

Monitoring programmes

Executive Summary



Monitoring Programmes

SECOND CYCLE OF MARINE STRATEGIES



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PARA LA TRANSICIÓN ECOLÓGICA
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INTRODUCTION



1. INTRODUCTION

1.1. Monitoring programmes in the Marine Strategy Framework Directive (MSFD)

MSFD

In compliance with Law 41/2010, of December 29th, on the protection of the marine environment, which transposes the Marine Strategy Framework Directive (Directive 2008/56/EC) (MSFD), the monitoring programmes for each of the 11 descriptors of the MSFD were drawn up in 2014 as part of the first cycle of marine strategies (2012-2018). These documents are available on the MITECO website: https://www.miteco.gob.es/es/costas/temas/proteccion-medio-marino/estrategiasmarinas/eemm_2dociclo.aspx.

Monitoring programmes are the fourth phase of marine strategies, and the fundamental key that links all the others.

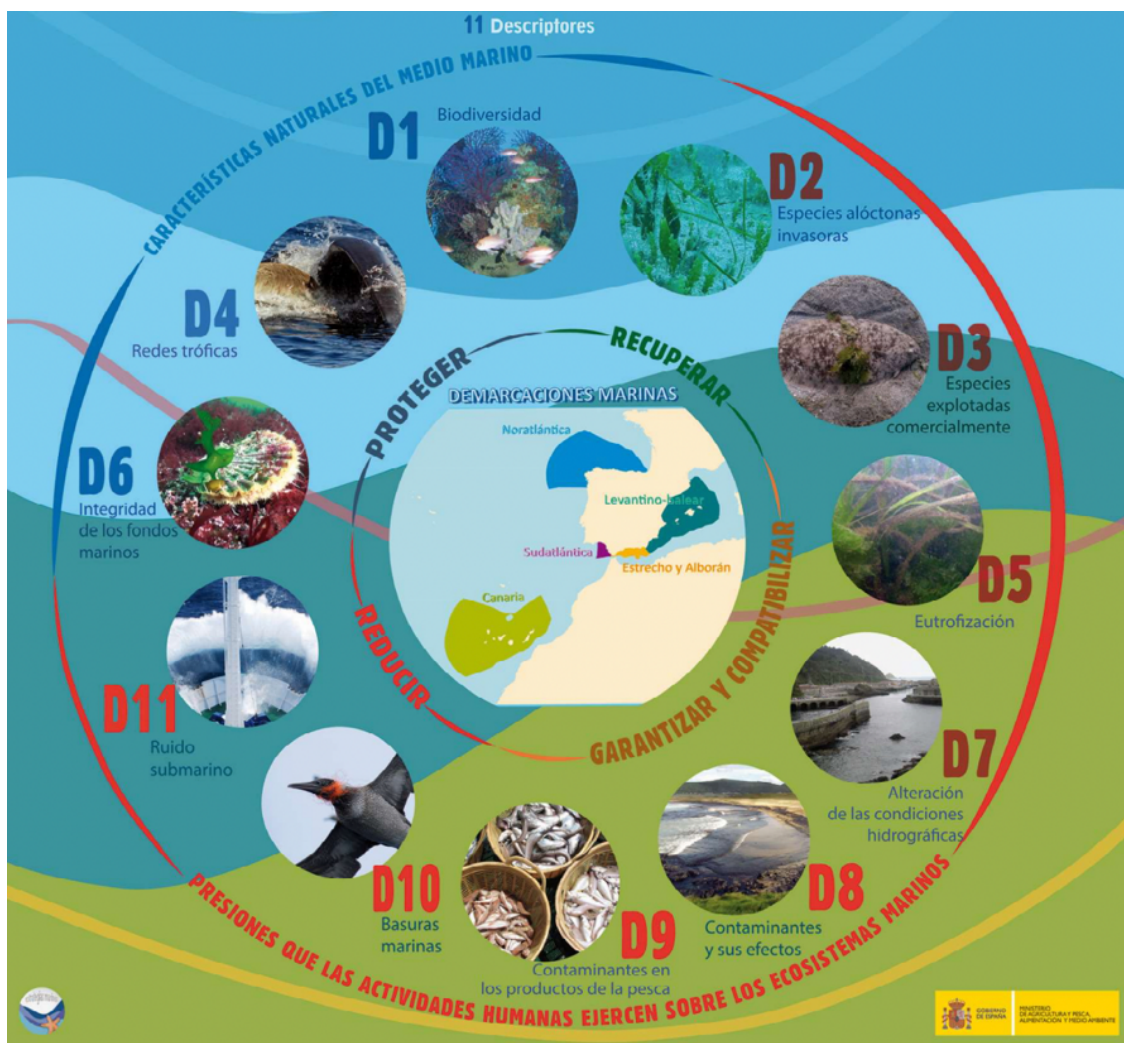




The MSFD specifies that monitoring programmes should:

1. Provide information to assess the environmental status, progress made and the remaining gap to be covered to reach GES. Producir información que permita determinar los indicadores.
2. Produce information to enable the identification of appropriate indicators for the environmental objectives set out in Article 10.
3. Produce information to assess the impact of measures resulting from Article 13.
4. Plan activities to determine the cause of change and possible corrective measures to restore the GES.
5. Provide information on chemicals in fish.
6. Plan activities to confirm whether corrective measures are effective.
7. Group the information according to regions or sub-regions as per Article 4.
8. Ensuring comparability of assessment approaches and methods in each region.
9. Develop standardised monitoring methods.
10. Ensure compatibility with existing programmes.
11. Include in the initial assessment an evaluation of changes affecting ecological conditions and emerging issues.
12. In the initial assessment, assess the achievement of the environmental objectives for Annex III elements taking into account natural variability.

Figure 1. Good Environmental Status Descriptors





1.2. Regional coordination in marine monitoring

