



MARINE STRATEGY FRAMEWORK DIRECTIVE

Background material Scientific game

Authors

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Find more information on the project website www.medregion.eu.

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Background material on Marine Strategy Framework Directive

Seas and oceans cover about 71% of the earth's surface and play a key role in the survival of species. Pollution, over-exploitation of resources and habitat destruction are affecting the health of marine ecosystems and species communities. To contribute to the protection of these ecosystems from anthropogenic impact, a deeper knowledge and greater awareness on the part of all of us is required.

We can start working together. Join us and we will try to do it!

With "*Scientific Game*", a serious game produced as part of the **MEDREGION** project, you can test yourself and discover the enthusiasm of scientific research in addressing one of the greatest current environmental challenges: *the protection and protection of the sea*.



PART I

1 - What is the Marine Strategy Framework Directive (MSFD)?

The human species has always preferred to live near to aquatic ecosystem.

Oceans and seas, in the course of history, have been important channels for trade and transport.

The oceans (their temperature, chemical composition, lives etc.) influence the ecosystems on a global scale. Rainwater, water we drink,

climate, our food and oxygen are elements regulated by the sea; a careful management of this global resource, the Sea, is very relevant.

The European Commission has made rules to protect our seas and oceans. The rules (called articles in the Directive) are included in a document which is the Marine Strategy Framework Directive (MSFD). This Directive includes 28 articles



Earth appears as a blue planet because of the oceans covering about 71% of the Earth's surface.

and it is addressed to Member States of the Union European (art. 28). The Commission will review this Directive by 15 July 2023 and, if necessary, propose any amendments (art.23).

Keep in mind...

The **European Union** (EU) is not a state but a unique economic and political partnership between the 27 European countries, building their future all together. For each country there is a politician who, together with the other “*commissioners*”, forms the so-called **European Commission**. Their job is to reflect on what would be best for Europe as a whole and to propose new EU laws.

1 - Key concepts:



- What is the Marine Strategy Framework Directive? Ø
- To whom the Directive is directed?
- How many articles does the Directive include?

2 – Which seas do we protect?

Marine waters under the jurisdiction of Member States of the European Union include waters in the Mediterranean Sea, Baltic Sea, Black Sea and North-east Atlantic Ocean, including the waters surrounding the Azores, Madeira and the Canary Islands.

The directive divides European marine waters in four marine regions:

- Baltic sea
- North-east Atlantic Ocean
- Mediterranean Sea
- Black Sea.

Some regions have been further subdivided, considering the specificities of several areas, into specific subregions. In the Mediterranean, **four** subregions have been identified:

- Western Mediterranean Sea
- Adriatic Sea
- Ionian Sea and the Central Mediterranean Sea
- Aegean-Levantine Sea.



Marine region

Marine regions and their subregions are designated to facilitate the implementation of this Directive and are determined taking into account hydrological, oceanographic and biogeographic features.

Member States, sharing a marine region or subregion, cooperate (art.5.2) to ensure, within each marine region or subregion, the achievement of the objectives of this Directive and, for this reason, they can use existing regional institutional cooperation structures (art.6).



Regional cooperation

'Regional cooperation' means cooperation and coordination of activities between Member States and, whenever possible, third countries sharing the same marine region or subregion, in order to develop and implement marine strategies.



Mediterranean Sea is a large sea that separates Europe from Africa. It stretches from the Atlantic Ocean in the west to Asia in the East. Many early civilizations developed in the Mediterranean region.

2 - Key concepts:



- The directive divides European marine waters in four marine regions. Why?
- The directive identified four subregions in the Mediterranean. What are they?
- When do the Member States cooperate to achieve the objectives of this Directive?

3 - Scope of the Marine Strategy Framework Directive

The directive asks Member State to develop a marine strategy for its marine waters aiming to protect and preserve the marine environment, prevent its deterioration or, where practicable, restore marine ecosystems in areas where they have been adversely affected, in order to achieve or maintain the **good environmental status** (GES) of European seas and oceans by 2020.



Marine waters

Waters, including sea bottom and subsoil, on the seaward side of the baseline from which the extent of territorial waters is measured till where a Member State has and/or exercises jurisdictional rights (...); and coastal waters as defined by Directive 2000/60/EC (...).

Marine strategy

'Marine strategy' is the strategy to be developed and implemented for each marine region or subregion.

Environmental status

'Environmental status' is the overall state of the environment in marine waters, taking into account both structure, function and processes of marine ecosystems and natural physiographic, geographic, biological, geological and climatic factors, as well as physical, acoustic and chemical conditions, including those resulting from human activities inside or outside the considered area.



3 – Key concepts:



- What is the goal that the marine strategy directive requires to the Member States of the European Union?
- What the Member States of the European Union have do to achieve good environmental status?
- What is the deadline for achieve the good environmental status?

4 – Good environmental status (GES) end descriptor

'Good environmental status' is the environmental status of marine waters in which they preserve ecological diversity, the properties of oceans and seas in order to be clear, healthy and productive for a sustainable use for current and future generations. The concept of 'good environmental status' is very important; you can deepen it reading the articles 3 and 9.

