduced in 2008, the European Marine Strategy Framework Directive (MSFD, 2008/56/EC [1]) represents the first attempt at European Union (EU) level to implement a precautionary and holistic ecosystem-based approach for the management of marine waters. With the potential to become the keystone instrument for marine conservation in Europe [2], the MSFD was built around the explicit objective of achieving and maintaining Good Environmental Status (GES) by 2020 [1]. MSFD defines GES as “the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive” [1]. Although this broad definition is open to interpretation, it aligns well with threats facing marine ecosystems (see [3,4]).

The implementation of MSFD follows a very tight timetable that, by

the end of 2015, required Member States: (i) to carry out an Initial Assessment (IA) of their marine waters; (ii) to provide an operational definition of GES; (iii) to establish Monitoring Programmes in order to assess progress towards GES; and (iv) to propose a Programme of Measures that would correct deviations from GES [1]. The spatial unit envisioned by the MSFD is ecologically coherent [5]: its scale is above that of any individual EU Member State waters and takes into consideration ecosystem boundaries. Four European Marine Regions are defined: the Baltic Sea, the North East Atlantic Ocean, the Mediterranean Sea and the Black Sea [1]. However, there is “institutional ambiguity” [6] arising either from uncertainty about the mechanisms by which supra-national conflicts will be handled and adjudicated [6]; and from the lack of clarity in the division of responsibilities between the European Commission, EU Member States, and regional (e.g. Regional Sea Conventions, RSC) and international

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agreements (e.g. the Bonn Convention on Migratory Species). This ambiguity is problematic, especially for highly mobile species such as cetaceans that illustrate some of the problems arising in the implementation of the MSFD.

The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS; Fig. 1), is a daughter instrument to the Bonn Convention, focussing on cetaceans in the Mediterranean and Black Seas. The high mobility and transboundary movements of cetaceans (e.g. [7,8]) requires cooperation across national boundaries (e.g. Economic Exclusive Zones) to conduct coherent monitoring and conservation strategies [5,9,10]. Transboundary cetacean conservation is particularly challenging in the ACCOBAMS area, which includes 23 Parties (11 EU Member States and 12 non-Member States) and 5 non-Parties (1 EU Member States and 4 non-Member States) around two main Marine Regions under geopolitical stress: the Mediterranean Sea and the Black Sea [11], as well as a small portion of the Atlantic Ocean [12].

During the Fifth Meeting of the Parties to ACCOBAMS (Tangier, November 2013), Parties stressed their desire to see the work of ACCOBAMS become increasingly integrated within the MSFD. The objective of this work is to provide an overview of the MSFD implementation in the ACCOBAMS area in relation to cetaceans. To this end, a questionnaire was designed to collate information on the MSFD implementation in countries that are both EU Member States and Parties to ACCOBAMS. In particular, the questionnaire aimed at assessing the perceived importance of cetacean conservation to EU ACCOBAMS Parties, and their willingness to frame their national MSFD implementation with respect to cetaceans. Beyond the descriptive and exploratory analysis of the questionnaire responses, this exercise allowed the compilation of a set of recommendations for ACCOBAMS to live up to its coordinating role.

2. Materials and methods

The questionnaire (available as [Supplementary material](#)) was prepared by *Observatoire PELAGIS* (University of La Rochelle/CNRS) with the support of the ACCOBAMS Secretariat. It consisted of 29 questions about cetaceans and the implementation of MSFD with a mix of open and closed questions. Open questions aimed at identifying relevant actors involved in the national implementation of the MSFD. Closed questions dealt with understanding of how cetacean conservation was included in national legislation by Parties. EU ACCOBAMS Parties are required to comply with MSFD, but not all ACCOBAMS Parties are EU Member States - therefore, some questions were not relevant for non-EU ACCOBAMS Parties, but were asked nonetheless for completeness.