The MSFD and Decision 2017/848 state that coordination at regional level should make use of existing structures, such as the Regional Sea Conventions, which are prior to the European regulations for the protection of the marine environment.

In the case of Spain, the Regional Sea Conventions that protect Spanish jurisdictional waters and to which Spain is a contracting party are the OSPAR Convention for the Protection of the North-East Atlantic (covering the Spanish waters of the Bay of Biscay and Iberian coasts) and the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (covering the waters of the Mediterranean Sea). ACCOBAMS also involves Spain, but to a lesser extent. For the time being, the marine waters of the Canary Islands, located within the Macaronesian region, are not included in the scope of any regional convention, and coordination in this region is being developed through a series of projects between Portugal and Spain (Mistic Seas), as explained in section 1.2.4. In the framework of both conventions, initiatives have been developed to monitor the marine environment at regional level, including common methodologies and indicators.

With respect to OSPAR, the common indicators have been considered and included in the monitoring programmes of the Marine Strategies, as far as possible, to ensure homogeneity of monitoring in the North East Atlantic, so that these programmes feed into both the marine assessment of the marine environment under the Marine Strategies and the OSPAR Quality Status Report (QSR). The ICG-MSFD group is responsible for aligning OSPAR actions with the requirements of the MSFD.

With regard to the Barcelona Convention, coordination in monitoring culminated in the adoption of the IMAP in 2016, which has an ecosystem-based approach, the 11 ecological targets and common indicators. IMAP enables the development of QSRs (the first was in 2017) that report on the status of ecosystems in relation to the GES. The EcAp group is the group designated to ensure coherence between the MSFD and the members of the EU Barcelona Convention.

In the Canary Islands, MISTIC SEAS projects design and dictate the assessment and monitoring programmes for the Macaronesian sub-region. The Macaronesian Roof Report has been integrated into the Marine Strategies.