The directive developed 11 qualitative descriptors for determining good environmental status. These descriptors are specified in the **annex I** of the directive and they are listed below in this document.

The European Commission specified further the **11 descriptors**, defining **26 principles and 56 indicators** (listed on the official journal of the European Union L234/14). For each descriptor there are one or more principles, and the criteria are accompanied by a list of related indicators, to make such criteria operational and allow subsequent progress.

To understand better the relation between descriptor and principles you can read the following example.

Two principles were associated to the descriptor 10:

- the **first** concerns the characteristic of litter in the marine and coastal environments
- the **second** concerns the impacts of litter on marine organisms.



«**criteria**»: means distinctive technical features that are closely linked to qualitative descriptors.

To understand better the **relation** between principles and indicators, referring to the previous example, three indicators were identified for the first principle:

- trends in the amount of litter released at sea and/or deposited on coastlines, including the analysis of composition, spatial distribution and, where possible, their source;
- trends in the amount of litter in the water column (including floating at the surface) and deposited on the sea bottom, including the analysis of composition, spatial distribution and, where possible, source;
- trends in the amount, distribution and, where possible, composition of micro-particles (in particular micro-plastics).

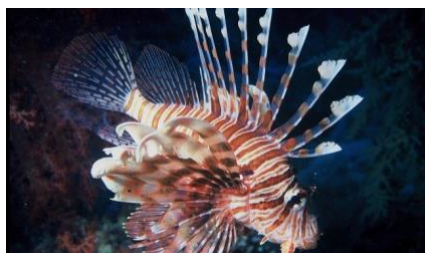
In the second principle (impacts of litter on marine organisms), one indicator was defined:

- trends in the amount and the composition of litter ingested by marine animals (e.g., analysis of stomach content).

The 11 qualitative descriptors for determining good environmental (Articles 3(5), 9(1), 9(3) and 24) are listed below. More information is available at the link:

http://ec.europa.eu/environment/marine/young-people/oceans_en.htm

Descriptor 1 - Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.



Descriptor 2 - Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.

Descriptor 3 - 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.



Descriptor 4 - 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.

Descriptor 5 - Human-induced eutrophication is minimized, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters.

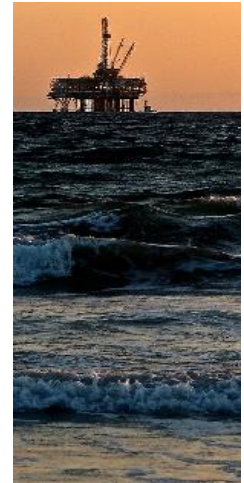


Descriptor 6 - Sea floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.

Descriptor 7 - Permanent **alteration of hydrographical conditions** does not adversely affect marine ecosystems.

Descriptor 8 - **Concentrations of contaminants** are at levels not giving rise to pollution effects.

Descriptor 9 - **Contaminants in fish and other seafood** for human consumption do not exceed levels established by Community legislation or other relevant standards.



Descriptor 10 - Properties and quantities of **marine litter** do not cause harm to the coastal and marine environment.

Descriptor 11 - **Introduction of energy**, including underwater noise, is at levels that do not adversely affect the marine environment.

MEDREGION project, will address most of descriptors at Mediterranean level (all subregions) with a focus on the following:

- ✓ Descriptor 1 – Biodiversity
- ✓ Descriptor 3 – exploitation of resources
- ✓ Descriptor 4 – Trophic net
- ✓ Descriptor 5 – Eutrophication
- ✓ Descriptor 6 - Sea floor integrity
- ✓ Descriptor 8 - Contaminants
- ✓ Descriptor 10 – Marine litter

4 – Key concepts:



- Definition of “good environmental status”.
- The annex I includes 11 qualitative descriptors. What are they for?
- What are the differences between principles and indicators?

PART II

5 – The marine strategy

Now we have cleared the scope of the directive, how can we reach it? The directive helps us! Each Member State should develop a marine strategy for its marine waters, a plan of action organised in two consecutive phases: a first phase of preparation, and a second phase called “Programme of measures”. Each phase includes intermediate steps.



5.1 – Phase I - Implementation of the Marine strategy

The first phase of the Directive consists of a “preparation phase” including:

- a) initial assessment of the current environmental status of the waters;
- b) determination of good environmental status for the waters and definitions of environmental goals and related indicators;
- c) definition and implementation of a monitoring programme to a constant monitoring and evaluation of environmental goals.

a) Initial assessment

The first action to carry out is to investigate and define if the marine waters are in “bad” or “good” environmental status. How to do this? Sometimes, the assessment of the environmental status could be very difficult while in other cases it is easy, as in the case in which we observe plastic material in sea water (see the picture). In most cases it is necessary to do a deep investigation about the state of the considered marine ecosystem.

In the Table 1 of **Annex III the characteristics, pressures and impacts** relevant for the assessment of the environmental status, are reported:

- physical and chemical features (topography, nutrients, oxygen etc ...);
- habitat types (predominant habitat at the sea bottom and in the water column with description of the physico-chemical features, such as depth, salinity, etc.);
- biological characteristics (structure of fish populations, population dynamics of marine mammals and reptiles, etc.);
- other characteristics (chemicals, including chemicals giving rise to concern,

hotspots, etc.).

