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**The first phase of implementation of the Marine Strategy Framework Directive
(2008/56/EC) - The European Commission's assessment and guidance**

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**The first phase of implementation of the Marine Strategy Framework Directive
(2008/56/EC)
- The European Commission's assessment and guidance**

1. INTRODUCTION

The marine environment is a precious heritage that must be protected, conserved and, where practicable, restored with the ultimate aim of maintaining biodiversity and providing diverse and dynamic oceans and seas which are clean, healthy and productive. Maintaining and achieving such conditions is essential to support sustainable use of the marine environment for this and future generations. These aims were laid down in Article 1 of the Marine Strategy Framework Directive (MSFD - 2008/56/EC) and the Member States are required to develop marine strategies in accordance with Article 5 to achieve these aims. By 15 July 2012, Member States had to prepare the first elements of these strategies, namely the initial assessment (Article 8), the determination of good environmental status (GES - Article 9) and the establishment of environmental targets and associated indicators (Article 10) and to report them to the Commission by 15 October 2012¹. Based on these reports, the Commission had to *"assess whether, in the case of each Member State, the elements notified constitute an appropriate framework to meet the requirements of this Directive..."* (Article 12). The same Article provided for the Commission to *"consider the coherence of frameworks within the different marine regions or subregions and across the Community."* As a result, the Commission is required to inform the Member States whether *"the elements notified are consistent with this Directive"* and to provide *"guidance on any modifications it considers necessary"*. This Commission Staff Working Document is part of the Commission's assessment in accordance with Article 12. Moreover, this document also includes information on the transposition of the Directive (Article 26) and on the designation of competent authorities (Article 7). Both administrative steps had to be completed before the preparation of the marine strategies.

This Commission Staff Working Document (CSWD) summarises the key aspects of the results of the assessment of Member States' information and provides an overview of the status of implementation of the MSFD across the EU and in the different marine regions. The results are provided per descriptor and consider their adequacy, consistency and coherence, based on an assessment template (see Appendix 1 for the criteria used²). In addition, factsheets summarise the findings of the assessment per Member State (Appendix 2) and per marine region (Appendix 3). Appendix 4 provides clarifications on the differences of the obligations laid down in Articles 9 and 10. Finally, Appendix 5 provides an overview of competent authorities designated by the Member States.

In addition to the Report and CSWD prepared by the Commission Services, the Commission has published the detailed technical assessment reports underpinning the assessment³.

Furthermore, the Member States' reports are being used by the European Environment Agency as an input to an update of the "State of the Marine Environment" assessment which

¹ All reports notified by Member States relating to MSFD Articles 8, 9 and 10 are available from http://cdr.eionet.europa.eu/recent_etc?RA_ID=608

² The full questionnaire templates per descriptor are available at: http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/reports_en.htm

³ http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/reports_en.htm

will reflect the state of Europe's marine ecosystems at the start of the MSFD implementation process ("baseline report"). Moreover, the Commission's Joint Research Centre is reviewing the national submissions for selected descriptors in relation to their technical and scientific basis. The results of the work of these two organisations will be published later in 2014.

2. THE MARINE STRATEGY FRAMEWORK DIRECTIVE AND THE COMMON IMPLEMENTATION STRATEGY

The key objective of the MSFD is to achieve "good environmental status" (GES) for all marine waters by 2020 (Article 1(1)). GES is laid down only in general terms in the Directive (Appendix 1) by making reference to 11 descriptors. More specific criteria are set out in Decision 2010/477/EU⁴. In accordance with Article 9, it is ultimately for Member States to determine the characteristics of GES and therefore define the precise specifications of this central MSFD objective.

The next step is particularly important because it includes an analysis of the essential features and characteristics of the marine waters, an assessment of the current environmental status and the predominant pressures and impacts, together with an economic and social analysis of the uses of the marine environment and the resulting costs of degradation. This comprehensive initial assessment is provided for in Article 8 and specified in Appendix III. It is based on the Member States' GES determination and provides the evidence base for all other elements of the Directive. Finally, Member States should identify environmental targets and their associated indicators which are operational tools to lay down the basis for the preparation of the programmes on monitoring and measures.

The key tool for the achievement of the MSFD goals is the Programme of Measures (PoMs) (Article 13) which must be established by 2015 following two preparatory steps: firstly, the elements described above (initial assessment, GES and targets) and secondly the preparation of monitoring programmes (Article 11). All these elements form part of the marine strategies (Article 5). As a result, MSFD implementation is a step-by-step process in which each step builds upon the previous one.

⁴ OJ L 232, 02/09/2010, p. 14

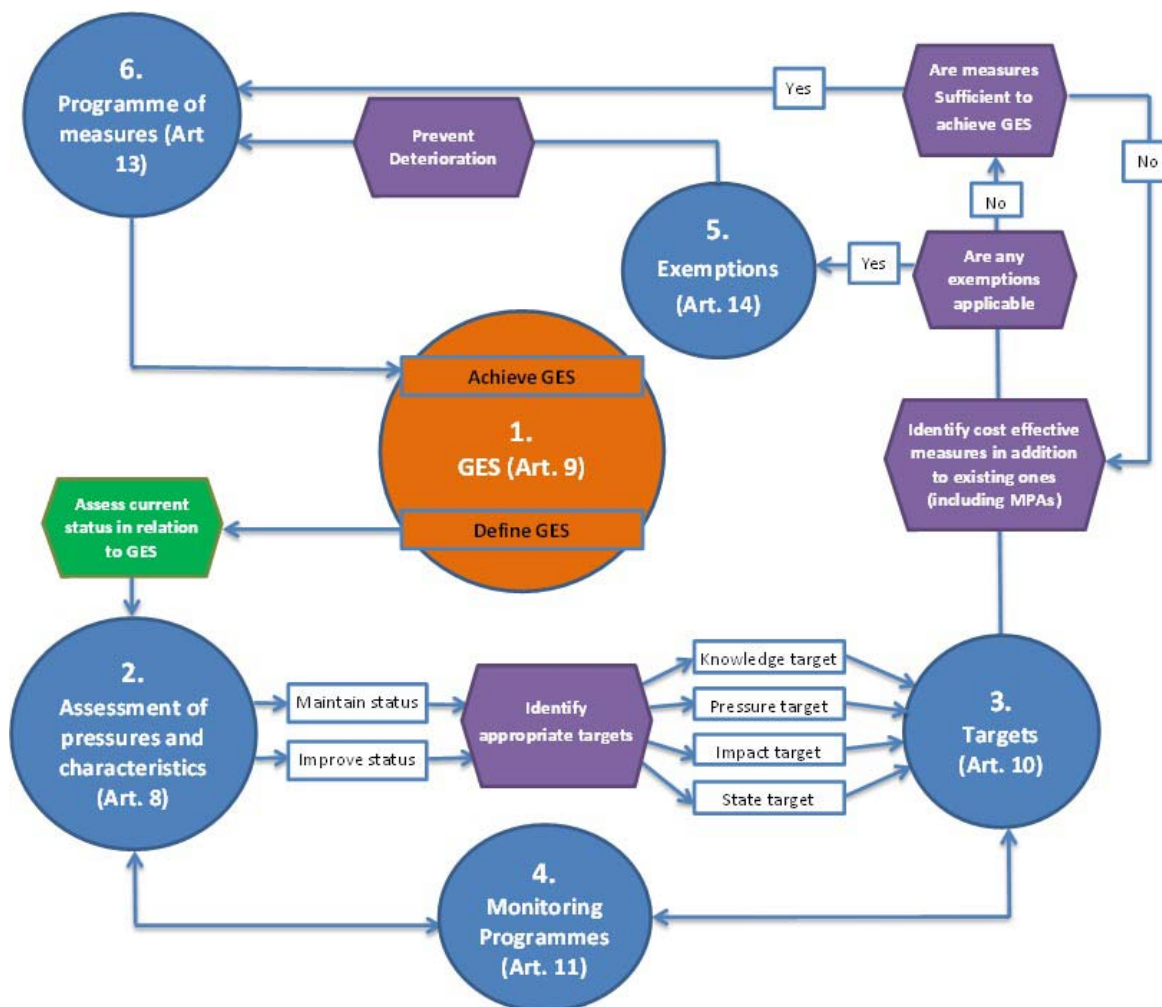


Figure 1: Conceptual framework for the implementation of the Marine Strategy Framework Directive in order to ensure a consistent approach

The implementation of the MSFD is challenging and requires cooperation within and between the marine regions. Therefore, the Commission and the EU Member States agreed to establish an informal co-operation under a so-called "Common Implementation Strategy" (CIS) since 2008. Other countries (EEA and Candidate countries), international organisations including the Regional Sea Conventions and relevant stakeholders and NGOs participate in this process. The CIS has successfully delivered guidance documents and policy papers and has been a valuable platform for exchange of experiences and best practices which support implementation by Member States⁵. In December 2013, a new CIS Work Programme⁶ for 2014 and beyond has been agreed which already taking account of early lessons from this first stage of implementation.

⁵ http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/index_en.htm

⁶ MSFD CIS work programme 2014-beyond (http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/index_en.htm)

3. THE STATE OF EUROPE'S MARINE WATERS

The regional seas surrounding Europe cover the vastness of the open oceans as well as almost entirely land-locked seas (Table 1). In summary, 23 out of 28 EU Member States have a coastline, in 2011, 41% of the population, or 206 million people, lived in the 378 EU coastal regions, and Europe's Seas cover approximately 11 220 000 km² or more than the land territory of Europe. Each sea is shared by millions of people, their cultures and activities. They are also home for thousands of species of animals and plants.

- The Baltic Sea is semi enclosed with low salinity due to restricted water exchange with the North East Atlantic Ocean and large river run-off. These conditions make the sea particularly vulnerable to nutrient pollution and hypoxia (oxygen depletion).
- The Black Sea is also semi enclosed; it is the world's largest inland marine basin and has restricted water exchange with the Mediterranean. Its waters are anoxic at depths below 150–200 meters. Surface water salinities of the Black Sea are within an intermediate range. Most of the Black Sea is believed to host oil and gas reserves, and oil and gas exploration is beginning in the area.
- The Mediterranean Sea is also a semi enclosed sea with high salinity due to high evaporation rates and low river run off. It has restricted water exchange with the Atlantic Ocean and Black Sea. It is the most biologically diverse sea in Europe.
- The North East Atlantic Ocean covers a range of seas and a large climatic gradient. It is a highly productive area that hosts the most valuable fishing areas of Europe and many unique habitats and ecosystems. It is also home to Europe's largest oil and gas reserves.

Table 1: Regional Seas surrounding Europe– selected geographic characteristics

Regional seas surrounding Europe	Member States (in the marine region)	Regional sea surface area (km ²)	EU MS share of sea surface area of regional sea (km ²)and (%)	% of EU MS sea surface area reported under the MSFD IA	Area of catchment (km ²)
Baltic Sea	SE, FI, EE, LT, LV, PL, DE, DK	394 000	370 000 (93.9)	92	1 653 000
North East Atlantic Ocean (including Barents Norwegian, Icelandic Seas)	UK, DK, DE, NL, BE, SE, IE, FR, PT, ES	7 835 000	4 076 000 (52.0)	58	2 721 000
Mediterranean	ES, FR, IT, SI, MT, HR, EL, CY	2 517 000	1 210 000 (48.1)	86	1 121 000
Black Sea	BG, RO	474 000	64 000 (13.5)	46	2 414 000
Total	---	11 220 000	5 720 000 (51.0)	66	7 909 000

Human activities impacting the sea are increasing, and so are both the severity and scale of impacts on the marine environment. This includes impacts from fisheries, pollution, seafloor destruction (sometimes resulting in habitat loss), non-indigenous species and climate change. Acting together, these impacts decrease the ability of marine ecosystems to deliver vital services and benefits such as fish and recreational quality to European communities. They are

driven by growing human activities including agriculture; fisheries and aquaculture; industry; shipping; urbanisation; tourism; space demand for ports and off shore structures; and oil, gas and other mineral extraction as well as renewable energy. Many impacts are expected to be exacerbated by increased sea temperatures, rising sea levels, and ocean acidification that are the consequences of global warming and increased CO₂ concentration of the atmosphere. While many of the activities that harm the environment are a consequence of immediate human needs, they impact species and habitats that have evolved over thousands if not millions of years, sometimes irreversibly.

As all regional seas are shared by more than one country, solutions to the environmental problems that they face calls for international legislation which today is provided by the EU Marine Strategy Framework Directive. With the reporting of the initial assessments that took place in 2012, the European Environment Agency (EEA) has reviewed the information base provided. Based upon, also earlier, EEA work, some key messages appear on the state of the marine environment:

Biodiversity and marine ecosystems (Descriptors 1, 4 and 6). Marine ecosystems, their habitats and species throughout Europe continue to be under significant threat from cumulative impacts from human activities no matter what ecosystem features we look at. Only 10% of the assessment of marine habitats and 3% of the assessments of marine species protected under Natura 2000 are considered favourable. Similarly, once abundant fish species are increasingly at risk. The current stock biomass in Kattegat is at approximately 5.6% compared to levels in 1971 and the current recruitment levels of European eel are at 1-7% of 1960-1979 levels. Sea grasses such as *Posidonia oceanica* experience 5% decline in distribution per year, while *Zostera marina* is covering much smaller areas when compared to historical data. Combined such information on biodiversity indicates that European marine ecosystems and their resilience are under significant threat from human activities.

Fisheries, pollution (eutrophication; hazardous substances) and non-indigenous species are some of the main pressures on biodiversity with the effects of climate change threatening to further exacerbate existing impacts. Together these pressures add to the cumulative impact on the marine ecosystem resulting in the continued degradation and often unexpected ecological tipping points towards an undesired new steady state.

Non-indigenous species (Descriptor2) that find adequate conditions to establish themselves in a new ecosystem may become invasive and threaten local biodiversity and ecosystem integrity in various ways. Impacts range from reducing genetic variation and eroding gene pools, potential extinction of endemic species, and by altering habitat and ecosystem resilience. The impacts of marine invasions are widespread and irreversible. In Europe, more than 1350 marine species have been introduced in European Seas since the 1950's. New species continue to be introduced at unprecedented rates, with almost 300 new species reported since 2000. Most introductions have occurred in the Aegean-Levantine sub-region in the Mediterranean Sea, since the opening of the Suez Canal in 1949. Introductions are also occurring in all other seas, but at a lower rate. Introductions occur with handling of ballast water, and through aquaculture and the aquarium trade.

Fisheries (Descriptor 3) is one of the most important pressures in the marine environment as it reduces biodiversity by direct mortality of fish populations and non-target species, and modifies ecosystem structure and functioning. Cumulative fishing levels have led to an alarming state of European fish stocks, where currently 39% in the North East Atlantic Ocean

and 88 % in the Mediterranean and Black Seas are overfished threatening their future reproductive capacity. Furthermore, the continuous use of bottom trawling and other high-impact fishing gear, has destroyed seafloor habitats and compromised its biodiversity. Seabirds are of particular concern, where recent estimates report by-catch by the EU fishing fleet at c.a. 200,000 seabirds annually in EU waters.

Eutrophication (Descriptor 5) of marine waters is associated with excessive use of the fertilizers nitrogen and phosphorous. It is the accelerated, enhanced growth of phytoplankton and an undesirable disturbance of the balance of organisms in the water. It can also cause extensive hypoxia. Most pollution comes from land-based activities, through inland waterways, such as the application of agricultural fertilizers and animal farming, the discharge of poorly or untreated wastewater, or as airborne pollution. The need to reduce nutrient concentrations across Europe is widely accepted, but difficult to achieve. EEA indicators show that between 1985 and 2010, overall nutrient concentrations have been either unchanging (84%) or decreasing in reported stations and that between 1985 and 2010 concentrations at 87% of stations remained unchanged.

Chemical pollution (Descriptor 8). Hazardous substances are widespread in the marine environment. Some are found at low concentrations in the earth's crust and occur naturally in seawater, but synthetic hazardous substances are not found naturally in the environment. The main sources are generally from waste/disposal burning of fossil fuels and industrial activities, including mining and production. The EEA indicator addresses concentrations and trends of seven hazardous substances: mercury, lead, cadmium, lindane, HCB, PCB and DDT⁷. All substances have been banned from use, but are still found in the environment. The indicator shows that concentrations of HCB and lindane are generally Low or Moderate, concentrations of cadmium, mercury and lead Moderate, and Moderate or High for PCB and DDT. Between 1998-2010, a general downward trend was found in the Northeast Atlantic Ocean for lead, lindane, PCB and DDT. In the Mediterranean Sea, more than a third of stations show of high concentrations of lead, lindane, DDT and PCB. Furthermore, a general upward trend was found for mercury and lead.

Marine litter (Descriptor 10) is found on beaches, on the seafloor and floating in the water, in all oceans and it is both a European and a global concern. Many marine species ingest marine litter or become entangled in debris. For some species a considerable proportion of the population is affected due to damage caused to their body condition, ability to forage and reproduce. Litter, when visible to humans, creates a considerable reduction in recreational, aesthetic or educational values of an area, and sometimes it is also a health concern. To date systematic monitoring has not taken place across Europe, this is only now being established with the MSFD.

Introduction of energy (Descriptor 11), with particular emphasis on noise is the subject of MSFD Descriptor 11. Introduction of energy into the marine environment can be in the form of heat, light, electromagnetic emissions and underwater sound. Thus, the information on effects of the former three is very limited, and the focus of this descriptor is on underwater sound.

Behavioural effects of marine species to underwater sound have been documented for a wide variety of sources. As sound can reach far underwater, impact ranges for behavioural response

⁷ Hexachlorobenzene, polychlorinated biphenyls and dichlorodiphenyltrichloroethane

can be very large as well. High amplitude, low- and mid-frequency impulsive sounds such as those emitted during seismic surveys, impact pile driving or by military sonar have the greatest potential to affect marine mammals and fish over considerable distances. There is also evidence that ambient sound has increased in some marine areas due to the increase in ship traffic. Wide ranging behavioural changes could lead to gaps in distribution of marine life which in turn could lead to consequences on a population level if important life functions such as mating or migration are affected. Since the issue of underwater sound impacts is a relatively recent one, there has been little work on the exact distribution of sources of sound in EU waters and at present systematic monitoring has not been conducted to clarify the impact of sound on marine species.

Climate Change is not explicitly covered by the MSFD, but is having will continue to have a major influence on marine habitats and species because most organisms in the sea respond to temperature. Therefore, it will become an important factor when assessing biodiversity. As temperature of the sea is increasing, marine organisms will change their distribution. Sea surface temperature increases are observed in all Europe's Seas. Also ocean acidification (also mentioned in Annex III MSFD) is of increased concern. As atmospheric CO₂ concentrations increase, the ocean uptake of CO₂ increases, which reduces ocean pH. Surface-ocean pH has declined from 8.2 to 8.1 over the industrial era, corresponding to a 26 % change in oceanic acidity. Ocean acidification may affect many marine organisms within the next 20 years and has the potential of fundamentally altering conditions for all life in the sea.

Lessons learned from Article 8 assessments. While the EEA has reviewed the material provided by Member States in relation to their initial assessments, it has not been possible to use the assessments as a coherent knowledge base, and the reports contain a large amount of unknown, or not assessed information. However, they have supported and underpinned the overall findings mentioned above. In addition, the need became evident to develop much more coherent assessment approaches on regional scale and an agreed strategy for reporting of monitoring and data towards agreed indicators at regional if not European scale. These processes are expected to greatly support the development of a marine knowledge base and will be fundamental to in the future be able to address good environmental status in a coherent fashion.

4. LEGAL TRANSPOSITION AND COMPETENT AUTHORITIES

4.1. Legal transposition (Article 26)

All Member States have transposed the MSFD into their national legislation, although PL only completed this in early 2013 following legal action from the European Commission (C-245/12 - Commission / Poland). After receipt of the national legislation, the Commission undertakes a conformity check for each Member State, excluding landlocked Member States who are not concerned by this exercise (AT, CZ, HU, LU, SK). By November 2013, thirteen conformity studies had been undertaken (for BE, BG, DK, ES, IT, LV, LT, NL, PL, PT, RO, SI, SE, and UK); conformity studies for the remaining countries are underway.

Transposition has been assessed as adequate for BE, ES, NL, PT, RO and SI. SE is committed to making the necessary legislative changes, and Letters of Formal Notice have been sent to DK, IT, LV and SE. For PL and UK, an EU Pilot has been launched to address questions identified by the conformity studies.

4.2. Administrative arrangements and competent authorities (Articles 6 and 7)

According to MSFD Article 7, Member States needed to designate the authority or authorities competent for the implementation of this Directive with respect to their marine waters and for cooperation and coordination in the catchment area of each marine region or subregion together with the information listed in Annex II of the Directive.

Member States within the catchment area of each marine region or subregion (landlocked countries) were also required to designate authorities competent for cooperation and coordination as referred to in Article 6. Member States were due to notify the Commission of their designated competent authorities by 15 January 2011.

In total, 26 Member States designated their Competent Authority or Authorities for the MSFD on time. The Czech Republic and the new Member State Croatia have not yet reported this information to the Commission. At the due notification date, Poland had not yet transposed the Directive into national law, which prevented it from designating its competent authority (see section 4.1).

Following the notifications, the Commission assessed the reports. In general, the level of information provided by Member States varied greatly in terms of its volume and content. The description of competent authorities responsible for implementation and cooperation between Member States was generally well reported, but not all Member States distinguished which competent authority was responsible for each main part of their marine strategy (i.e. assessment, monitoring, measures). Clear information was also provided describing the legal status of the body acting as competent authority.

Fields in the reports where information was less complete were: coordination mechanisms between Member States, and to a lesser extent, legal status, role and responsibilities, coordination amongst competent authorities. For the cases where information was lacking or insufficient, the Commission sent a letter to the Member State requesting clarification. The Commission has now received these clarifications; no major outstanding issues have been identified.

A list of the designated competent authorities is provided in Appendix 5.

5. REPORTING PROCESS AND APPROACH TO THE ARTICLE 12 ASSESSMENT

5.1. Reporting process

In accordance with Articles 9(2) and 10(2), Member States were required to send notifications to the Commission within three months of the completion of the elements required under Articles 8, 9 and 10, i.e. by 15th October 2012. As the directive does not specify a format for these reports, Member States were free to submit their reports in any format. However, in order to allow for a more systematic and comparable analysis of the Member States' reports, the Commission developed and agreed informally with Member States a set of *reporting sheets*⁸, as well as associated reporting tools and guidance⁹.

⁸ *Reporting sheets* are the standard reporting format developed with Member States to set out the content and format of reports for a particular (part of a) directive.

Due to technical difficulties, these reporting tools were only finalised in July 2012.

Member States were asked to submit their reporting sheets, in addition to their national reports and any other supporting documentation, to the ReportNet system of the European Environment Agency (EEA) by the above deadline¹⁰. The Commission prepared an MSFD Scoreboard¹¹ to inform the wider public about the state of submission of reports for the different articles.

By 15 October 2012, eight Member States had submitted their national reports (BE, CY, EL, ES, DK, NL, RO, SE), and DE, EL, ES, IT, RO and SE had submitted at least a proportion of the expected reporting sheets. By February 2013, a preliminary completeness assessment (see section 5.2) was made by the Commission on the reporting sheets of eleven Member States that had been submitted by that time (DE, EE, EL, ES, FI, IT, LV, NL, RO, SE, UK). These Member States were requested to check this initial assessment and provide the Commission with missing information by 30 April 2013 latest. The remaining MS, who did not (or only partly) report by means of reporting sheets by February 2013, were informed that 30th April would be the last day that their submissions would be considered within the assessment procedure. By the end of April 2013, 18 Member States had provided reporting sheets, some of them significantly amending and updating the reports that they had previously provided. Following some later submissions, the Commission was able to consider contributions (both in reporting sheets and other reports submitted) from 20 of the 23 coastal Member States (Poland, Malta and Croatia being the exceptions). The analysed reports for Portugal and the UK were incomplete because the parts for the Azores and Madeira (PT) and Gibraltar (UK) were missing. The report from Bulgaria arrived before the finalisation of the assessment; due to the shortness of time, it was assessed only in relation to Article 9 (GES) and 10 (targets). All reports received after July 2013 (which includes submissions from Croatia, Malta and UK (Gibraltar)) have not been included in this assessment. Poland is the only Member State which has not reported to date and for which the Commission has started procedures to enforce this requirement. For those Member States not included (or not fully included) in this report, the Commission will consider how to communicate its assessment once the complete reports are available and the assessment has been carried out. A summary of what was assessed is given in Table 2.

Table 2: Summary of the extent of assessments undertaken for this report and outstanding gaps.

Extent of assessment	Countries
Full assessment (i.e. of all three articles and for all marine waters of the MS)	BE, CY, DE, DK, EE, EL, ES, FI, FR, IE, IT, LT, LV, NL, RO, SE, SI
Partial assessment (i.e. not addressing all articles or all marine waters)	BG (for Art. 9 and 10), PT (all waters except Azores and Madeira), UK (all waters except Gibraltar)
To be assessed (reports arrived too late for inclusion in this report)	BG (for Art. 8), HR, MT, UK (Gibraltar)
To be assessed (reports not yet received)	PL, PT (for Azores and Madeira)

⁹ http://ec.europa.eu/environment/marine/publications/index_en.htm (Reporting package for 2012 reporting for the MSFD) and <http://icm.eionet.europa.eu/schemas/dir200856ec/resources>

¹⁰ http://cdr.eionet.europa.eu/recent_etc?RA_ID=608

¹¹ http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/scoreboard_en.htm

5.2. Assessment method

The Commission prepared the concept for the technical assessment in consultation with the Member States¹². The detailed technical checking and assessment of Member States' reports and submissions was carried out by external consultants, thereby providing the detailed background information to the Commission for this report and for any follow-up actions and communications with Member States. The technical assessment was carried out in four steps, namely checking completeness, adequacy, consistency and coherence.

The first step was the assessment of **completeness** of Member States' electronic reports. This involved checking whether all requested information has been provided in the Member States' reports. This first assessment allowed the identification of important gaps, e.g. missing information for a particular GES descriptor or for key elements of the initial assessment, and supports the Commission in its assessment of whether additional information was required from the Member State.

As a second step, the reports were subject to a technical assessment with their contents checked for **adequacy** (i.e. assessing whether the reported information met the objectives of the Directive and the technical requirements of Articles 8, 9 and 10¹³), **consistency** (i.e. assessing the logical flow of reporting of one Member State for the different Articles, including the identification of missing links, conflicts and gaps) and **coherence** (i.e. assessing the relationships between the reports of the Member States, firstly within one marine region or sub-region and secondly across the EU, i.e. between the marine regions).

The technical assessment was made on the basis of a questionnaire developed for each GES descriptor¹⁴. This questionnaire used criteria to assess the adequacy, consistency and coherence of the answers found in the MS submissions (these criteria are provided in Appendix 1). The questionnaire was not necessarily exhaustive because it focussed on the most important aspects of the Directive (Articles 9 and 10 and certain elements of Article 8). It may also not necessarily reflect the formal opinion of the Commission as regards which elements are considered, as a minimum, compliant with the MSFD because it is mainly based on technical considerations.

The detailed technical results of the assessment, based on the questionnaires, including a section on cross-cutting issues, a summary of the assessment and general conclusions, are published separately per Member State¹⁵. Based on these technical reports, the Commission services produced factsheets per Member State summarising the key elements of the assessment (Appendix 2). In addition, there are technical background documents available per marine region which consider particularly the coherence aspect of the MS reports. These regional assessments are summarised in Appendix 3.

¹² See document MSCG/8/2012/3 of 25th October 2012: Updated Concept paper on the technical assessment of Member States submissions required under Article 12 of the Marine Directive

¹³ Adequacy does not necessarily mean, for instance, that if the defined GES is assessed as adequate it automatically means that this is the required quality level of the marine waters.

¹⁴ See for the nine specific and one general questionnaires on website http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/reports_en.htm

¹⁵ http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/reports_en.htm

Due to the time constraints, these assessments have not always addressed all aspects of the Member States' reports in detail. The Commission services may analyse some elements in more detail, e.g. as part of the in-depth assessment carried out by the Commission's Joint Research Centre.

5.3. General remarks on the assessment process

The reporting obligations, and consequently its assessment, were complex: they needed to cover a very wide range on environmental topics in detail both in the context of Articles 8, 9 and 10 and across the eleven different GES descriptors. Significant delays in some Member States' reporting, as well as the diversity of the information that they provided, made their assessment in the relatively short time available¹⁶ a particular challenge for the Commission. For example, the reported documents by MS were often comprehensive, consisting of hundreds to thousands of pages of information, published in all national languages.

To allow for a systematic and comparable approach, the assessment was based solely on the information reported by Member States, consisting of the submitted national reports, the electronic reporting sheets in predefined formats and any additional background documents that the Member States considered relevant and uploaded to EEA's ReportNet. A hierarchy was established between these documents (generally assessing the Reporting Sheet information first, then the national report, and lastly any associated documents). Where necessary, any inconsistency between these documents was highlighted.

To facilitate the presentation of the assessment, the Commission used simple categories such as "adequate", "partially adequate" and "inadequate". However, such classification does not necessarily mean that a Member State which is assessed as "adequate" is fully compliant with the provisions of the Directive. Also the category "partially adequate" typically covers a board range of the assessment quality and often includes aspects which are of high quality even if overall they fall short of what is considered adequate.

Note that the adequacy and coherence results do not necessarily equate to compliance with the MSFD because the assessment was made against a set of non-exhaustive questions (see questionnaire template on the website and summary of criteria in Appendix 1) which was used only for the purpose of this comparative analysis.

When reference is made to 'all Member States' in this report, it refers to those 20 Member States which were assessed as part of this exercise (see Table 2), unless otherwise specified.

The finalisation of the Commission's assessment took longer than expected and the level of detail and accuracy that the Commission was able to assess varied. The quality of the Commission assessments relies very much upon the quality of the Member States' reports. Poor or incomplete reporting may have led to incorrect and/or incomplete assessments.

The Commission recognises that Member States made a very significant reporting effort, in particular to complete the electronic reporting via the reporting sheets. There are examples of

¹⁶ MSFD Art. 12 requires that *"Within six months of receiving all those notifications, the Commission informs Member States concerned whether, in its opinion, the elements notified are consistent with this Directive and provides guidance on any modifications it considers necessary."*

very good, high quality reporting. However, there are also cases where reporting contains many gaps or contradictions.

Finally, during the preparation of the technical reports, the Commission and its external technical support did not maintain contact with the Member States and therefore did not ask for validation of its findings, other than at the first completeness check phase. However the final technical summary reports have been shared with Member States for information.

6. IMPLEMENTATION BY MEMBER STATES OF GOOD ENVIRONMENT STATUS (ARTICLE 9), INITIAL ASSESSMENT (ARTICLE 8) AND ENVIRONMENTAL TARGETS (ARTICLE 10) PER DESCRIPTOR

Annex I of the MSFD sets out eleven qualitative descriptors upon which the determination and assessment of GES should be based. Consequently, the analysis of the Member States' reports is provided below per descriptor and addresses all assessment criteria, i.e. completeness, adequacy, consistency and coherence (see Section 5.2 above). When assessing the environmental targets, the Commission assessed whether they were SMART, i.e. whether the targets were Specific, Measurable, Achievable, Realistic and Time-bound.

6.1. Biodiversity (Descriptor 1)

Biodiversity is a broad topic which encompasses the variability amongst living organisms and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. Its status can be assessed at different organisational levels (genetic, species, habitat and ecosystem), of which the species and habitat levels traditionally receive most attention. For the MSFD, assessments of status are focused on the following groups of highly mobile marine species: birds, mammals, reptiles, fish and cephalopods, and on predominant habitat types of the water column and seabed together with their associated biological communities. In addition to these broad categories, attention is directed also to specific species and habitat types which are listed for protection under the Birds and Habitats Directives and under international agreements. Genetic- and ecosystem-level aspects are also important but typically more difficult to assess. Assessments at ecosystem level can be considered to have links to the assessment of food webs (Descriptor 4). The assessment of seabed habitats has links to Descriptor 6 on seafloor integrity. The status of commercial fish and shellfish under Descriptor 3 has linkages to the status of fish and seabed habitats under this descriptor.

The range of threats to biodiversity varies considerably in nature and severity across the different regions of Europe. The degree of impact varies from sub-lethal effects on individuals or populations (e.g. from hazardous substances, underwater noise), to lethal effects on individuals or populations (e.g. from fishing, microbial pathogens), community-level effects (e.g. from nutrient enrichment, introduction of non-indigenous species (NIS)) and habitat-level effects (e.g. damage from physical disturbances to the seabed; loss from land claim and placement of structures on the seabed). In extreme cases, these effects can alter the entire ecosystem (e.g. over-fishing). In addition, climate change and greenhouse gas emissions can lead to changes in sea temperature and sea level and to ocean acidification, all of which can have a more widespread impact on biodiversity. Due to this range of threats, Descriptor 1 has links to all the pressure-related descriptors (i.e. Descriptors 2, 5, 7, 8, 9, 10 and 11).

According to Annex I of the Directive, GES for Descriptor 1 is achieved when: "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".

6.1.1. GES definition (Art. 9)

All Member States who have reported have defined GES for Descriptor 1. Generally the definition applied to their entire marine waters, but for ES and IT some distinctions were made in the GES definitions between their regions or sub-regions.

The GES definitions were formulated at descriptor level by all Member States except DK, ES, LV and RO. Some Member States provided information only at descriptor level (CY, DE, IE, NL, PT, UK), with CY, NL and PT reproducing the definition in Annex I verbatim or with wording very close to it. The UK qualified its definition at descriptor level by referring to its targets under Article 10, where additional specification was provided.

Twelve Member States provided additional detail at criterion level (BE, DK, EE, EL, ES, FR, FI, IE, IT, LV, SE, SI), often with a close relationship to the Decision 2010/477/EC criteria although every Decision criterion was not always used.

Eleven Member States provided additional detail at indicator level (BG, DK, EE, ES, FR, IE, IT, LT, LV, RO, SE), again often with a close relationship to the Decision indicators although every Decision indicator was not always used.

The definitions varied enormously in their content and level of detail; most were qualitative and many were rather vague, lacking definitions of key terms used or specificity as to which elements of biodiversity were addressed.

A general summary of the biodiversity elements addressed is given in Table 3. This indicates where the Member State has specifically referred to each of the main elements of biodiversity, where only specified species or habitats are mentioned and where significant gaps are present. The table does not address how well each element is addressed (i.e. its adequacy).

Table 3: Summary of biodiversity elements addressed in Member States' GES definitions (Y=yes, N=no, specific=specified species or habitats only).

MS	Birds	Mammals/Reptiles	Fish	Seabed habitats	Water column habitats
BE	Y	Y	Y	Y	Y
BG	N	Y	Y	Y	Y
CY	Biodiversity, species, habitats (Annex I definition only)				
DK	N	Specific (Harbour porpoise)	N	Y	Y
EE	Specific (Smew - a duck, swan)	Specific (Grey seal, ringed seal)	Y	Specific	N
FI	Biodiversity, species, habitats, ecosystems				
FR	Biodiversity, species, habitats, ecosystems				
DE	Listed species and habitats (Directives and international agreements)				
EL	N	Specific (Monk seal, Loggerhead)	N	Specific	Y

MS	Birds	Mammals/Reptiles	Fish	Seabed habitats	Water column habitats
		turtle)			
IE	Biodiversity, key and listed species and habitats, ecosystems				
IT	Y	Specific (3 spp of cetacean, Loggerhead turtle)	Specific	Specific + Pinna (fan shell)	Y
LV	N	N	N	Y	Y
LT	Specific	N	Y	N	N
NL	Biodiversity, species, habitats (Annex I definition only)				
PT	Biodiversity, species, habitats (Annex I definition only)				
RO	N	Specific (Harbour porpoise)	N	Specific	Y
SI	Species, habitats, ecosystems				
ES	Y	Y	Y	Y	Y
SE	Y	Y	Y	Y	N
UK	Biodiversity, species, habitats, ecosystems				

In summary, one Member State (ES) was judged to have an adequate definition of GES. Eleven Member States were found to have a partially adequate definition (BE, BG, DK, EE, EL, FI, FR, IT, SE, SI, UK) whilst eight were found to be inadequate (CY, DE, IE, LT, LV, NL, PT, RO).