**IMPLEMENTATION
OF THE MSFD IN
SPAIN: MONITORING
PROGRAMMES**



2. IMPLEMENTATION OF THE MSFD IN SPAIN: MONITORING PROGRAMMES

2.1. First cycle follow-up programmes (2014)

The structure of the first cycle monitoring programmes consists of a report and several annexes. The report explains the general issues relevant to the monitoring programmes, such as the design process, the criteria followed, the relationship with other policies, and the context. It is a key document for understanding the second cycle programmes as well, since these are basically an update of the previous ones, and are closely related. The different annexes refer to existing monitoring programmes, indicators and new monitoring programmes for each marine subdivision. Within each thematic monitoring programme, different specific monitoring sub-programmes were framed. Each of the programmes in the first cycle addresses one of the different descriptors of the marine strategies, except for descriptors 1, 4 and 6 ("biodiversity descriptors"), where a programme was proposed for each biodiversity component: birds, mammals and reptiles, fish and cephalopods, benthic habitats and pelagic habitats. In addition, a series of sub-programmes were designed to monitor human activities and anthropogenic pressures:



Table 1. First cycle follow-up programmes

First cycle follow-up programmes	Associated descriptor
AV- Marine birds	D1, D4
MT- Mammals and reptiles	D1, D4
PC- Fish and cephalopods	D1, D4
HP- Pelagic habitats	D1, D4
HB- Benthic habitats	D1, D6, D4
EAI- Invasive species	D2
EC- Commercial species	D3
EUT- Eutrophication	D5
AH- Hydrographical alterations	D7
CONT- Contamination	D8
CP- Contamination in fish	D9
BM- Marine Waste	D10
RS- Underwater Noise	D11
Monitoring subprogrammes of human activities.	Human activities annex III of MSFD
Monitoring subprogrammes of anthropogenic pressures.	Anthropogenic pressures annex III of MSFD.



**UPDATING PROCESS OF
MONITORING PROGRAMMES
IN THE SECOND CYCLE**



3. UPDATING PROCESS OF MONITORING PROGRAMMES IN THE SECOND CYCLE

3.1. Process of updating monitoring programmes

The monitoring programmes of the second cycle are very similar in content to those of the first cycle, as these already responded quite comprehensively to the requirements of the MSFD and the Decision. The update has in particular taken into account the adaptation of monitoring to the new criteria of Decision 2017/848, the changes introduced by Directive 2017/845, as well as the lessons learned during the first cycle. It has also considered the recommendations contained in the Article 11 Reporting Guide, which establishes the fields to be included in the Report to be submitted to the Commission with the content of the monitoring programmes, in order to maintain consistency between the monitoring programmes of the different Member States of the European Union.

Upgrading steps in the second cycle

1. Review of existing monitoring programmes, carried out by MITECO, IEO and CEDEX-CEPYC. Most of the monitoring programmes related to descriptors are carried out by the Spanish Institute of Oceanography (IEO), and the monitoring programmes for pressures and human activities are carried out by the Centre for the Study of Ports and Coasts and the Centre for Studies and Experimentation of Works.
2. Meeting of experts and scientists in scientific seminars at CENEAM with 4 review blocks: marine species, marine habitats and hydrographic conditions and marine litter.
3. Preparation of drafts of updated monitoring programmes.
4. Organisation of bilateral meetings of the National Government, in which experts from MITECO-IEO-CEDEX discuss with deputies from the coastal Autonomous Communities.
5. Bilateral meetings between MITECO and General Secretariat of Fisheries to address monitoring programmes concerning common elements. MSFD and Common Fisheries Policy issues such as by-catch, commercial species and fishing activity are addressed.
6. Bilateral meetings between MITECO departments where specific elements such as strandings, marine species and habitats (General Directorate of Biodiversity), or pressures from inland water inputs (General Water Directorate) are discussed.
7. Debate on each topic in online groups.
8. Consideration of the conclusions of the previous steps to define the new views and formalise the adjustments.