Another important aspect is the analysis of the environmental impact, including human activities on waters such as the underwater noise, marine litter, discharge from power stations, pesticides, marine litter, pollution by ships, etc. For this aspect the European directive produced a table (Table 2 of Annex III) reporting pressures and impacts to be considered for the initial assessment of the environmental status of marine waters.

b) Determination of a good environmental status

After the initial assessment, the Member States, for each marine region or subregion, determine a **set of characteristics** for good environmental status for marine waters, taking into consideration the qualitative descriptors listed in Annex I (art.9).

Taking into account the initial assessment, the Member States establish a comprehensive set of **environmental targets** and associated indicators for marine waters in order to achieve a good environmental status of the marine environment, taking into account the indicative lists of **pressures** and **impacts** reported in Table 2 of Annex III, and the characteristics reported in Annex IV (art. 10).

Environmental goals

'*Environmental goal*' is a qualitative or quantitative statement on the desired conditions of the different components of pressures and impacts of marine waters for each marine region or subregion. Environmental goals are established in agreement with **Article 10**.

c) Monitoring programmes

The Member States process and implement monitoring programmes for the constant assessment of the environmental status of marine waters in relation to environmental goals (art. 11).

Pollution

'Pollution' is the direct or indirect introduction into the marine environment, as a result of human activity, of substances or energy, including human-induced marine underwater noise, which cause or could cause deleterious effects such as damages for the biological resources and marine ecosystems, including loss of biodiversity, hazards to human health, hindering of marine activities, including fishing, tourism and recreation and other legitimate uses of the sea, changes of the marine water quality so much to prevent the use of water, reduction of recreational of marine environment, or, in general, deterioration of the sustainable use of marine goods and services.

5.2 – Phase II - Implementation of the Marine strategy

The second phase of the MSFD, called "Programme of measures", is organised in **two steps**:

a) development of a programme of measures designed to achieve or maintain good environmental status, in accordance with Article 13(1), (2), (3);

b) beginning of the programme of measures in accordance with article 13 (10).

a) Programme of measures: development

In the development of a program of measures, the Member States identify the measures necessary to be taken in order to achieve or maintain good environmental status in their marine waters. These measures are developed on the basis of the initial assessment (Art. 8) and according to the established environmental targets (Art. 10). When drawing up the programme of measures Member States shall give due consideration to sustainable development and, in particular, to the **social and economic impacts** of the measures envisaged. Member States shall ensure that measures are cost-effective and technically feasible, and shall carry out impact assessments, including cost-benefit analyses. Programs of measures must include spatial protection measures that help establish marine protected areas.

The measures are developed in consideration of the types of measures provided for in **Annex VI** of the directive and can be classified as technical, legislative, financial and political.

Where the Member States consider that the management of human activity is likely to have a significant impact of marine environmental, they shall address the competent authority or international

"*Misure*" is a regional, national or union action to contribute to achieving good environmental status within 2020.

The **programmes** are the ways through which the measures contribute to the respect of the environmental goals.

organisation concerned with a view to the consideration and possible adoption of measures that may be necessary in order to achieve the objectives of this Directive.

The Commission shall consider the coherence of the programmes of measures within the different regions or subregions and across the Community (art.16).

b) Entry into operation of the programmes of measures

Member state shall ensure that the programmes are made operational within one year of their establishment.

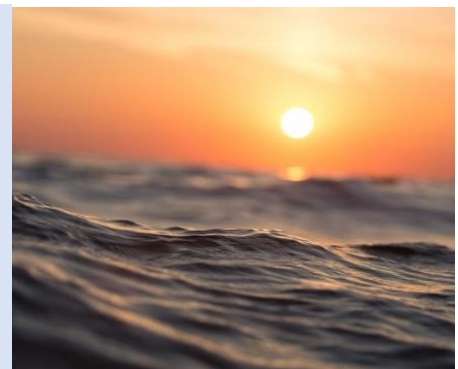
6 – Exceptions

A Member State may identify instances, within its marine waters, where the environmental targets or good environmental status cannot be achieved. The reason can be because:

- action for which the Member State concerned is not responsible;
- natural causes;
- force majeure;
- changes or alteration of the physical characteristics of marine waters for measures of general interest having greater significance than the negative effects on the environment;
- natural conditions which do not allow timely improvement in the status of the marine waters concerned.

Join us, play the Scientific Game!

We are sure you agree that everyone should participate in protecting our sea. We could be much more effective if we know the ways to protect it. **Play with us** and together we will discover all the wonders that our sea has to offer but also the threats that afflict it.



The complete document of the directive is available at link:

<http://eur-lex.europa.eu/legal-content/IT/TXT/PDF/?uri=CELEX:32008L0056&from=EN>

Useful links:

www.medregion.eu

www.ec.europa.eu

www.strategiamarina.isprambiente.it

www.isprambiente.gov.it

www.arpa.puglia.it



Contacts: mario.ciotti@unisalento.it

franca.sangiorgio@unisalento.it



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