Due to the wide variance in approaches to the definition of GES for Descriptor 1, the level of coherence within each of the four regional seas is considered to be low.

6.1.2. Initial assessment (Art. 8)

All Member States who have reported have undertaken initial assessments for this descriptor. As Bulgaria's report was submitted late, it has not been included in this particular part of the assessment.

All MS have reported on species/groups and habitat levels of biodiversity, whilst eight also reported at the ecosystem level (CY, DK, EE, EL, ES, LT, LV, NL).

Highly mobile species groups (birds, mammals, reptiles, fish, cephalopods)

Approaches to reporting on the highly mobile species groups (birds, mammals, reptiles, fish and cephalopods) was very varied, with some MS addressing these at the species group level (i.e. addressing the state of the entire group) (CY, FI, NL, SE), some at the finer resolution of functional groups as recommended in the Reporting Sheets (EE, IT, PT, LT, SI) and some at individual species level (IE). The rest of the Member States reported on a mixture of these levels. Where specific individual species were assessed, it was not always clear whether these were intended to be representative of the broader species/functional groups of which they were a part. Further, the coverage of these species groups varied: some MS did not report on all groups (e.g. IE only fish, IT excluded birds, while LT and PT excluded mammals). Furthermore, cephalopods and turtles were the least-often reported groups, which for turtles was due in part to their more southerly distribution in Europe. Often the justifications for any omissions were lacking.

In addition to addressing these wider species groups, according to MSFD Annex III, the initial assessment should have included assessments of species listed under EU Directives and international agreements; however, for species in the Birds and Habitats Directives, special arrangements were made with MS to defer their reporting in view of similar reporting required for these two directives in 2013. Despite this arrangement, some MS (e.g. CY, ES) chose to also report directly under the MSFD on these species. Regarding species covered under international agreements, one MS (FI) reported on species listed under the Helsinki Convention, four MS (DE, DK, ES, IE) on species listed under the OSPAR Convention, three MS (EL, IT, SI) on species listed under the Barcelona Convention while one MS (RO) reported on species listed under the Bucharest Convention, leaving a significant number of MS who have not addressed this obligation.

The information available for assessment appeared to be most readily available at species level, and in particular for species specifically listed for protection, or commercially exploited species. For these, information on species abundance and condition was generally reported and most MS were reported a qualitative/descriptive judgement on the current status of the species groups.

The most frequently reported pressures on these species groups in the **Baltic** were extraction of species and physical loss of habitat. In the **North East Atlantic** and **Mediterranean**, it was extraction of species and biological disturbance.

Seabed and water column habitats

Approaches to reporting on the seabed and water column habitats and their associated communities were also varied, with some MS addressing these at the predominant habitat level, as recommended in the Reporting Sheets (CY, DE, DK, ES, IE, FI, FR, LV, SI), some (BE, NL) using alternate broad habitat classes (typically based on the EUNIS habitat classification) and one only at more specific habitat level (RO). Some MS reported on a mixture of these. Where specific individual habitats were assessed, it was not always clear whether these were intended to be representative of the broader predominant habitats of which they are a part.

Further, the coverage of these habitat types varied. Reporting on water column habitats was often missing or poorly addressed, whilst the range of predominant seabed habitat types (or equivalents) addressed was often only a proportion of all those present in the MS waters.

In addition to addressing these broad habitat types, according to MSFD Annex III, the initial assessment should have included assessments of habitats listed under EU Directives and international agreements. However, as with the assessment of highly mobile species groups (see above), for habitats covered by the Habitats Directive, special arrangements were made with MS to defer their reporting in view of similar reporting being required for this Directive in 2013. Despite this additional time period only the following coastal MS reported under the Habitats Directive on schedule (i.e. by 30 June 2013): BE, EE, ES, FI, IE, LV, PT, SE. Additionally, despite this arrangement, some Member States (e.g. BE, CY, DE, DK, EE, ES, FI, RO, SI) chose to also report directly under MSFD on these habitats. Regarding habitats covered under international agreements, two MS (DE, FI) reported on habitats listed under the Helsinki Convention, four MS (DE, DK, ES, IE) reported on habitats listed under the OSPAR Convention, and three MS (ES, IT, SI) reported on habitats listed under the Barcelona Convention, leaving a significant number of MS who have not addressed this obligation.

In general qualitative assessments of the distribution, extent and condition of habitats were provided. Most MS reported a qualitative/descriptive judgement on the current status for certain habitats or for certain assessment criteria. Some Member States provided conclusive assessments on current status (CY, EE, FI, LT, LV, PT, SE, SI, UK), although not always for all assessed habitats.

Ecosystems

Eight Member States reported at the ecosystem level (CY, DK, EE, EL, ES, LT, LV, NL). In many cases, these assessments were understandably limited and qualitative, due mainly to a lack of assessment techniques at this level. Often the assessments were limited to specific species or functional groups and did not provide an integrated assessment across all species and habitats in each ecosystem.

The main pressures on habitats and ecosystems reported in the **Baltic** were nutrient enrichment, physical loss and physical damage. In the **North East Atlantic**, physical loss, physical damage and fisheries (extraction of species) were the main pressures reported, whilst some Member States also cited hydrographical changes, non-indigenous species, nutrient enrichment, litter and noise. In the **Mediterranean**, physical loss and physical damage were again the main pressures reported, whilst some MS also cited extraction of fish and shellfish and the introduction of non-indigenous species. In addition, a few Member States also reported hazardous substances and nutrient enrichment (EL, FR) as being important and, the introduction of non-indigenous species, litter and the extraction of species (FR) as being relevant pressures.

In summary, of the 19 Member States assessed, four were judged to have an adequate initial assessment for Descriptor 1 (ES, NL, PT, UK), thirteen Member States were found to be partially adequate (BE, CY, DE, DK, EE, FI, FR, IE, IT, LT, LV, SE, SI), whilst the remaining two were found to be inadequate (EL, RO).

The level of coherence for the features was considered to be low in the Mediterranean, North-East Atlantic and Baltic regions. Given Bulgaria's late submission, coherence for the Black Sea was not assessed. At a sub-regional level, coherence was considered to also be low for all sub-regions excepting the Celtic Seas, Bay of Biscay and Iberian Coast and the Western Mediterranean where coherence was considered to be moderate.

6.1.3. Environmental targets (Art. 10)

All Member States except IE and PT have defined environmental targets and associated indicators for all their marine waters, most not distinguishing between sub-regions. An exception is FR which has separate targets for its Atlantic and Mediterranean regions. A number of Member States have provided targets which jointly addressed Descriptors 1 and 4 (SE), Descriptors 1 and 6 (BG, CY) or, more commonly, Descriptors 1, 4 and 6 (BE, DE, ES, FR_{MED}, LT, NL, UK). In these latter cases, the targets were typically grouped against the main biodiversity components (i.e. birds, mammals, reptiles, fish, seabed habitats, water column habitats, ecosystems). The number of targets varied significantly, between 1 (LT, PT) and 77 (BG), although many of Bulgaria's targets are simply repeated for each habitat type addressed.

All Member States, who set targets, with the exception of IT, have established state-based targets. In some cases (e.g. NL, UK), the lack of detail expressed in their definition of GES was somewhat compensated for by provision of a detailed set of state-based targets. The majority of these state-based targets would be better considered as expressions of GES. The number of specific pressure and impact targets overall was relatively low. Some exceptions include the Mediterranean targets for France, which address a wide range of specific pressures and impacts, or the targets for Italy which are focused on the management and control of fishing practices. Spain additionally provides a number of targets which aim at filling knowledge gaps including through monitoring. This general paucity of pressure- and impact-based targets indicates there is likely to be insufficient focus on addressing key pressures on biodiversity in order to achieve GES for this descriptor; this is particularly the case in the ten countries which have set only state-based targets (CY, EE, FR_{Atlantic}, EL, LT, LV, RO, SE, SI).

The level of detail given for the targets also varied greatly from one Member State to another. The targets have generally not been assessed as fully SMART, often because they are not measurable or lack specification.

The associated indicators also varied significantly in detail and number. A number of Member States have not set associated indicators (ES, FR_{Atlantic}, RO). At the other extreme, Bulgaria has set 180 indicators.

In summary, for Descriptor 1, three Member States were judged to have adequate targets (BE, BG, UK). Eight Member States were found to be partially adequate (DE, DK, ES, FI, FR_{MED}, NL, RO, SI), while eight were found to be inadequate (CY, EE, EL, FR_{Atlantic}, IT, LT, LV, SE). IE and PT have not defined targets for Descriptor 1¹⁷.

The level of coherence in the environmental targets and associated indicators is low across the North-East Atlantic region and the Mediterranean while in the Baltic it is judged to be moderate. It is judged to be low to moderate in the Black Sea. At sub-regional level, coherence is also judged to be low.

6.1.4. Consistency between GES, Initial Assessment and targets

Considering the complexity of this descriptor, there was a reasonable level of consistency between GES, initial assessments and targets in the MS reports. However the general lack of accepted quality standards and assessment techniques meant that in many cases assessments of the current status of biodiversity relied upon existing assessments undertaken to various standards; these were mainly qualitative in nature. Very few MS used their determinations of GES under Article 9 to assess current status under Article 8.

There was generally greater consistency between GES and targets, with targets defined in a complimentary manner and often providing specific detail to the more generalised texts of the GES definitions. In relation to Article 8, however, the targets often lacked specific links to particular pressures and impacts which may in part be due to imprecise or inadequate assessments of current status. Gaps in knowledge and data form part of the problem and it was encouraging that most Member Steps acknowledged this. However, most did not adequately outline how they plan to address these gaps.

¹⁷ The total number of MS is 21 because France is counted twice, for its Mediterranean and its Atlantic regions

6.1.5. Conclusions

The overall level of adequacy for Descriptor 1 of the 20 Member States which were assessed is given in Figure 2.

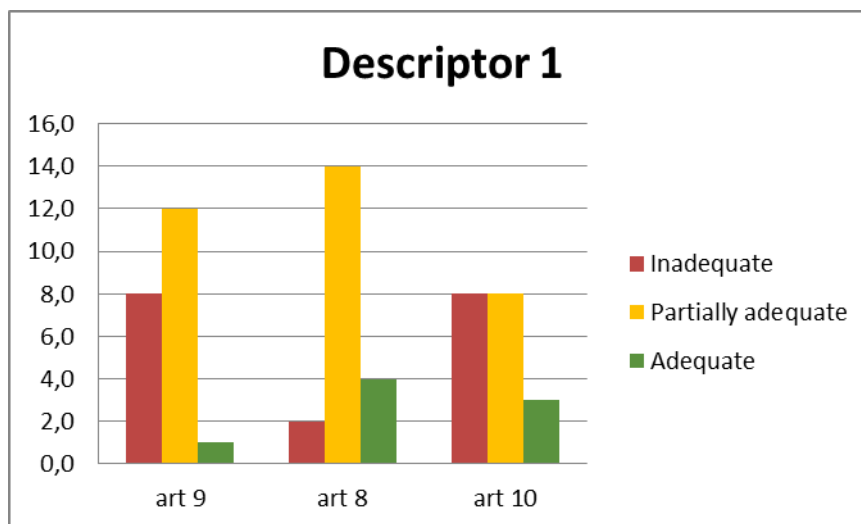


Figure 2: Summary of the assessments of adequacy of Member State's reports for MSFD Articles 8, 9 and 10 for Descriptor 1 on biodiversity. The bars indicate the number of Member States which were assessed as adequate, partially adequate and inadequate.

The overall level of coherence for Descriptor 1 per marine region is given in Figure 3. It includes assessments for Member States which are part of each region, which means that some Member States are counted twice as they are part of two regions. The figure is based on a simple scoring where low coherence was attributed one point and high coherence three points.

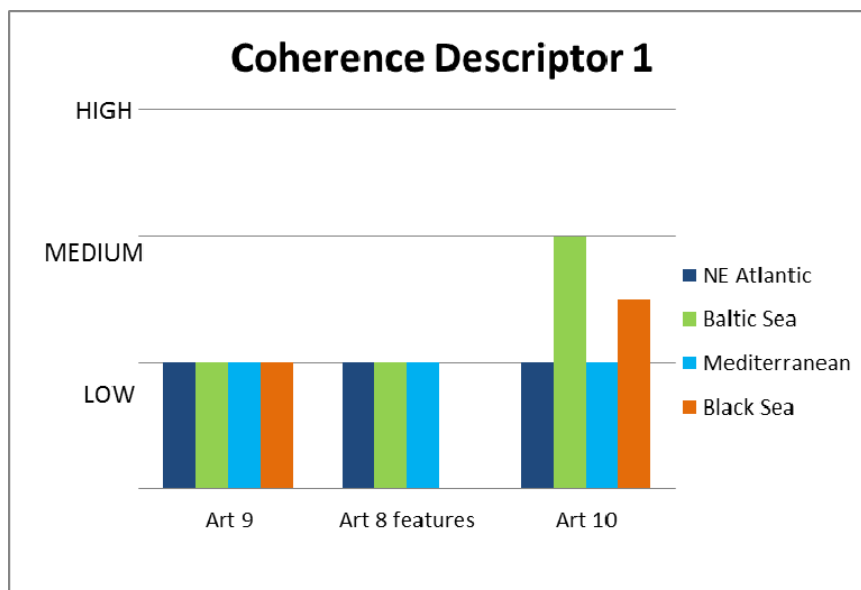


Figure 3: Summary of the assessments of coherence of Member State's reports within each region for MSFD Articles 8, 9 and 10 for Descriptor 1 on biodiversity. The bars indicate whether the reports were assessed as having a low, moderate or high level of coherence within each region.

In many cases, the level of detail in the GES definitions was inadequate with little effort to go beyond what is in MSFD Annex I or Commission Decision 2010/477/EU or definitions which lack sufficient specificity to enable environmental status to be assessed. The environmental targets proposed were, however, often more comprehensive and in some cases measurable. However, the majority of targets were state-based and better considered as refined expressions of GES. There were fewer targets aimed specifically at pressures and their impacts on biodiversity, suggesting an insufficient focus in many countries on the key aspects to be addressed (in measures) in order to achieve GES for this descriptor.

To improve adequacy and coherence, the general recommendations given in this report apply (see section 10). In addition, specifically for Descriptor 1, Member States should use the relevant specifications in EU legislation more systematically for assessing status and determining GES. In particular, the specifications laid down by the Habitats and Birds Directives should be applied not only for species and habitats listed thereunder, but could also be adapted where necessary for use with other species and habitats, thereby providing a consistent standard for assessments across the biodiversity components. The standards used for assessing habitat conditions under the Water Framework Directive may also be relevant in this context. A common concept for defining GES threshold values, which accommodates sustainable use, should be applied, which should follow the 'acceptable deviation from reference conditions' approach already encompassed within the standards for the WFD and the nature Directives. The definition of GES should clearly address *all* biodiversity components (each highly mobile species group and the predominant seabed and water column habitats), although its assessment can be based on specified indicator species and habitats. The specific elements to be addressed should reflect the differing biodiversity characteristics of each region, but should be selected in such a way as to maintain consistency within (sub-

)regions. Regarding predominant seabed habitats, the determination of GES and its assessment should be fully aligned with that required for Descriptor 6 (with reference to the different substrates of the seabed). For ecosystem-level assessments, the approaches should be aligned with that required under Descriptor 4 on food webs, aiming to address the overall balance of components in the ecosystem and their functioning.

Regarding future assessments of biodiversity, attention should focus on the development of more systematic methods for assessment, with clear threshold values for GES and ways of integrating across indicators and criteria. Where appropriate, methods for scaling up assessments from small to larger areas (or populations) should be developed, aiming to assess species, habitats and ecosystems at an appropriate ecological scale within each (sub-)region, and including joint or aggregated assessments across relevant Member States. In view of the large spatial areas to be assessed and the need to associate biodiversity assessments more closely to pressures and their management, the spatial extent and intensity of pressures should be mapped according to commonly agreed methods and used more systematically in relation to biodiversity assessments (i.e. links to impacts) and monitoring strategies (i.e. risk-based approaches).

In relation to the setting of environmental targets, further effort is needed to more clearly define the types of pressures and their impacts which need to be reduced in order to achieve GES. This is urgently needed to better inform the preparation of Programmes of Measures for 2015 and in view of the generally poor identification of targets for key pressures on biodiversity in the 2012 reports.

As there are still challenges to adequately implement a more holistic assessment of biodiversity, opportunities to transfer best practices from one region to another should be sought. Finally, the revision of Decision 2010/477/EU should be used to introduce specific minimum requirements based on the approaches developed within the EU and the Regional Sea Conventions.

6.2. Non-indigenous species (Descriptor 2)

Non-indigenous species (NIS) are species introduced outside their natural past or present environment, and which may survive and subsequently reproduce. These species are introduced in situations where exchange of people or goods takes place between countries and continents. In the marine context, introduction frequently takes place when ships' ballast water originating in one environment is subsequently released into another environment. NIS can threaten the balance of a local or regional ecosystem, rapidly expanding and outcompeting indigenous species for food, space and other resources, or even preying on them. They can also introduce new diseases to an ecosystem, to which indigenous species are not resistant. Non-indigenous species are referred to as 'invasive species' if they expand dramatically and cause widespread harm. The Commission has recently adopted a proposal¹⁸ to address this problem, including in the marine environment.

According to Annex I of the Directive, GES for Descriptor 2 is achieved when "*non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems*".

¹⁸ COM(2013) 620 final

6.2.1. GES definition (Art. 9)

All Member States have defined GES for Descriptor 2. No distinction was made at sub-regional level, either in the Mediterranean or in the North-East Atlantic. The GES definition was generally formulated at descriptor level only (CY, DE, DK, EL, IE, NL, PT, UK), although some Member States also provided detail at criteria (BE, FI, SE) and even indicator levels (ES, FR). The remaining Member States provided information only at criteria (IT, RO, SI) or indicator (BG, EE, LT, LV) levels.

Most of the definitions were quite vague, with many Member States reproducing the definition in Annex I verbatim (EL, NL, PT) or with wording very close to it (DE, DK, FI). Those that have defined GES at lower levels have frequently drawn heavily on Commission Decision 2010/477/EU (e.g. FR, SI), and generally for criterion 2.1 (abundance and state characteristics). One MS (EE) defined GES through indicators, targeting specific species groups and including thresholds. However, the same indicators were used by EE for Article 10, which raises some doubts as to what exactly is their GES definition.

Between the Member States, there were significant differences in relation to the level of detail and focus. Several Member States (EL, IE, IT, UK and to a lesser extent ES) explicitly adopted a risk-based approach, primarily addressing vectors and pathways for introductions of NIS. Many Member States (BE, CY, DE, EL, ES, FI, FR, IT, SE, SI) referred to impacts of non-indigenous species. GES definitions either addressed NIS in general (BE, DE, IE, FI, NL, PT, SI), only invasive NIS (DK, IT) or both (EE, EL, ES, FR, LT, LV, SE, UK). Spain provided a more detailed definition addressing both the risk of introduction and spreading of invasive NIS as well as the prevention of deterioration in environmental quality from invasive species which were already present.

In summary, no Member State is judged to have an adequate definition of GES. Eleven Member States (BE, BG, DE, ES, EE, IE, IT, LT, LV, SE, UK) were found to have a partially adequate definition of GES while nine (CY, DK, EL, FI, FR, NL, PT, RO, SI) were found to be inadequate.

The level of coherence in the definition of GES for Descriptor 2 within each of the four regional seas is considered to be low. That said, there are exceptions at sub-regional level, with a moderate level of coherence between the three Member States in the Western Mediterranean Sea. Coherence in the Celtic Seas is also assessed as moderate.

6.2.2. Initial assessment (Art. 8)

All Member States have undertaken initial assessments. However, as Bulgaria was late with its submission, its initial assessment is not considered in the analysis below.

Generally, the initial assessments for Descriptor 2 were mostly based on existing literature, supplemented in some instances by expert judgement. All MS provided an inventory of NIS present, and generally the main vectors and pathways were described. Overall, the assessment of impacts was quite limited, and when the level of pressure was reported, it was qualitative in nature. One Member State (SI) undertook additional studies for the initial assessment of Descriptor 2.

The number of NIS reported by each Member State varied considerably between the sub-regions. For example, reporting in the **Mediterranean** region ranges from 126-193 in the Aegean-Levantine Sea sub-region to 22-47 in the Adriatic Sea sub-region, while in the **North-East Atlantic region** it varies between 20-70 in the Celtic Seas sub-region and 38-129 in the Bay of Biscay and Iberian Coast sub-region. In the **Baltic Sea** it varied between 13-38. In the **Black Sea**, Romania reported 15 species (as outlined above, Bulgaria's report is not included in this assessment).

Eight Member States (BE, CY, DE, EL, IT, LT, PT, SI) have indicated a trend in the level of the pressure from NIS (albeit in a very general manner), but only six (CY, EE, LT, PT, RO, SI) have made a judgement on the pressure in relation to GES. Where made, these judgements were generally with a low level of confidence.

Mediterranean and North East Atlantic Member States on the whole described knowledge and data gaps in some detail and in some cases even (limited) plans to address them. This was not the case in the Baltic where only two MS (DE, DK) analysed knowledge gaps in any detail.

In the initial assessment, some Member States (DE, EE, LT) referred to the HELCOM bio-pollution index but DE considered that it was not applicable for the MSFD assessment in its present form.

In summary, six Member States (DE, FR_{ATLANTIC}, IE, LT, PT, UK) were judged to have an adequate initial assessment. Thirteen Member States (BE, CY, DK, EE, EL, ES, FI, FR_{MED}, IT, NL, RO, SE, SI) were found to be partially adequate, while only one (LV) was found to be inadequate. Bulgaria's assessment was not taken into account.

The level of coherence in the Mediterranean, North-East Atlantic and Baltic regions was considered to be high, with the exception of the number of NIS reported which varied greatly per Member State. Given Bulgaria's late submission, coherence was not assessed for the Black Sea.

6.2.3. Environmental targets (Art. 10)

Seventeen Member States (all except CY, PT, RO) have defined environmental targets and associated indicators for Descriptor 2, with these addressing all their marine waters without distinguishing between sub-regions.

The number of targets varied between one and four. A few countries have also set interim targets. Member States have generally set pressure/impact targets, though some surveillance-type targets were established relating to monitoring (SI), inventory (EL) or an early warning system (IT), while one MS (ES) has set a target in relation to research. The level of detail also varied greatly from one Member State to another, and the targets have generally not been assessed as fully SMART, often because they were not measurable or lack specification.

Thirteen Member States (BE, DE, DK, EE, ES, FI, FR_{MED}, IE, LT, NL, SE, SI, UK) have set targets relating to the reduction of new introductions or changes in their abundance, some of whom also addressed the spreading of NIS (ES, FR, IE, SI, UK). However, with some exceptions (DK, ES, FI, FR, IE, SE), the targets rarely mentioned specific vectors and pathways or specific NIS (except EE, ES, FI). One MS (DK) has set targets focusing on prevention of NIS transported by shipping and aquaculture. In addition to the presence of NIS, relatively few Member States (e.g. FR, UK) addressed the reduction of impacts from

NIS. However, their target was formulated in a very general way. In the Baltic, three Member States (EE, FI, LT) referred to the HELCOM bio-pollution index.

The associated indicators also varied significantly. A number of Member States have not set associated indicators (BE, FR_{ATLANTIC}, LV, SI) or have indicators which were very similar to the targets themselves (IE). At the other extreme, one MS (FI) has set eight indicators.

In summary, no Member States were judged to have adequate environmental targets. Five Member States (ES, FI, IE, SE, SI) were found to be partially adequate, while twelve (BE, BG, DE, DK, EE, EL, FR, IT, LT, LV, NL, UK) were found to be inadequate. Three Member States (CY, PT, RO) did not defined environmental targets for D2.

The level of coherence is low across the Mediterranean and North-East Atlantic regions in terms of environmental targets and associated indicators, while in the Baltic it is judged to be moderate. As Romania has not set environmental targets, coherence is not addressed for the Black Sea.

6.2.4. Consistency between GES, Initial Assessment and targets

Consistency between GES, initial assessments and targets was moderate. Six Member States have analysed current NIS trends in relation to GES as part of their initial assessments. The qualitative nature of most of the targets made it impractical to directly measure them against attainment of GES. Gaps in knowledge and data formed part of the problem and it was encouraging that most Member Steps acknowledged this. However, most did not adequately outline how they plan to address these gaps.

6.2.5. Conclusions

The overall level of adequacy for Descriptor 2 of the Member States assessed is given In Figure 4.

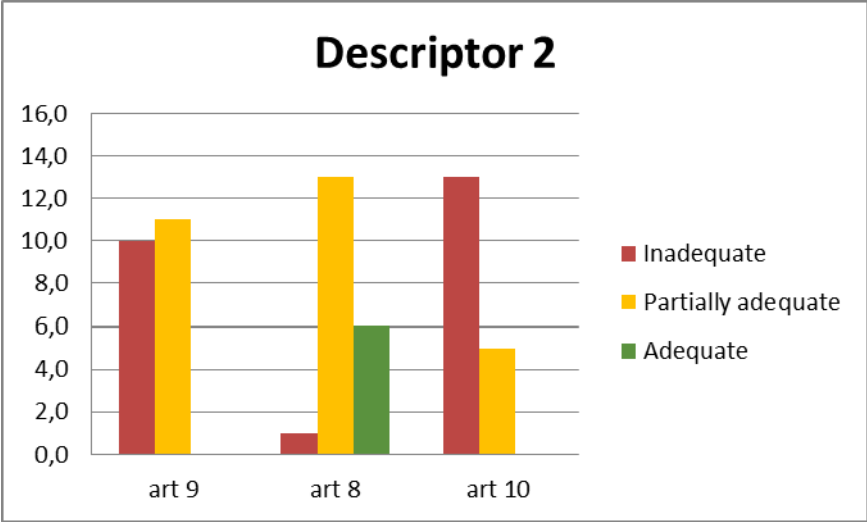


Figure 4: Summary of the assessments of adequacy of Member State's reports for MSFD Articles 8, 9 and 10 for Descriptor 2 on non-indigenous species. The bars indicate the number of Member States which were assessed as adequate, partially adequate and inadequate.

The overall level of coherence for Descriptor 2 per marine region is given in Figure 5.

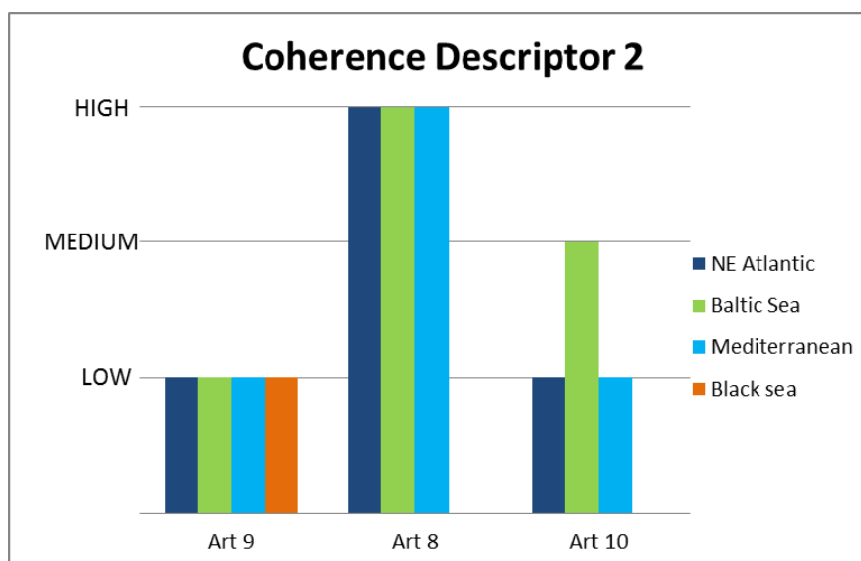


Figure 5: Summary of the assessments of coherence of Member State's reports within each region for MSFD Articles 8, 9 and 10 for Descriptor 2 on non-indigenous species. The bars indicate whether the reports were assessed as having a low, moderate or high level of coherence within each region.

To improve adequacy and coherence, the general recommendations in this report apply. In addition, specifically for Descriptor 2, a much greater level of coherence is required in relation to the species to be addressed. Member States should establish common lists of species, on a (sub-)regional basis. The establishment of such lists should be done through appropriate coordination with the relevant Regional Sea Convention, and should build on any “list of invasive alien species of Union concern” which may be adopted in the context of the recent Commission proposal on the prevention and management of invasive alien species¹⁹. The revision of Decision 2010/477/EU should be used to introduce specific minimum provisions based on the approaches developed within the EU and the Regional Sea Conventions. However, Member States should remain free to go beyond any Union-wide list to target species on a sub-regional basis, and to beyond (sub-)regional lists to tackle species specific to their marine waters.

6.3. Commercially exploited fish and shellfish (Descriptor 3)

Fisheries activities represent one of the most important human pressures on the marine environment; their impact is significant, particularly on its biodiversity components. The Descriptor is strongly linked to the Common Fisheries Policy, which has recently seen a revision which will steer future EU fishing management decisions up to 2020 and most probably beyond. Amongst the most important features of the reformed policy are the need to attain sustainable fishing levels through use of the maximum sustainable yield (MSY) management criteria, to adjust the fleet capacity accordingly, to improve fleet performance with respect to their impact on the marine environment and the obligation to land all catches. The new Basic Regulation²⁰ which entered into force recently, embedded the overall

¹⁹ COM(2013) 620 final

²⁰ OJ L 354, 28.12.2013, p22. Regulation (EU) No 1380/2013

objectives of the MSFD within the new Policy, where measures should be implemented gradually to reach MSY levels, by 2015 where possible but not later than 2020.

According to Annex I of the Directive, GES for Descriptor 3 is achieved when "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".

6.3.1. GES definition (Art. 9)

All Member States have defined GES for Descriptor 3. However, several Member States (DK, IE, NL, PT) have defined GES only at the descriptor level.

Although GES definitions were not directly comparable between MS, none have been defined in a way that significantly deviates from those provided in the Commission Decision 2010/477/EU, except for one Member State (RO) which defined GES only for a single stock.

Most Member States have applied criteria 3.1 and 3.2 and nine (BG, CY, DE, FI, FR, IT, LT, SE, SI) have also applied criterion 3.3 from the Commission Decision 2010/477/EU.

With regards to criterion 3.1, all Member States have used fishing mortality (F) as the primary indicator and each of those have used the fishing mortality at maximum sustainable yields (F_{MSY}) in their GES definition except one Member State (IT) which uses a proxy for F_{MSY} ($F_{0.1}$).

Two Member States (DE, FI) have clearly stated that all fish and shellfish should be exploited at or below levels of F_{MSY} while another (SE) has clearly set this threshold but only for all commercially exploited fish species. The remaining countries have GES definitions which do not require either explicitly or implicitly all stocks to be exploited at or below F_{MSY} . Two Member States (ES, FR) have used F_{MSY} as an environmental target value rather than limits or boundaries for GES.

For those stocks for which F could not be determined, a number of Member States (BE, CY, DE, FR, IT, SE, SI) have applied the secondary indicator 3.1.2 on the catch/biomass ratio. One Member State (BE) has also provided a third indicator using Catch Per Unit Effort (CPUE).

Moreover, three Member States (EL, IT, SI) have included the "exploitation rate" indicator and set a threshold level ($E=0.4$) which is appropriate for small pelagic species.

For criterion 3.2, most Member States have used the primary indicator, i.e. Stock Spawning Biomass (SSB_{MSY}), but using different reference points for the indicator such as SSB_{msy} (BE, BG, CY, ES, IT, SI), SSB_{pa} (BE, DE, LV), $B_{MSY-trigger}$ (DE, FR, SE) and in some cases referring to more than one type of reference point in their GES definition (BE, DE). Other Member States (IE, NL, UK) implicitly applied Precautionary Approach levels by stating that stocks needed to be within safe biological limits. Two Member States have clearly deviated from the others (ES, FR) when defining the threshold for the Biomass (B)²¹ of all assessed stocks. Several Member States also applied the secondary indicator 3.2.2 on biomass indices

²¹ This reproductive Biomass was set at or above rates of $B_{MSY-trigger}$ or SSB/SSB_{MSY} with a probability of 50%.

(CY, EE, FR, IT, SE, SI) and one proposes to use it in their GES definition (DE). One Member State proposes an alternative secondary indicator (BE), based on trends of survey abundance.

Criterion 3.3 is the least developed criterion of Descriptor 3, as it needs further methodological development. Nine Member States (BG, CY, DE, FI, FR, IT, LT, SE, SI) have defined criterion 3.3 to some extent. Indicator 3.3.1 of the Commission Decision has been applied by five Member states (DE, EE, FR, IT, SI), 3.3.2 by one Member State (DE), 3.3.3 by five Member States (DE, EE, FR, LT, SI) and 3.3.4 by two Member States (DE, EE).

In summary, two Member States were judged to have adequate GES definitions (DE, FI). Nine Member States were judged to have partially adequate (BE, BG, CY, IE, IT, LV, SE, SI, UK) determinations of GES. Nine were judged to have inadequate GES definitions (DK, EE, EL, ES, FR, LT, NL, PT, RO).

Overall the coherence for the definition of GES for Descriptor 3 in the Atlantic and the Baltic maritime region was moderate and in the Mediterranean and Black Sea regions was low.

6.3.2. Initial Assessment (Art. 8)

All Member States have undertaken an initial assessment for Descriptor 3 although the initial assessment by one country has not been assessed (BG).

Most of the North-East Atlantic countries, two Mediterranean countries, three Baltic countries and one Black Sea country (DE, DK, EL, ES, FR, IE, LV, PT, RO, SE, UK) have assessed stocks in relation to F_{MSY} . One Member State (IT) used another fishing mortality indicator as a proxy ($F_{0.1}$). One Member State (CY) applied F_{pa} and another (SI) used trends of species abundance within the ecosystem. Sometimes, there were discrepancies in the types of stocks assessed, such as in the case of the Mediterranean where one Member State (FR) only assessed large pelagic species and another (CY) focussed only on demersal stocks.

Four Member States (CY, FR, LV, UK) assessed the spawning stock biomass in relation to SSB_{pa} reference points, whilst one (BE) implicitly did so by using the OSPAR ecological quality objective (EcoQO) which requires stocks to be above SSB_{pa} . Another two (DE, DK) used the biomass at MSY-level ($B_{MSY-trigger}$) as a reference point to assess stocks, whilst two others (ES, SE) assessed stocks in relation to the SSB_{MSY} points. One Member State (PT) used both SSB_{MSY} and $B_{MSY-trigger}$ reference points. Finally one member state (FR) used B_{MSY} .

In terms of impacts on seabed habitats, eleven Member States (CY, DE, DK, EE, EL, IT, LT, NL, RO, SI, UK) provided a quantification of the extent of the seabed affected by the fishing pressure. This figure, however, varied widely amongst Member States.

In terms of the level of the pressure caused by fishing fleets, a few Member States have assessed the extent of their assessment areas subjected to the pressure from various fleet categories. The assessments were very diverse even within Member States (depending on the fleet category) and were difficult to summarise and compare.

In summary, six Member States (EL, ES, IE, FR, NL, SE) were judged to have an adequate Initial Assessment, ten Member States (BE, CY, DE, DK, IT, LV, PT, RO, SI, UK) were judged partially adequate and three (EE, FI, LT) were judged as inadequate.