The individual monitoring sheets for each project that were produced for each thematic area identified followed a strict procedure, which then allowed for the subsequent unification and comparison of these.



Information needed for a Monitoring Strategy sheet (Annex 1)

1. Member State Code
2. The name of the reporting organisation
3. Descriptors addressed in the strategy
4. Description of the strategy (its tracking, pressures/risk of not achieving the GES, impacts and current status).
5. Competent authority (to ensure implementation)
6. Responsible authority (for MSFD purposes)
7. Relationship between the competent authority and the responsible organisations
8. Regional cooperation needed
9. Related environmental objectives (as set out in Article 10 of the MSFD and listing the codes of the environmental objectives approved for each of the 5 subdivision).
10. Relevant measures
11. Chronology of monitoring programmes
12. Gaps of the monitoring strategy
13. Monitoring programmes (their relationship with the strategy and decision criteria).

The information required for a Monitoring Programme sheet is an extension of the Monitoring Strategies sheet and is composed of 29 steps detailed in Annex II of the "Second Cycle Monitoring Programmes" Report.

3.2 Criteria for monitoring programmes

- Adaptation to the criteria of Decision 2017/848. The "gaps" section of the Monitoring Strategies details the secondary criteria that could not be considered.
- Adaptation of the monitoring programmes for human pressures and activities to the new Annex I of Law 41/2010.
- Consideration of the weighted conclusions in the CENEAM workshop and the bilateral meetings described above.
- Inclusion of the common indicators established by OSPAR and the Barcelona Convention.
- Implementation of the Article 11 Reporting Guidelines for the report to the Commission.



**SECOND CYCLE
FOLLOW-UP
PROGRAMMES**



4. SECOND CYCLE MONITORING PROGRAMMES

4.1. Changes in structure and content

The main differences between the first cycle and the second cycle in terms of monitoring programmes are that:

- Monitoring programmes are renamed monitoring strategies (Reporting Guidance, Article 11).
- The monitoring sub-programmes are renamed monitoring programmes (Reporting Guidance, Article 11).
- Reduction in the number of monitoring programmes as the monitoring programmes of the different marine subdivision have been merged into a single fact sheet for each thematic area.
- The new programmes prioritise the need to focus specific monitoring on areas particularly affected by anthropogenic pressures. Flexibility in the prioritisation of monitoring is a primary concern, allowing programmes to be adaptive to address emerging issues.
- The former sub-programme MT-3 "Marine Turtles" has been eliminated, and the monitoring of this group of species has been included in the monitoring programmes MT-1 and MT-2, considering a proposal made by the experts at the CENEAM scientific workshop.
- The former sub-programmes CONT-3 "Radionuclides" and CONT5 "PathogensWater" have been deleted and included in the pressure monitoring programmes.
- The former HB-2 and HB-7 sub-programmes have been merged, resulting in a single benthic habitats programme. The data come mainly from the Autonomous Communities, which collect them in the development of their competences with respect to the WFD in coastal waters, and the parameters and indicators are similar, so this merge has been considered more pragmatic. On the other hand, the HB-8 sub-programme for additional data on benthic habitats has been eliminated, as it is considered that this programme would be represented in the rest of the HB strategy.
- The monitoring programme AH-1 - Hydrographic alterations at the marine subdivision level, formerly focused on descriptor 7, has become the monitoring programme CI - Prevailing Conditions, a cross-cutting monitoring programme addressing marine environmental parameters that affect all descriptors. This monitoring programme also aims to assess the changes that the oceans are undergoing as a result of climate change.
- A specific Trophic Networks (TN) strategy and programme has been set up to monitor descriptor 4.
- The former CP-2 sub-programme on pathogens in fish has been deleted.
- The BM-8 monitoring programme on litter in biota has been established to address Criteria D10C3 - Litter in biota and D10C4 - Impact on biota of Decision 2017/848.
- The monitoring programmes for human pressures and activities have been modified according to the new classification established by Directive 2017/845.