The questionnaire was sent electronically on September 26th, 2014 via the Secretariat to ACCOBAMS Focal Points. The deadline to return the questionnaire was set to September 30th, 2015. Reminders were sent in March, June and September 2015. Answers received were coded, tallied and analysed with statistical software R [13], to produce graphical summaries and descriptive statistics. All figures were generated with R package *ggplot2* [14].

The designations employed and the presentation of the information (e.g. on maps) do not imply the expression of any opinion whatsoever on the part of the authors concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

3. Results

3.1. Response rates

By September 30th, 2015, 11 Parties had returned the questionnaire (Table 1). This corresponds roughly to an average response rate of 50% among all Parties (11 answers out of 23 Parties).

Among responding ACCOBAMS Parties, eight are also EU Member

States. Return rates were 3/4 and 1/4 for EU and non-EU ACCOBAMS Parties, respectively. Among EU ACCOBAMS Parties, the two parties with the largest claimed Exclusive Economic Zone in the Mediterranean (Italy and Greece) [15] did not respond. All EU ACCOBAMS Parties with more than 3% of their claimed Mediterranean Exclusive Economic Zone designated as Marine Protected Areas¹ [16] responded.

All responding EU ACCOBAMS Parties reported their respective national implementation of the MSFD to include a specific reference to cetaceans (Fig. 2). However, only six EU ACCOBAMS Parties reported a definition of GES specific to cetaceans, a number that matched the number of EU ACCOBAMS Parties whose monitoring programmes made specific reference to cetaceans. These later EU ACCOBAMS Parties were not the same as the former: France, for example, reported that its GES definition was not specific to cetaceans, yet its monitoring programme had a cetacean-specific component. Conversely, Malta reported a GES definition specific to cetaceans but no associated monitoring programme. Only four EU ACCOBAMS Parties reported specific measures for cetaceans. All responding non-EU ACCOBAMS Parties reported to have developed a monitoring programme for cetaceans, but none reported a cetacean-specific GES definition. Among responding non-EU ACCOBAMS Parties, Ukraine reported that a programme of measures for cetaceans was currently under development. With respect to transboundary issues, only half of the Member States reported to have collaborated with other Parties at the sub-regional scale when implementing the MSFD.

3.2. Descriptors of cetacean GES

Within the MSFD, four functional groups of marine mammals (seals, baleen whales, small toothed-cetaceans and deep-diving cetaceans) are included [17] for the assessment and reporting under biodiversity descriptor (D1), but could also be referred to in four other descriptors: food web (D4), contaminants (D8), marine litter (D10) and underwater noise (D11). There was substantial variation among responding EU ACCOBAMS Parties in the number of GES descriptors dealing with cetaceans (Fig. 3). Underwater noise was perceived as a threat to cetacean GES by five EU ACCOBAMS Parties, which is about half of the respondents. Three EU ACCOBAMS Parties identified both litter and contaminants as a pressure on cetaceans. Croatia and France were the only two EU ACCOBAMS Parties to include cetaceans in all five potentially relevant state- and pressure-based descriptors (D1, D4, D8, D10 and D11).

3.3. Governance

The main mode of governance adopted by EU ACCOBAMS Parties was an inclusive consultation of non-governmental actors during the write-up of the MSFD reporting documents. Among EU ACCOBAMS Parties, inclusive working groups with many stakeholders were preferentially mobilized at the beginning of the MSFD cycle (IA, GES definition), and were less involved in the elaboration of the programmes of monitoring and measures.

3.4. Monitoring and measure programmes for cetaceans

For the monitoring programmes, EU and non-EU respondents reported on the inclusion of both existing schemes and the creation of new ones (Fig. 4). Only Cyprus reported the implementation of a completely *de novo* monitoring programme for cetaceans, while Malta and Slovenia did not plan to develop any new actions. An overall similar pattern was apparent from non-EU Parties answers. In contrast, the content of the programme of measures was unclear for most responding EU ACCOBAMS Parties. Among available responses, most

¹ Figures for 2013.

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