In general, the level of coherence of the initial assessments undertaken by Member States in the North-East Atlantic region and the Baltic Sea region was considered to be moderate. In the Mediterranean it was assessed as low.

6.3.3. Environmental targets (Art. 10)

All Member States have defined environmental targets and associated indicators for Descriptor 3 for all their marine waters.

Four Member States (BE, DE, DK, IE) have set overall targets to manage all stocks according to MSY principles, although it is not always clear whether the target requires all stocks to be exploited at or below F_{MSY} . Three Member States have set targets to manage stocks according to the provisions of relevant EU legislation including the newly reformed Common Fisheries Policy (CY, EL, IT).

Two Member States (NL, UK) have clearly-defined targets that state that all stocks should be exploited at or below F_{MSY} for those with sufficient information to allow reference points to be calculated; for one Member State (SE) has a similar target but left it unclear whether this applies to all stocks. Others (BG, FI, LV, PT) have set F_{MSY} as a limit for selected stocks.

The targets for several Member States in Mediterranean region (ES, FR) remain unspecific with little explanation provided.

Two Member States (BE, UK) have set a target for all stocks to be at SSB_{pa} . Five Member States (BG, DK, LV, NL, SE) have set targets for SSB for at least one stock. The thresholds used are B_{PA} (DK), $B_{MSY-trigger}$ (DK, SE) or a quantitative reference point developed by ICES²² (LV)) and in one case specific biomass levels for specific stocks in tons (BG). Only one Member State (BE) has set B_{MSY} as a target for all stocks, although this target is not always consistent with the other targets provided.

Twelve Member States (BE, BG, CY, DE, EE, FI, IE, LV, NL, SE, SI, PT) have set a target related to the size and structure of fish populations (criterion 3.3). In the case of five Member States (BE, CY, LV, PT, SE), this is because their target includes a verbatim or approximate copy of Descriptor 3 as provided in Annex I of the MSFD.

In the **North East Atlantic** region, four out of 10 Member States (DE, IE, NL, SE) have also defined associated indicators for the target(s) related to criterion 3.3 in some cases applying verbatim copies (IE, NL) of the indicators as provided in Commission Decision 2010/477/EU and in other instances close approximations (DE, SE). None of these indicators have defined thresholds and OSPAR EcoQOs were not used.

In the **Baltic**, Commission Decision 2010/477/EU indicators were applied by two Member State (DE, SE) in general and in the case of one Member State for a specific species (EE), the perch (*perca fluviatilis*). The indicators of one Baltic state (FI) deviated from those provided in Commission Decision 2010/477/EU and one (LV) did not provide any indicators for criterion 3.3.

²² International Council for the Exploration of the Seas

In the Mediterranean none of the Member States used Commission Decision 2010/477/EU indicators for criterion 3.3.

In the Black Sea one Member State (BG) applied the indicators for criterion 3.3, with specific thresholds for two specific species, the Black Sea Turbot (*Scophthalmus maeoticus*) and the sprat (*Sprattus sprattus*).

Finally, two Member States (EE, FI) have also set targets related to the spawning of salmon. Three member states (DE, IT, RO) have set targets related to illegal fishing, with one of them (DE) making a link to the potential effects on other descriptors. In addition, one Member State (RO) has also set a number of targets relating to the general improvement of fisheries in the **Black Sea**.

In summary, for three MS the environmental targets were judged to be adequate (LT, NL, UK). For seven MS (BG, ES, FI, IE, LV, PT, SE) the targets were judged to be partially adequate and the remaining ten were assessed as inadequate (BE, CY, DE, DK, EE, EL, FR, IT, RO, SI).

Overall, the level of coherence in the setting of targets for Descriptor 3 across the North-East Atlantic and Mediterranean regions was low. The level of coherence in the Baltic Sea region was considered to be moderate and in the Black Sea region between low and moderate.

6.3.4. Consistency between GES, Initial Assessment and targets

Consistency level among the three relevant articles of the Directive was rather low because a stronger link between the baselines stated within the initial assessments and the targets to achieve GES was not made. In most cases, either the current state or the GES were not appropriately covered so the logical link was missing or appeared to be vague. Other Member States have set their targets in an imprecise way, preventing better coherence between countries.

6.3.5. Conclusions

The overall level of adequacy for Descriptor 3 of the Member States assessed is given in Figure 6.

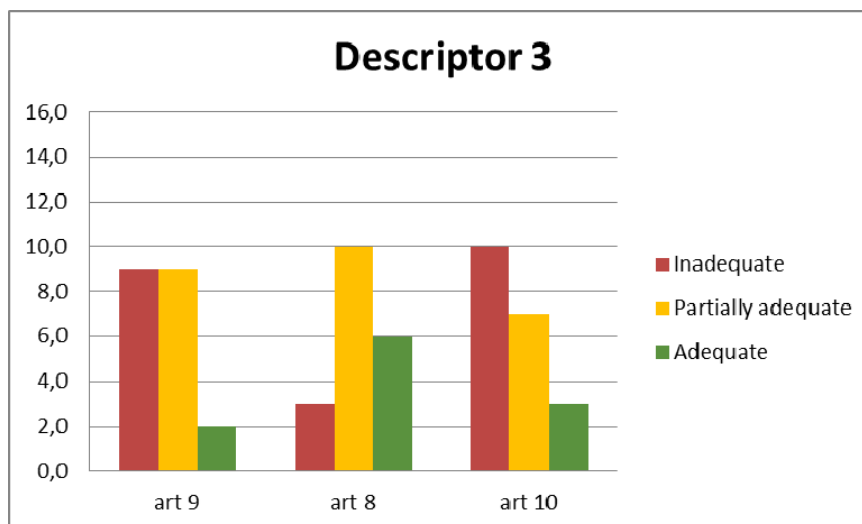


Figure 6: Summary of the assessments of adequacy of Member State's reports for MSFD Articles 8, 9 and 10 for Descriptor 3 on commercial fish and shellfish. The bars indicate the number of Member States which were assessed as adequate, partially adequate and inadequate.

The overall level of coherence for Descriptor 3 per marine region is given in Figure 7.

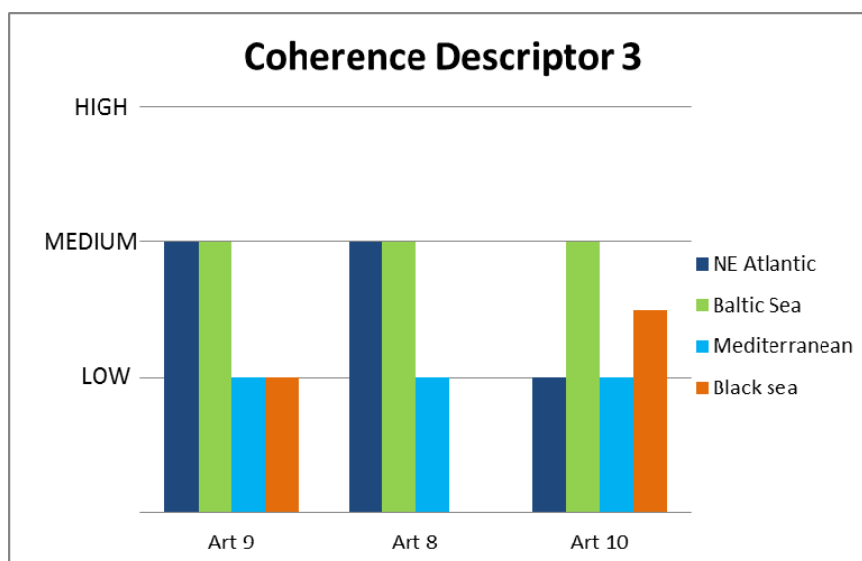


Figure 7: Summary of the assessments of coherence of Member State's reports within each region for MSFD Articles 8, 9 and 10 for Descriptor 3 on commercial fish and shellfish. The bars indicate whether the reports were assessed as having a low, moderate or high level of coherence within each region.

To improve adequacy and coherence, the general recommendations in this report apply. In addition, specifically for Descriptor 3, further scientific advice should be sought and developed at EU level so as to provide clear guidelines on a stock-by-stock basis and better indicators for this proposed criterion 3.3 as well as development of further fisheries

management plans considering mixed fisheries, prey-predator relationships, etc. Agreement is needed for each (sub-)region as to which species fall within this descriptor. Furthermore, MS should take full account of the information available through the Common Fisheries Policy since annual scientific assessments of commercial stocks are available in all areas, in the context of agreements on fishing opportunities (Total allowable catches - TACs and quotas and effort levels). In addition, MS should systematically develop GES and targets concerning coastal species and shellfish, effects of fishing activities on other ecosystem components, and the reduction of illegal, unregulated and unreported (IUU) fishing. Moreover, Member States should better coordinate their work on GES and target-setting through the regional organisations (e.g. by collaboration between Regional Sea Conventions and Regional Fisheries Management Organisations) and use the scientific advice from international organisations such as ICES more systematically. If necessary, the revision of Decision 2010/477/EU should be used to introduce clarifications and minimum requirements which would then be brought into line with the recently reformed Common Fisheries Policy²³.

6.4. Food webs (Descriptor 4)

Food webs are networks of feeding interactions between consuming species and their food (i.e. predators and prey). This descriptor addresses functional aspects of marine ecosystems, especially the rates of energy transfer within the ecosystem and the levels of productivity in each of its key components (often termed trophic levels). The topic of food webs is a complex one which encompasses the entire range of living organisms in each ecosystem, ranging from tiny microbes and plankton (as primary producers) up to top predators such as birds, mammals and fish. Whilst the proper functioning of marine food webs is an essential feature of a healthy ecosystem, the techniques for measuring and assessing their status are very poorly developed.

The assessment of food webs has close links to the assessment at ecosystem level of Descriptor 1, as it encompasses functional aspects to complement the more structural aspects addressed in Descriptor 1.

Perhaps the most important pressure on food webs is from fishing, either through over-fishing or the selective extraction of larger individuals of fish. This can impact the normal predator-prey balances in food webs and sometimes lead to dramatic effects when particular species are removed from the food chain. In addition, climate change can alter primary productivity or lead to changes in species distribution with consequent effects on food webs. Extensive alteration to the sea-floor (through physical disturbance or deoxygenation), the introduction of invasive non-indigenous species and pollution by chemical substances can also lead to marked changes in ecosystem structure. Due to this range of threats, Descriptor 4 has links to the pressure-related descriptors, particularly Descriptors 2, 5 and 8.

According to Annex I of the Directive, GES for Descriptor 4 is achieved when "*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*".

²³ OJ L 354, 28.12.13, p.22.

6.4.1. GES definition (Art. 9)

All Member States who have reported have defined GES for Descriptor 4, with the exception of BG, CY, LV and RO. The definitions provided applied to their entire marine waters; only ES provided minor differences between its sub-regions.

The GES definitions were formulated at descriptor level by most Member States (except DK, IT, LT). Twelve Member States provided additional detail at criterion level (BE, DK, EE, EL, ES, FI, FR, IE, IT, SE, SI), often with a close relationship to Commission Decision 2010/477/EU criteria, although not always every Decision criterion was used. Four of these Member States (EE, FR, IT, SE) provided additional detail at indicator level. One Member State (NL) reproduced the definition in Annex I verbatim. One Member State (DE) coupled its definition with that for Descriptors 1 and 6 but has very little direct relevance to Descriptor 4. One Member State (PT) provided a definition at a high, general, level. Another (UK) qualified its definition at descriptor level by referring to its targets under Article 10, where additional specification was provided. Finally, one Member State (LT) defined GES for Descriptor 4 only at indicator level, not covering all indicators and criteria of the Commission Decision.

The definitions varied enormously in their content and level of detail. Most were qualitative and many were rather vague, lacking definitions of key terms used or specificity as to which elements of food-webs were addressed.

Some Member States (BE, EL, ES, FR, FI, NL, PT, SE) have defined GES in such a way as to cover all food-web components indiscriminately (i.e. from plankton to higher trophic levels), whether because the GES definition is very general (NL, PT) or because it includes a general statement which addresses all food webs in a holistic manner (BE, EL, ES, FR, FI, SE).

Most Member States have referred to specific food web components in their GES definition, sometimes in addition to defining it for all food web components. In the **Baltic** region, most Member States have put an emphasis on fish communities. Most Member States (BE, DK, EL, ES, FI, FR, IE, IT, SE, UK) refer to ‘key’ species or functional groups and/or to top predators or species at the top of the food web.

Few Member States included in their GES definition specific species (DK, SE) or habitats (IT) as indicators of change. Indicator species include the harbour porpoise and the harbour seal and indicator habitats include *Posidonia* meadows. Only three Member States (EL, ES, UK) have included a reference to the pressures on food web components, in particular fisheries.

In summary, two Member States (FR, SE) were judged to have an adequate definition of GES. Six Member States (BE, DK, EL, FI, IE, UK²⁴) were found to have a partially adequate definition whilst eight were found to be inadequate (DE, EE, ES, IT, LT, NL, PT, SI). BG, CY, LV and RO have not defined GES for this descriptor.

Due to the very wide variance in approaches, the level of coherence within each of the regional seas was considered to be low.

²⁴ When considered together with the environmental targets which are specifically referred to in its Art. 9 definition.

6.4.2. Initial assessment (Art. 8)

The initial assessments for this Descriptor were considered together with Descriptor 1 under 'ecosystems' (see section 6.1.2).

6.4.3. Environmental targets (Art. 10)

Most Member States, with the exception of BG, CY, IE, LV, PT, RO, have defined environmental targets and associated indicators for all their marine waters, with most not distinguishing between sub-regions. France was an exception, having separate targets for its Atlantic sub-regions and Mediterranean region. A number of Member States provided targets which jointly addressed Descriptors 1 and 4 (SE) or, more commonly, Descriptors 1, 4 and 6 (BE, DE, ES, FR_{MED}, LT, NL, UK). In these latter cases, the targets were typically grouped against the main biodiversity species or habitats groups (i.e. under ecosystems in relation to Descriptor 4).

The number of targets varied greatly, between one (EL, FR_{ATLANTIC}, IT, LT) and 37 (UK), the latter due largely to having combined targets with Descriptors 1 and 6.

All Member States with targets have set state-based targets; many of these would be better considered as expressions of GES. In some cases (e.g. NL, UK), the lack of detail expressed in their definition of GES was compensated by provision of a detailed set of state-based targets. These state targets typically addressed specific ecosystem components or even individual species which were considered as representative of certain trophic groups (e.g. top-predators). Several Member States have specifically addressed the full range of main ecosystem components (e.g. FI, UK). Some Member States provided more holistic ecosystem targets (e.g. EE, FR_{ATLANTIC}, IT, LT, NL), but these were typically rather general and more expressions of GES.

In addition, specific pressure- and impact-based targets have been reported, again directed towards particular ecosystem components. They most frequently addressed seabed damage and accidental killing of species (e.g. through fishing by-catch and ship collisions). Some Member States (DE, ES, FR_{MED}) provided measure-based targets and two MS (ES, SI) added knowledge-based targets.

The level of detail given for the targets varies greatly from one Member State to another; the targets have generally not been assessed as fully SMART, often because they are not measurable or lack specification.

In summary, bearing in mind those Member States that have presented combined targets for several descriptors, one Member State was judged to have adequate targets for Descriptor 4 (UK). Eight Member States (BE, DE, DK, EE, ES, FI, FR_{MED}, NL) were found to be partially adequate, while six were found to be inadequate (EL, FR_{ATLANTIC}, IT, LT, SE, SI). Six Member States (BG, CY, IE, LV, PT, RO) have not defined targets for Descriptor 4.

The level of coherence in the environmental targets and associated indicators within each region was judged to be low except for the Baltic sea region where it is found moderate.

6.4.4. Consistency between GES, initial assessment and targets

Considering the complexity and general lack of knowledge on this descriptor, there was a reasonable level of consistency between GES, initial assessments and targets in the MS reports. However the general lack of accepted assessment techniques meant that in many cases, assessments of the current status of food webs were addressed in a mainly qualitative manner or not at all. Very few MS used their determinations of GES under Article 9 to assess current status under Article 8.

There was generally greater consistency between GES and targets, with targets defined in a complementary manner and often providing specific detail to the more generalised texts of the GES definitions. In relation to Article 8, however, the targets often lack specific links to particular pressures and impacts which may in part be due to imprecise or inadequate assessments of current status. Gaps in knowledge and data formed part of the problem and it was encouraging that most Member States acknowledged this. However, most did not adequately outline how they plan to address these gaps.

6.4.5. Conclusions

The overall level of adequacy for Descriptor 4 of the Member States assessed is given in Figure 8.

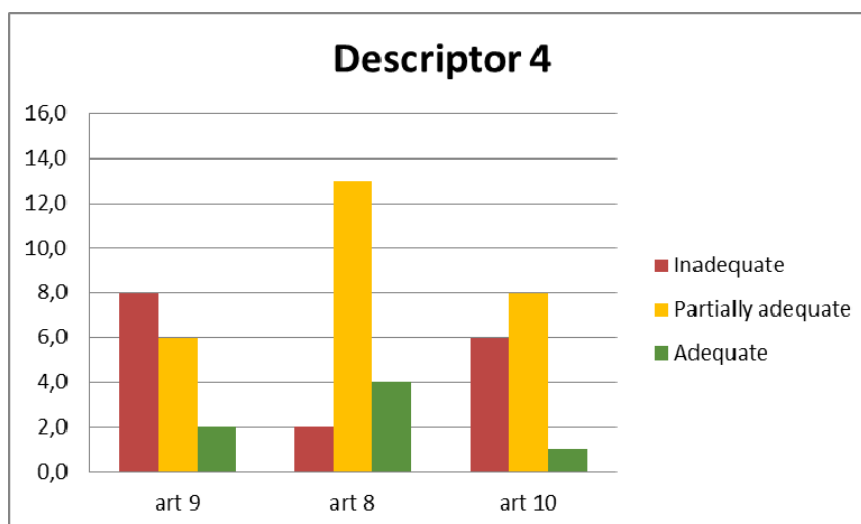


Figure 8: Summary of the assessments of adequacy of Member State's reports for MSFD Articles 8, 9 and 10 for Descriptor 4 on food webs. The bars indicate the number of Member States which were assessed as adequate, partially adequate and inadequate.

The overall level of coherence for Descriptor 4 per marine region is given in Figure 9.

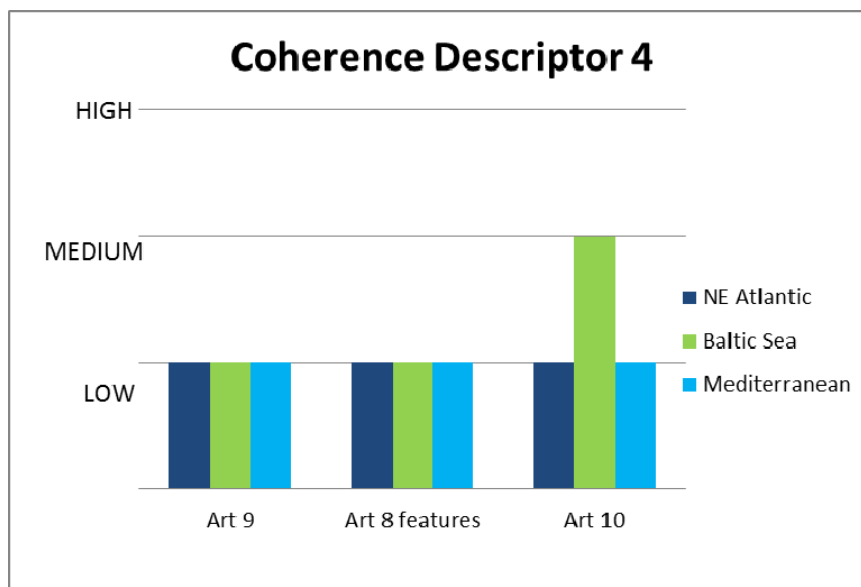


Figure 9: Summary of the assessments of coherence of Member State's reports within each region for MSFD Articles 8, 9 and 10 for Descriptor 4 on food webs. The bars indicate whether the reports were assessed as having a low, moderate or high level of coherence within each region.

To improve adequacy and coherence, the general recommendations in this report apply. In addition, specifically for Descriptor 4, further scientific and methodological developments should take place at EU and regional level to improve the possibilities for setting GES and targets. Such developments should also consider a more holistic setting of GES, through integrating Descriptor 4 with other descriptors particularly Descriptors 1 and 6. It should focus on assessments across the range of biodiversity components, at appropriate ecological scales, rather than on individual components as these are addressed under Descriptors 1 and 6. If necessary, this approach should be introduced in the the revision of Decision 2010/477/EU and minimum requirements should be set.

6.5. Eutrophication (Descriptor 5)

The main cause of human-induced (anthropogenic) eutrophication is nutrient enrichment. This can have a severe negative effect on marine ecosystems and is, therefore, a key threat to achieving GES in some parts of EU marine waters. The main nutrients concerned are nitrogen (N) and phosphorus (P) which are naturally present in our seas, but additional and excessive inputs of N and P come from drained inland diffuse and point sources, such as agriculture and waste water and, to a lesser extent, from precipitation caused by ammonia emissions, mainly from agriculture but also from industry.

The assessment of eutrophication starts with a description of the levels of nutrients present in the marine environment (assessment of state), and then by addressing separately nutrient enrichment (input loads) and its (direct and indirect) impacts.

According to Annex I of the Directive, GES for Descriptor 5 is achieved when "human-induced eutrophication is minimized, especially adverse effects thereof, such as losses in

biodiversity, ecosystem degradation, harmful algae bloom and oxygen deficiency in bottom waters".

6.5.1. Good Environmental Status (Art. 9)

All Member States defined GES for Descriptor 5 and most (except CY, LT, NL, PT) covered all three criteria of Commission Decision 2010/477/EU in their GES specifications in a clear way. Only one Member State (CY) made no reference to these criteria. However, with the exception of one MS (EL), none of the definitions could be considered adequate. The main deficiencies relate to incomplete coverage of indicators, a lack of specificity and threshold or reference values, a lack of clarity on links with the Water Framework Directive and a lack of clarity on the relationship between Good Ecological Status (GEcS) under the WFD and GES under the MSFD GES.

There was a large degree of variation in the approach to establishing indicators. Only one Member State (FR) clearly covered all the indicators, although most Member States covered most of them. Nutrient ratios and silicate concentrations were the indicators most often excluded, while nutrient and chlorophyll a concentrations, together with water transparency were covered by the majority of Member States.

Two Member States (ES, FR) stated that GES can be achieved even if nutrient levels are higher than thresholds values, provided there are no direct or indirect impacts, but this was not the predominant view.

Most Member States referred to the appropriate normative definitions of good ecological status (GEcS) classifications of the Water Framework Directive (WFD, 2000/60/EC) for coastal waters but the relationship between the MSFD GES and the WFD GEcS was not always clear (e.g. for CY, DK, EL, FI), and some Member States did not or only partially referred to the WFD definition. Some Member States were specific about using WFD thresholds for good/high status to define MSFD GES in coastal water bodies.

References to assessment methods under Regional Sea Conventions were made by most Member States either in their GES definition or in the accompanying text. For the **Baltic Sea** region, reference was made to the HELCOM eutrophication assessment tool (HEAT) all Baltic Member States except DK and LT. For the **North East Atlantic** region, nearly all Member States made reference to the OSPAR Comprehensive Procedure. Certain Member States have defined GES in terms of achieving OSPAR's 'eutrophication non-problem' status (DE, IE, UK) and most countries appear to have adopted the OSPAR nutrient baseline/threshold levels, at least for offshore waters (exceptions include DK, NL and PT). For the **Mediterranean** region, only one Member State (ES) mentioned explicitly the MEDPOL approach, while the OSPAR approach appears to have been followed by two Member States (FR, IT). Romania and Bulgaria did not refer to the **Black Sea** Convention, since the Convention has not developed a regional assessment approach to eutrophication assessment.

Only seven Member States (EL, ES, IE, LT, LV, SE, SI) incorporated quantitative thresholds into their definition of GES and therefore in the majority of cases it is impossible to know when GES is actually achieved.

In summary, for one Member State (EL), GES for Descriptor 5 was judged to be adequate whereas for six Member States (CY, DK, NL, LT, PT, RO) it was judged to be inadequate. For the remaining 13 Member States it was judged to be partially adequate.

Overall, the level of coherence for Descriptor 5 was relatively high in the Baltic and North East Atlantic regions and moderate in the Black Sea and Mediterranean regions, although differences at sub-region level were noted.

6.5.2. Initial Assessment (Art. 8)

All Member States have undertaken an initial assessment for Descriptor 5.

All Member States have provided nutrient input loads and environmental concentrations for the relevant nutrients – nitrogen and phosphorus. However, eight Member States (BE, DE, EE, EL, ES, LV, LT, UK), have not provided much information on organic matter inputs, and some Member States (FI, FR) provided estimates that are more than 10 years old.

There was a significant degree of variation in the level of detail of reporting on source origin of pressures as well as the level of knowledge of nutrient source apportionment (i.e. the amount coming from different sources or activities) across the different regions and differences. While most Member States appeared to have a sound understanding of where the nutrients/organic matter originates (agriculture, forestry, urban discharges, aquaculture, atmospheric deposition etc.), reports varied in the level of detail on quantification of these sources, for instance on the relative contributions of point versus diffuse sources to riverine input loads and on loads from atmospheric deposition.

The information provided on impacts was usually less complete than for pressures. For the **Baltic Sea and the North-East Atlantic** regions, all Member States have presented a judgement on the level of pressure and most Member States also included trends for these pressures, even if they did not always do so with reference to their GES definition (e.g. for FR, UK). In the **Baltic region** all countries assessed impacts, but most of the time in an incomplete manner. Where made, judgements often appear to be sound, based on the information provided, and indicate in most cases that GES has not been achieved. The majority of Member States in the Baltic refer to the relevant WFD (DE, DK, EE, FI) and/or HELCOM work (DE, EE, FI, LT, SE) in their initial assessments. For the **Mediterranean** region, most Member States (except ES, IT) have assessed impacts on both seabed and pelagic habitats and all Member States (except IT) have assessed the trend of the pressure and/or impact. Where made, judgements on both pressures and impacts often appeared to be sound, based on the information provided.

In summary, the initial assessment was judged to be adequate for seven Member States (CY, DK, EL, ES, IE, SE, SI), and partially adequate for the remaining 12 Member States.

Overall, the level of coherence in the initial assessment of eutrophication is high in the Baltic and North-East Atlantic regions and moderate in the Mediterranean region.

6.5.3. Environmental targets (Art. 10)

All Member States except PT have defined environmental targets and associated indicators for their marine waters. For the **North East Atlantic** and **Mediterranean** regions, generally no distinction was made between sub-regions (except in FR and IT).

Most Member States (BE, CY, DK, EE, IE, LT, LV, NL, SE, SI) have established state/impact-based targets, effectively representing the achievement of GES. Some Member States (BG, DE, EL, FR, IT, RO) provided only less ambitious pressure-based targets, while FI and ES provided targets based on both pressures and impacts. The UK established a risk- and state/impact-based approach to target setting.

Most targets set by Member States were considered specific and measurable. For those Member States that have set clear thresholds, the targets seemed achievable (e.g. BE, BG, IE, NL, SI, UK). Other Member States did not always set clear thresholds for all targets, which makes it difficult to assess if they were achievable and realistic (e.g. DE, FR, RO, SE). In some cases, targets were more expressions of GES than real targets defined to help achieve GES (e.g. EE, LT).

In summary, the setting of targets was assessed as being adequate for five Member States (BG, FI, IE, SI, UK), partially adequate for ten Member States (BE, CY, DE, DK, EE, EL, ES, LV, NL, SE) and inadequate for four Member States (FR, IT, LT, RO).

Overall, the level of coherence in the setting of environmental targets across the different regions is moderate, although differences exist at sub-regional level. For instance, the level of coherence is considered low in the North East Atlantic and Adriatic Sea (sub-)regions and high in the Celtic Seas, Ionian Sea and Central Mediterranean Sea sub-regions.

6.5.4. Consistency between GES, initial assessment and targets

Overall the consistency between the three relevant articles of the Directive was relatively good. Most Member States have undertaken their initial assessments in line with the established GES definitions and the targets set corresponded to the criteria and indicators referred to in the GES definitions.

This relatively good consistency can be explained by the fact that a majority of Member States based their approaches on established methodologies of Regional Sea Conventions. The main difficulty related not as much in the application of consistent approaches across the three articles but to the quantification of defined criteria and indicators and quantitative assessment of pressures and impacts, which made it difficult for many Member States to set realistic targets that were SMART and also sufficiently ambitious to tackle eutrophication.

6.5.5. Conclusions

The overall level of adequacy for Descriptor 5 for the Member States assessed is given in Figure 10.

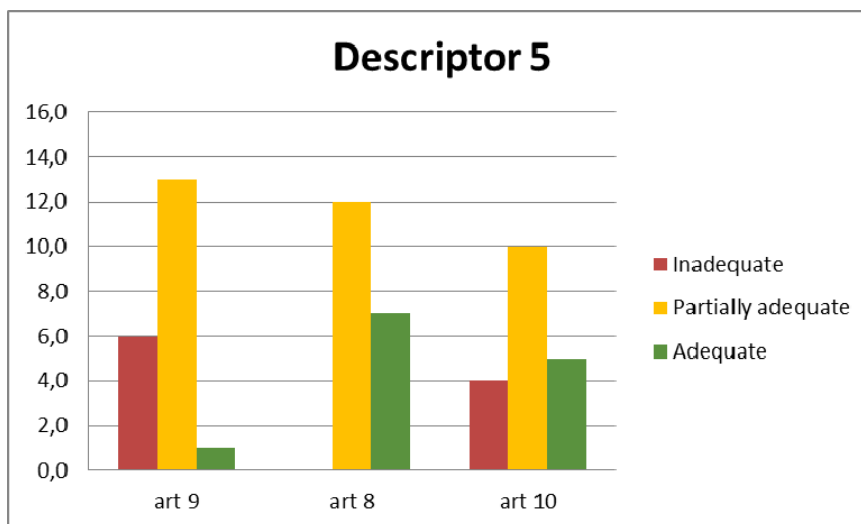


Figure 10: Summary of the assessments of adequacy of Member State's reports for MSFD Articles 8, 9 and 10 for Descriptor 5 on eutrophication. The bars indicate the number of Member States which were assessed as adequate, partially adequate and inadequate.

The overall level of coherence for Descriptor 5 per marine region is given in Figure 11.

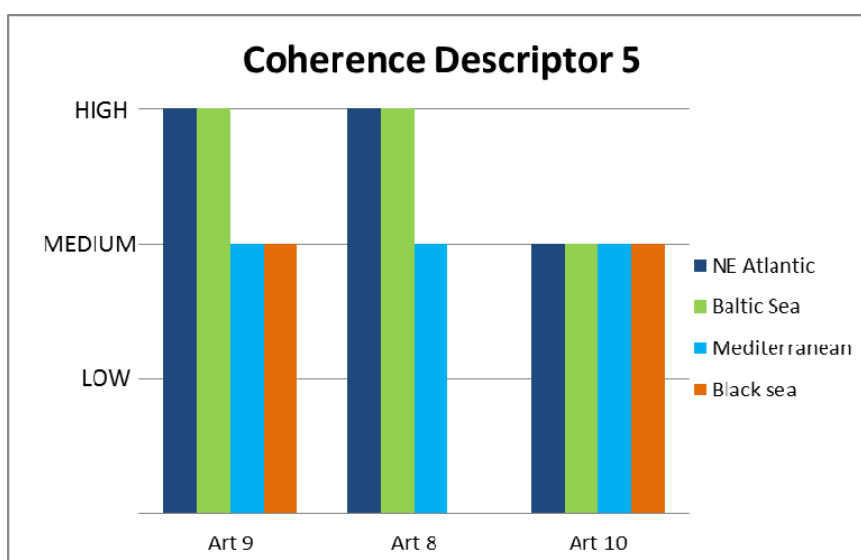


Figure 11: Summary of the assessments of coherence of Member State's reports within each region for MSFD Articles 8, 9 and 10 for Descriptor 5 on eutrophication. The bars indicate whether the reports were assessed as having a low, moderate or high level of coherence within each region.

To improve adequacy and coherence the general recommendations in this report apply. In addition, specifically for Descriptor 5, Member States should create better linkages with WFD assessment methods, clarify and better justify the choice and prioritisation of indicators and reinforce cooperation under the RSC's and MSFD working groups to ensure coherence of approaches within and between regions. This cooperation should also provide for an equal

level of ambition to protect all European waters. The development of guidance documents based on best practices on specific aspects such as monitoring of indicators, aggregation of data, and assessment scales will contribute to the application of coherent approaches. If necessary, this approach should be introduced in the revision of Decision 2010/477/EU and minimum requirements should be set based on the requirements of the Water Framework Directive and considering the available and adequate assessment approaches in the marine regions.

6.6. Sea-floor integrity (Descriptor 6)

Sea-floor integrity is a relatively new concept, at least in the way it is expressed in the Directive, but is one which encompasses aspects of structure and function in seabed habitats and their communities which have a long history of scientific study and environmental assessment, e.g. in the WFD and Habitats Directives. The assessment of sea-floor integrity has strong links to Descriptor 1 on seabed habitats, where assessment of the physical nature of the seabed and the quality of the associated communities, are essentially similar for the two descriptors. The GES Decision criteria and indicators address similar aspects of the quality of seabed habitats to those used under Descriptor 1, although expressed in different ways.

The range of threats to sea-floor integrity varies in nature and severity across the different regions of Europe. The degree of impact varies from sub-lethal effects on individuals or populations (e.g. from hazardous substances), to lethal effects on individuals or populations (e.g. from fishing), community-level effects (e.g. from nutrient enrichment, introduction of non-indigenous species) and habitat-level effects (e.g. damage from physical disturbances to the seabed; loss from land claim and placement of structures on the seabed). In addition, climate change and greenhouse gas emissions can lead to changes in sea temperature and sea level as well as to ocean acidification, all of which can have an effect on sea-floor integrity. Due to this range of threats, Descriptor 6 has links to all the pressure-related descriptors (D2, 5, 7, 8, 9 and 10), excepting underwater noise (Descriptor 11) where effects on seabed species have yet to be adequately considered.

According to Annex I of the Directive, GES for Descriptor 6 is achieved when "*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*".

6.6.1. GES definition (Art. 9)

All Member States who have reported have defined GES for Descriptor 6 except RO, with definitions applying to their entire marine waters. BG, DE and LV have provided a joint definition with Descriptor 1; however DE's definition had only a tenuous link to Descriptor 6.

The GES definitions were formulated at descriptor level by most Member States (except DK, ES, LT, SI) and thirteen Member States (BE, CY, DK, EE, EL, ES, FI, FR, IE, IT, LV, SE, SI) provided additional detail at criterion level, often with a close relationship to the Commission Decision 2010/477/EU criteria. However, some of these MS (EE, IE, IT, LV) have not used both criteria mentioned in the Decision. Seven (CY, EE, ES, FR, IT, LT, SE) provided additional details at indicator level, again often with a close relationship to the Commission Decision indicators although not always every Decision indicator was used.

Some Member States (BG, PT, UK) provided information only at descriptor level, sometimes incorporating elements of the Decision criteria into their definition. One Member State (NL) has reproduced the definition in Annex I verbatim.

The definitions varied considerably in their content and level of detail. Most were qualitative and many were rather vague, lacking definitions of key terms used or specificity of the seabed types to be addressed.

A majority of Member States (CY, DK, EL, ES, FI, FR, IT, NL, PT, SE, SI) refer to the reduction of physical pressures from human activities on the seabed, either directly or indirectly (through reference to impacts), but none provide information about which specific activities may cause pressure to the seafloor.