4.2. List of the monitoring programmes of the strategies and the relation of the strategies to the GES descriptors

PROGRAMME CODE	FULL NAME
Seabird monitoring strategy (D1, D4)	
EN-AV-1_CensusColonies	Census in colonies
EN-AV-2_Productivity	Breeding bird productivity
ES-AV-3_Censosmar	Census at sea
EN-AV-4_Interactionfisheries	Bird interactions with fishing activity
EN-AV-5_AdditionalData	Additional data
Marine mammal and turtle monitoring strategy (D1, D4)	
EN-MT-1_CetTortCosteros	Coastal marine mammals and turtles
EN-MT-2_CetTortOceanicos	Oceanic marine mammals and turtles
EN-MT-4_FishingMamTurtleInteraction	Interaction of marine mammals and turtles with fishing activity
EN-MT-5_Varamientos	Strandings of marine mammals and turtles
EN-MT6_DadicionalesMamTortugas	Additional data on marine mammals and turtles
Fish and cephalopod monitoring strategy (D1, D4)	
ES-PC-1_InfralitoralRocosoFish	Fish and cephalopods from infralittoral rocky areas



EN-PC-2_PelagicFish	Pelagic fish and cephalopods
ES-PC-3_CircaBatialRocosoFish	Fish and cephalopods of circalittoral and rocky bathyal bottoms
ES-PC-4_FishCircaBatialSediment	Fish and cephalopods from sedimentary bathyal and circalittoral seabeds
Benthic habitat monitoring strategy (D1, D4, D6)	
ES-HB-1_InfralittRocoso	Rocky infralittoral seabed habitats
ES-HB-2-7_InfralittSedim_Intermareal	Sedimentary and intertidal infralittoral bottom habitats
ES-HB-3_CircaBatRocoso	Circalittoral and rocky shallow habitats
ES-HB-4_CircaBatSedim	Circalittoral and sedimentary bathyal bottom habitats
EN-HB-5_Angiosperms	Infralittoral and intertidal habitats of marine angiosperms
ES-HB-6_SpeciesBentProteg	Protected benthic species
EN-HB-8_InteractionActHum	Interaction with human activities
Pelagic Habitat Monitoring Strategy (D1, D4)	
EN-HP-1_HabPelagicCosteros	Coastal habitats
ES-HP-2_HabPelagicosPlataformOcean	Continental shelf and oceanic habitats



Invasive non-native species monitoring strategy (D2)	
ES-EAI-1_InvasiveSensitiveAreas	Detection and quantification of non-indigenous species in protected or sensitive marine areas
EN-EAI-2_HotSpotsInvasives	Detection of non-native species in areas of high risk of introduction, such as harbours and aquaculture plants.
ES-EAI-3_SpecificInvasives	Specific invasive alien invasive species monitoring programmes
ES-EAI-4_DataCollectionInvasoras	Data mining of biodiversity and information management programmes
ES-EAI-5_AdditionalInvasiveData	Additional data programme
Monitoring strategy for commercially exploited species (D3)	
EN-EC-1_CommercialSpecies	Commercially exploited species
EN-EC-2_AdditionalData	Additional data
Food web monitoring strategy (D4)	
ES-RT-1_CircaPel	Circallittoral and pelagic food webs
Eutrophication monitoring strategy (D5)	
ES-EUT-1_AguasCosteras	Nutrients, oxygen and phytoplankton in coastal water bodies
EN-EUT-2_OpenWaters	Nutrients, oxygen and phytoplankton in non-coastal water bodies



