



**REPUBLIC OF BULGARIA
MINISTRY OF ENVIRONMENT AND WATER**

**GOOD ENVIRONMENTAL STATUS
ENVIRONMENTAL OBJECTIVES AND
INDICATORS -
Art. 9 AND ART. 10 OF MSFD 2008/56/EC and
NOOSMV (2010)
(SUMMARY)**

MARINE REGION “BLACK SEA”

Based on the Initial assessment of the marine environment, this report defines a group of characteristics - descriptors of good environmental status in accordance with Appendix 1 of the Marine Strategy Framework Directive (MSFD). It also determines environmental objectives and associated indicators to achieve a healthy marine environment.

The MSFD allows the Member States to identify cases when Art. 9 and 10 may not apply – the so-called “exceptions” under Art. 14 of the Directive. For the Black Sea marine region applies Article 14b, comprising the so-called “natural causes”, permitting to omit the deep-sea coastal slope and abyssal plain from the determination of good environmental status. For these areas there are no objectives and indicators identified. The primary reason for the omission is the presence of natural anaerobic conditions and toxic hydrogen sulphide gas at a depth of 150-200 m, preventing the development of biological communities of aerobic organisms, except for some anaerobic bacteria below this boundary.

I. Descriptor 1. Biodiversity - definition of good environmental status and establishment of environmental targets

Prevailing habitat types in the seabed. Integrity of the seabed

The quality characteristics of good environmental status of the habitat and the integrity of the seabed are identified.

The spatial scale for determination the good environmental status of the seabed habitats includes the shallow coastal area and region of the Black Sea Shelf in the EEZ of the Republic of Bulgaria.

The environmental objectives and indicators for good environmental status of the seabed habitats are formulated in accordance with the requirements laid down in Commission Decision 2010/477/EU (COM Decision 2010/477/EO) on criteria and methodological standards on good environmental status of the marine waters. The proposed targets and indicators include distribution, surface area and surface area status, in the latter case specifically the condition of typical species and communities. There are also targets for pressure causing physical loss or damage to the bottom.

Prevailing habitat types in the water column

Phytoplankton

To ensure comparability of systems for assessing the ecological quality under the WFD and the good environmental status of the marine environment under the MSFD, the indicators used are based on a national classification system developed for the WFD and harmonized for the common coastal water bodies of the Member States in the Black Sea (Romania) during the second phase of the intercalibration and consistent with regional conventions.

The formulation of good environmental status and determination of environmental objectives applies only for one criterion **phytoplankton biomass**, allowing the determination of indicators of good environmental status.

Zooplankton

Despite the significant role of zooplankton in the energy flow and nutrients cycling in the marine ecosystems, it is not widely used as an indicator of the state of the marine ecosystem.

The indicators proposed for the zooplankton, coherent with COM Decision 2010/477/EU, are in different phase of development and especially those relating to the state (D1, D4) and the pressure (D2), require further research and verification.

Fish

There are quality characteristics of healthy marine environment in terms of fish, related to the diversity in the structure of fish communities, the range of the distribution of populations, population size, marine protected areas in terms of habitats and rare and endangered species, included in the existing legislation and international conventions.

The environmental objectives are defined in terms of species diversity, population size, range of species distribution, as well as indicators of achieving the environmental targets.

Marine Mammals

The quality characteristics of a healthy marine environment for the mammals are related to their range of distribution, population size, endangered species, included in the existing legislation and international conventions.

The environmental objectives are defined in terms of population size, species distribution, reduction of incidental by-catch of marine mammals and relevant indicators for achieving the environmental targets.

II. Descriptor 2. Alien species - definition of good environmental status and establishment of environmental targets

Descriptor 2 of the MSFD is used to address the non-native species, and refers not only to the number of species, but also to their distribution and impact especially if they have environmental and economic impact. Some species have adverse effects on the biodiversity, ecosystem functioning and human health. There is still limited knowledge on the impact of the alien species on the environment. It is necessary to develop reliable indicators, especially of the

impact of invasive alien species, remaining a major problem in achieving good environmental status.

There are criteria and indicators proposed for assessing the status, pressure and impact of the alien species on the marine environment.

III. Descriptor 3. Populations of commercial species - definition of good environmental status and establishment of environmental targets

The MSFD requires that the populations of all commercially exploited fish and crustaceans are within safe biological limits, the size and age structure is indicative of a healthy population. This means that all the economically valuable species should be used sustainably (maximum sustainable yield in the long term), the species having productivity, providing the necessary for restoring the stocks age and size structure.

