



# Marine Strategy Framework Directive: Innovative and participatory decision-making method for the identification of common measures in the Mediterranean



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## ABSTRACT

The Marine Strategy Framework Directive (MSFD) is the European Commission's flagship initiative for the protection of the European Seas, and the first holistic approach to ensuring that European Seas reach and are maintained at what is called a 'Good Environmental Status' by the year 2020. Regional cooperation, especially between neighbouring countries, and involvement of all interested parties, are horizontal principles of the MSFD, and particularly apply to the definition of programmes of measures, the principal instrument through which each Member State will implement its marine strategy. This paper presents the results from a dedicated, participatory, structured decision-making process that was implemented within the framework of the ActionMed project, which aimed to bring experts and policy/decision-makers from Mediterranean neighbouring countries together, to discuss and agree upon common measures for implementation in their sub-regions. It shows that a participatory approach, supported by customised, case specific intelligent tools, that follows expertly facilitated, structured workshops can be a successful way to enhance sub-regional collaboration. The paper also presents the top ranking measures, selected by experts and decision-makers for common implementation in two Mediterranean sub-regions.

## 1. Introduction

The European marine environment is an important resource, providing food and energy and attracting valuable tourism to the continent. Therefore, its protection is of the utmost importance. The European Commission has implemented several pieces of legislation in the form of Directives, which set mandatory targets for Member States to achieve in order to protect coastal and marine areas, including the Common Fisheries Policy [7] and the Water Framework Directive [4]. These legislative instruments are either focussed on the protection of specific areas or concern specific pressures and sectors. The first comprehensive approach for the protection of European seas came in 2002 in the form of a non-binding recommendation, the Recommendation on Integrated Coastal Zone Management [5]. In 2008, the Commission introduced the first, binding integrative instrument for the protection of marine areas within the entire Exclusive Economic Zone of Member States, in the form of the Marine Strategy Framework Directive [6].

The Marine Strategy Framework Directive (MSFD) is the European Commission's flagship initiative for the protection of the European Seas, and the first holistic approach to ensuring that European Seas reach and

are maintained at what is called a 'Good Environmental Status' by the year 2020. Being a framework directive, it has been designed to guide Member States (MS) through a step-wise, cyclical 6-year approach (Fig. 1), allowing them to take an integrated view of their marine environment, without providing specific targets or goals. It is therefore up to each Member State to define GES for its own marine waters and devise measures in order to achieve it. The primary requirement of the MSFD was for MSs to undertake an initial assessment of their marine waters to identify whether they were in Good Environmental Status (GES), based on 11 Descriptors (Table 1), and to set objectives, targets and indicators that would help them reach or maintain GES. This exercise was completed with various degrees of success in 2012–2013 [1,2]. The second step in the MSFD cycle was for MSs to define monitoring programmes, in 2014, which would allow the evaluation of the extent to which the set of objectives and targets are met. Many of these programmes are primarily based on existing monitoring undertaken in response to already established regulations, such as the Water Framework Directive. However, the MSFD has a much larger geographical scope than other EU legislation and therefore requires additional monitoring. Furthermore, the MSFD requires the establishment and

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Fig. 1. The 6-year cycle of the Marine Strategy Framework Directive (adapted from European Commission).

implementation of coordinated and compatible monitoring of the marine waters within marine regions or sub-regions, meaning that close collaboration with neighbouring MSs is required [10].

The last preparatory step for the implementation of the MSFD requires MSs to define Programmes of Measures (PoM), i.e. the identification, recording and eventually implementation of those existing or new measures, be they legislation, action plans, guidelines or awareness-raising activities, which need to be taken to achieve and maintain GES in their marine waters, for each of the 11 Descriptors. These measures can fall within one of eight group types defined by the MSFD (Table 2). To assist in the definition of their PoMs, the Commission prepared and shared with MSs guidance documents outlining the process that should be followed and the type of information that must be included in the programmes [1–3]. Regional cooperation, especially between neighbouring countries, and involvement of all interested parties are horizontal principles of the MSFD, and particularly apply to the definition of PoMs, the principal instrument through which the marine strategy of each MS will be implemented. Such collaboration is expected to take place through existing structures, and specifically the Regional Sea Conventions (OSPAR Convention in the North East Atlantic, the Helsinki Convention in the Baltic, the Bucharest Convention in the Black Sea and the Barcelona Convention in the Mediterranean).

However, the MSFD does not provide guidance or instructions on how this collaboration should take place (van Tatenhove et al., 2014).

Table 1  
Eleven MSFD Descriptors for defining good environmental status [6].

Descriptor	How is GES defined?
1- Biodiversity	The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.
2- Non-indigenous species	Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.
3- Commercial fish and shellfish	Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock.
4- Food webs	All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.
5- Eutrophication	Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters.
6- Sea-floor integrity	Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.
7- Hydrographical conditions	Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems.
8- Contaminants	Contaminants are at a level not giving rise to pollution effects.
9- Contaminants in seafood	Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards.
10- Marine litter	Properties and quantities of marine litter do not cause harm to the coastal and marine environment.
11- Energy including underwater noise	Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.

Table 2  
Types of measures that can be included in the programmes of measures [1,2].

- 1- Input controls: management measures that influence the amount of a human activity that is permitted
- 2- Output controls: management measures that influence the degree of perturbation of an ecosystem that is permitted
- 3- Spatial and temporal distribution controls: management measures that influence when and where an activity is allowed to occur
- 4- Management and coordination measures: tools to ensure that management is coordinated
- 5- Measures to improve traceability, where possible, of marine pollution
- 6- Economic incentives: management measures that make it in the economic interest of those using the marine ecosystems to act in ways which help to achieve the good environmental status objective
- 7- Mitigation and remediation tools: management tools which guide human activities to restore damaged components of marine ecosystems
- 8- Communication, stakeholder involvement and raising public awareness

Additionally, since this is the first time that the Regional Sea Conventions play an active role in a European Directive, MSs are faced with some institutional ambiguity (i.e. ambiguity that results from different institutional settings coming together in a new policy practice), which has been found to be highest in the Mediterranean Sea [12]. This is due to the fact that the Mediterranean has a very large number of non-EU Member States, meaning that the requirements of the MSFD cannot be directly incorporated into the processes of the Barcelona Convention, hampering coordination and collaboration.

To help address this issue, assistance with the definition of PoMs has been provided to MSs through the funding of regional projects, such as ActionMed ‘Action Plans for Integrated Regional Monitoring Programmes, Coordinated Programmes of Measures and Addressing Data and Knowledge Gaps in Mediterranean Sea’ ([www.actionmed.eu](http://www.actionmed.eu)), which aim to facilitate the coordination for PoM definition at both the national and sub-regional level.

However, it is important to implement a structured approach with advice on spatially explicit tools for practical tasks [11], such as the identification of common practices and measures, either in a country level or among neighbouring countries. This paper presents the results from a dedicated, participatory, structured decision-making process that was implemented within the framework of the ActionMed project. ActionMed brought together key stakeholders working on the MSFD PoMs in neighbouring countries of the Mediterranean, to facilitate collaboration that would result in the identification of priority measures that could be either implemented collaboratively (i.e. through shared structures and resources) or that could be implemented in a standardised manner.

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