Only four Member States (FR, IT, LT, SI) have included an indicator on the percentage of area occupied by biogenic substrate acted upon by human pressures but have not specified a threshold value. Only in one case (IT) has a threshold value been set; in the other cases, it is under development. Three out of these four Member States (FR, IT, SI) also have quantified indicators for non-biogenic habitat impacted by human pressures but none of them have set a threshold yet.

Across the Member States, the coverage of Criterion 6.2 on the condition of the benthic community is rather limited. In the **North East Atlantic** marine region, only one Member State (SE) has included a quantitative indicator in their GES definition, the Benthic Quality Index (BQI), in relation to indicator 6.2.2. In the **Baltic** region, several Member States (EE, LT, LV, SE) have used quantitative indicators in their GES definition, and in particular the BQI. In the **Mediterranean**, two Member States (CY, EL) have indicated that the assessment of GES will be based on multi-metric indices, one of whom (CY) specifically referring to the WFD and good ecological status.

The definitions for 6.2 of the other fourteen Member States are generally vague despite the fact that the condition of the benthic community is one of the most studied and well-documented aspects of biodiversity across most of Europe, and for which a number of WFD indicators could have been used. Out of these fourteen Member States, only two (BE, DE) refer to the WFD good ecological status.

No Member State was judged to have an adequate definition of GES for Descriptor 6. Seven Member States are found to have a partially adequate definition (BE, ES, EE, FI, FR, IT, SE) whilst twelve are found to be inadequate (BG, CY, DE, DK, EL, IE, LT, LV, NL, PT, SI, UK); RO has not reported a determination of GES.

Due to the wide variance in approaches to the definition of GES for Descriptor 6, the level of coherence within each of the three regions is considered to be low. Coherence in the Black Sea has not been assessed as RO has not reported a determination of GES for this descriptor.

6.6.2. Initial assessment (Art. 8)

All Member States have undertaken initial assessments for Descriptor 6. As Bulgaria's report was submitted late, it has not been included in this assessment.

Assessment of reporting on the initial assessment for this Descriptor is presented under Descriptor 1 (see Section 6.1.2 on seabed habitats).

Physical loss and damage

Given the close association to Descriptor 6 of the pressures physical loss and physical damage, these two pressures are addressed here.

Most Member States were able to assess both pressures. However, LV did not report on physical damage and RO did not report on physical loss, whilst BE restricted its physical loss assessment to two activities (port infrastructure and wind farms).

The main causes of physical loss reported were: construction and maintenance of ports and other coastal developments, land claim, tourism, beach regeneration, wind farms, oil and gas installations, cables and pipelines, aquaculture and artificial reefs.

The main causes of physical damage reported were: bottom-trawling fisheries, aggregate extraction, waste dumping, coastal defence, ports and navigational dredging, construction works, mussel dredging, hydraulic activities and shipping. Bottom trawling is often cited as causing the most extensive damage.

Assessments of loss and damage were often primarily in a qualitative manner. Many MS were, however, able to estimate the extent of physical loss and damage in their waters. The proportion of the total area of marine waters reported as being subject to physical loss was typically <5%; however, estimates of the extent of physical damage varied greatly and was reported as being particularly high in the Greater North Sea sub-region and some other areas.

Few Member States draw firm conclusions on whether the current scales of physical loss and damage are acceptable (CY, DK, LT). Further, the assessments of impact on the different seabed habitat types were often reported only qualitatively, if at all, meaning that the assessments were not fully able to contribute to assessments of each habitat type for Descriptors 1 and 6. Despite this, reductions in physical damage are the most often mentioned target for seabed habitats, from which it can be deduced that the current state of this pressure in many countries is not considered good enough.

Regarding the assessment of physical loss and damage, four Member States (CY, DK, ES, PT), were judged to have an adequate initial assessment. Twelve Member States (BE, DE, EL, FI, FR, IE, IT, LT, NL, SE, SI, UK) were found to be partially adequate, whilst the remaining three (EE, LV, RO) were found to be inadequate.

The level of coherence of assessments of the pressures in the Mediterranean and North-East Atlantic regions was considered to be relatively high, whilst in the Baltic Sea region it was considered to be moderate. Given Bulgaria's late submission, coherence for the Black Sea region was not assessed.

6.6.3. Environmental targets (Art. 10)

All Member States except IE, PT and RO have defined environmental targets and associated indicators for all their marine waters, most not distinguishing between sub-regions. FR is an exception, as it has separate targets for its Atlantic and Mediterranean regions. A number of

Member States have provided targets which jointly address Descriptors 1 and 6 (BG, CY) or, more commonly, Descriptors 1, 4 and 6 (BE, DE, ES, FR_{MED}, LT, NL, UK). The number of targets varies greatly, between 1 (LT, LV) and 58 (BG), although many of Bulgaria's targets are simply repeated for each habitat type addressed.

All Member States, except IT (and IE, PT and RO who have not set targets), have set state-based targets; the majority of these would be better considered as expressions of GES. In some cases (e.g. NL, UK), the lack of detail expressed in their definition of GES is compensated by provision of more detailed state-based targets. The number of specific pressure- and impact-based targets overall is relatively low. Some exceptions include the Mediterranean targets for France, which address a wide range of specific pressures and impacts, but also a number of measures as well as Italy, which has defined targets focusing on the pressure on the seafloor from harmful fishing practices. Greece, Slovenia and Spain additionally provide a number of monitoring or knowledge-filling targets. Some impact-based targets are very generalised (DK, EE, FR_{ATLANTIC}, NL, SI, SE), with the remainder mostly relating to physical disturbance of the seabed. The pressure-based targets most frequently refer to fishing (bottom trawling), but aggregate extraction, infrastructure construction and dredging also feature in a few Member States. A number of MS provide measure-based targets (DE, ES, FI, FR_{MED}, IT, SI); here spatial measures (e.g. protected areas, licencing) and fishing controls are most frequently cited. Whilst nearly all MS provide targets related to the condition (quality) of the seabed, many also refer in some way to the extent (proportion) of seabed that should be in good condition/free from pressures and impacts. However, these proportion targets are often only vaguely formulated or have a low level of ambition (e.g. to have 10% of seabed free from disturbance). This lack of precision or ambition in pressure and impact targets may thus be insufficient to address key pressures on sea-floor integrity in order to achieve GES for this descriptor; this may particularly be the case in those countries which have set only state-based targets (CY, EL, LT, LV) or no targets at all (IE, PT, RO). However, it is noted that the scale of pressures on the seafloor is already limited in certain countries due, for example, to bans on bottom trawling (e.g. CY, ES-Canaries).

The level of detail given for the targets varies greatly from one Member State to another; the targets have generally not been assessed as fully SMART, often because they are not measurable or lack specification.

The associated indicators also vary significantly in detail and number. A number of Member States have not set associated indicators (ES, FR_{ATLANTIC}, IT, LV). At the other extreme, Bulgaria has set 125 indicators and the UK 58 indicators.

Two Member States are judged to have adequate targets (BE, UK). Eight Member States are found to be partially adequate (BG, DE, DK, ES, FI, FR_{MED}, NL, SE), while eight are found to be inadequate (CY, EE, EL, FR_{ATLANTIC}, IT, LT, LV, SI). IE, PT and RO have not defined targets for Descriptor 6.

The level of coherence in the environmental targets and associated indicators is low across the North-East Atlantic region and Mediterranean regions while in the Baltic it is judged to be moderate. Coherence for Descriptor 6 has not been assessed in the Black Sea, as RO did not report any targets.

6.6.4. Consistency between GES, Initial Assessment and targets

There was a reasonable level of consistency between GES, initial assessments and targets in the MS reports. A majority of Member States were able to estimate the extent of physical loss and damage to the seabed, albeit rather coarsely and often with low confidence. A number of MS appear to have undertaken specific new studies to map and quantify the distribution and extent of pressures; however this was rarely assessed in relation to each type of seabed habitat. Very few MS used their determinations of GES under Article 9 to assess current status under Article 8.

There was generally greater consistency between GES and targets, with targets defined in a complimentary manner and often providing specific detail to the more generalised texts of the GES definitions. Gaps in knowledge and data form part of the problem and it is encouraging that most Member Steps acknowledge this. However, most do not adequately outline how they plan to address these gaps.

6.6.5. Conclusions

The overall level of adequacy for Descriptor 6 of the Member States assessed is given in Figure 12.

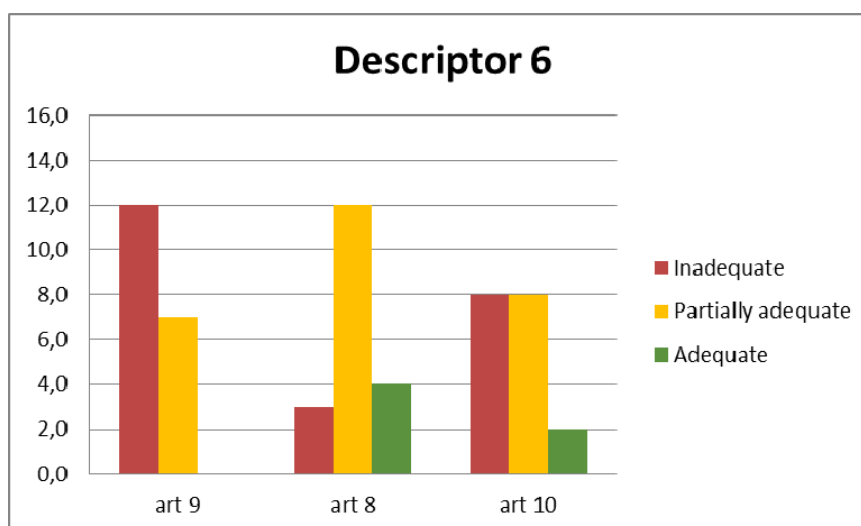


Figure 12: Summary of the assessments of adequacy of Member State's reports for MSFD Articles 8, 9 and 10 for Descriptor 6 on sea-floor integrity. The bars indicate the number of Member States which were assessed as adequate, partially adequate and inadequate.

The overall level of coherence for Descriptor 6 per marine region is given in Figure 13.

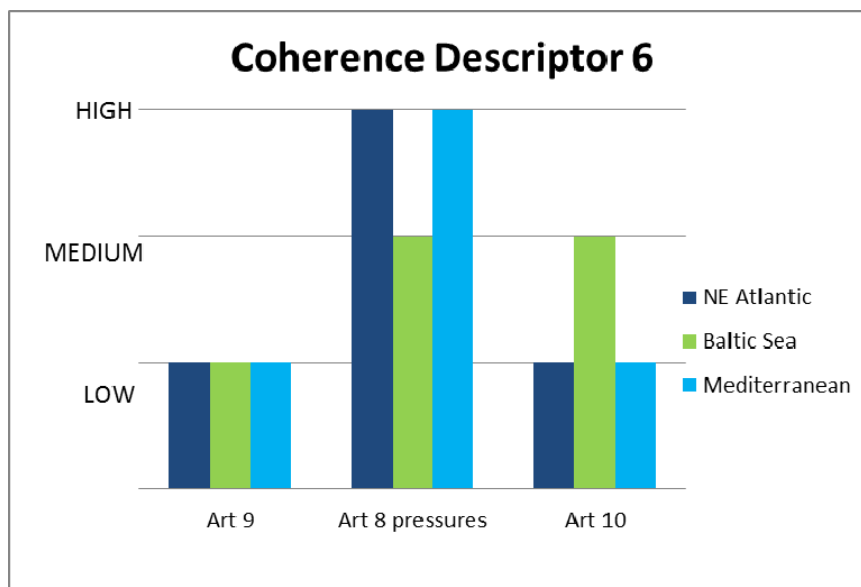


Figure 13: Summary of the assessments of coherence of Member State's reports within each region for MSFD Articles 8, 9 and 10 for Descriptor 6 on sea-floor integrity. The bars indicate whether the reports were assessed as having a low, moderate or high level of coherence within each region.

To improve adequacy and coherence the general recommendations in this report apply. In addition, specifically for Descriptor 6, Member States should define GES and targets in more detail. If necessary, this approach should be introduced in the revision of Decision 2010/477/EU and minimum requirements should be set. Given the close association of this descriptor with seabed habitats under Descriptor 1, it is recommended that the two are addressed together in relation to each article; this should be achieved, for example, through equating the predominant habitat types of Descriptor 1 with the differing substrate types of Descriptor 6. This should improve the overall efficiency of implementation for these two descriptors, as already recognized by some Member States.

6.7. Hydrographical changes (Descriptor 7)

Permanent hydrographical changes can occur due to changes in the thermal or salinity regimes, changes in the tidal regime, sediment and freshwater transport, current or wave action and changes in turbidity. The degree of change and the period over which such change occurs varies considerably, depending on the type of modification. Assessment of the degree of change can be related to both the water column and the sea-floor, and consequently to their biological communities. These types of change are normally triggered by building activities, such as extensions or alterations to the coast, or the building of artificial islands and other infrastructural works in the marine environment (such as outfalls from power stations, bridges and causeways to islands, offshore installations).

According to Annex I of the Directive, GES for Descriptor 7 is achieved when "permanent alteration of hydrographical conditions does not adversely affect marine ecosystems".

6.7.1. GES definition (Art. 9)

Sixteen Member States have defined GES for this descriptor, while froun (EE, LT, LV, RO) have not. All 16 MS used the same baseline (the present time) and most of them considered that their waters were at GES for Descriptor 7 (but often based on a lack of knowledge rather than on their Initial Assessment).

Most countries have determined GES at a general level (only at descriptor level, or including criteria but without specifying scale, indicators, habitats, species and ecosystems). Beyond this general determination, which is usually close to the MSFD Annex I definition of GES, only a few countries have specified the environment components to be taken into account and given a list of relevant parameters (FR) or activities (IE).

Only two Member States (DE, IT) have established a clear link to Water Framework Directive (WFD) normative definitions of ecological status classifications for coastal waters (linked to the WFD parameters on hydro-morphology). The fact that none of the other Member States have done this is not coherent with the reality that most pressures related to Descriptor 7 occur in coastal zones. However, some Member States (FR, IE, NL, UK) referred to other existing regulatory regimes to be complied with (e.g. Environmental Impact Assessment, Strategic Environment Assessment, Habitats and Birds Directives).

The Member States in the **North East Atlantic** region have used the OSPAR advice only partially and usually in its restrictive considerations: the focus is on new activities only (this is clearly the case for FR and NL).

Some Member States (FR, IE, SE, SI, UK) clearly referred to the list of potentially impacted environment components (such as specific seabed habitats, oxygen levels or current velocity), linking this descriptor to the biodiversity descriptors (Descriptors 1, 4 and 6). Few Member States (e.g. FR) explicitly referred to plans in order to improve their Descriptor 7 GES definition, or even referred to the actions already proposed in the OSPAR advice.

None of the Member States except for IT incorporate clear quantitative thresholds in their definition of GES.

In summary, only one MS (FR) was assessed as being adequate for its determination of GES. Eight MS (BE, BG, CY, DE, ES, IE, IT, UK) were assessed as partially adequate and seven MS (DK, EL, FI, NL, PT, SE, SI) as inadequate.

Overall, the level of coherence in the definitions of GES for Descriptor 7 across the Baltic Sea region was low but across the North East Atlantic region it was high. For the Mediterranean Sea region the coherence was moderate.

6.7.2. Initial Assessment (Art. 8)

All Member States but one (LV) have undertaken an initial assessment for Descriptor 7. Some countries have produced less detailed reports, and in some cases (CY, DE, DK, EE, FR, IT, SE) focusing only on a few selected parameters (usually temperature and salinity and sometimes currents). Some MS also focused only on some areas (coastal) and with missing elements such as impacts on specific environment components (BE, CY, ES, IE, UK). This was often based on the hypothesis that present status was considered to be at GES, which is

assumed but not clearly demonstrated. Only three Member States (FR, IT, NL) explicitly referred to WFD reports while on the other hand nearly all of them (except EL) focused on the coastal zones. A number of countries (e.g. FR, NL) referred to the OSPAR Quality Status Report (QSR) 2010.

Plans to address the existing knowledge gap were provided by seven Member States (DE, EL, ES, FR, IE, IT, UK).

Seven Member States (CY, DK, EE, ES, NL, SE, UK) reported that less than 1% of their assessment area of seabed habitats and water column was affected by changes in hydrological processes. Some MS reported that the impact was much larger: Slovenia it was 5-25% (due to changes at the city of Koper), while in Lithuania it was 25-50% for seabed impacts and 75-100% for water column impacts (though it is unclear why this is the case). Greece reported a (potential) impact of 75-100% due to changes in water temperatures (as a result of climate change) and salinity which can trigger changes in nutrient and dissolved oxygen concentrations and potential impact on the survival of invasive species.

Marine acidification was expressly mentioned (if only briefly in some cases), by most Member States (CY, DE, FI, FR, IE, IT, LT, NL, SI, UK). In the reporting sheets, some of those states mention that 75-100 % of their assessment area is affected by marine acidification.

In summary, the initial assessments of three Member States were assessed as being adequate (FR, IT, NL). Seven Member States (BE, DE, EL, ES, IE, PT, UK) were considered partially adequate and the remaining eight (CY, DK, EE, FI, LT, RO, SE, SI) were considered inadequate.

The level of coherence of the initial assessments on hydrological processes across the Baltic Sea region is low. The level of coherence in the North East Atlantic region was moderate, despite the recent work done at OSPAR level for nearly all subregions (QSR 2010). Coherence was high in the Celtic Seas and Bay of Biscay and Iberian Coast subregions. The level of coherence across the Mediterranean region was moderate but high in the Western Mediterranean and Ionian Sea and Central Mediterranean Sea subregions.

6.7.3. Environmental targets (Art. 10)

Thirteen Member States have defined environmental targets and associated indicators, which cover all their marine waters. Seven (CY, DK, IT, LT, LV, PT and RO) have not set environmental targets.

Most of the Member States in the **North East Atlantic** and **Mediterranean** regions assumed that their waters were at GES already and so most of the environmental targets in the North-East Atlantic defined (when applicable) focus on Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) – and thus related impacts – for new projects (BE, ES, IE, NL, UK). Other countries have defined general environmental targets which were more suitable as the GES definition than as operational targets for Descriptor 7 (e.g. DE, EE, EL, FI, FR, SE). One Member State (PT) has reported only one generic target on monitoring and was reported as applicable to Descriptor 7. The target presented was very broad and not specific to hydrographical conditions.

No Member State has made a clear link to the WFD objectives or to assessments for Descriptors 1, 4 and 6 or defined clear thresholds.

In summary, the assessment of the setting of targets was considered adequate for four Member States (BE, ES, NL, UK). The assessment was partially adequate for one MS (IE) and inadequate for eight (BG, DE, EE, EL, FI, FR, SE, SI).

Overall, the level of coherence in the setting of environmental targets for Descriptor 7 across the Mediterranean regions was low and moderate in the Baltic region. Overall, the level of coherence across the North East Atlantic region was high.

6.7.4. Consistency between GES, Initial Assessment and targets

Most Member States reported that the GES for permanent hydrographical changes referred only to new projects and that the present situation was considered as being at GES. This consequently took no account of the past levels of hydrological changes which, in some coastal areas in particular, has been significant. By incorporating the assessment of impacts from new projects into their targets, any significant future degradation would be prevented to enable GES to be maintained. This was considered as a consistent approach. In the initial assessment those potential pressures and impacts were identified only by some Member States.

6.7.5. Conclusions

The overall level of adequacy for Descriptor 7 of the Member States assessed is given in Figure 14.

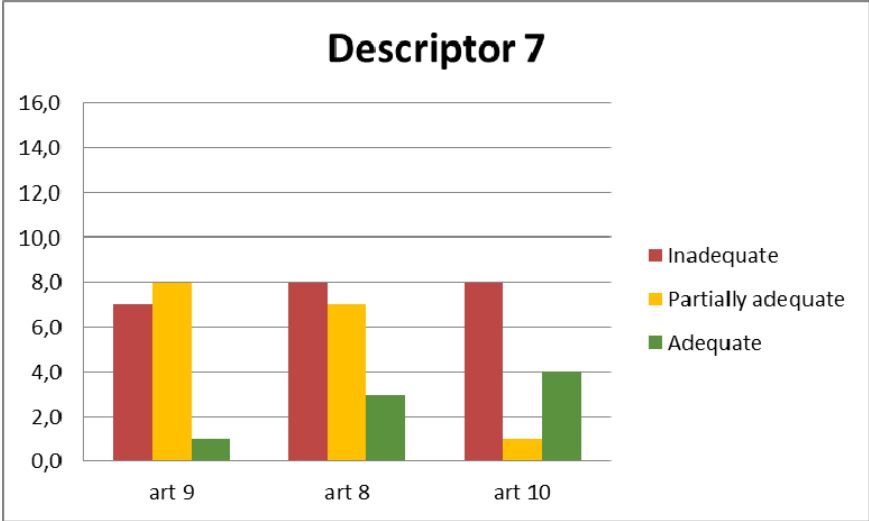


Figure 14: Summary of the assessments of adequacy of Member State's reports for MSFD Articles 8, 9 and 10 for Descriptor 7 on hydrographical changes. The bars indicate the number of Member States which were assessed as adequate, partially adequate and inadequate.

The overall level of coherence for Descriptor 7 per marine region is given in Figure 15.

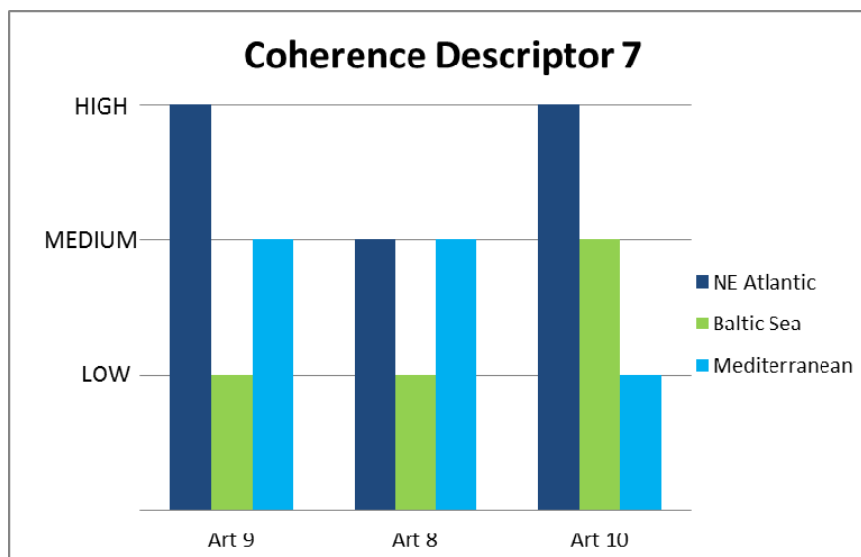


Figure 15: Summary of the assessments of coherence of Member State's reports within each region for MSFD Articles 8, 9 and 10 for Descriptor 7 on hydrographical changes. The bars indicate whether the reports were assessed as having a low, moderate or high level of coherence within each region.

To improve adequacy and coherence the general recommendations in this report apply. In addition, specifically for Descriptor 7, a discussion on the reference point should take place because most Member States use the present situation with regard to hydrographical conditions, including all its dynamic aspects, as the baseline.

However, starting from the perspective of the ecosystem, such as assessing the status of particular sea-floor habitats, the hydrographical changes from past construction works could be one of the pressures, in addition to e.g. physical disturbance or pollution from contaminants or nutrient enrichment, which need to be taken into account. This would then also require assessment of the extent of past changes in hydrographical conditions.

If the approach of most Member States is maintained, the descriptor would aim at safeguarding the present situation with regard to hydrographical changes. However, the Member States should assess new construction works (which may change the hydrographical conditions) prior to any decision on granting a building permit. In such an assessment, all relevant aspects should be considered (including temperature, salinity, currents, sediment transport, clarity/transparency, etc). Furthermore, a common understanding of the aspects to be considered and how to assess their possible change due to construction works should be developed. If necessary, this approach should be introduced in the revision of Decision 2010/477/EU and minimum requirements should be set.

6.8. Contaminants (Descriptor 8)

Contaminants or chemical substances (other than nutrients) are well-known causes of pollution which can affect the health of the marine ecosystems. A large number of different contaminants such as heavy metals, pesticides, hydrocarbons and others reach the marine environment and some of them can be at levels which cause impacts to marine species. They

pollute the water or the sediment or can accumulate in the food chain, from algae to fish to mammals and birds (biota). As we consume seafood, they can also reach the human food chain. All these aspects are addressed through Descriptors 8 (contaminants) and 9 (contaminants in seafood) (see next section).

These aspects have a long history of being addressed through EU legislation and actions at the level of the Regional Sea Conventions. In particular, the Water Framework Directive (2000/60/EC) and its related Directives on Environmental Quality Standards (2008/105/EC as amended by 2013/39/EU) play an important role also for the MSFD implementation and provide a reference point for the assessment of adequacy of implementation and facilitate coherence.

According to Annex I of the Directive, GES for Descriptor 8 is achieved when “concentrations of contaminants are at levels not giving rise to pollution effects”.

6.8.1. GES definition (Article 9)

The level of completeness for Descriptor 8 was high. Nearly all assessed Member States (except LV) have defined GES for contaminants.

However, the level of detail and the specific elements used by the Member States varied considerably.

Most Member States covered some or all criteria set out in Decision 2010/477/EU. Only for four Member States (CY, DK, NL and PT) is the definition rather general and largely repeating the descriptor definition in MSFD Annex 1.

The other Member States covered, at least, criterion 8.1. and indicator 8.1.1 in relation to the concentrations of contaminants. BG and RO only covered this aspect, stating that it was not possible to set GES for the other criterion set out in the 2010 Decision.

Regarding the effects of contaminants (criterion 8.2), many Member States (BE, DE, EE, EL, ES, FI, FR, IE, IT, SE, SI, UK) defined pollution effects (8.2.1) but in different ways; some of them used OSPAR's Ecological Quality Objectives (EcoQOs) or Ecological Assessment Criteria (EACs) as a reference for defining specific pollution effects. One Member State (EE) addressed the issue only from the perspective of concentration levels in biota (living organisms such as algae, mussels, fish, etc.).

Fewer Member States (DE, FI, FR, LT, SE) addressed acute pollution (indicator 8.2.2), again in a variety of different ways.

Four Member States (CY, ES, FR, SI) also introduced a “no deterioration” clause as part of their GES definition (i.e. concentration of contaminants should not increase over time).

The substances and matrices covered largely rely on relevant EU legislation and regional work but it was not always clear, explicit and sufficient.

Most Member States directly or indirectly mentioned the list of WFD priority substances (in Directive 2008/105/EC). However, some of them not covering all substances on the list. Only one Member State (UK) referred to the amended list of priority substances finally adopted in

2013 (Directive 2013/39/EU). Some Member States have not used that WFD list as a starting point (BG, CY, DK and ES) and, except in the case of France, no reference was made to the lists established in the Regional Sea Conventions which in some cases differs from the EU priority substances list. The relationship between the different lists was, in most cases, unclear.

Only three Member States (DE, EL, IT) defined GES for radioactive substances and another Member State (FR) mentioned other additional substances covered.

These substances can be monitored and assessed in three different matrices, namely water, sediment and biota. Most Member States mentioned that all three matrices were considered whereas some Member States (EE, ES, FI, IT and LT) only referred to two out of the three in different combinations and for different reasons. Other Member States (BG, DK, NL, PT) have not referred to any matrices.

As regards the boundaries or thresholds for assessing GES Descriptor 8, compliance with the Environmental Quality Standards (EQS) set out in Directive 2008/105/EC was mentioned by most Member States (except BG, CY, DK, ES and FI).

In addition, the standards developed in the Regional Sea Conventions were used by many Member States. However, in most cases, Member States have not clarified whether the approach was compatible with EU legislation and how they were related in cases where the same substances were addressed. Six Member States out of ten in the **North East Atlantic** region (BE, DE, ES, FR, IE, UK) have included a direct or indirect reference to the OSPAR Environmental Assessment Criteria (EACs) and also Member States in other marine regions have used them (namely EL, ES, FR, SI in the Mediterranean and RO in the Black Sea). Only one Member State (ES) has referred to the reference levels developed in the context of the Barcelona Convention, whilst three Member States (DE, EE and LT) have referred directly to reference levels developed in the context of HELCOM.

Finally, only a few Member States (EE, ES, IT, PT) have defined aggregation rules and one additional Member State (FR) states that they should be defined later.

In summary, the definition of GES for Descriptor 8 is assessed as adequate for only one Member State (FR). 11 Member States are assessed as partially adequate (BE, DE, EE, EL, ES, IE, IT, LT, SE, SI, UK) and seven are assessed as inadequate (BG, CY, DK, FI, NL, PT, RO).

The level of coherence in the definitions of GES for contaminants is low in the Black Sea regions, high in the North East Atlantic region and moderate in the Mediterranean and Baltic region.

6.8.2. Initial assessment (Article 8)

In general, the level of completeness was very high with all Member States (which were assessed) having undertaken an initial assessment for Descriptor 8 and most of them being able to provide a detailed, quantitative or trend-based assessment of the level of contamination except for six MS (CY, EL, IT, NL, RO, SI).

Most Member States (except IT, SI) have also provided a list of contaminants assessed; however, the list of substances varied considerably. The most common contaminants which were assessed were heavy metals (mercury, lead, cadmium), pesticides (e.g. DDT, HCH)²⁵ and other synthetic pollutants (PAHs, TBT, HCB, PBDEs)²⁶. These substances were also covered by Directive 2008/105/EC and have been assessed at regional level for a long time. However, no systematic information is available why other substances listed in EU legislation (including the recently amended list in Directive 2013/39/EU) have not been assessed and whether they are relevant for the marine environment. Most Member States made an assessment of contamination by radionuclides, mostly stating that concentrations were low and unlikely to have effects on ecosystem components. Two countries reported that the levels were a number of times higher than before the Chernobyl nuclear accident.

The methodologies and data used by the Member States sharing the North-East Atlantic and **Baltic** regions were mostly based on the available assessments in OSPAR (Quality Status Report) and HELCOM (Holistic Assessment, HOLAS), respectively, although more recent work and other sources have not been used systematically. In the **Mediterranean**, only two Member States (CY, ES) made use of the MEDPOL assessments. The WFD methodology was mentioned by most North-East Atlantic Member States but in other regions only by few Member States (CY, EE, ES, FR, LT, RO).

Many Member States (except RO, SE) referred to all the main sources of contamination (land-, sea- and air-based), with generally more details provided for land-based pollution. The common sea-based sources of contamination included shipping, dredging and offshore oil and gas activities; the air-based sources of contamination were often industrial and commercial combustion processes.

Most Member States (except FR, IT, LV) have made a judgement on the current level of contamination in their marine waters, but only a few of them have made an assessment in relation to their GES definition (IE, LT, PT).

The most common assessment criteria mentioned were the EU EQS, OSPAR's EAC and HELCOM criteria.

Most Member States have made an assessment of impacts of contamination on species but only a few on seabed habitats or other ecosystem components. The biological effects most often reported on include imposex, fish disease, lysosomal membrane stability or the biomarker ethoxyresorufin-O-deethylase (EROD). Some Member States (DE, EL, ES, FI, FR, IE, LT) have made judgements on the current levels of impacts in relation to GES on functional groups, on seabed habitats or on other ecosystem components.

Most Member States (except EE, IT, PT, RO) have made an assessment of contamination by acute pollution events but to a varying degree of detail. Only a few MS assessed the impact of this acute pollution on marine organisms.

In terms of data and knowledge gaps, few Member States (DE, EL, ES, SE) reported substantially on this and some included information on how to close these gaps. The

²⁵ dichlorodiphenyltrichloroethane and hexachlorocyclohexane

²⁶ Polychlorinated biphenyls, polyaromatic hydrocarbons, tributyltin, hexachlorobenzene and polybrominated diphenylethers

information gaps mentioned concerned the need to develop assessment criteria to assess the impacts on ecosystem components and the difficulties to aggregate the different assessments to make a judgement in relation to GES. Gaps were also noted in terms of methodologies to make common assessments of radioactive contamination and contamination by oil pollution.

In summary, the initial assessments of six Member States (DE, DK, ES, IE, FI, UK) were judged to be adequate and inadequate for two Member States (IT, SI). The remaining eleven Member States' assessments were partially adequate (BE, CY, EE, EL, FR, LT, LV, NL, PT, RO, SE).

The level of coherence in the Baltic and the North-East Atlantic regions was high due to the systematic reliance of the assessments of the Regional Sea Conventions. In the Mediterranean region, the level of coherence was low and in the Black Sea region it was not assessed due to the late arrival of the BG report.

6.8.3. Environmental targets

Most Member States (except LV) have set environmental targets and/or related indicators for Descriptor 8. The number of targets (not counting the indicators) varied from 1 (CY, EL, FR_{ATLANTIC}) to 13 (FR_{MED}) as did the level of detail. Most Member States have set measurable targets because these were defined against specific reference levels (e.g. EQS, EAC) but no Member State has set threshold values and baselines for all its targets (although BE comes very close. Most targets were considered SMART as they were measurable, specific and for the most part time-bound and realistic. However, targets set were often an expression of GES – requiring achievement of the same reference levels as defined in GES – rather than targets defined to help achieve these reference levels and ultimately GES.

Member States have set different types of targets, based varyingly on state, pressures or impacts (effects).

Several Member States have defined pressure-based targets which often were reduction targets linked to all or specific sources. Several Member States (BG, DE, ES, FI, FR, SE) have defined pressure-based targets, which are geared towards reducing input of contaminants to the sea from land-, sea- and/or air-based sources.

Many Member States (except BG, CY, EE, EL, FR, LT, PT, RO) have defined targets on biological effects of contaminants with the most common being effects on imposex and oiled guillemots.

Some other approaches have also been used. Two countries (IE, NL) have set a target for levels of contaminants to decrease (in addition to being below the reference levels) but without specifying which pressure should be acted upon for this to happen. One Member State (ES) has used a mixed approach, defining both pressure- and state-based targets. Another (EL) has defined only a monitoring target, which requires the investigation and determination of concentration levels. Two Member States (FI, SI) have defined targets for radionuclides. Finally, two Member States (ES, SI) have defined monitoring/knowledge-based targets in addition to pressure- or state-based targets, which are geared towards collecting more information on a certain number of gaps, in particular biological effects/biomarkers.

Many Member States (except CY, EE, EL, IT, LT, PT, RO, SI) have set a target on acute pollution events, mostly targeting illegal discharges and oil spills.

In summary, one Member State (BE) is assessed as adequate, eleven Member States are partially adequate (DE, DK, ES, FI, FR_{MED}, IE, NL, RO, SE, SI, UK) and eight (BG, CY, EE, EL, FR_{ATLANTIC}, IT, LT, PT) are considered to be inadequate. Latvia did not define targets for Descriptor 8.

The level of coherence in the North East Atlantic region is relatively high, in the Baltic Sea region it is moderate. A low level of coherence in the setting of targets for Descriptor 8 is found in the Mediterranean and the Black Sea regions.

6.8.4. Consistency between GES, Initial Assessment and targets

Overall, the consistency between the three relevant articles of the Directive was relatively good for those pollutants which have been dealt with for quite some time. However, due to the differing lists of contaminants covered and the variety of approaches in the initial assessment and target-setting, the overall conceptual relationship between the different provisions of the Directive was not always clearly explained.

Given the large number of emerging pollutants and the methodological and data deficiencies that still exist in this area, it was surprising that only a few Member States recognised and identified these knowledge gaps.

6.8.5. Conclusions

The overall level of adequacy for Descriptor 8 of the 19 Member States which were assessed is given in Figure 16.