The formulation of a good environmental status and the relevant environmental targets in the Bulgarian Black Sea waters can be achieved only for the species included in the national program for data collection on the fish stocks and if there are working regional stock assessment programs. For the rest of the species, the assessment can only be partially performed. It is impossible to finalize the assessment criteria and descriptors covering all the exploited species in the Bulgarian waters, as the data cover only two commercial species.

The three basic criteria for assessing the progress towards the achievement of good environmental status in the marine environment, relevant to Descriptor 3, are: level of pressure of the fishing activity, reproductive capacity of the fish stock and the size and age structure of populations.

The following fish species and the relevant environmental targets and indicators are identified: sprat – *Sprattus sprattus*; turbot – *Scophthalmus maeoticus*, Anchovy – *Engraulis encrasicolus*; mackerel - *Trachurus mediterraneus*; mullet - *Mullus barbatus*; spurdog - *Squalus acanthias*; Rapana welk - *Rapan venosa*.

IV. Descriptor 4. Food webs - definition of good environmental status and establishment of environmental targets.

The energy transfer between the trophic levels and the types of interactions are not well understood to provide an assessment for achieving the environmental targets. It is required to develop indicators, according to the MSFD.

V. Descriptor 5 – Eutrophication - definition of good environmental status and establishment of environmental targets.

Regarding the **criteria and indicators of the status** to be used identified the **nutrient levels**. The trends established during the last 12 years suggest the following **environmental target: reduction of eutrophication**.

Regarding the **criteria and indicators for pressures and impacts**, there are two types of effects of the nutrients enrichment: direct and indirect.

The direct effects include the following indicators to assess the status: concentration of chlorophyll in the water column; water transparency associated with the phytoplankton increase, where appropriate; changes in species composition; the ratio of diatom to dinoflagellates; change from benthic to pelagic species; harmful algal blooms (e.g. cyanobacteria), caused by human activities.

The targets for achieving good environmental status in the Bulgarian Black Sea waters are established.

The indirect effects of the nutrient enrichment include the indicator dissolved oxygen, whose variations result from the decomposition of the organic matter.

The targets for achieving good environmental status in the Bulgarian Black Sea waters are established.

VI. Descriptor 7 - Hydrographic conditions - definition of good environmental status and establishment of environmental targets.

Currently, there are no signs of significant changes in the hydrological regime of the processes in the coastal zone, where the anthropogenic pressure is exacerbated and therefore is monitored for each coastal water body. Therefore, the ecological status is determined as good regarding Descriptor 7.

VII. Descriptor 8. Pollutants - definition of good environmental status and establishment of environmental targets.

A key indicator of pressures and impacts is the **concentration of contaminants**. There is a target for pressure established: reduction of the pressure from diffuse sources, including those of atmospheric origin.

VIII. Descriptor 9: Contaminants in fish and other seafood - definition of good environmental status and establishment of environmental targets.

The Commission decision states that it is necessary the Member States to monitor the edible parts of fish, crustaceans, molluscs, for the detection of possible substances with established maximum levels at European, regional or national level in products intended for human consumption.

Criterion: Levels, number and frequency of pollutants

The following indicators for environmental status assessment are considered:

- Actual pollutant levels and number of contaminants that exceeded the maximum permitted levels;
- The frequency of exceeding the permitted levels.

Currently, there is no data about the last indicator. Also, there are no known methodological standards for this indicator in the European or international legislation.

IX. Descriptor 10. Marine litter - definition of good environmental status and establishment of environmental targets.

Marine litter pollution has not been subject to detail studies. In formulating the criteria for good environmental status and definition environmental targets it is necessary to develop cooperation between the institutions and the implementation of political, legal and economic mechanisms to support the research on marine litter.

X. Descriptor 11. Underwater noise – definition of good environmental status and definition of environmental objectives.

The anthropogenic noise is recognized as a major stressor for most marine mammals, many marine fish species, crustaceans and other marine organisms (OSPAR, 2009; HELCOM, 2010). Currently, there are no data to provide a quantitative assessment of the overall background noise in the marine environment, the share of imported anthropogenic noise and its impact on the marine fauna of the Black Sea, in territorial waters of the Republic of Bulgaria and at regional level.