EN-EUT-3_AdditionalData	Additional data
Strategy for monitoring hydrographic alterations (D7)	
ES-AH-AlterationsHydrographicLocalScale	Infrastructures with the capacity to alter local and regional dynamics and hydrography
Pollutant monitoring strategy (D8)	
ES-CONT-1_AguasCosteras	Monitoring of marine chemical pollution in coastal waters
EN-CONT-2_OpenWaters	Monitoring of marine chemical pollution in open waters
EN-CONT-4_AccidentalPollution	Accidental contamination
Monitoring strategy for contaminants in fish (D9)	
EN- CP-1_ContaminantsFish	Contaminants in fish
Marine litter monitoring strategy (D10)	
ES-BM-1_BasuraPlayas	Litter on beaches
EN-BM-2_FloatingFloatingWaste	Floating litter
ES-BM-3_MarineBottomScrap	Seabed litter
EN-BM-4_MicroplasticsWater	Microplastics in surface waters
EN-BM-5_MicroplasticsBackground	Microplastics on the seabed



EN-BM-6_MicroplasticsBeaches	Microplastics on beaches
EN-BM-7_Additional information	Citizen science
ES-BM-8_BasurasBiota	Litter in biota
Underwater noise monitoring strategy (D11)	
EN-RS-1_ImpulsiveNoise	Monitoring of the temporal and spatial distribution of low and medium frequency impulsive noise.
ES-RS-2_NoiseEnvironment	Continuous low-frequency noise monitoring
Cross-cutting programmes	
EN-CI_CondEnvironmentalImperatives	Prevailing environmental conditions at the scale of the marine subdivision
Activity monitoring programmes (human activities Annex III DMEM)	
EN-A-03_Costera_Defence	Coastal defence and flood protection
ES-A-04_InfrMarAdentro	Offshore infrastructures (except for oil, gas or renewable energy exploitation)
ES-A-05_ReestructuracMarineFund	Operational port dredging and dumping of dredged material
EN-A-06_ExtractionMinerals	Mineral extraction
EN-A-07_Hydrocarbons	Oil and gas extraction



ES-A-08_ExtractSalt	Salt extraction
ES-A-09_SeaWater Extraction	Seawater extraction
EN-A-10_JanRenov	Renewable energy generation
ES-A-12_Cables	Laying of electricity and communications cables
EN-A-13_MaritimeFishing	Fishing and shellfish gathering (professional, recreational)
EN-A-14_FishTransfers	Fish and seafood processing
ES-A-15_RecoleccPlantMarinas	Harvesting of marine plants
EN-A-16_HuntingRecoleccOtherPurposes	Hunting and gathering for other purposes
EN-A-17_Marine Aquaculture	Marine aquaculture
EN-A-21_Ports	Port infrastructures
EN-A-22_TransportShipping	Maritime transport
EN-A-27_Treatment_EliminateWaste	Waste treatment and disposal
EN-A-28_InfraestrucTurismoOcio	Tourism and leisure infrastructure
EN-A-29_ActivitiesTourismLeisure	Tourism and leisure activities
Pressure Monitoring Programmes (Anthropogenic pressures Annex III DMEM)	
EN-PB-02_IntroductionPathogens	Introduction of microbial pathogenic organisms



EN-PF-01_PhysicalDisturbanceBackground	Physical disturbances of the seabed
EN-PF-02_PhysicalLosses	Physical losses
EN-PSBE-01_Nutrient Input	Nutrient supply
EN-PSBE-02_OrganicMaterialContribution	Organic matter input
ES-PSBE-03_PSBE-03_Pollutant Contribution	Contribution of pollutants
ES-PSBE-04_Litter Contribution	Contribution of waste
ES-PSBE-06_Thermal Waste	Thermal discharges
ES-PSBE-07_AporteAgua	Brine discharges
Programmes for monitoring environmental objectives	
ES-OA-A	Type A environmental objectives
ES-OA-B	Type B environmental objectives
ES-OA-C	Type C environmental objectives

The strategies and monitoring programmes of the 5 Marine Strategies can be found in the documents published on the MITECO website. https://www.miteco.gob.es/es/costas/temas/proteccion-medio-marino/estrategias-marinas/eemm_2dociclo_fase4.aspx

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