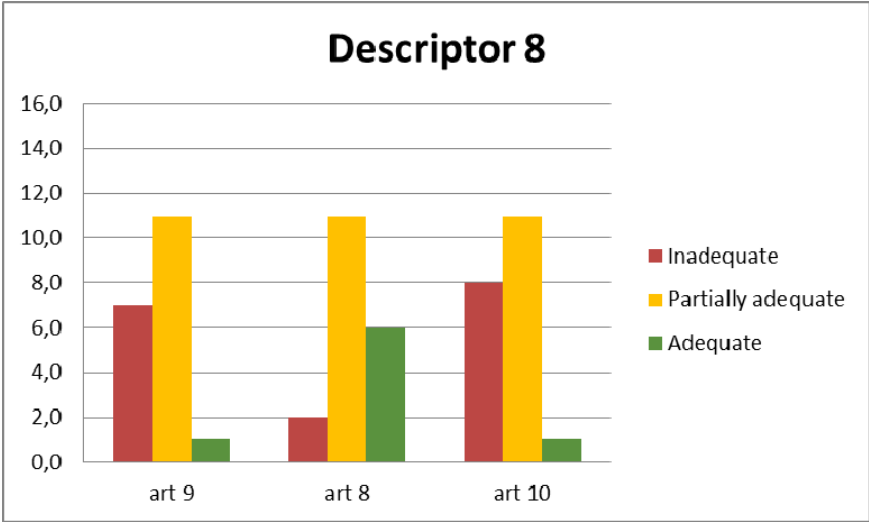


Figure 16: Summary of the assessments of adequacy of Member State's reports for MSFD Articles 8, 9 and 10 for Descriptor 8 on contaminants. The bars indicate the number of Member States which were assessed as adequate, partially adequate and inadequate.

The overall level of coherence for Descriptor 8 per marine region is given in Figure 17.

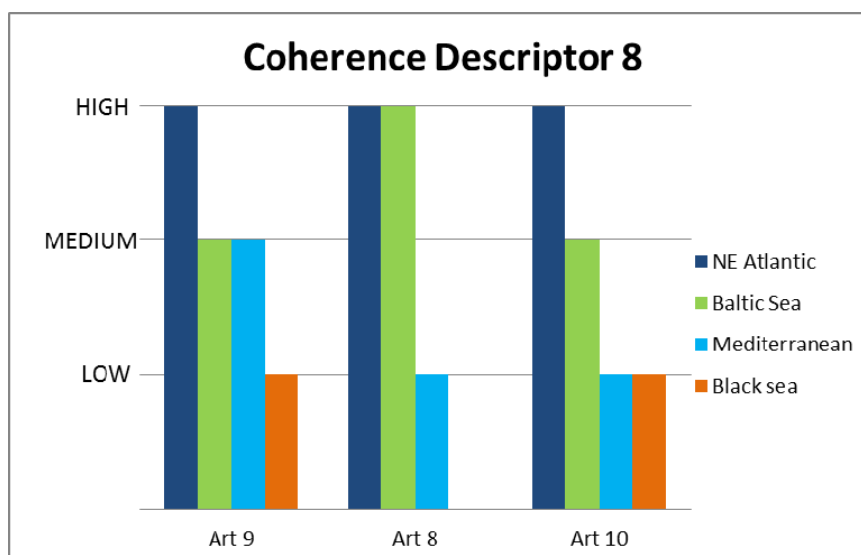


Figure 17: Summary of the assessments of coherence of Member State's reports within each region for MSFD Articles 8, 9 and 10 for Descriptor 8 on contaminants. The bars indicate whether the reports were assessed as having a low, moderate or high level of coherence within each region.

To improve adequacy and coherence, the general recommendations in this report apply. In addition, specifically for Descriptor 8, Member States should more systematically use the latest relevant EU legislation (in particular 2008/105/EC as amended by 2013/39/EU). To ensure consistency, it would be useful to define a minimum level of ambition including a list of contaminants (at EU and regional level) to be assessed systematically as regards their relevance. Consequently, GES and targets would have to be set for the same list of substances.

In addition, for those aspects which are not explicitly covered by EU legislation, the wealth of approaches developed within the Regional Sea Conventions should be used, provided the relationship with the EU approach is clear and complementary. It also appears possible to transfer best practices from one region to another because the specificity of the ecosystem is not as relevant for this descriptor as it is for others. Finally, the revision of Decision 2010/477/EU should be used to introduce specific minimum requirements based on the approaches developed within the EU and the Regional Sea Conventions.

6.9. Contaminants in fish and other seafood (Descriptor 9)

As we consume seafood, contaminants which accumulated in the marine ecosystem can reach the human food chain. In order to protect public health, it is essential to keep consumer intake of contaminants in food at levels which are toxicologically acceptable. Member States need to monitor and assess the possible presence of substances for which maximum levels are established at European level for products meant for human consumption, in particular through Regulation (EC) No 1881/2006 as last amended by Regulation (EU) No. 219/2012. This framework provides also the basis for setting good environmental status for this descriptor.

According to Annex I of the Directive, GES for Descriptor 9 is achieved when “contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards”.

6.9.1. GES definition (Article 9)

Nearly all Member States which were assessed (except BG and RO) have defined GES for Descriptor 9. Two Member States (BG, DK) have not defined GES in a clear and detailed way which would allow it to be measurable. RO justified the lack of GES definition by stating that there was not enough data to develop indicators for this descriptor.

Some Member States (ES, FR, SE) have defined GES using the entirety of criterion 9.1 of the Commission Decision, i.e. including a criterion on the maximum frequency of regulatory levels being exceeded. The other Member States have defined GES only for the first part of criterion 9.1 on the concentration levels of contaminants.

Limit values were used to define the boundary or thresholds for GES. Most Member States referred to compliance with EU Regulation No. 1881/2006 setting maximum levels for certain contaminants in foodstuffs and some Member States also referred to its amendments. Most Member States made direct reference to the legislation implying that the limit values therein applied. However, this aspect should be clarified. Others have instead set fixed limit values in their definition, which are consistent with the current EU foodstuffs limit values. In such cases, these limit values would have to be amended in case the EU legislation was changed.

Some Member States (EE, EL, LT, LV, NL, SE) included details about the specific substances that were covered in their GES definition. For all other Member States which set GES, the lack of specification seemed to indicate that all relevant substances for fish and seafood in EU Regulation No. 1881/2006 were covered. Only three Member State (BE, DE, FR) covered microbial pathogens in their GES definition (by referring to compliance to Directive 2006/113/EC in its accompanying text).

The information provided regarding the specific species and type of sample (e.g. fish muscles) which were covered in the GES definition varies considerably in detail and clarity. These aspects should be assessed in more detail.

Only three Member States (ES, IT, PT) have defined aggregation rules while three Member States (EL, IT, SI) have added a specification regarding the origin of the fish/seafood covered by the GES definition.

In summary, the definition of GES for Descriptor 9 is found to be adequate for two Member States (ES, FR), while for two others it is assessed as inadequate (DK, IE). The other Member States (BE, CY, DE, EE, EL, IT, FI, LT, LV, NL, PT, SE, SI, UK) are assessed as partially adequate.

The level of coherence in the definitions of GES for Descriptor 9 in the North East Atlantic and Mediterranean regions is high and moderate in the Baltic region.

6.9.2. Initial assessment (Article 8)

Most Member States have undertaken an initial assessment for Descriptor 9. For BG, the initial assessment was not assessed yet.

Most assessments relating to fish and seafood were done in conjunction with the assessment of contamination of the environment and ecosystem components by hazardous substances (see previous section on Descriptor 8). One Member State (SE) mentioned the discrepancy between regulatory levels for contaminants in the environment and for contaminants in foodstuffs (i.e. the latter being less strict).

The substances assessed were generally the same as those assessed under Descriptor 8, except less numerous (as not all are relevant for human consumption). Often information was provided regarding the species assessed but the level of detail varied.

Most Member States (except BE) have made a quantitative assessment of the current concentration levels of contaminants in these various species, most of them against the levels specified in EU Regulation No. 1881/2006. The level of detail provided on the exceedances and a clear aggregated judgement on the current situation in relation to GES varied considerably.

All Member States but one (LV) have made an assessment of contamination by microbial pathogens in their shellfish and/or bathing waters, using as threshold values the standards of Directives 2006/113/EC (Shellfish Water Directive) and 2006/7/EC (Bathing Water Directive).

Finally, in terms of good practices, some Member States (EL, IE, LT, NL, UK) have assessed the current levels of radioactive substances in fish and seafood for human consumption.

In summary, four Member States were assessed as adequate (EE, ES, LT, NL), three as inadequate (BE, CY, IE) and the remaining ten as partially adequate (DE, DK, EL, FR, FI, LV, PT, SE, SI, UK). IT and RO did not make an initial assessment for Descriptor 9.

There was a relatively high level of coherence across the Baltic and North East Atlantic regions and a moderate level of coherence across the Mediterranean region in the approaches used to assess the level of contamination of fish and seafood.

6.9.3. Environmental targets (Article 10)

Most Member States (except IT, RO) have set environmental targets for Descriptor 9, some of them specifying that their targets for Descriptor 8 cover also Descriptor 9. The number of targets varied from one (CY, EL) to four (ES).

Most countries that have set specific environmental targets for Descriptor 9 have all defined the same type of target, requiring concentration levels of substances to be below EU foodstuffs limit values. Because of the systematic reference to the EU standards, all of these targets were considered to be measurable even when they were not detailed (i.e. there is no need to define specific threshold values and baselines).

Some Member States (DE, ES, FR, NL, SE) have defined targets or indicators that related to the reduction of a pressure but actually these targets have been defined for Descriptor 8 and applied to this descriptor. A few Member States (BE, DE, FR) have also included compliance with Directive 2006/113/EC on the quality of shellfish water to deal with microbial pathogens. One Member State (SI) has defined a target related to the number of inspections of landed catch by fishing vessels. Only one Member State (NL) has defined an indicator relating to indicator 9.1.2 on the frequency of regulatory levels being exceeded.

Only the Baltic Member States (DK, EE, FI, LT, LV) provided a detailed list of the substances covered by their environmental targets, while another (NL) gives details in the accompanying text. The lack of specification by the other Member States suggested that the substances covered were those of EU Regulation No. 1881/2006 which are relevant for fish.

None of the Member States provided details of the specific species to be used for measurements, except one (NL) in the accompanying text and one (IE) which excludes a number of species, in line with its GES definition. Only a few Member States (ES, IE) have included the issue of the origin of the samples in their environmental target.

In summary, no Member States were assessed as adequate, six were assessed as inadequate (BG, CY, EE, LT, PT, SE) and the remaining twelve were partially adequate (BE, DE, DK, EL, ES, FR, FI, IE, LV, NL, SI, UK). IT and RO did not define targets for Descriptor 9.

The level of coherence in the setting of environmental targets for Descriptor 9 across the Baltic, the Mediterranean and the North East Atlantic regions was high.

6.9.4. Consistency between GES, Initial Assessment and targets

Overall the consistency between the three relevant articles of the Directive was relatively good. However, due to the differing lists of contaminants covered and the variety of approaches in the initial assessment and target-setting, the overall conceptual relationship between the different provisions of the Directive was not always clear or clearly explained.

6.9.5. Conclusions

The overall level of adequacy for Descriptor 9 of the 19 Member States which were assessed is given in Figure 18.

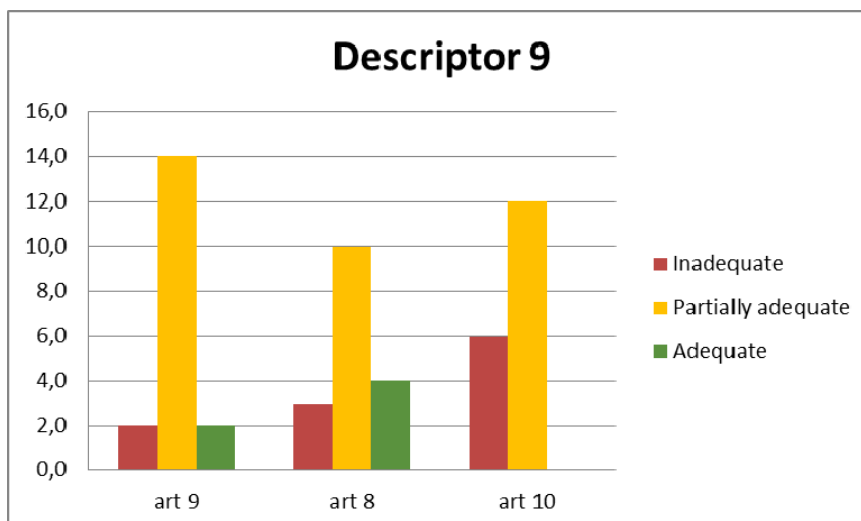


Figure 18: Summary of the assessments of adequacy of Member State's reports for MSFD Articles 8, 9 and 10 for Descriptor 9 on contaminant in seafoods. The bars indicate the number of Member States which were assessed as adequate, partially adequate and inadequate.

The overall level of coherence for Descriptor 9 per marine region is given in Figure 19.

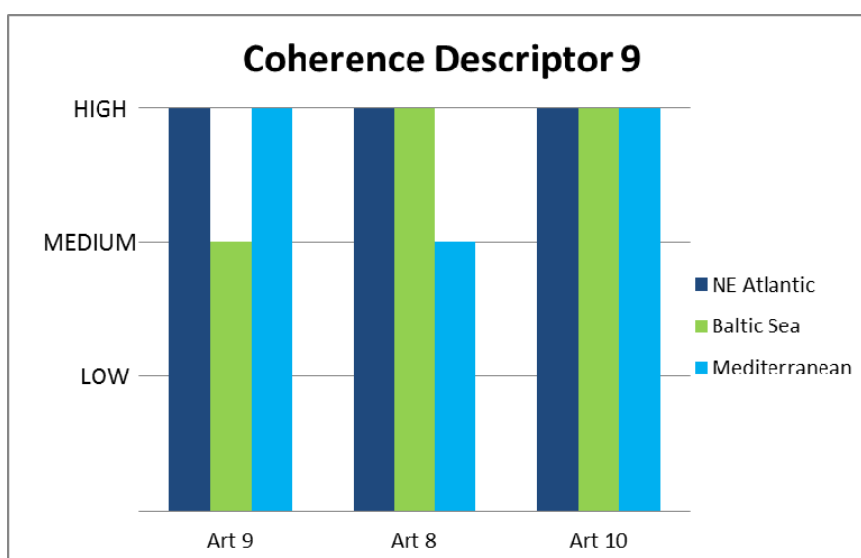


Figure 19: Summary of the assessments of coherence of Member State's reports within each region for MSFD Articles 8, 9 and 10 for Descriptor 9 on contaminants in seafood. The bars indicate whether the reports were assessed as having a low, moderate or high level of coherence within each region.

To improve adequacy and coherence, the general recommendations in this report apply. In addition, specifically for Descriptor 9, Member States should improve the specification and traceability on the origin of fish/seafood in order to use these data for the assessment of

environmental status and help prepare targeted measures. This aspect should be addressed by Member States in the preparation of their monitoring programmes. Finally, the revision of Decision 2010/477/EU should be used to introduce specific minimum requirements based on the approaches developed within the EU and the Regional Sea Conventions.

6.10. Marine litter (Descriptor 10)

Marine litter is increasingly recognised as a significant source of pollution. Litter washed ashore is the most obvious symptom of marine litter. Litter is also found floating in the water column, and on the sea floor of both shallow and deep waters. Litter has numerous sources and consists of many different materials: plastics, wood, metal, glass, rubber, or clothing. Plastics are the most common type of litter found on all of the beaches surveyed.

According to Annex I of the Directive, Descriptor 10 is at GES when "*properties and quantities of marine litter do not cause harm to the coastal and marine environment*".

6.10.1. GES definition (Article 9)

Five Member States (BG, EE, LT, LV, RO) have not defined GES for marine litter. The GES definition in most of the other Member States followed the descriptor definition but not with definitions of criteria or indicators laid down in the Commission Decision 2010/477/EU. Only one Member State (FR) reported a GES definition up to the indicator level and provided details on how progress can be measured. Nine of the 15 Member States who defined GES, included in their definitions that a reduction of marine litter was required. The other six MS have formulated GES in more general terms, although five of these incorporated a reduction of marine litter into their environmental targets (DE, DK, FI, NL, PT). Only one Member State (CY) did not set any reduction aim.

Despite the lack of detail, some Member States provided additional elements for the GES definition that are not covered by Decision 2010/477/EU. Three Member States (DE, DK, FR) referred to marine litter as a pathway for the proliferation of invasive non-indigenous species. Five Member States (DE, DK, FI, FR, SI) reported that marine litter should not have adverse economic consequences for the maritime economic sectors (including shipping and fisheries) and coastal communities. Two Member States (DE, FR) further specified that marine litter should not pose a risk for human health. Furthermore, two Member State (EL, SE) reported that in the long term, the marine environment should be free of litter.

In summary, only one Member State was assessed to have an adequate GES definition (FR). Six Member States (DK, FI, IE, SE, SI, UK) were assessed as partially adequate and eight Member States as inadequate (BE, CY, DE, EL, ES, IT, NL, PT).

Overall, the level of coherence in the definitions of GES for marine litter was high in the North East Atlantic region, moderate in the Mediterranean region and low in the Baltic Sea region.

6.10.2. Initial Assessment (Article 8)

Most Member States reported on the lack of an agreed methodology for assessing the state of marine litter and stated that, up to the reporting date, monitoring of marine litter was not

systematically done. This is reflected in the different units used for reporting on the amount of litter (e.g. kg/km, number per km², items/100 m).

Most information was related to litter at the coast. In the **Mediterranean** this data originated often as a by-product of beach cleaning actions. Within the **North East Atlantic**, the OSPAR methodology for beach litter monitoring was used.

Little information was reported on litter in the water column, including floating macro-litter and micro-particles. Data from ‘Fishing for litter’²⁷ projects in the North Sea were reported by three Member States (BE, NL, UK).

Substantial data were reported on seabed litter in the **Mediterranean** Sea by most Member States in the region (except CY, SI), detailing mostly the geographical distribution, densities, types of marine litter and in some cases also seasonal differences.

The impact of marine litter on biota was reported by four Member States in the **Mediterranean** Sea (ES, FR, IT, SI). Two Member States of the Adriatic Sea subregion (IT, SI) focused on the loggerhead turtle *Caretta caretta* as the indicator species, while two Member States of the Western Mediterranean subregion (ES, FR) analysed various species, including sea turtles, whales and dolphins. The North Sea Member States reported on the analysis of plastics in the stomach of Northern Fulmars, a sea-bird which occurs in part of the OSPAR region.

Only a limited number of MS made an explicit statement that the status of the marine environment with regard to marine litter was not good. As seen from the GES definition and the targets, almost all MS aimed at a reduction of marine litter, either by location (on the beach, in the water column, or on the sea floor) or by type (microplastics or ingested). Implicitly this means that MS recognised that the present situation was not in good status.

In summary, the reporting on the initial assessment of marine litter was assessed as adequate for nine Member States (BE, DE, EL, ES, FR, IE, LT, SI, UK). It was assessed as partially adequate for four Member States (DK, IT, NL, SE) and inadequate also for four Member States (CY, EE, FI, LT). Two Member States (LV, RO) did not report on this descriptor.

The level of coherence of the initial assessment in the Ionian and Central Mediterranean Sea subregion was low and in the Western Mediterranean Sea subregion was high. Overall, the level of coherence in the initial assessment for Descriptor 10 for the Mediterranean region was moderate.

The coherence of the initial assessment on marine litter for the North East Atlantic region and for the subregions Greater North Sea, Celtic Seas and Bay of Biscay and Iberian Coast was high.

The overall level of coherence in the assessment of marine litter by the Baltic Sea Member States was moderate.

²⁷ ‘Fishing for litter’ is the methodology to collect litter at sea by fishermen and is covered by OSPAR Recommendation 2010/19.

6.10.3. Environmental targets (Article 10)

The defined targets for marine litter are a good starting point for all Member States, but require further specification. Reduction targets for Descriptor 10 were defined by all Member States, with the exception of 5 (BG, CY, LT, LV, RO) whereby the number of reduction targets varies from one to six. For three quarters of the MS, these targets were measurable. Member States have set a target to reduce visible litter from beaches, including by removing existing waste and to reduce the entry into the marine environment of new waste from either land- or sea-based sources. The third most-frequently defined target was that of a reduction of the impact on marine life. Two Member States (BE, NL) cited the OSPAR Quality Objective (EcoQO) target on Northern Fulmars, while four Member States (DE, FR, IE, PT) indicated its potential use as indicator. In the **Mediterranean**, other species were considered as an alternative to the Northern Fulmar. In addition, one Member State (DE) has set targets to reduce the entanglement of birds in marine litter.

Quantitative threshold values have not been set, except when the EcoQO target on the ingestion of plastic by Fulmars was cited (by two Member States only – BE and NL).

Occasionally, targets have been set by individual Member States on micro-plastics, on recreational litter at beaches and on collected litter from Fishing for Litter. One Member State (PT) confirmed its commitment to the MARPOL Convention and the collection of shipping waste in the Directive on Port Reception Facilities.

Many Member States expressed the need to increase the knowledge base by addressing the identified knowledge gaps in order to define GES and targets better and assess the impact on the marine environment.

In summary, no Member State was assessed as having defined adequate targets for Descriptor 10. The targets of nine Member States were assessed as partially adequate (BE, DE, ES, FR, IT, NL, SI, SE, UK) and the targets of six Member States were assessed as inadequate (DK, EE, EL, FI, IE, PT). BG, CY, LT, LV, RO did not define targets for Descriptor 10.

The overall level of coherence in the setting of targets for marine litter across the North East Atlantic, the Mediterranean regions and the Baltic sea regions was moderate. .

6.10.4. Consistency between GES, initial assessment and targets

The consistency between the three relevant articles of the Directive for marine litter was very limited. In the ideal situation, the GES definition followed the criteria of the Decision 2010/477/EU, i.e. addressing the amount of litter in the environment along with its sources and impacts. In the initial assessment, those elements should have been looked at and the environmental targets set for these elements in order to be able to monitor progress towards GES. However, in general, MS did not apply this approach systematically, partly because the data on certain aspects (mainly impacts, but also sources) were not available. This descriptor also covered different zones: coast, water (column and floating), sea-floor and even ingested litter which made target-setting for all these aspects difficult. Sometimes the definition of GES was more comprehensive and contained more elements than the initial assessment or the targets set, e.g. mentioning a reduction of litter input in the GES definition without defining a specific target for this or making an assessment of sources and levels of the present input.

Some Member States formulated a set of targets which can be considered as essential boundary conditions, mainly the targets related to the management of marine litter and involvement of stakeholders.

Primarily in the NE Atlantic, consistent use and reference was made to OSPAR methodologies and data, in the GES definition, the initial assessment and the targets. The IA and targets consistently focused on beach litter, litter collected at sea and plastics ingested by fulmars. However, other aspects of the marine and coastal environment were not covered.

6.10.5. Conclusions

The overall level of adequacy for Descriptor 10 of the 19 Member States which were assessed is given in Figure 20.

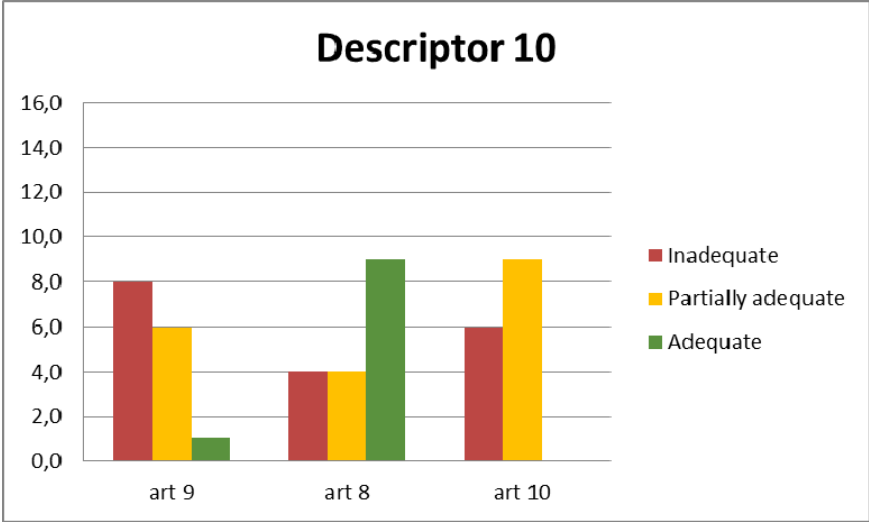


Figure 20: Summary of the assessments of adequacy of Member State's reports for MSFD Articles 8, 9 and 10 for Descriptor 10 on marine litter. The bars indicate the number of Member States which were assessed as adequate, partially adequate and inadequate.

The overall level of coherence for Descriptor 10 per marine region is given in Figure 21.

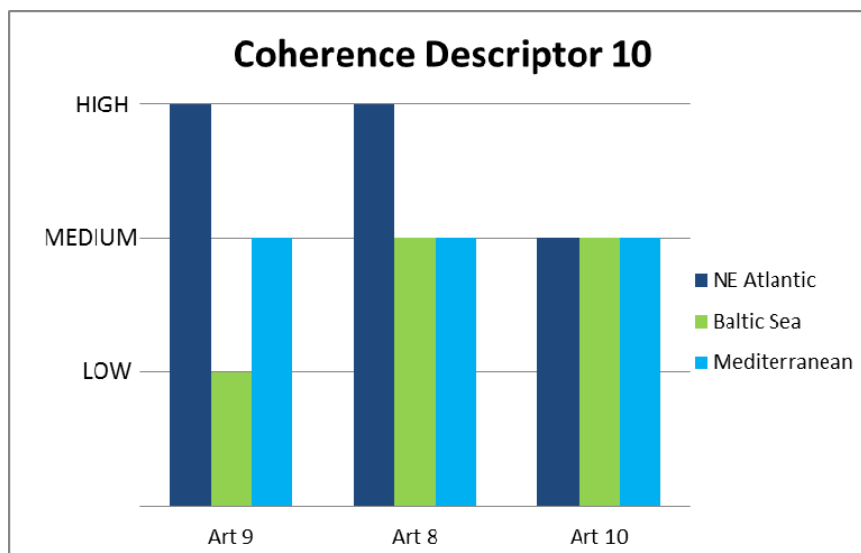


Figure 21: Summary of the assessments of coherence of Member State's reports within each region for MSFD Articles 8, 9 and 10 for Descriptor 10 on marine litter. The bars indicate whether the reports were assessed as having a low, moderate or high level of coherence within each region.

It is clear that Member States had difficulty in formulating an adequate definition of Good Environmental Status for marine litter. This was not adequately performed for the largest group of countries. An initial assessment, based on existing information and data was possible in most Member States although it did not cover all aspects due to a lack of information, a fact frequently cited by MS. However, specific plans to address these information gaps were often missing. Almost all Member States defined environmental targets which aim to reduce marine litter but did not address all relevant aspects such as sources or impact. The targets also often failed to set quantities which would guide progress towards achieving GES and facilitate monitoring. The aim to reduce marine litter without a comprehensive assessment of the impacts can be considered as a good example of the precautionary principle, whereby it is commonly agreed that litter (especially plastic) does not belong in the marine environment.

To improve adequacy and coherence, the general recommendations in this report apply. The quantification of litter reduction targets is a necessity to guide measures and to monitor progress. The Commission is developing quantitative headline reduction targets for marine litter which will aid the development of regional and national reduction targets.

In the monitoring programmes the lack of information on marine litter should be addressed so that identification of possible sources can be seen as a necessary step towards efficient and appropriate measures to reduce the amount of litter entering the marine environment. Use should be made of the guidance developed under the Common Implementation Strategy by the Technical Group on Marine Litter. The development of regional action plans on marine litter in the context of the Regional Sea Conventions is one good example of coordinated action. Finally, the revision of Decision 2010/477/EU should be used to introduce specific minimum requirements based on the approaches developed within the EU and the Regional Sea Conventions.

6.11. Energy including underwater noise (Descriptor 11)

The development of targets and indicators for underwater noise has been the main focus in the MSFD implementation to date; criteria and indicators related to other forms of energy might be developed later. Noise input to the marine environment occurs at many scales of both space and time. Anthropogenic sounds may be of short duration (e.g. impulsive sounds, such as from seismic surveys and piling for wind farms and platforms, as well as explosions) or be long-lasting (e.g. continuous sounds, such as dredging, shipping and energy installations). Lower frequency sounds may travel very far through the water. Natural phenomena (e.g. lightning, rain and waves) generate sound at various frequencies.

Different species are sensitive to different frequency levels. Species that are exposed to noise may be adversely affected over a short time-scale (acute effect) or a long time-scale (permanent or chronic effects). Adverse effects may range from subtle (e.g. temporary harm to hearing, behavioural effects) to obvious (e.g. in the worst case, death).

According to Annex I of the Directive, Descriptor 11 is at GES when "introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment".

6.11.1. GES definition (Article 9)

Five Member States have not defined GES for underwater noise (BG, EE, LT, LV, RO). All other Member States have defined GES for Descriptor 11 but they have used different approaches. Two Member States (NL, PT) provided a definition of GES that was a copy of (or very similar to) the Descriptor 11 criteria of the Commission Decision 2010/477/EU. Other Member States (FR, UK and to a certain extent SE) provided definitions which were in line with the definitions of the 2010 Commission Decision but which were further developed. Three Member States (ES, FR, SI) have extended the scope of the GES definition in the Decision substantially and added high frequency impulsive sounds (e.g. originating from the sonar of pleasure boats) to their GES definition. Another group of Member States (BE, DE, IE), for various reasons, were not (or only roughly) in line with the definitions of the 2010 Commission Decision.

Although most of the Member States defined GES at descriptor and criteria levels, a few of these (BE, DK) did not (clearly) make use of both criteria of the 2010 Commission Decision. Only one Member State (DE) has covered other sources of energy in its definition of GES, namely, light, emission of electromagnetic fields and heat. Only three Member States (DE, FR, UK) have provided threshold values for GES.

In summary, two MS have an adequate GES definition (FR, UK), six Member States were partially adequate (BE, DE, EL, IE, SE, SI) and seven Member States were inadequate (CY, DK, ES, FI, IT, NL, PT).

The level of coherence of the definitions of GES across the North East Atlantic region was considered to be low; in the Celtic Seas subregion it was high. The coherence in the Baltic Sea region was low. The level of coherence in the Mediterranean Sea region was moderate.

6.11.2. Initial assessment (Article 8)

Over one-third of the Member States (BE, CY, DK, EE, LT, NL, PT) have undertaken very limited assessments of underwater noise. Six MS (DE, ES, FR, IE, SI, UK) provided a more detailed assessment. Six Member States (EL, IT, LV, PT, RO, SE) have not carried out any initial assessment.

In most cases, the initial assessment was very limited and general and did not go much beyond the identification of the main causes of pressure (being shipping, offshore exploration and production, port operations and defense) and the acknowledgment of information gaps. When information was provided in a more consistent manner, it was nonetheless in most cases descriptive and more focused on pressures than impacts. Only a few Member States (e.g. DE) tried to quantify some parameters. In the reporting sheets, only two Member States made a quantification of the proportion of their assessment area affected by the noise pressure but they were not based on the same criterion. One of them (FR) assessed continuous sounds and concluded that 75-100% of its area was affected while the other one (IE) assessed impulsive sounds and concluded that less than 1% is affected. No Member State has provided a clear conclusive judgment on whether the current level of the pressure or its impacts was acceptable.

Two Member States (ES, FR) have developed an inventory of the level of underwater sound, based on the sources that can produce underwater sound, and visualised the results on a map. One of these (ES) reported the cumulative sound pressures, while the other (FR) has developed a separate map for ambient and impulsive sound. One Member State (SI) has done substantial, recent monitoring of underwater noise.

In summary, the initial assessments of six Member States were assessed as adequate (DE, ES, FR, IE, SI, UK), three MS were assessed as partially adequate (EE, FI, LT) and four were assessed as inadequate (BE, CY, DK, NL).

The level of coherence for the Mediterranean Sea regions was low. The level of coherence across the Baltic Sea region was considered moderate. The North East Atlantic region was considered to be relatively high, as the vast majority of the Member States (albeit with different levels of detail) focused on the identification of the sources of underwater noise, the acknowledgment of gaps and the need for future monitoring.

6.11.3. Environmental targets (Article 10)

Many Member States (except BG, CY, IE, IT, LT, LV, RO, SE) have defined environmental targets and associated indicators for Descriptor 11. The response to this descriptor was very diverse in terms of setting targets. Five Member States (ES, FR, NL, PT, SI) have included high-level qualitative objectives rather than measurable targets. Two Member States (ES, PT) have also defined monitoring targets. Two other Member States (BE, DE) have opted to define very concrete noise exposure criteria that are also applied in Environmental Impact Assessment (EIA) legislation for wind farms, instead of defining pressure-based targets/indicators. One Member State (DK) reported only a target for impulsive sounds. Finally, one Member State (UK) opted for very concrete targets that further develop the conceptual approach behind the indicators which were essentially pressure-based.

For one MS (FR), the (sub)targets for the Mediterranean appeared more specific and measurable than those defined for the Atlantic subregions. It made a specific reference to limit the acoustic disturbances to mammals and bird nesting sites.

In summary, one Member State was assessed as having defined adequate targets (UK). Five Member States were assessed as partially adequate (BE, DE, DK, FI, FR) and six were assessed as inadequate (EE, EL, ES, NL, PT, SI).

The level of coherence in the setting of environmental targets for Descriptor 11 across the Baltic Sea and North East Atlantic regions was considered to be low. The level of coherence in the Mediterranean Sea region was moderate.

6.11.4. Consistency between GES, initial assessment and targets

A large group of countries have not set targets because of a lack of data and also a lack of formulating an adequate definition of GES. The targets were consistent with the level of knowledge reflected by the initial assessment. Although the GES definition was consistent with the set of targets, and in correspondence with the Decision, it was not specific enough. The main pressures were reported in the initial assessment but were described in limited detail. The targets and the GES definition did not address the pressures of underwater noise.

6.11.5. Conclusions

The overall level of adequacy for Descriptor 11 of the 19 Member States which were assessed is given in Figure 22.

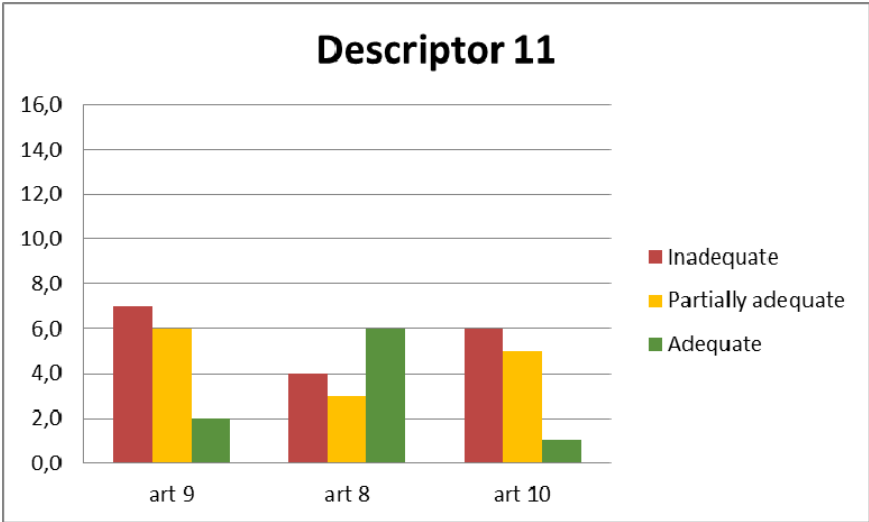


Figure 22: Summary of the assessments of adequacy of Member State's reports for MSFD Articles 8, 9 and 10 for Descriptor 11 on energy including inderwater noise. The bars indicate the number of Member States which were assessed as adequate, partially adequate and inadequate.

The overall level of coherence for Descriptor 11 per marine region is given in Figure 23.

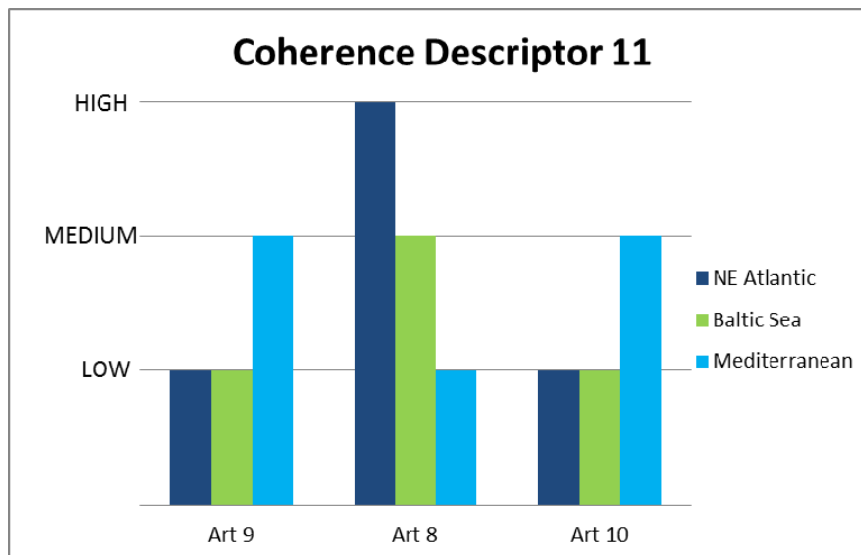


Figure 23: Summary of the assessments of coherence of Member State's reports within each region for MSFD Articles 8, 9 and 10 for Descriptor 11 on energy including underwater noise. The bars indicate whether the reports were assessed as having a low, moderate or high level of coherence within each region.

It can be concluded that GES for underwater noise, for both impulsive and ambient noise, is difficult to define at present since the impacts on the ecosystem are not fully known at this stage. Some MS stuck closely to the GES description of the Decision, others extended the scope or changed the emphasis. The Initial Assessment is qualitative, identifying possible sources of underwater noise but does not address its impacts. Lack of data and knowledge are given as the main reasons for this. This knowledge gap on the pressure and what is good (or not good) status is reflected in the fact that the targets are often missing.

To improve adequacy and coherence, the general recommendations in this report apply. In addition, specifically for Descriptor 11, Member States should fill, as a priority, the data and knowledge gaps in the next steps of the MSFD implementation. Guidance on the monitoring of both ambient and impulsive noise is given by the CIS process by the Technical Group on Noise. In addition to the collection of relevant data on the degree of the pressure, further research on impacts is needed, both for ambient and for impulsive noise.

The establishment of a noise registry is a first step to collect the data required to manage underwater noise in such a way that it did not adversely affect the marine ecosystem.

Based on the knowledge of the (potential) impacts, it will be a challenge to turn the register of loud impulsive noise into a management instrument at the subregional level to prevent adverse effects on the ecosystem. Such an instrument should be applicable to Member States which are part of that same subregion.

The development of sound maps for ambient noise, with the help of numerical modelling, is an important step towards the identification of possible problem areas for which targeted measures need to be identified.

Finally, the revision of Decision 2010/477/EU should be used to introduce specific minimum requirements based on the EU the approaches developed within the EU and the Regional Sea Conventions.

7. SOCIO-ECONOMIC ANALYSIS

An economic and social analysis (ESA) of the uses of marine waters and of the cost of degradation of the marine environment is required in Article 8(1c) of the Directive. This will become increasingly important, in particular when discussing the socio-economic assessment of measures to be adopted by Member States in 2015. A preliminary assessment has focused at a high-level on the approaches used by the Member States for the ESA. The lack of available information and the existence of data gaps were acknowledged by the majority of Member States.

For the ESA, most Member States have used the Water Accounts approach²⁸. Two Member States (LV, UK) applied the Ecosystem Services approach²⁹ and another two (LT, SE) have used a mixture of the Water Accounts and Ecosystem Services approaches.

The marine uses most commonly described (by at least half of the Member States) included fisheries, shipping, tourism, port operations, aquaculture, defence, marine research activities and renewable energy production (Figure 24).

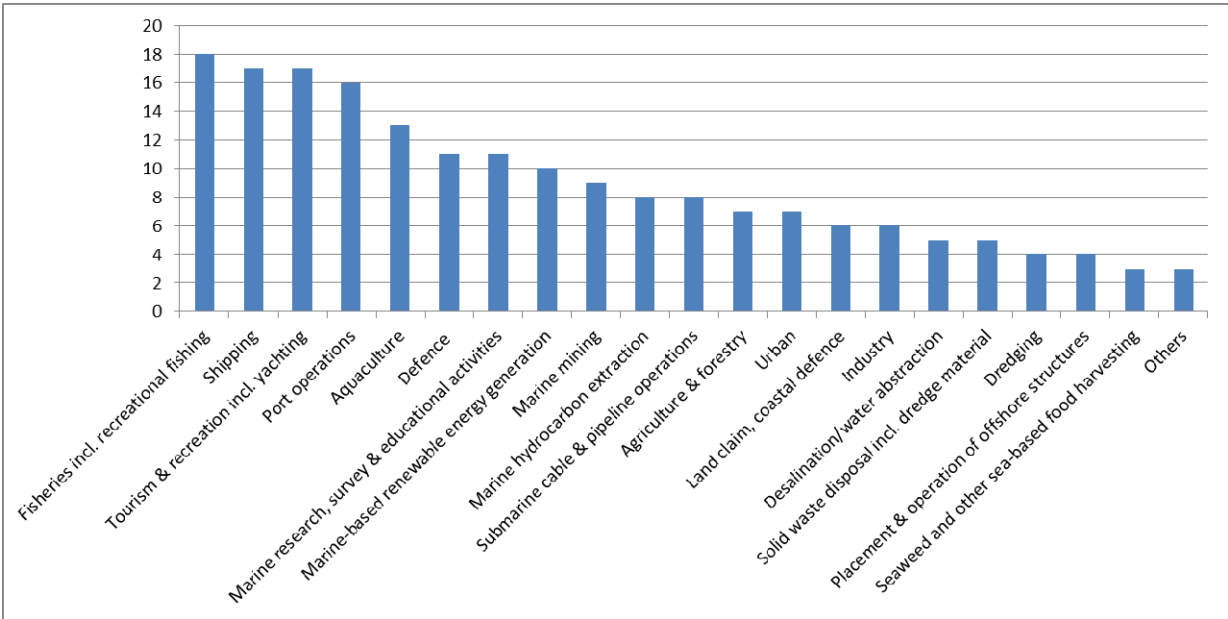


Figure 24: Summary of which uses and activities were most often included in the economic and social analysis of Member State's Initial Assessments (figures refer to the number of MS which included each use/activity).

²⁸ The starting point of the “Marine Waters Account” approach is the economy - e.g. the economic sectors - depending on and using the marine waters. This approach focuses on what can be obtained from the national accounts/statistics, and has low to medium data requirements. (see [WG ESA guidance document](#))

²⁹ The starting points of the Ecosystem Services Approach are the ecosystem services (ES) obtained from the marine waters. In a first step, these ES are identified and linked to marine uses. A second step consists in identifying and, if possible, quantifying the (economic) benefits derived from these ecosystem services. The Ecosystem Services Approach has high data requirements.

For the analysis of the cost of degradation, the approaches used were more diverse but, even so, half of the Member States used a cost-based approach³⁰. Five Member States (IE, LV, SE, SI, UK) used the Ecosystem Services approach³¹, two Member States (BE, EE) used the Thematic approach³², and two more (DE, LT) used a mixed approach, using different methods to calculate the cost of degradation. For one Member State (BG), the approach used was not clear. The approaches used are summarised in Figure 25.

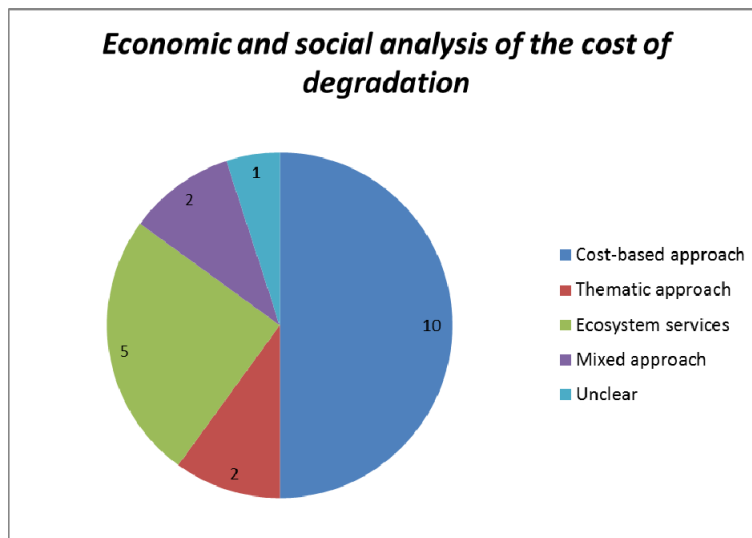


Figure 25: Summary of which methods were most often used in the analysis of the cost of degradation in Member State's Initial Assessments (figures refer to the number of MS which used each approach).

Practically all Member States (except DK, LT) have referred to the MSFD CIS guidance document on the economic and social analysis³³ although with differing levels of detail.

8. REGIONAL COOPERATION

Regional cooperation amongst Member States and other relevant countries via the Regional Sea Conventions is well developed in all four regions. However, the role and the use of the results of this regional cooperation in the MSFD reporting varied considerably. All Regional Sea Conventions played an important role in the coordination of Member States' MSFD work, as required under Article 6 of the Directive. Significant efforts were made in their work

³⁰ The cost-based approach is based on existing quantitative data on costs of measures currently implemented to prevent degradation of the marine environment (i.e. basically setting the costs of degradation equal to the costs of protecting the marine environment). This approach is based on the assumption that current costs for measures to prevent environmental degradation would only have been made if the value of what is obtained (preventing degradation) is higher than the cost of the measures. In this way, current costs can be seen as a lower bound estimate for costs of degradation (WG ESA Guidance).

³¹ See above; the difference in assessing the costs of degradation (instead of the marine uses) via the Ecosystem Services Approach is that the potential value of ES under GES is calculated, and the difference between this value and the expected value (under BAU) represent the costs of degradation.

³² The thematic approach is a simplified version of the Ecosystem Services Approach, which includes an analysis of the present costs, expenses and loss of benefits related to the anthropogenic degradation of the marine environment, but excludes the future element.

³³ <https://circabc.europa.eu/w/browse/1f5a5ca0-b797-4d3f-b4bb-8adc9bf48177>

to support Member States in their implementation and to develop regionally-coordinated approaches, although the timetables and levels of ambition did not always match the provisions of the MSFD in the past. Even more surprisingly was the low level to which Member States have made use of the agreed results of this regional coordination in their national implementation reports. This was the case in the **Baltic** Sea region, but even more so for Member States in the **Mediterranean** and **Black Sea** regions, where hardly any reference was made in national reports to the results of these two Conventions. At the same time, no adequate alternative coordination mechanisms between Member States in the **Mediterranean** and the **Black Sea** were in place. This explains, to a certain extent, the low level of coherence achieved in the Member States' reports in these regions.

Further work since 2012 has been undertaken within all conventions which addresses some of the shortcomings that were recognised within the conventions (see, for example, regional contributions (Annex 4) to the MSFD Common Implementation Strategy 2014 and beyond³⁴).

9. CROSS CUTTING ISSUES

9.1. Public consultation and status of the reports

Article 19 of the Marine Directive requires that each Member State organise a public consultation procedure on the implementation of this Directive. Member States have to ensure that all interested parties are given early and effective opportunities to participate, involving, where possible, existing management bodies or structures.

The Commission received information from 17 Member States with regard to their public consultation process on their reports for the three articles (Art. 8, 9 and 10). From 15 of these Member States (except BG, IT) a link to their public consultation web-page was received³⁵. In almost all MS this consultation took place in the first half of 2012. Three Member States (EL, IE, LV) had not undertaken such a consultation by the time they submitted their reports to the Commission, but indicated that they were doing so in the meantime. Some Member States may also have substantially modified their reports, and not submitted them again to public consultation.

As a consequence, the status of some reports submitted to the Commission was in a few cases unclear (EL, IE, IT, LV). Furthermore, one Member State (EE) stated that its report was a proposal. The Commission intends to follow up bilaterally with these countries using the most appropriate procedures.

9.2. Statutory nature of GES and targets

The Directive requires Member States to establish GES and environmental targets but it does not specify in what legal form they must be established. According to the Commission's conformity assessment, Member States should consider laying down their GES determinations and targets in a statutory manner in order to improve their enforceability.

³⁴ [MSFD CIS work programmes \(https://circabc.europa.eu/w/browse/1ce3bda3-d469-4d2d-828d-a840e4f98370\)](https://circabc.europa.eu/w/browse/1ce3bda3-d469-4d2d-828d-a840e4f98370)

³⁵ http://ec.europa.eu/environment/marine/public-consultation/index_en.htm

Only a few Member States (e.g. SE, FR) provided reassurances that their GES and targets are statutory.

9.3. Delimitation of 'marine waters'

The geographical areas in which Member States must implement the Directive are defined as 'marine waters' (MSFD Article 3(1)).

The definition is based on the United Nations Convention on the Law of the Sea (UNCLOS)³⁶ which is the international agreement that defines the rights and responsibilities of states in their use of the oceans. UNCLOS defines different areas measured from a 'baseline' with different rights and responsibilities.

As part of the 2012 reporting on Articles 8, 9 and 10, Member States were requested to provide GIS (Geographical Information System) data showing the boundaries of their marine waters and to outline the jurisdictional basis for their marine waters, including:

- a. MS marine waters relating to both the water column and seabed/subsoil of coastal waters, territorial waters and the Exclusive Economic Zone (EEZ)³⁷;
- b. MS marine waters relating only to the seabed/subsoil beyond the EEZ.

The analysis of the information provided by Member States was undertaken with the assistance of the European Environment Agency (EEA). It was complex and is still ongoing because of a large number of open questions, some of them of very detailed technical nature.

Preliminary results of these ongoing analysis are, in particular:

- a. The total extent of marine waters of the EU Member States is approximately 5,720,000 km², representing an area which is about 50% larger than the EU land area.
- b. Use of WFD Coastal Waters – A number of countries make no reference to using WFD Coastal Waters in their definition of MSFD Marine Waters, as required according to Article 3(1) (b). This results in uncertainties in relation to the landward boundary or exclusions of certain areas (e.g. microtidal seas or excluded coastal areas).
- c. Use of EEZs or similar designations (for waters beyond Territorial Waters and where the MSFD applies to both the water column and the seabed and subsoil). All MS have EEZs which extend to 200nm from baselines, or to median lines where their waters adjoin neighbouring states, except for some Member States where clarifications are needed (EL, ES, FR, IT, SI, UK).
- d. Use of Continental Shelf areas (beyond EEZs, where MSFD applies only to the seabed and subsoil). Because the majority of MS are located around enclosed seas (Baltic, North, Mediterranean, Black), they do not have the opportunity to exercise

³⁶ http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf

³⁷ Some Member States have alternative designations to EEZs (e.g. the UK's Renewable Energy Zone), whilst in the Mediterranean Sea Greece's territorial seas extend to 6nm from the baseline (instead of 12nm).

jurisdictional rights beyond their EEZs. Of those MS who do have this possibility, several indicated that they were implementing the Directive in some parts of their Continental Shelf area but some clarifications are still needed in this respect. In some cases, Member States were awaiting the outcomes of joint claims via the Commission on the Limits of the Continental Shelf (CLCS) before extending MSFD implementation to these areas.

- e. Gaps and overlaps in marine waters between Member States. Based on the information and GIS data reported, there are a significant number of gaps and overlaps in the boundaries provided. These are likely to represent either (a) areas where the jurisdiction over the area is not yet clear and (b) technical issues where the boundary data need improvement to eliminate any gaps and overlaps.

The information reported by MS, including the GIS data provided, are a good basis for understanding where the MSFD will be implemented in Europe's seas.

The Commission and the European Environment Agency will continue to work on these reports and clarify open issues in order to produce reference data sets for ongoing implementation, including visual representation of other information reported, e.g. the status of marine waters, in WISE (Water Information System for Europe).

In addition, the Commission will address the shortcomings in the information and seek clarifications or corrections in order to support implementation going forward. In particular, the proper application of the use of WFD coastal waters in their definition of MSFD marine waters will be addressed. Furthermore, clarification will be sought from relevant MS on how the MSFD will be implemented in those marine waters where there are gaps or overlaps between Member States. Finally, where reports lack the necessary information or GIS data were not yet reported, the necessary information should be provided by the relevant MS as soon as possible.

9.4. Scales for assessment

Article 3(5) of the Marine Strategy Framework Directive (MSFD, 2008/56/EC) requires that good environmental status is determined at the level of the marine region or subregion as referred to in Article 4, on the basis of the qualitative Descriptors in Annex I to the Directive. In addition, Member States may identify further sub-divisions (Article 4(2)). However, the geographical scale to be used for assessments is not well defined in the Directive. Consequently, in this first cycle of implementation the geographic scales applied by MS for the assessment of GES could vary between descriptors, and could differ among Member States.

This was confirmed by the analysis of MS approaches where substantial differences were apparent. Eight Member States used one assessment area for the analysis of the environmental status of their entire marine waters. Eleven Member States used more than one assessment area and for three MS information was not available. The sizes of the assessment areas ranged from smaller than 100 km² to larger than 100,000 km². There seemed to be no relationship between environmental conditions and the scale of the assessment areas, as there were large differences between MS within a sub-regional sea.

While some MS have used WFD coastal water bodies and marine waters further offshore as assessment areas, others have defined other, and sometimes larger, assessment scales. With a few exceptions, MS did not explicitly mention the use of biogeographic, oceanographic or hydrological criteria, as mentioned in Article 3(2), or a risk-based analysis when defining assessment areas; they sometimes used more assessment areas for certain descriptors, in particular for Descriptors 1, 5 and 6.

The information used in the analysis does not indicate that MS have attempted to scale up from smaller assessments areas to an assessment for their entire marine waters within a subregion (where applicable), nor that a scaling up to a sub-regional assessment of GES has been done, where possible.

Due to the many open questions in this respect, the Commission commissioned a study asking for an analysis of national approaches that Member States had taken in their reporting under Articles 8, 9 and 10 of the MSFD, with respect to geographic scaling and rules for aggregating between indicators and/or criteria, and for the development of broad EU guidance on coherent geographic scales in assessment and monitoring of GES and for sets of aggregation rules.

Also some regional organisations have already developed approaches to define assessment areas for specific purposes (e.g. some biodiversity aspects, fisheries, eutrophication, contaminants). For example, ICES and the GFCM have defined assessment areas for fish stocks, whilst in the Baltic Sea HELCOM has developed the most elaborate system with a nested design of assessment areas at different hierarchical levels³⁸.

9.5. Use of reference levels for GES and targets

It is common practice in EU Directives and in regional assessment methodologies to define environmental objectives (i.e. the target quality, such as GES, to be achieved) in relation to a reference level. For example, target quality levels for contaminants and eutrophication are typically set in relation to 'background' or 'natural' levels in the environment, with target levels set as a specified deviation from these conditions. This philosophy is typical for setting objectives for other pressures, such as litter and noise. For assessing the environmental status of biodiversity components, a similar approach is also used in the WFD and Habitats and Birds Directives, whereby target values are set in relation to natural characteristics, such as the distributional range of a species, the extent of a habitat or the condition of its biological community. This overall philosophy for setting environmental objectives is often termed the 'reference condition and acceptable deviation' approach. This 'deviation' is important, particularly to allow for sustainable uses of the marine environment whereby some levels of pressures and their impacts can be accommodated, provided the overall quality of the environment is maintained.

In the reports provided by Member States for Articles 8, 9 and 10, the approach to using reference points and setting target GES values was very varied, both across the different descriptors and across Member States for the same descriptor. In some cases, the current state in the 2012 assessment was used as the reference point (from which to a particular quality is to be maintained), without fully assessing whether that state was adequate to begin with. In

³⁸ see Analytical Report, Nov 2013 http://ec.europa.eu/environment/marine/publications/index_en.htm

many cases, the reference points to be used for the determinations of GES and environmental targets were not documented.

This degree of variation and lack of clarity can be expected to lead to substantial problems in subsequent implementation phases, as differences in approach lead to conflicts between descriptors (e.g. between state and pressure assessments) and the lack of a common understanding of what constitutes GES. It is there recommended that a common approach, based on the reference condition plus acceptable deviation philosophy, be used across descriptors to achieve a suitable level of consistency in future implementation phases.

10. CONCLUSIONS AND WAY FORWARD

The implementation of the Marine Strategy Framework Directive has reached its first milestone. The initial assessment and the setting of good environment status and related environmental targets form the foundation for this EU marine legislation upon which all subsequent steps. At the same time, this step was always likely to be a “test run” which means that many new elements and ambitions introduced in the Directive were applied for the first time and there is still time built in to rectify them and learn from this initial phase.

The Commission was mandated (under Article 12 of the Directive) to review the progress and provide to the Member States “*guidance on any modifications it considers necessary*”. This illustrates that an iterative and interactive collaboration between the Commission and the Member States was designed to be part of the process to implement this Directive successfully. Also many Member States have already recognised that their implementation “snapshot” was not perfect. Several gaps were identified and recognised from the outset, most of the results were built on work (and data) which pre-dated the MSFD (i.e. 2010 or earlier, before they had to transpose the MSFD into national law and before the GES Decision 2010/477/EU was adopted) and few new data or assessments were used. Most of the regional assessment work, on which MS must rely upon, was only partially updated or not at all since the MSFD entered into effect, because the timelines for these assessments had not (yet) been aligned with the MSFD deadlines.

There was also a lot of work in progress (and not finalised in time) to address shortcomings already identified. Furthermore, some identified deficiencies led to subsequent actions, e.g. at regional level, because some joint assessments of Member States already indicated that more work would be necessary. Finally, the process was not helped by delays in finalising the reporting templates, guidance and technical infrastructure, which themselves depended upon adoption of the GES Decision in 2010 and development of common understandings on GES under the MSFD CIS process.

The Commission recognises that all these aspects contributed to some of the lack of clarity and possible inconsistency in the Member States' reports.

10.1. Overall assessment of the Member States and the marine regions

The Commission assessed the completeness and adequacy of the reports for each Article, their coherence within and between the regions and the consistency between the reports for these articles.

Overall, the level of adequacy was assessed as being moderate to low. Even those Member States with a higher level of adequacy had a number of shortcomings. Using a simple scoring system, the two highest Member States scored 60-70% of the maximum adequacy score. All other Member States were below 55% with the lowest only scoring 9% of the maximum (Figure 26).

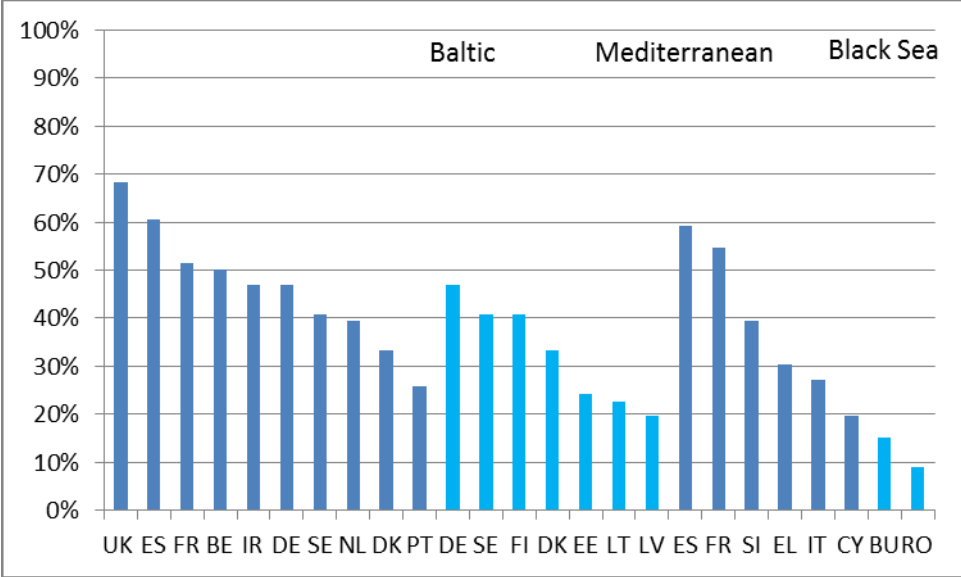


Figure 26: Summary of the overall adequacy scores per Member State across MSFD articles 8, 9 and 10 (expressed as a percentage of the total possible score), with MS grouped per marine region (hence SE, DK, DE, FR and ES appear twice).

The level of coherence within each region was also assessed as moderate to low (Figure 27). The Member States in the **North East Atlantic** region showed the highest level of coherence, but still leaving significant room for improvement. Coherence between Member States in the Mediterranean and Black Sea regions was considered low. The comparability between the regions is very low and does not lead to adequate coherence within the EU.

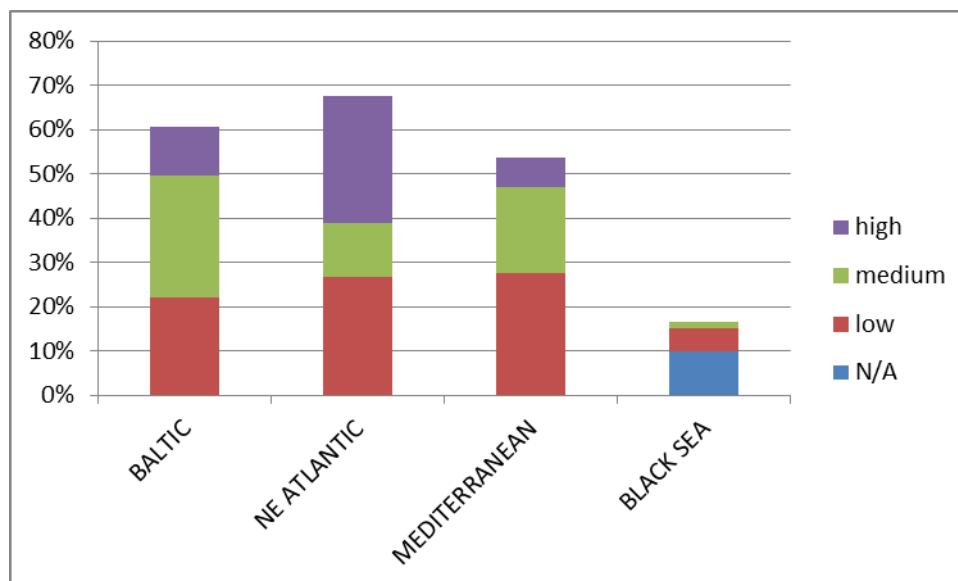


Figure 27: Summary of the level of coherence achieved within each marine region (expressed as a percentage of the total possible score).

The consistency between the application of the different elements of the Directive is not adequate either. The MSFD was designed with a certain logical relationship between its provisions and the timelines for implementation (Figure 1). For the first implementation of the Articles 8, 9 and 10 it was important to define GES clearly and to relate the initial assessment and the environmental targets clearly to this GES definition. This conceptual consistency has not been applied by many Member States or sometimes only for some descriptors.

The specific conclusions and recommendations per implementing provision are given below.

10.2. Good Environmental Status (Article 9)

GES is the centrepiece of the MSFD upon which all other provisions depend. Determining it adequately is crucial.

Following the adoption of the MSFD in 2008, significant progress in setting environmental objectives has been made. Apart from the well-explored impacts from eutrophication and chemical pollution, additional focus on biodiversity, non-indigenous species, marine litter and underwater noise have been addressed more and more systematically. This will increasingly allow for a much more holistic assessment of the health of the marine ecosystem.

Most Member States have managed to introduce GES characteristics for most or all descriptors. Some Member States have also made use of this instrument to set out ambitious benchmarks to be achieved, even laying them down into their national law, which will improve the enforceability of GES. Furthermore, implementation of the MSFD has triggered new developments within the Regional Sea Conventions which has led to new regionally-agreed indicators and methods for assessing environmental status, inspired by the ecosystem approach. Further, the process has fostered considerable efforts by Member States to integrate

the work under a range of other Directives to form a more complementary and integrated implementation 'package'.

Despite these achievements, the definitions of GES established by most Member States do not appear to be adequate to deliver the overall aims laid out in the Directive to ensure its sustainable use. These GES determinations have also not been done in a coherent enough way within and between the different regions to ensure that there is an equal level of ambition on marine environmental quality and a 'level playing field' for marine industries and developers. There are also significant differences between the different regions (with the MS in the North-East Atlantic having the most coherent and in the **Black Sea** the least coherent approach). Some MS formulated GES definitions with a seemingly high qualitative ambition which is more aspirational than tangible.

In summary, the level of ambition often does not go beyond existing commitments and obligations for many aspects of GES, which would mean there would be little improvement in the quality of our oceans through implementation of the MSFD. In particular:

- a. many GES characteristics have not been set in a measurable and enforceable way, sometimes not going beyond what Annex I and the GES Decision already described; in some cases there seems to be a confusion between definition of GES and the setting of targets;
- b. there is a large diversity in understanding and approaches between Member States; the interpretation and application of the provisions of Article 9 are very different;
- c. Member States are not building adequately upon other EU legislation and have adopted a “pick-and-choose” approach from the work undertaken (and agreed) in the Regional Sea Conventions to which they are Parties.

Some of these deficiencies can be explained by the limited time available for the conceptual development and practical application of GES determinations. In the meantime, for example some additional common indicators have been developed within the RSCs in recognition of the above deficiencies. Furthermore, there are a number of actions (see Recommendations below) that can be taken to rectify these shortcomings without compromising the MSFD objectives to be achieved by 2020.

In addition to these mid- and long-term actions, Member States should already use the feedback from the Commission and the most recent developments in the Regional Sea Conventions, to which they are Parties, by basing their monitoring programmes and the programme of measures on an improved set of GES definitions in order not to lose six years (i.e. await reporting in 2018) and to make progress towards the goal of having GES in 2020. In such cases, Member States should inform the Commission.

Proposed actions:

The Commission report sets out a number of recommendations to improve adequacy and coherence of GES. These recommendations can be implemented through the following actions at EU, regional and national level.

At the **EU level**, the Commission services and Member States should collaborate to:

- a. revise and strengthen the GES Decision 2010/477/EU by 2015, aiming at a clear, simple, concise, coherent and comparable set of GES criteria and methodological standards, as well as ensure that existing criteria set out in relevant EU legislation are clarified and, where appropriate, incorporating rules or guidance for monitoring and assessment;
- b. further develop a common understanding on the obligations of Article 9 and on the assessment approaches, including assessment methods and scales, and aggregation rules;
- c. ensure an adequate and coherent approach on GES setting to allow for a pan-European assessment of whether the marine ecosystems are in good status or not (and clearly differentiating these GES determinations from the setting of environmental targets).

At the **regional level**, the Commission services and the Member States in that region should also collaborate, as appropriate, with other Contracting Parties in the context of the Regional Sea Conventions, to:

- a. further develop region- and ecosystem-specific criteria for GES (or related targets and indicators) which are compatible with the MSFD, in particular for those descriptors or parameters where no EU legislation exists;
- b. stimulate further coordination at regional or sub-regional level between EU MS in the region;
- c. ensure that the results of the regional work benefit from the progress made at EU level and are systematically used in national implementation process;
- d. systematically identify the gaps in knowledge that prevent a more ambitious, risk-based setting of GES and collaborate to close these gaps, whilst applying the precautionary principle in the meantime.

At the **national level**, Member States should:

- a. consider the Member State-specific recommendations of this report and address them when preparing the next steps in the implementation (namely the programmes on monitoring and on measures);
- b. systematically use existing EU standards as minimum requirements and, where they do not exist, region-specific common indicators developed by the Regional Sea Conventions to which they are a Party.

10.3. Initial Assessment (Article 8)

Once good environmental status (GES) has been defined, the initial assessment is an important starting point for the MSFD. Amongst other aspects, it assesses how far the current state of the environment is from GES. Any further decision and action, whether it is the

setting of environmental targets (Article 10), the establishment of a monitoring programme (Article 11) or the design of necessary measures (Article 13), must be based on the evidence gathered and presented in the initial assessment. In addition, exemptions (Article 14) can only be applied correctly if the necessary justifications are underpinned by the results of the initial assessment. At the same time, the initial assessment is also one of the most challenging and advanced parts of the MSFD, because it is comprehensive, holistic and integrates environmental and economic aspects including, for the first time, pressures and impacts (such as those related to marine litter and underwater noise) where little knowledge and data were available in advance of their inclusion in the MSFD. It was therefore recognised from the outset that significant data gaps would be observed and that it would be important to identify, in such cases, a clear strategy and timetable on how to close such gaps.

In summary, the initial assessment compiled a wealth of available evidence relevant for marine protection. Efforts by Member States have been significant and show the potential that such assessments have for ensuring sound management of marine resources. Having said that, in most Member States the initial assessment consisted of an incomplete patchwork of information which relied heavily upon previously existing assessments. Compared to the ambitious intentions in Article 8 of the MSFD, the results were disappointing, in particular because:

- a. almost no Member State established a “baseline” and “distance to target”; in other words, the current levels of environmental status were not adequately quantified against fully-defined levels of GES; very limited new data and assessments were made and the existing ones, including from the Regional Sea Conventions, were not always used systematically and were often not (yet) fully aligned to serve the purposes of the MSFD adequately;
- b. the methodologies applied for the assessments were not coherent nor comparable;
- c. the socio-economic analysis showed many gaps in the availability of information.

Within the available time for this assessment, however, the Commission focused on more formal aspects related to the initial assessment undertaken by the Member States. In parallel, the European Environment Agency has started to prepare an EU baseline report on the state of the marine environment at the start of the MSFD implementation, using the assessments reported by the Member States. In addition, the Joint Research Centre of the Commission is analysing the approaches and methodologies used by the Member States in more detail, comparing them to the latest scientific evidence. The results of their in-depth work will be published in 2014.

Proposed actions:

The Commission report sets out a number of recommendations to improve adequacy and coherence of the initial assessment. These recommendations can be implemented through the following actions at EU, regional and national level.

At the **EU level**, the Commission services and Member States should collaborate to:

- a. review and, if necessary, amend Annex III of the MSFD to clearly define the elements of future assessments and prepare specific guidance to ensure a more

coherent and consistent approach for future initial assessments;

- b. develop a modern and effective data and information sharing system (implementing Article 19(3) as a minimum) between the EU, regional and national levels (“WISE-Marine”);
- c. make effective use of assessments done for other legislation;
- d. develop harmonised methods for assessing the distance from the present state to GES;
- e. use the opportunity of designing the Programme of Measures to improve socio-economic assessments and data availability, especially by exchanging best practices.

At the **regional level**, the Commission services and the Member States in that region should also collaborate, as appropriate, with other Contracting Parties in the context of the Regional Sea Conventions, to:

- a. align the timetables and assessment methodologies of the regional assessments to, in addition to their other purposes, become even more useful for Member States as an input to their assessment under the MSFD (e.g. as a summary or “roof” report);
- b. jointly identify the gaps in knowledge and data and agree joint initiatives (e.g. through projects, research initiatives or data collection exercises) to close these gaps in time.

At the **national level**, Member States should:

- a. use the monitoring programmes to address the shortcomings and gaps identified in the initial assessment;
- b. make better and more extensive use of the work undertaken, in particular, by the Regional Sea Conventions but also by other international organisations (e.g. ICES) in their national MSFD reports.

10.4. Environmental targets (Article 10)

Environmental targets should be set so as to guide the progress towards GES (Article 9) and based on the results of the initial assessment (Article 8). There is a significant degree of flexibility for the Member States in how they set their targets, as set out in the characteristics of MSFD Annex IV. Having said this, the targets have to be consistent with the above-mentioned elements and sufficient to allow the achievement of GES.

Member States have been creative in setting a wide variety of targets, different in type and nature. There have also been large differences in understanding the role of targets in relation to GES; some Member States have implemented the targets as if they were interchangeable with a determination of GES, with many expressed as the desired state of the environment rather than what will be done to achieve such a state.

There are significant differences between the approaches used to set environmental targets for the different descriptors. However, in most cases the Member States' reports were not convincing in demonstrating that the targets will be sufficient to achieve GES. In particular, the targets generally do not focus sufficiently on the main pressures and their impacts that will need to be reduced in order to reach GES, or they do not specify precisely enough what will be done so that progress can be measured.

Proposed actions:

The Commission report sets out a number of recommendations to improve adequacy and coherence of the environmental targets. These recommendations can be implemented through the following actions at EU, regional and national level.

At the **EU level**, the Commission services and Member States should collaborate to:

- a. clarify the understanding of the role of environmental targets in the MSFD implementation, particularly in relation to the determination of GES (initial clarification is provided in Annex 4);
- b. exchange experiences and best practices between Member States in particular for those descriptors for which less knowledge is available.

At the **regional level**, the Commission services and the Member States in that region should collaborate, as appropriate, also with other Contracting Parties in the context of the Regional Sea Conventions, to:

- a. set regional environmental targets, where possible and appropriate;
- b. to exchange experiences and align approaches for setting targets within the region.

At the **national level**, Member States should:

- a. review their targets in the light of preparation of the monitoring and measures programmes to allow for a consistent approach between the different provisions.

10.5. Cross-cutting issues

The **regional cooperation** is well developed in all four regions, although to a different degree, and supporting the MSFD implementation to a different extent. It will, nevertheless, be important to improve the regional cooperation in all four regions, albeit in a differentiated and tailor-made way. This cooperation and the subsequent use of the results of this work will be an essential factor in leading to a successful implementation process. Therefore, the Commission services will work together with the Member States to strengthen the regional role in the MSFD implementation. As a first step, the new work programme for the Common Implementation Strategy, for 2014 and beyond, already foresees a stronger regional component.

This first implementation step also included important elements to clarify the **geographic scope** and areas for assessment and reporting within the marine waters. Member States were

invited to define their marine waters (as defined by Article 3(1)) and to identify sub-divisions in case they decided to make use of this instrument.

As regards defining marine waters, most of the issues have been reported and clarified. However, there are a number of outstanding questions which, in some cases, are also linked to questions which are still not fully settled in the context of the UN Convention on the Laws of the Seas (UNCLOS). There are still some questions as regards the boundaries of marine waters between EU Member States and in some cases with countries outside the EU. Furthermore, the extent of implementation on the continental shelf beyond EEZs requires further clarification for those concerned Member States.

The use of **sub-divisions** has only been reported by a few Member States, although many have sub-divided their marine waters for the purposes of assessment and reporting. A coherent framework for reporting across European marine waters needs to be established, developing a system which is of practical application for management needs (activities, pressures) and administrations as well as respecting the ecological characteristics of the marine ecosystems and its components for an ecosystem-based approach. Where possible a nested set of assessment units should be developed, enabling aggregation from sub-national through to regional scales and the linking of assessments of pressures and impacts to the assessments of ecosystem components. These areas should become the spatial framework for linking all subsequent reporting within WISE.

Another important aspect is the **link to other policies**. The MSFD is built on and relies upon the proper implementation of many other pieces of EU legislation, most importantly the Water Framework Directive, the Habitats and the Birds Directives and the legislation in the context of the Common Fisheries Policy. Most Member States have already recognised the role of these pieces of legislation but have made use and relied on them to a very different extent. In many cases, it is also not clear how these legislative provisions inter-relate, e.g. the role of the Water Framework provisions in coastal waters. These relationships will need to be further clarified and the minimum requirements introduced by these other pieces of legislation further specified and implemented accordingly. If possible, some of these aspects can be addressed as part of the revision of the Commission Decision. In addition, further efforts are needed to streamline and integrate implementation across the relevant policies, including in relation to policy objectives, assessment methods, monitoring, measures, governance and information systems. This integration should lead towards more effective policy implementation with less effort.

A consistent approach to the setting of GES boundaries, especially in relation to **background or reference levels**, is needed to ensure a common understanding of GES between Member States and avoidance of conflicts between the different descriptors. Practices already in place in the WFD, Habitats Directive and RSCs can provide a basis for this.

10.6. Preparation of monitoring programmes (Article 11) and programme of measures (Article 13)

Following this first step, the MSFD requires MS to establish and implement monitoring programmes by 15 July 2014 and to develop a programme of measures designed to achieve or maintain good environmental status by 2015 at the latest. Both steps should build upon the adequate and coherent implementation of Articles 8, 9 and 10. Given the short deadlines, MS have already started preparing for the implementation of Articles 11 and 13, presumably on

the basis of their national determinations of GES, initial assessment and targets as reported to the Commission. On the basis of the Commission's assessment here, it can already be anticipated that there is a risk that shortcomings in the current implementation will be carried forward into the next steps because they will be implemented on the basis of an inadequate foundation. However, there is also no possibility for Member States to delay implementation and extend the deadlines.

Therefore, a pragmatic approach will have to be applied to make the necessary improvements step-by-step, recognising that not all necessary adaptations will be possible within the first cycle.

The Commission services are ready to work with the Member States, mainly through the Common Implementation Strategy and the regional cooperation mechanisms, but also through other compliance promotion tools, to gradually overcome the deficiencies and ensure the proper application of the MSFD in 2018 at the latest. At the heart of this approach should be an EU, regional and national compliance improvement plan from 2014-2018 which is made publically available with interim milestones and which is updated regularly. This approach is inspired by the development of "Structured Information and Implementation Frameworks" which are new tools for compliance promotion introduced by the 7th Environment Action Programme³⁹ and the Implementation Communication (COM(2012) 95). The current development of regionally coordinated fact sheets for monitoring programmes by some Member States is another element for such an approach.

Proposed actions:

The Commission report sets out a number of recommendations to factor in the results of this assessment into the next stages of implementation and improve the situation step-by-step with the aim to ensure a proper set up of all the elements of the MSFD by 2018. These recommendations can be implemented through the following actions at EU, regional and national level.

At the **EU level**, the Commission services and Member States should collaborate to:

- a. ensure a step-by-step improvement of the implementation through the Common Implementation Strategy and the work programme agreed therein;
- b. find ways to use updated GES (Article 9) and environmental targets (Article 10), using the latest set of criteria developed through regional cooperation, where available, in the preparation of the monitoring programmes and the programme of measures;
- c. facilitate regional cooperation between EU Member States to improve the situation in the short term and provide an input to the respective Regional Sea Conventions' work which is compliant with the MSFD, in particular for the Mediterranean and the Black Sea.

At the **regional level**, the Commission services and the Member States in that region should also collaborate, as appropriate, with other Contracting Parties in the context of the

³⁹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:354:0171:0200:EN:PDF>

Regional Sea Conventions, to:

- a. review the work on the regional monitoring programmes;
- b. review the regional cooperation on measures in the light of this report.

At the **national level**, Member States should:

- a. update their national GES definitions, in a statutory manner, where possible, in the short term, as an updated reference point for the preparation of the monitoring programmes the programme of measures;
- b. identify gaps and provide justifications, where an update of GES and targets was not possible, together with an action plan, preferably coordinated at regional level, to rectify the shortcomings by 2018 at the latest.

10.7. Final remarks

The above-mentioned general conclusions and proposed actions complement the MS specific “guidance on modifications” (i.e. recommendations) that the Commission has provided in Appendix 2. The aim is to identify shortcomings and set out actions for EU level, regional level and national level follow-up which can still put the MSFD implementation on a successful path if implemented seriously, swiftly and in close cooperation. There is a responsibility for the Member States individually and in collaboration with each other in the region, ideally through the existing Regional Sea Conventions, to address these recommendations. Furthermore, the Commission services are aware of its responsibilities and roles, at EU and regional level, in making sure that these recommendations lead to the envisaged improvements.

Finally, there is a strong case to review the way of working together at EU, regional and national level in the light of the limited administrative capacities, budget constraints and reductions in resources at all levels. There are significant efficiency gains possible, e.g. by clarifying the different roles and responsibilities and better coordinating “who does what”. This requires reforms in the way of working at regional level as well as at EU level in the context of the Common Implementation Strategy. Furthermore, results of such work would need to be used more systematically by Member States because all too often, they have been disregarded.

However, practical considerations are not the only, or perhaps not even the most important reasons to promote closer working relationships at all levels; the underlying motivation is that marine pollution knows no borders and that several important threats to the environment can only be faced collectively.

To this end, some of the conclusions drawn for this exercise have already been translated into initiatives from the Commission, in particular:

- a. to develop, together with the Member States, a new work programme for the MSFD Common Implementation Strategy⁴⁰ for the years 2014-2018;

⁴⁰ See http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/index_en.htm

- b. to strengthen the role of the Regional Sea Conventions, e.g. to coordinate the work programmes and timetables and identify a differentiated and tailor-made approach for collaboration between the EU and regional level implementation efforts (which will be included in the above work programme);
- c. to improve efficiency of implementation support through ongoing or future projects by establishing a Project Coordination Group which also identifies the regional needs to deliver on the implementation;
- d. to make use of CIS Technical Groups for specific topics at EU level (such as for litter and noise) and develop an EU-wide technical and scientific support structure for Member States for the MSFD implementation through, for example, the future GES Competence Centre at the Joint Research Centre (JRC) and the development of WISE-Marine by the EEA. Both initiatives will be done in close collaboration with ICES, other EU bodies and international organisations which offer to participate in these efforts.

In addition, the Commission services will consult the results of its report with the Member States, Regional Sea Conventions, other international organisations, stakeholders, NGOs and the interested public to draw on their views when further developing its implementation and compliance promotion efforts.

In doing so, the Commission services will organise review meetings on the assessment with Member States per marine region or, individual Member States, in particular cases. Following these meetings, which will be scheduled during 2014, the Commission will decide whether additional compliance promotion actions will be needed.

APPENDIX 1: OVERVIEW OF CRITERIA USED FOR ASSESSING ADEQUACY PER DESCRIPTOR

Descriptor	Definition of Good Environmental Status (art. 9)	Initial Assessment (art. 8)	Environmental targets (art. 10)
1. Biological diversity	<p>GES is more than a reformulation of the MSFD (i.e. criteria/indicators are defined)</p> <p>GES covers the seven criteria of the Commission Decision (or if GES is defined at indicator level, they provide a more refined definition for each of the criteria)</p> <p>GES addresses at least species, habitats and the ecosystem as a whole</p> <p><u>Species (highly mobile groups)</u></p> <p>GES addresses at least birds, mammals, reptiles , fish, and cephalopods (where relevant)</p> <p>GES uses the concept of functional groups or an equivalent classification</p> <p>GES covers all (relevant) species even if some species are singled out (e.g. as indicators)</p> <p>GES addresses special/listed species (of Habitats and Birds Directives and relevant international agreements – e.g. RSC lists)</p> <p><u>Habitats</u></p> <p>GES addresses at least water column habitats and the main (relevant) zones for seabed habitats (intertidal, shallow, shelf, bathyal/abyssal)</p> <p>GES uses the concept of predominant habitats or an equivalent classification</p> <p>GES covers all (relevant) habitats even if some habitats are singled out (e.g. as indicators)</p> <p>GES addresses special/listed habitats (of Habitats and Birds Directives and relevant international agreements – e.g. RSC lists)</p>	<p><u>Pressures (physical loss and damage)</u></p> <p>The analysis covers all relevant types of physical loss/physical damage in the area</p> <p>The analysis covers all main causes (i.e. human activities) of physical loss/physical damage in the area</p> <p>The analysis covers the impacts of physical loss/damage on the relevant aspects of the marine environment (seabed habitats)</p> <p>The judgement on the level of the pressure (i.e. on the current environmental status) is adequate in the light of the information provided</p> <p>Data/knowledge gaps identified and plans to address them are described (what, by when)</p> <p><u>Biological features</u></p> <p>The assessment has identified the relevant predominant habitats/functional groups/species for the MS/marine region</p> <p>The assessment covers at least the major zones for seabed and water column (if relevant)</p> <p>The assessment covers at least the five major species groups (if relevant)</p> <p>The assessment covers at least those species and habitats which are covered under the relevant RSCs</p> <p>If the MS has used different predominant habitat and functional group types to those pre-defined, the categorisation used is equivalent/appropriate and covers the full range of biodiversity in the MS waters of the (sub-)region</p>	<p>The set of environmental targets/indicators addresses all the elements (e.g. criteria/indicators) of the GES definition or at least allows achieving GES for all criteria/indicators.</p> <p>Suitably specific indicators are provided for each target (unless the target is sufficiently specific that it does not need indicators)</p> <p>The set of targets/associated indicators is SMART (Specific; Measurable (with a threshold value or a baseline for trend-based indicators); Achievable; Realistic; Time-bound)</p> <p>Targets and associated indicators are consistent as a set</p> <p>Target sufficiently ambitious to reduce the pressure or impact (or improve status) to levels that will achieve GES</p> <p>Targets do not express what is GES</p>

Descriptor	Definition of Good Environmental Status (art. 9)	Initial Assessment (art. 8)	Environmental targets (art. 10)
	<p><u>Ecosystem</u> GES definition covers the whole ecosystem structure.</p> <p><u>Baselines</u> The baselines used are in the sense of ‘reference condition’, i.e. in relation to ‘prevailing physiographic, geographic and climatic (natural) conditions’ that are largely free from anthropogenic influences. The choice of the baseline is appropriate considering the knowledge available. A current or past degraded state can be used as a baseline only if the ambition is to improve quality towards a reference state (reference conditions). GES is based on the use of the ‘reference condition plus acceptable deviation’ principle for each of the criteria (sensu WFD). GES reflects, where appropriate, the definitions for Favourable Conservation Status under the Habitats Directive and for Good Ecological Status under the Water Framework Directive. GES refers to the relevant regional and international agreements (e.g. OSPAR, HELCOM, UNEP/MAP, BSC, ASCOBANS, ACCOBAMS) (Quantitative) threshold values are given for GES GES is sufficiently specific to judge when it has been achieved</p>	<p>The assessment of habitat types address both the abiotic (physical, hydrological, chemical) and biotic (community) aspects of each habitat</p> <p>The judgement on the features’ status is adequate in light of information provided i.e. it is defined at least in a qualitative manner, using specified criteria and indicators.</p> <p>The main pressures and impacts on the features are identified</p> <p>Where individual species or fine-scale habitats/biotopes are reported as surrogates for the functional groups and predominant habitat types:</p> <ul style="list-style-type: none"> • The species/biotopes collectively provide an overall assessment of status of each ‘minimum’ category species group/habitat type • The main pressures and impacts for the species group/habitat type are identified through the individual assessments <p>Where individual species are reported as ‘listed’ features:</p> <ul style="list-style-type: none"> • There is an assessment of their status • The main pressures and impacts are identified <p>Data/knowledge gaps identified and plans to address them are described (what, by when)</p>	
2. Non-indigenous species	<p>The definition of GES is more than a reformulation of the MSFD Annex I</p> <p>GES is defined at descriptor/criteria levels</p> <p>GES covers (directly/indirectly) criterion 2.1 / criterion 2.2</p> <p>The definition of GES meets the minimum requirements (no new introductions of NIS, and where possible, no further spreading of them)</p>	<p>The national list of NIS is consistent with the RSC and IAS list of NIS</p> <p>The analysis and assessment of the pressure from NIS is adequate in the light of available knowledge/ level of information/ established methods to assess this topic</p> <p>This includes:</p> <ul style="list-style-type: none"> • coverage of relevant NIS, • identifying knowledge gaps together with plans to 	<p>The environmental target is SMART</p> <p>Suitably specific indicators are provided for each target</p> <p>The target is sufficiently ambitious to reduce the pressure or impact to levels that will achieve GES (if possible by 2020)</p> <p>The target(s) and indicators regarding the spread of NIS cover all the main sources of new introductions (e.g. ballast water, ship hulls, aquaculture & Suez Canal)</p>

Descriptor	Definition of Good Environmental Status (art. 9)	Initial Assessment (art. 8)	Environmental targets (art. 10)
	<p>If further development is needed, there is a clear indication of plans (what, by when)</p> <p>The GES definition is sufficiently precise</p>	<p>address them,</p> <ul style="list-style-type: none"> • identification of main vectors/ pathways, preferably with a ranking, • relevant impacts on (seabed/water column) habitats are described (at least qualitative assessment of impacts), • level of pressure is assessed. <p>Judgement on the level of pressure in relation to GES is provided and adequate in light of the information provided</p> <p>Data/knowledge gaps are identified and plans to address them are described (what, by when)</p>	<p>The targets and associated indicators are consistent as a set (i.e. absence of conflict)</p> <p>Targets do not express what is GES</p>
3. Commercial fish and shellfish	<p>All stocks for which analytical assessments are available will be exploited at or below Fmsy</p> <p>Secondary indicator does not have to be used but is adequate when it will be set using a proxy for MSY or is stable and or decreasing</p> <p>All stocks have a SSB which is equal to or above SSBpa, BMSY-trigger or SSBmsy</p> <p>Secondary indicator does not have to be used but is adequate when it will be set using a proxy of a Pa, MSY or the indicator is stable and/or increasing</p> <p>Criterion 3.3 has been used in the GES definition (with or without the indicators of the Commission Decision).</p>	<p>Stocks are assessed in relation to MSY and/or PA reference points for all relevant (sub)regions</p> <p>Information has been provided on the fishing fleet</p> <p>Both fish and shellfish stocks in all relevant (sub)regions are assessed</p> <p>Judgement on the level of pressure and/or on status of commercial fish and shellfish stocks in relation to GES is provided and adequate in light of the information provided</p> <p>Data/knowledge gaps are identified and plans to address them are described (what, by when)</p>	<p>Targets clearly require all stocks (with analytical assessments) to be exploited at or below Fmsy</p> <p>Targets clearly require all stocks (with analytical assessments) to have a SSB that is at or above SSBpa, BMSY-trigger or Bmsy</p> <p>Relevant targets at least for the previously mentioned criteria are SMART.</p>
4. Food webs	<p>GES is more than a reformulation of the MSFD Annex I</p> <p>GES meets the minimum requirements:</p> <ul style="list-style-type: none"> • uses all the criteria set in the COM Decision or if GES is defined at indicator level, they provide a more refined definition for each of the criteria. • The definition of GES covers all main food web components for the marine (sub-) region/Member State (i.e. components from plankton and benthos through to higher trophic levels) • The species that are selected as indicators of changes 	As above (descriptor 1)	As above (descriptor 1)

Descriptor	Definition of Good Environmental Status (art. 9)	Initial Assessment (art. 8)	Environmental targets (art. 10)
	<p>in the food web are considered appropriate</p> <p>The choice of the baseline is appropriate considering the knowledge available. A current or past degraded state can be used as a baseline only if the ambition is to improve quality towards a reference state (reference conditions).</p> <p>The baselines used are in the sense of ‘reference condition’, i.e. in relation to ‘prevailing physiographic, geographic and climatic (natural) conditions’ that are largely free from anthropogenic influences.</p> <p>The determination of GES is based on the use of the ‘reference condition plus acceptable deviation’ principle for each of the criteria (sensu WFD).</p> <p>Where a current or past state is used as a baseline and represents a degraded state, there is ambition to improve quality towards a reference state above a GES threshold value.</p>		
5. Eutrophication	<p>GES is not a copy or simple reformulation of the MSFD Annex I.</p> <p>GES meets the minimum requirements:</p> <ul style="list-style-type: none"> • Criterion 5.1 - nutrient levels • Criterion 5.2 - direct effects • Criterion 5.3 - indirect effects <p>GES uses most of the indicators of COM Decision 2010/477</p> <p>GES is the same or comparable to the appropriate WFD normative definitions of ecological status classifications for coastal waters.</p> <p>Reference is made to the relevant Regional Sea Convention</p> <p>GES provides details about specific concentrations/ threshold values/ baselines.</p> <p>GES is sufficiently specific to determine when GES has</p>	<p>The assessment covers all relevant nutrients (even if descriptive): Nitrogen and Phosphorus.</p> <p>The assessment covers organic matter (even if descriptive)</p> <p>The assessment covers input loads (nutrients and/or organic matter)</p> <p>The assessment covers concentrations in the environment (nutrients and/or organic matter)</p> <p>The assessment covers the main causes of the pressure</p> <p>The assessment covers most relevant impacts</p> <p>The judgement/trends on the level of the pressure (e.g. in good status) is adequate in light of information provided</p> <p>The judgement/trends on the level of the impact of the pressure (e.g. in good status) is adequate in light of information provided</p> <p>Reference is made to WFD (monitoring results, reports,</p>	<p>The set of targets address state/impacts rather than pressures</p> <p>The set of targets/ associated indicators is SMART</p> <p>The targets are linked to the appropriate WFD normative definitions of ecological status classifications for coastal waters</p> <p>Reference is made to the relevant Regional Sea Convention</p> <p>The set of targets is considered consistent</p> <p>Targets do not express GES</p>

Descriptor	Definition of Good Environmental Status (art. 9)	Initial Assessment (art. 8)	Environmental targets (art. 10)
	<p>been achieved</p> <p>Aggregation rules are mentioned</p>	<p>etc.)</p> <p>Reference is made to the relevant Regional Sea Convention</p> <p>Data/knowledge gaps are identified and plans to address them are described (what, by when)</p>	
6. Sea-floor integrity	<p>GES is more than a reformulation of the MSFD Annex I text.</p> <p>GES meets the minimum requirements:</p> <ul style="list-style-type: none"> • GES uses all the criteria set out in the COM Decision or if GES is defined at indicator level, they provide a more refined definition for each of the criteria. • GES covers all relevant biogenic substrates for this marine region/member state • GES covers all relevant substrate types, following the typology of predominant habitat types as used for habitats for Descriptor 1. <p>The choice of the baseline is appropriate considering the knowledge available. A current or past degraded state can be used as a baseline only if the ambition is to improve quality towards a reference state (reference conditions).</p> <p>The baselines used are in the sense of ‘reference condition’, i.e. in relation to ‘prevailing physiographic, geographic and climatic (natural) conditions’ that are largely free from anthropogenic influences.</p> <p>The determination of GES is based on the use of the ‘reference condition plus acceptable deviation’ principle for each of the criteria (sensu WFD).</p> <p>Where a current or past state is used as a baseline and represents a degraded state, there is ambition to improve quality towards a reference state above a GES threshold value</p>	As above (descriptor 1)	As above (descriptor 1)
7. Hydrographical changes	<p>GES is more than a reformulation of the MSFD Annex I.</p> <p>GES meets the minimum requirements:</p>	The assessment covers most pressures and most relevant impacts	<p>The set of targets addresses pressures</p> <p>The set of targets addresses impacts (in relation to D1,</p>

Descriptor	Definition of Good Environmental Status (art. 9)	Initial Assessment (art. 8)	Environmental targets (art. 10)
	<ul style="list-style-type: none"> • Criterion 7.1 – spatial characterization • Criterion 7.2 - Impact <p>GES uses the indicators of COM Decision 2010/477:</p> <ul style="list-style-type: none"> • Indicator 7.1.1 – Extent of area affected • Indicator 7.2.1 – Spatial extent of habitats • Indicator 7.2.2 – Changes in habitats and functions <p>GES is the same or comparable to the appropriate WFD normative definitions of ecological status classifications for coastal waters.</p> <p>There is reference to the relevant Regional Sea Convention</p> <p>Reference is made to other regulatory tools (e.g. EIA, SEA, Habitats Directive)</p> <p>GES provides details about specific threshold values/baselines.</p> <p>GES is sufficiently specific to determine when GES has been achieved</p>	<p>The assessment covers the main causes of the pressures</p> <p>The judgement/trends on the level of the pressure (e.g. in good status) is adequate in light of information provided</p> <p>The judgement/trends on the impact of the pressure (e.g. in good status) is adequate in light of information provided</p> <p>Reference is made to WFD reports</p> <p>Reference is made to the relevant Regional Sea Convention</p> <p>The assessment covers marine acidification</p> <p>Data/knowledge gaps are identified and plans to address them are described (what, by when)</p>	<p>D4 and D6)</p> <p>The set of targets/ associated indicators is SMART</p> <p>The targets are linked to the appropriate WFD normative definitions of ecological status classifications for coastal waters</p> <p>Reference is made to other regulatory tools (e.g. EIA, SEA, Habitats Directive)</p> <p>Reference is made to the relevant Regional Sea Convention</p> <p>The set of targets is considered consistent</p> <p>Targets do not express GES and are focused on reducing pressures and impacts in order to help achieve GES</p>
8. Contaminants	<p>GES is more than a reformulation of the MSFD Annex I</p> <p>GES covers the two criteria: concentration and effects of contaminants</p> <p>The criterion on concentration of contaminant refers to the three relevant matrices (water, biota and sediment)</p> <p>The criterion on concentration of contaminants refers to the EQS Directive, i.e. the standards used are at least those of the EQS Directive in water and for the three substances for which an EQS exist in biota (Hg, HCB and HCBd) OR</p> <p>Reference is made to make use of Article 3 of the proposal 2011/0429 (COD) for a Directive amending Directives 2000/60/EC and 2008/105/EC 'establish a method that offers at least the same level of protection as the EQS provided for in that annex'</p> <p>If EQS are not used, the justification for using other</p>	<p>The assessment covers all relevant sources of contaminants (i.e. land-, sea- and air-based)</p> <p>The assessment covers all relevant substances (man-made substances, with specification of which substances are assessed, heavy metals (at least Hg, Cd, Pb), radioactive substances (at least C-137), oil and oil products)</p> <p>The assessment includes at least quantitative trends (i.e. concentrations of contaminants are decreasing/increasing) and/or input loads of contaminants into the environment</p> <p>Frequency and origin of acute pollution events are quantitatively described (i.e. at least number of accidents/incidents over a certain period of time or quantity of oil/oil-products input to the water)</p> <p>The assessment covers all relevant impacts of</p>	<p>The set of environmental targets/indicators addresses all the elements (e.g. criteria/indicators) of the GES definition or at least allows achieving GES for all criteria/indicators – for contaminants that means covering at least 8.1 and 8.2 if this is covered in GES definition</p> <p>Suitably specific indicators are provided for each target (unless the target is already sufficiently specific)</p> <p>The set of targets/associated indicators is SMART</p> <p>Target are sufficiently targeted towards reducing levels of a specified pressure or impact, or controlling human activities, which are preventing GES from being achieved</p> <p>Targets are sufficiently ambitious to reduce the pressure or impact to levels that will achieve GES (if possible by 2020)</p>

Descriptor	Definition of Good Environmental Status (art. 9)	Initial Assessment (art. 8)	Environmental targets (art. 10)
	<p>relevant standards (e.g. the OSPAR EACs) is provided and sufficient</p> <p>The substances covered by the GES definition are specified OR a specific reference to a defined standard makes it understandable which substances are covered.</p> <p>Aggregation rules are provided or the “all in, all out” rule applies.</p> <p>The criterion on effects of contaminants refers to specific biological effects on ecosystem components (e.g. imposex) or at least to internationally-recognized guidelines for the monitoring of such biological effects (e.g. OSPAR JAMP/ICES)</p> <p>If reference is not made to an internationally-recognized standard, parameters and baselines should be specified for GES to be measurable</p> <p>The criterion on effects of contaminants addresses acute pollution events from both an effect perspective (e.g. effect of oil and oil products on birds) and from a pressure perspective (frequency/origins of acute pollution events)</p> <p>For the frequency/ occurrence of events, the GES is at least trend-based (i.e. number of events should be reducing) and a baseline is defined</p>	<p>contaminants (at least on seabed habitats and on functional groups – on functional groups, referring to at least one specific biological effect – e.g. imposex)</p> <p>A judgement is made using relevant standards (e.g. EQS) at a relatively aggregated level (i.e. for levels of concentrations in the environment (not by substances) and for impacts on seabed habitats/functional groups.</p> <p>Data/knowledge gaps are identified and plans to address them are described (what, by when)</p>	<p>Targets and associated indicators defined for Descriptor 8 are consistent as a set</p> <p>Targets do not express what is GES</p>
9. Contaminants in seafood	<p>GES is at least the MSFD Annex I definition including compliance with Regulation 1881/2006</p> <p>The definition of GES covers entirely the criterion of the Commission Decision on levels, number and frequency of contaminants</p> <p>The GES definition provides information about the species and substances used to measure achievement of GES.</p> <p>The GES definition should cover at least all the substances included in Regulation 1881/2006 for which concentrations have been set in fish/shellfish</p> <p>No particular minimum requirement with regard to</p>	<p>The assessment covers all relevant sources of contaminants (i.e. land-, sea- and air-based) (possible through D8)</p> <p>The assessment covers all relevant substances (man-made substances, with specification of which substances are assessed, heavy metals (at least Hg, Cd, Pb)</p> <p>The assessment gives details of the fish and shellfish species considered in the assessment</p> <p>The assessment makes it clear where the fish and seafood samples used come from</p> <p>The assessment includes at least quantitative trends (i.e. concentrations of contaminants in fish and seafood are</p>	<p>The set of environmental targets/associated indicators is sufficiently specific to enable its measurement, and assessment of progress towards achieving the target. The set should be assessed together and is SMART.</p> <p>The set of environmental targets/indicators addresses all the elements (e.g. criteria/indicators) of the GES definition or at least allows to achieve GES for all criteria/indicators</p> <p>Suitably specific indicators provided for each target (unless the target is sufficiently specific that it does not need indicators)</p> <p>Targets are sufficiently targeted towards reducing levels</p>

Descriptor	Definition of Good Environmental Status (art. 9)	Initial Assessment (art. 8)	Environmental targets (art. 10)
	<p>indicator 9.1.2 on frequency of regulatory levels</p> <p>The GES definition does not cover aquaculture products</p> <p>The definition of GES and/or accompanying text make it clear that the GES applies to seafood coming from the relevant (sub)regions</p>	<p>decreasing/increasing) and/or actual concentrations are provided</p> <p>A judgement is made using relevant standards (i.e. EU foodstuff limits / possible alternative: OSPAR EAC in fish and mussels) at a relatively aggregated level</p> <p>Data/knowledge gaps are identified and plans to address them are described (what, by when)</p>	<p>of a specified pressure or impact, or controlling human activities, which are preventing GES from being achieved</p> <p>Targets are sufficiently ambitious to reduce the pressure or impact to levels that will achieve GES (if possible by 2020) – this may be directly (i.e. through pressure targets) or indirectly (i.e. through impacts/state targets which imply that pressures should be reduced in order to be achieved)</p> <p>Targets and associated indicators defined for Descriptor 9 consistent as a set</p>
10. Marine litter	<p>The definition of GES is not a copy or simple reformulation of the MSFD Annex I</p> <p>The GES definition uses the same criteria/indicators as those set in COM Decision 2010/477.</p> <p>If the GES definition uses other criteria/indicators, they are equivalent to those of the COM Decision or cover additional relevant elements</p> <p>The definition of GES and/or the accompanying text provides details about specific types of litter/ threshold values/ baselines</p> <p>This additional information is relevant considering availability of knowledge/established methods.</p> <p>The definition of GES is sufficiently detailed/specific to enable its assessment in the different matrices (shore, water column/surface, seabed)</p>	<p>The assessment covers all relevant types</p> <p>The assessment covers all relevant forms of litter</p> <p>The assessment covers the sources of marine litter</p> <p>The assessment covers all the relevant habitats (at least seabed and water column)</p> <p>The assessment covers the impacts of marine litter on marine life</p> <p>The assessment covers all relevant geographical areas</p> <p>When provided, the judgement on the level of, and impact from, the pressure (e.g. in good status) is adequate in light of information provided</p> <p>Data/knowledge gaps are identified and plans to address them are described (what, by when)</p>	<p>The set of environmental targets/associated indicators is sufficiently specific to enable its measurement, and assessment of progress towards achieving the target. The set of targets and associated indicators should be assessed together and is SMART</p> <p>The set of environmental targets/indicators addresses all the elements (e.g. criteria/indicators) of the GES definition or at least allows to achieve GES for all criteria/indicators</p> <p>Specific indicators provided for each target (unless the target is sufficiently specific that it does not need indicators)</p> <p>Targets are sufficiently targeted towards reducing levels of a specified pressure or impact, or controlling human activities, which are preventing GES from being achieved</p> <p>Targets are sufficiently ambitious to reduce the pressure or impact to levels that will achieve GES (if possible by 2020) – this may be directly (i.e. through pressure targets) or indirectly (i.e. through impacts/state targets which imply that pressures should be reduced in order to be achieved)</p> <p>Targets and associated indicators defined for Descriptor 10 form a consistent set</p>

Descriptor	Definition of Good Environmental Status (art. 9)	Initial Assessment (art. 8)	Environmental targets (art. 10)
11. Energy, including underwater noise	<p>The determination of GES is not a copy or simple reformulation of the MSFD Annex I</p> <p>The determination of GES addresses both Decision criteria</p> <p>The GES determination uses the indicators of COM Decision 2010/477.</p> <p>The GES determination is sufficiently specific to determine when GES has been achieved</p>	<p>The assessment covers both types of sound (criterion 11.1 and 11.2)</p> <p>The assessment covers the main causes of pressure</p> <p>The assessment covers most relevant impacts</p> <p>The judgement/trends on the level of the pressure (e.g. in good status) is adequate in light of information provided</p> <p>The judgement/trends on the impact of the pressure (e.g. in good status) is adequate in light of information provided</p> <p>Data/knowledge gaps are identified and plans to address them are described (what, by when)</p>	<p>The targets cover pressures or impacts or address monitoring</p> <p>The set of targets/associated indicators is SMART</p> <p>The set of targets is considered consistent</p> <p>Targets do not express what is GES</p>

APPENDIX 2: SUMMARY FINDINGS AND RECOMMENDATIONS FOR MEMBER STATES

This Appendix gives a summary per Member State of the findings in the country specific reports, made by the contractor on basis of the questionnaire per descriptor and the general questionnaire. It describes some general features, highlights per article strong and weak points, it addresses identified gaps in knowledge and information and plans to address them and concludes with recommendations.

Belgium

GENERAL ISSUES

Marine waters

Belgium is part of the North East Atlantic; the outer limit of the coverage is defined by the international boundaries of the Belgian Continental Shelf. The area covers 0,5% of the North Sea and borders the waters of three neighbouring countries.

Areas assessed

The assessment area is the Belgian marine waters as a whole. No specific further sub-division of assessment areas has been defined. There is no indication on aggregation rules.

Regional Cooperation

Belgium is a party to OSPAR; efforts for regional and bilateral coordination are extensively described. Belgium has used the OSPAR 2010 Quality Status Report as a reference in its assessment report. Belgium underlines that the timelines and ambitious requirements of the MSFD prevented the coordination on GES and setting of targets.

Other features

Belgium has used the water account approach for its economic and social analysis. The cost of degradation is based on an analysis of current expenditure for environmental protection measures, abatement and transaction costs as well as opportunity costs. The socio-economic analysis did not result in a clear outcome for the assessment of degradation and restoration costs.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

All the descriptors under the MSFD are covered.

Relevant international or EU legislation and OSPAR decisions have been acknowledged. GES is not a mere reproduction of the directive's definition and often refers to EU and regional standards and requirements.

Weak points

GES is for most of the descriptors defined at descriptor and (partly) criterion level, but not at indicator level. Only for descriptor 3 are definitions at indicator level included. However, for its definition at criteria level, Belgium has chosen to combine or group different elements which relate to several criteria and/or indicators which makes it difficult to assess if all elements are addressed.

For descriptor 5 GES is only defined at descriptor level and for descriptor 2 at descriptor level, close to the definition of MSFD Annex 1 and one criterion. Also GES definitions on criteria lack specification which make it difficult to assess achievement of GES.

Overall score

GES definitions for descriptor 10 is considered inadequate because definitions relate mainly to the descriptor level and do not allow an assessment for GES.

GES definitions for the other descriptors are considered to be partially adequate. Given definitions are mostly clear but lack specific detail in relation to baseline references that would allow proper GES assessments or lack alignment with the GES Commission Decision or OSPAR common procedure.

INITIAL ASSESSMENT (ART. 8)

Strong points

The assessment for most of the descriptors is based on an appropriate range of parameters and covers relevant geographical areas.

Weak points

For some descriptors not all relevant pressures and related impacts are described and assessed in a similar manner. Impacts are only partially assessed and for one descriptor (Descriptor 9) no clear assessment has been undertaken at all. The information provided lacks in many cases adequate quantitative detail and information on pressures is not always reflected in the assessment of biological features itself. No or little indication is given on how identified knowledge gaps for appropriate assessment will be filled.

Overall score

The assessment is considered adequate for marine litter (Descriptor 10). The initial assessment is considered inadequate for descriptor 9 (very limited assessment and inconsistent/ contradictory between reporting sheet and paper report) and descriptor 11 (for which only possible sources are listed). For the other descriptors the assessment is considered partially adequate as an assessment of the impacts is partly missing or missing.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

Several targets, particularly the ones relating to biodiversity, descriptors 7 and 8 are SMART and well-focused on relevant pressures.

Weak points

The biodiversity targets do not cover all criteria. The target for descriptor 2 (no new NIS) is not considered SMART and does not cover main pathways. Targets for descriptor 3 are not consistent. Targets for descriptor 5 do not address all criteria. For descriptor 9, not all relevant aspects of the Commission Decision are considered. For Descriptor 10, targets seem more to relate to impacts than pressures despite the statement on the reduction of the amount of litter in the GES definition.

Overall score

Targets are considered adequate for the biodiversity descriptors (Descriptor 1, 6) and for descriptors 7 and 8.

They are considered partially adequate for descriptors 4, 5 (not all criteria used), 9 (a copy of GES), 10 (no threshold defined) and 11 (unclear how this would be applied in a wider area).

Targets are considered inadequate for descriptors 2 and 3 since they are not SMART or consistent.

CONSISTENCY

The approach used by Belgium for defining GES and setting targets for all descriptors is overall consistent. Not all impacts are addressed in the initial assessment and in addition, for the biological descriptors, the use of combined criteria makes a direct link between GES and targets with the initial assessment difficult.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

In its initial assessment, Belgium provides very little detail about knowledge gaps (in both the reporting sheets and the paper report) or about future plans to address any gaps.

In the introduction to its report on GES and targets, Belgium acknowledges that the determination of GES and the setting of targets for this first reporting cycle have relied mainly

on existing assessments and methodologies and that gaps identified during this first reporting cycle will be addressed in the next reporting cycles. No specifications are given on how exactly these gaps will be addressed.

RECOMMENDATIONS

Belgium should:

- a. Strengthen and coordinate methodology for the socio-economic analysis allowing assessment of the degradation/restoration costs and MSFD implementation costs/benefit analysis;
- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible, focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- c. Identify knowledge and information gaps and address these, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- d. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results in 2018;
- e. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious to achieve the requirements and timelines of the MSFD.

Bulgaria

GENERAL ISSUES

Bulgaria reported very late which allowed the Commission services only to assess the Bulgarian implementation of Article 9 and 10. The evaluation of Bulgaria's implementation of Article 8 will be completed at a later stage.

Marine waters

The scope of the Bulgarian marine waters covers the exclusive economic zone (EEZ) of the Republic of Bulgaria, the territorial sea and the shallow coastal waters, up to the outer limit of transitional waters.

Areas assessed

Bulgaria has defined the following formal assessment areas for the pelagic zone: coastal (0-30 m below sea level, BSL), shelf (30-200 m BSL) and open sea (>200 m BSL), based on satellite-derived chlorophyll-a concentrations and review of the existing data/literature, showing correspondence with the previous zonation based on anthropogenic pressure, sea currents, productivity and bathymetry.

The benthic zone is divided into 10 assessment areas based on the substrate characteristics and associated communities.

Regional cooperation

Bulgaria reports that bilateral cooperation has taken place with Romania, Turkey and other Black Sea countries through bilateral agreements and policy initiatives, using the mechanisms of the Bucharest Convention. It also mentions the inconsistencies between Bulgaria and Romania in the methodological approaches for assessing the ecological status of the Black Sea waters and insufficient cooperation with Turkey.

Bulgaria underlines the regional dimension of the marine/coastal environment challenges and often refers to Bucharest Convention documents when defining GES and targets.

Other features

Bulgaria reported very late which is why its initial assessment including the socio-economic analysis could not be taken into account.

It invokes MSFD Article 14(1)(b) (exceptions for natural causes) to exclude the deep sea slope and abyssal plain from GES determination because of anaerobic conditions and presence of toxic hydrogen sulphide gas at a depth of 150-200m.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

The division of Bulgaria's marine waters into three groups should enable greater precision in defining environmental status. However, it will need to be aligned with the definition of the WFD coastal waters to ensure consistency.

There is a partially good GES definition for Descriptors 1, 3, 5 and 7.

Weak points

Bulgaria has not defined GES for Descriptors 4, 9, 10 and 11.

There is a lack of clarity in the distinction between GES and targets (e.g. for Descriptor 2, 9).

There is a low level of precision and ambition for Descriptor 8; it is doubtful whether all available data (referred to in the assessment) has been used.

Overall score

Partially adequate are Descriptors 1, 2, 3, 5 and 7 but inadequate or absent GES definitions for the other descriptors.

INITIAL ASSESSMENT (ART. 8)

The initial assessment by Bulgaria has not been assessed due to late reporting.

A fairly detailed socio-economic analysis of the marine water uses is provided, but it suffers from an information deficit on key economic indicators and environmental impact.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

Bulgaria defines assessment areas and attribution of specific threshold values for each assessment area for certain descriptors (e.g. Descriptor 5).

It has made effort to define specific and quantified targets for Descriptors 1, 3, 5 and 6.

It has more than 70 targets and three to four times more indicators to cover Descriptors 1 and 6. The targets and indicators are very specific and defined with quantitative threshold values.

Weak points

Targets are not defined for Descriptors 4, 10 and 11.

There is a surprisingly low level of precision and ambition for Descriptor 8.

Overall score

Descriptors 1 and 5 are adequate and descriptors Descriptors 3 and 6 are partially adequate. Targets for the other descriptors are inadequate or missing.

CONSISTENCY

It is sometimes difficult to judge consistency due to differences between the reporting sheets and the paper report, resulting in uncertainty as to what exactly should be considered as GES or what is set as environmental target; consistency cannot be evaluated for the several descriptors for which GES or targets are missing.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

Data and knowledge gaps are highlighted throughout the report on Articles 9 and 10 for each descriptor. For certain descriptors for which data and knowledge gaps are very important (e.g. Descriptor 11), Bulgaria provides a number of high-level recommendations and plans to address these gaps. However it does not provide a timeline and specific steps to implement these recommendations.

RECOMMENDATIONS

Bulgaria should:

- a. Strengthen the GES definition of the biodiversity descriptors which goes beyond what is in existing legislation;
- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- c. Address knowledge gaps identified in the initial assessment, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- d. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD;
- e. Improve the consistency between the criteria used in GES, the assessment of the impact and the proposed targets.

Additional recommendations may be resulting from the assessment of Bulgaria's article 8 implementation, once completed.

Cyprus

GENERAL ISSUES

Marine waters

Cyprus' marine waters are part of the Aegean-Levantine Sea marine subregion. No formal subdivisions have been made.

The spatial delineation of Cyprus' marine waters is clearly identified, with maps showing the different marine areas and habitats of the general marine area, and further by a map showing the bathymetry and limits of the EEZ of Cyprus.

Areas assessed

Cyprus' initial assessment, characteristics of GES and associated targets and indicators have been developed for marine waters of Cyprus as a whole.

Regional cooperation

Cyprus is contracting party to the Barcelona Convention. In addition, Cyprus mentioned the Memorandum of Understanding on Environmental Protection and Sustainable Development signed on 29 September 2010 with the Ministry of Environment, Energy and Climate Change of Greece. The Memorandum includes a provision on the implementation of the MSFD. No coordination efforts have been reported.

Other features

The economic and social analysis of marine uses for Cyprus has been carried out using the water account approach, whereas a cost-based approach has been followed to evaluate the cost of degradation.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

Cyprus set GES for nearly all descriptors.

Weak points

GES is defined only at the descriptor level and generally merely reproduces the definitions set in Annex I of the Directive. No GES definition was provided for Descriptor 4.

There is no systematic use of the 2010 Commission Decision criteria and indicators when setting GES and there is a lack of clarity in what constitutes GES and what are the environmental targets and associated indicators.

In the reporting sheets and the paper report there is confusion between GES definition, initial assessment and environmental targets and indicators.

Overall score

Three GES definitions are considered as partially adequate (Descriptors 3, 7 and 9) since they were not completely clear.

The remaining descriptors (Descriptors 1, 2, 5, 6, 8, 10 and 11) are assessed as inadequate since the determination of GES is a reproduction of MSFD Annex I and does not meet the minimum requirements.

No GES definition was provided for Descriptor 4.

INITIAL ASSESSMENT (ART. 8)

Strong points

Cyprus attempts to quantify many elements of the initial assessment and uses expert judgement to draw conclusions to complement existing data. Cyprus has made a judgement on the status of the marine environment in relation to GES for Descriptors 2, 3, 5, 7, 8, 9. In order to make this judgement, Cyprus has defined specific 'weighted indicators' on the basis of the criteria and indicators of the Commission Decision, but the methodology used to calculate the status based on these indicators is not clear.

For the initial assessment, data and reports from UNEP-MAP⁴¹ were used in relation to biodiversity.

Weak points

The initial assessment is mainly descriptive and impacts from pressures are rarely reported on.

Overall score

Two initial assessments for some pressures/impacts are considered as adequate (Descriptors 5 and 6) thanks to a qualitative and quantitative judgment made in relation to GES on trends and the provision of information on knowledge gaps and plans to address them.

Five initial assessments for other pressures/impacts are considered as partially adequate (Descriptors 1, 2, 3, 4 and 8) mainly due to incompleteness, no clear judgments (on pressures and impacts) and lack of information on knowledge gaps and plans to address them. Also the assessment of microbial pathogen contamination is partially adequate.

The remaining four initial assessments (for Descriptors 7, 9, 10 and 11) are considered as inadequate mainly due to provision of limited information and their incompleteness.

⁴¹ The United Nation Environment Programme, Mediterranean Action Programme hosts the secretariat for the Barcelona Convention.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

Cyprus sets what it calls ‘quantitative targets’ (for Descriptors 1, 5, 6, 8 and 9) which are calculated on the basis of a set of so-called ‘indicators’, which are linked to some of the criteria and indicators of the Commission Decision.

Weak points

Cyprus has set environmental targets (state-based targets) only for a limited number of descriptors, namely Descriptors 1, 3, 5, 6, 8 and 9.

Environmental targets are defined in a vague and general way, often phrased as a GES definition. The associated ‘indicators’ are the same as those used for making a judgement on the current status in relation to GES.

The methodologies to assess current status and set quantitative targets are not clearly explained in the reported documents e.g. there is a lack of specification of what reference conditions are.

Overall score

Cyprus has not set targets for Descriptors 2, 4, 7, 10 and 11 due to lack of sufficient data.

Targets related to Descriptor 5 are partially adequate since they are specific and measurable, but it is not clear if they are achievable and realistic.

The targets of all the remaining descriptors (Descriptors 1, 3, 6, 8 and 9) are considered inadequate, mainly due to the fact that they are a reproduction of the GES definition.

CONSISTENCY

There is a lack of consistency in the approach undertaken to set GES and environmental targets across the different descriptors. In addition, these differences in approaches and formats make it very difficult to identify the exact definition of GES.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

Data and knowledge gaps are generally identified and described; for five descriptors environmental targets have not been set due to the lack of data.

Cyprus often describes necessary research and/or monitoring activities in broad terms without further specifications as to when, how and by whom they will be addressed.

RECOMMENDATIONS

Cyprus should:

- a. Strengthen the GES definition of the biodiversity descriptors which goes beyond what is in existing legislation;
- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- c. Address knowledge gaps identified in the initial assessment, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- d. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results for 2018;
- e. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD;
- f. Improve the consistency between the criteria used in GES, the assessment of the impact and the proposed targets.

Denmark

GENERAL ISSUES

Marine waters

The Danish marine waters cover two marine regions, the North East Atlantic and the Baltic Sea. Denmark clearly defines the extent of its marine waters and often informally differentiates three areas: the North Sea and Skagerrak, the Kattegat and the Baltic Sea.

Areas assessed

Denmark's assessment under Articles 8, 9 and 10 has been developed for the Danish waters as a whole, though in the initial assessment, information is provided for each of the individual subregions, as Denmark often informally differentiates three areas: the North Sea and Skagerrak, the Kattegat and the Baltic Sea.

Regional cooperation

Denmark is part of both OSPAR, in the North East Atlantic region, and HELCOM, in the Baltic Sea. Denmark notes it has not had the opportunity to make full use of regional cooperation in this reporting cycle due to timing differences between the implementation of the different Contracting Parties, though progress is expected to continue until 2018.

Other features

Denmark has undertaken an extensive economic and social analysis using the water accounts approach, and the DPSIR⁴² approach in a comprehensive manner, presenting results of impacts on the economy, employment and environment.

Some inconsistencies have been spotted between the reporting sheet and the paper report submitted by Denmark, when this was the case, this analysis has been made on the basis of the paper report, as stipulated by Denmark.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

The approach by Denmark is overall consistent in setting Good Environmental Status (GES) also across the two regions covered by Denmark's marine waters.

Weak points

GES is generally defined in a qualitative manner, avoiding reference to specific baselines, reference states or thresholds, which will make it impossible to assess if GES has been met or not. Apart from descriptors on biodiversity, underwater noise and eutrophication, GES is set at descriptor level only.

⁴² Driving forces, pressures, state, impacts and response.

In addition, insufficient reference is made to standards in existing EU legislation or in the relevant Regional Sea Conventions (with the exception of descriptor 5 on eutrophication, which usefully refers to the Water Framework Directive, WFD).

The GES definition of Descriptor 1, for example, appears very restrictive in its scope, gives no precise definition of qualitative terms used and makes little reference to existing baselines, within the WFD, the Habitats Directive or the Birds Directive.

Overall score

Overall, the approach used by Denmark to define GES is inadequate, especially due to the qualitative and imprecise description of GES, which will make it impossible to assess whether or not GES has been met. Descriptors 1 and 4 are partially adequate since the definition of GES addresses most of the indicators of the Commission Decision, but stays rather general with no specification of terms used, such as “maintained” and “safeguard”. Descriptor 10 is also partially adequate. It does not address the criteria of the Decision but it adds additional elements (socio-economic impact and invasive species).

INITIAL ASSESSMENT (ART. 8)

Strong points

The analysis of ongoing pressures on the environment is often clear and detailed (such as for the biodiversity descriptors), and the initial assessment on contaminants makes reference to existing standards both in EU (WFD Environmental Quality Standards for instance) and in Regional Sea Conventions (RSC).

Weak points

Similarly to the approach used to define GES, the initial assessment for Denmark is often too limited in its scope, and provided in a low level of detail, with the exception of the descriptor 5 on eutrophication, which includes both qualitative and quantitative information, covering all relevant sources of nutrients, and using WFD threshold values.

In particular, Descriptor 7 on hydrographical conditions is covered by very little information and makes no reference to the existing knowledge, such as for instance under OSPAR and HELCOM. This is also the case for Descriptor 10 on marine litter.

Overall score

The initial assessment is adequate for Descriptors 5, 6 and 8. It is inadequate for Descriptors 7 and 11 because the description is very sparse and there is no specific data. The other descriptors are partially adequate because of their low level of detail.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

The targets set for biodiversity-related indicators are overall SMART, with clear associated indicators.

Weak points

The targets set by Denmark, on the basis of their initial assessment and in order to reach GES often lack a timeframe and information on threshold values and baselines. As a result, they are often not operational, making it impossible to assess whether GES will be achievable through these targets. In addition, the set of targets does not always cover all relevant aspects of the marine features of the Danish waters (on biodiversity for example), or their scope is too limited (for instance, the targets on foodwebs do not reflect the health of the foodweb as a whole). For descriptor 5 on eutrophication the targets are precise and quantified but not time bound, leaving it open when GES will be achieved. No environmental targets have been set to address hydrological changes, without justification provided.

In terms of consistency, the GES, the initial assessment and the targets are not always complementary, and the choice for the allocation of targets to specific descriptors is not always clear. For marine litter for example, the GES definition makes a reference to the propagation of non-indigenous species (NIS), but no target is associated to this aspect of the GES.

Overall score

Overall, the targets set are partially adequate (for Descriptors 1, 4, 6, 5, 8, 9, 11) because they miss threshold values (Descriptor 1) or timing (Descriptor 5) or proper reference to EU legislation (Descriptor 8, 9) or certain aspects of the descriptor (Descriptors 4, 5, 11). The targets for Descriptors 2, 3 and 10 are inadequate as they are vague and not SMART.

CONSISTENCY

The approach followed by Denmark is overall consistent in terms of the approach used for the setting of GES across the two regions. For Descriptor 4 there is inconsistency between the dominant targets for top predators and the definition of GES. For Descriptor 9 the initial assessment is limited compared to the defined targets. For Descriptor 10, GES also refers to socio-economic aspects and NIS which are not reflected in the targets. Finally, GES for Descriptor 11 is generic and is not linked to all targets.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

Denmark often does not mention knowledge gaps, and when it does, does not set out detailed plans to address them, for instance referring to further work in RSCs but without further specifications as to when, how and whom.

RECOMMENDATIONS

Denmark should

- a. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- b. Address knowledge gaps identified in the initial assessment, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- c. Improve the consistency between the criteria used in GES, the assessment of the impact and the proposed targets.

Estonia

GENERAL ISSUES

Marine waters

Estonia's marine waters are located in the north-east of the Baltic Sea and are divided into three areas: the internal sea (between the shoreline and baseline of the territorial sea), the territorial sea (adjacent to the internal sea and extending from the baseline out to 12 nautical miles) and the Exclusive Economic Zone which accounts for almost 1/3 of the whole of Estonia's marine area.

Areas assessed

The assessment area is Estonian marine waters as a whole, with no specific assessment areas defined for MSFD in the way they are mentioned as having been done for Water Framework Directive (WFD).

Regional cooperation

Estonia is part of HELCOM but regional co-operation *per se* is not described in the paper report and the reporting sheet only mentions that written and oral communication in the form of meetings and telephone calls have taken place at the regional level.

Other features

Estonia has reported on its socio-economic analysis which assesses the multiple uses made of marine waters and includes an analysis of the costs of degradation, focusing on eutrophication, hazardous substances and invasive species. Estonia refers to the DPSIR⁴³ method and to the approach outlined in the guidance document developed by the EU Common Implementation Strategy.

The status of the paper report on "The indicators of good environmental status and the environmental targets of Estonian Marine waters" is uncertain as it has been developed by the Estonian Marine Institute as a proposal for the implementation of MSFD Articles 9 and 10 and does not appear to be a final version endorsed by the authorities.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

All the MSFD descriptors are covered. Regular reference is made to EU legislation, especially the Habitats Directive, to HELCOM for the development of its indicators and to ICES. The indicators for the condition of benthic communities in Descriptor 6 have clear thresholds and are, therefore, measurable.

⁴³ Driving forces, pressures, state, impacts and response.

Weak points

For Descriptor 1, GES definitions are provided for all criteria and most are quantified through threshold values but they are focused on only a few key species and habitats. The indicators provided for Descriptor 4 do not match directly with those of the Commission Decision and the baselines are only mainly described in a general manner.

The Descriptor 3 GES indicator does not require stocks of commercial fish and shellfish to be within safe biological limits. The scope of Descriptor 7 is very limited (only on changes in temperature and salinity). GES for Descriptors 10 and 11 is not defined.

Overall score

The GES definitions are *partially adequate* for Descriptors 1, 2, 5, 6, 8 and 9, but there are caveats relating to the coverage of habitats and species, the relationship with the Commission Decision and queries over the meaning of terms such as "significantly higher" where no context is provided. GES for several descriptors (Descriptors 3, 4) is considered to be *inadequate*. Descriptors 10 and 11 have not been defined.

INITIAL ASSESSMENT (ART. 8)

Strong points

Reference is made to HELCOM reports and WFD in relation to eutrophication (Descriptor 5), with trends identified and judgements made: the assessment covers all relevant nutrients and organic matter, although in generalised terms. Descriptor 2 has targeted information for each of the indicators, along with a documented judgement on the current status in relation to GES and the methodology to determine that status. The assessment for Descriptors 8 and 9 is concise and semi-quantitative.

Weak points

Much more information is needed on pressures concerning eutrophication, physical loss and physical damage and some key impacts including from nutrient enrichment, marine litter and in relation to stocks of commercial fish and shellfish. Data is acknowledged as being limited. Where information is available, the assessment is on a generic, high level and has generally not been combined to determine the actual status of features. Much of the information on Descriptor 11 refers to the whole Baltic Sea area rather than specifically to Estonian waters.

Overall score

The Initial Assessment for Descriptor 9 is considered adequate because it uses the HELCOM framework to make an extensive assessment of contamination by hazardous substances in fish for human consumption against regulatory levels.

All other descriptors are partially adequate (Descriptors 1, 2, 4, 8, 11) or inadequate (Descriptors 3, 6, 7, 10) due to very limited information describing situations, rather than analysing them, and no assessment of impacts in some cases.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

Estonia has set targets for all descriptors.

Weak points

Targets across the descriptors read as expressions of GES rather than specific targets to be met. They have not generally been used as a tool to help deliver GES and even where they have there is doubt that the targets and indicators will be sufficient to achieve or maintain GES by 2020.

Overall score

All assessments of environmental targets, with the exception of those for Descriptor 4 and 5, are viewed as inadequate because they are expressions of GES rather than specific targets.

CONSISTENCY

For each descriptor, Estonia has provided a methodology to determine the indicators of Good Environmental Status and the assessment methods to determine whether GES is achieved or not. However, the submissions consistently identify targets that read as if they are GES definitions rather than the indications of what needs to be done to reach GES. The indicators associated with the targets also correspond to Commission Decision criteria instead of relating to the targets themselves. Whilst this is another way to achieve a consistent approach, it will not deliver GES across the range of subjects.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

Data and knowledge gaps are mentioned in an ad-hoc manner in the paper report on the initial assessment. Information gaps are not discussed in a synthetic manner.

There are no plans presented about how such data gaps will be addressed.

RECOMMENDATIONS

Estonia should:

- a. Strengthen the GES definition of the biodiversity descriptors which goes beyond what is in existing legislation;
- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;

- c. Identify knowledge and information gaps and address these, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- d. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results for 2018;
- e. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD;

Finland

GENERAL ISSUES

Marine waters

Finland's marine waters fall within the Baltic Sea region. Their marine waters include coastal waters, as defined under the Water Framework Directive, territorial waters and an EEZ out to the median line with neighbouring states.

Areas assessed

For the purposes of reporting on MSFD Articles 9 and 10, Finland has defined GES and targets for its marine waters as a whole. For MSFD Article 8, Finland has used eight assessment areas which appear to equate to those used for the HELCOM regional assessments.

Regional cooperation

Finland is party to the Helsinki Convention (HELCOM). Efforts on regional cooperation within the Convention are not well described. However Finland refers to the HELCOM roof report and indicates that time constraints were a problem in achieving regional coordination.

Other features

Finland has used the Water Accounts approach for its economic and social assessment and the cost-based approach to estimate the costs of degradation.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

Finland addresses GES for all descriptors and most criteria. It has generally used existing EU requirements and standards and places a strong emphasis on standards and assessments developed in the region (HELCOM).

For Descriptor 1, GES is defined in relation to achieving natural conditions for a number of species and habitat attributes (e.g. distribution, reproductive capacity). GES for Descriptors 2, 6 and 8 seek to have no harmful impacts on ecosystems and their component species and habitats.

For Descriptor 10, issues concerning socio-economic impact, entry of new litter and associated chemical contamination are included. For Descriptor 11, other forms of energy (in addition to noise) are included.

Weak points

The GES definition is generally qualitative and therefore not yet defined in a way which is measurable. Further, these normative definitions use terms which lack clarity of meaning, potentially adding to the difficulties of assessing whether GES is being achieved.

Overall score

The GES definition for Descriptor 3 is assessed as adequate.

The GES definitions for Descriptors 1, 4, 5, 6, 9 and 10 are assessed as partially adequate, as they either do not fully address the Decision criteria or they lack key elements or specificity.

The GES definitions for Descriptor 2, 7, 8 and 11 are assessed as inadequate, as they do not cover all criteria or define its terms or baseline or refer to relevant EU standards or are not specific enough to be measurable.

INITIAL ASSESSMENT (ART. 8)

Strong points

The initial assessment generally identifies well the main pressures on the marine environment and their sources (e.g. for physical damage). There is use of relevant Habitats Directive, Water Framework Directive (WFD) and HELCOM assessments, including provision of current status for some elements (e.g. certain habitats and species under the Habitats Directive). The assessment of hazardous substances is comprehensive.

Weak points

There is insufficient quantification of the pressures and their impacts and only limited assessments of commercial fish, hydrographical changes, physical loss and acute pollution events. There is no report on mammals.

There are few conclusive judgments on current status for a number of descriptors, pressures and ecosystem components.

There is insufficient detail on how gaps in knowledge are going to be addressed.

Overall score

The Initial Assessment is assessed as being adequate for Descriptor 8.

For Descriptors 1, 2, 4, 5, 6, 9 and 11 the Initial Assessment is considered partially adequate, with several key elements missing or poorly assessed (e.g. mammals) and limited assessments of impacts.

For Descriptors 3, 7 and 10 the Initial Assessment is considered to be inadequate.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

There is substantial detail including a good range of indicators for Descriptors 1, 2, 3, 4, 5, 6, 8, and 11. Use is made of the WFD, HELCOM and other relevant standards (e.g. Descriptors 5, 9). Descriptor 11 addresses discharged waste heat as well as underwater noise.

Weak points

The targets for Descriptors 1, 2, 4 and 6 are generally expressions of GES and would better sit under Art. 9. Many provide normative definitions of GES and require more specific quantitative thresholds to be fully measurable. Descriptor 7 addresses only broad aspects of hydrological conditions and lacks reference to hydrographical changes due to infrastructure developments.

Environmental targets are often not sufficiently clear or SMART to be measurable.

Overall score

The targets for Descriptor 5 have been assessed as adequate. Descriptor 4 is close to adequate, but not fully measurable.

The targets for Descriptors 1, 2, 3, 6, 8, 9 and 11 have been assessed as partially adequate since they lack some specificity (thresholds, baselines) or coverage (e.g. some commercial species).

The targets for Descriptor 7 and 10 are considered inadequate as they lack reference to hydrographical changes or specification and are therefore not measurable.

CONSISTENCY

There is a good level of consistency between GES, the initial assessment and the environmental targets for most descriptors, although it is not always clear that the targets are sufficient to achieve GES (e.g. Descriptors 7, 9, 11).

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

Justification and explanation on gaps in data/knowledge and assessment methodology are not well described. Plans to address them are scarce and not detailed.

RECOMMENDATIONS

Finland should:

- a. Strengthen the GES definition of the biodiversity descriptors which goes beyond what is in existing legislation;

- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- c. Identify knowledge and information gaps and address these, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- d. Address knowledge gaps identified in the initial assessment, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- e. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD.

France

GENERAL ISSUES

Marine waters

France is part of two marine regions, the North East Atlantic and the Mediterranean. Its marine waters occur in four marine sub-regions: the Celtic Seas, the Greater North Sea, the Bay of Biscay, and the Western Mediterranean Sea.

Areas assessed

The assessment area is the sub-region as a whole. At this stage, no more specific assessment areas have been defined. Data on more limited areas or assessment of more limited areas are used for evaluation at the scale of the marine sub-region. France indicates that aggregation rules at the level of the descriptor will be specified, if necessary, following complementary studies, in the framework of the updating of the definition of GES for the next cycle, that is by 2018.

Regional cooperation

France is party to the Barcelona Convention and OSPAR. Efforts for regional coordination within the MSFD Common Implementation Strategy, regional sea conventions and informally through bilateral contacts are extensively described.

Other features

The socio-economic analysis was undertaken through a "water account" approach, together with a cost-based approach for the cost of degradation. The methodology used is described comprehensively. The different costs cannot be aggregated as they are of different nature (annual accounting expenses, loss of benefits both commercial and non-commercial). Therefore, it still lacks a cost analysis which will be done when developing operational targets.

France establishes four transversal targets for the Bay of Biscay and the Celtic Seas subregions. These are meant to ensure the link land-sea to guarantee the natural balance of the marine environment; to raise awareness, train and inform players, users and the public; to allow by maintaining or reaching GES the sustainable development of the human activities which depend upon the marine environment; and finally to restore deteriorated ecosystems. However, no transversal targets have been identified for the Greater North Sea or Western Mediterranean Sea subregions.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

France covers, in general terms, most of the GES in line with the Directive. The report covers most of the indicators and for some descriptors even more.

It is based on a robust legal status of GES and methods and criteria for undertaking the initial assessment and setting environmental targets and associated indicators. EU requirements and standards have been systematically used.

Weak points

Overall, GES is defined qualitatively, and not quantitatively. This choice, combined with a lack of baseline and reference conditions, leads to a general lack of clarity about what GES is and when it can be understood as reached or not. This lack of specificity means that all pressures and impacts on the marine environment are often not clearly and efficiently covered, which in turn can pose problems in terms of environmental targets definition, monitoring, and to develop a programme of measures.

Overall score

Five GES definitions are considered as adequate (Descriptors 4, 7, 8, 10 and 11) thanks to an adequate coverage of Decision criteria and relevant use of regional approaches.

Three GES definitions are considered as partially adequate (Descriptors 1, 5 and 6) mainly due to a lack/uncertainty concerning baseline/thresholds.

Two GES definitions are considered as inadequate (Descriptors 2 and 3) mainly due to a very limited coverage of Decision criteria together with a lack of baseline/thresholds.

INITIAL ASSESSMENT (ART. 8)

Strong points

The main problems (pressures and impacts) have been identified for all descriptors mainly thanks to an extensive use of existing information/data.

With regards to the assessment of biological features for biodiversity and associated descriptors, France provides an assessment of status for specific species recognized as endangered or threatened according to EU, regional and international agreements.

The French assessment of the level of fisheries pressure has been reported in detail (including quantitative information) for all subregions.

Weak points

For habitats, France has not reported on all relevant habitat types. For species/functional groups, France did not report on all expected/relevant groups. Judgments on the state of the environment are often missing.

Overall score

Five initial assessments for the pressure/impact are considered as adequate (Descriptors 2, 3, 7, 10 and 11) thanks to a good qualitative judgment made in relation to GES.

Six initial assessments for the pressure/impact are considered as partially adequate (Descriptors 1, 4, 5, 6, 8 and 9) mainly due to a limited assessment on impacts and lack of judgement in relation to GES.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

General targets have been set which, according to France, can be further developed into specific targets, and complemented by operational targets in 2015 aiming at directing actions and the definition of measures to reach them.

In the Mediterranean region, targets are often well detailed with associated indicators but do not cover all descriptors.

Many transversal targets have been set up, ranging from research activities to the reinforcement of legal and international cooperation tools and information and training related targets.

Weak points

There is a lack of quantification of targets combined with a lack of baseline and reference conditions. This lack of specificity means that all pressures and impacts are often not clearly and efficiently covered.

France does not go beyond existing standards at EU or regional level and without making the case that their full implementation would be sufficient for reaching GES.

Overall score

For the Atlantic coast, all targets are assessed as being inadequate except partially adequate for Descriptors 9, 10 and 11.

For the Mediterranean, six descriptors have partially adequate targets (Descriptors 1, 4, 6, 8, 10 and 11) mainly due to a lack of threshold values and baselines.

The targets of two other descriptors (Descriptors 2, 3) are considered as inadequate, mainly due to the fact that they are not relevant for that descriptor (and the defined GES). For Descriptors 5, 7 and 9 targets are missing.

CONSISTENCY

The approach followed by France is overall consistent in terms of the approach used for the setting of targets, GES and descriptors. There is a difference in the approach to the setting of targets on one hand, for the North East Atlantic sub-regions and, on the other hand, for the Mediterranean. In general the targets defined for the Mediterranean subregion are much more pressure-specific and measurable than for the other subregions. All descriptors under the MSFD are covered. It is based on a robust legal status of GES and methods and criteria for

carrying out the initial assessment and setting environmental targets and associated indicators. EU requirements and standards have been systematically used.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

Data and knowledge gaps appear to be a recurrent issue. For most of them, France states that due consideration will be given to these knowledge gaps in the framework of the revisions of the different elements for the next cycle in 2018, as provided for by Article 4 of the French Ministerial Order on GES. There are no further indications in terms of concrete actions and responsibilities.

RECOMMENDATIONS

France should:

- a. Strengthen methodology for the socio-economic analysis allowing assessment of the degradation/restoration costs and MSFD implementation costs/benefit analysis;
- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- c. Address knowledge gaps identified in the initial assessment, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- d. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD;
- e. Enhance the cohesion between approaches in the two relevant regions.

Germany

GENERAL ISSUES

Marine waters

The German marine waters are part of two marine regions, the North-East Atlantic Ocean and the Baltic Sea.

Areas assessed

Germany's initial assessment, characteristics of GES and targets and associated indicators have been developed for each marine (sub-)region. For a number of descriptors, specific details are provided with regard to the Wadden Sea (e.g. for the definition of standards or thresholds to be complied with).

Regional cooperation

The German part of the North Sea is part of the OSPAR Region II "Greater North Sea". For the Baltic Sea, the German marine waters cover the following HELCOM-defined sub-areas: "Southern Baltic Sea" (with the "Arkona" and the "Bornholm Basin"), "Bay of Mecklenburg", "Kiel Bay" and "Little Belt". Efforts for regional coordination within both regional conventions are extensively described in several places (reporting sheet, specific report on regional coordination).

Other features

The economic and social analysis of marine uses by Germany used the water accounts approach. The description of each sector of activity is relatively limited and only semi-quantitative because of the lack of data. Germany mentions that the North Sea and the Baltic Sea are not separately assessed in official statistics, so the data handling is difficult.

Germany uses a combination of the water accounts and thematic approaches for the evaluation of the costs of degradation. This method allows Germany to derive the costs of the difference between the good status of the marine environment (i.e. reference state) and the current state. However, in order to do this, the good environmental status (GES) needs to be clearly defined, which is not the case today for all descriptors. Germany mentions that the costs can be expressed in Euros only if a quantification of impacts has been made, which is not the case to date. It does not provide an indication of timeline to do this work.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

The definitions of GES for several descriptors are described at descriptor and criteria level (Descriptors 3, 5, 7, 8).

Germany formulated an ambitious definition of GES for Descriptor 2 aiming at zero introductions of new non-indigenous species and provided a detailed definition of

Descriptor 3 on commercial fish and shellfish. The GES definition for Descriptor 11 on energy inputs is extended with aims related to electromagnetic fields, light and temperature increase.

Weak points

What Germany has reported as a GES definition for biodiversity is a collection of existing agreements and therefore covers only specific protected habitats and species. Germany has not provided an assessment/justification as to why this is considered to be sufficient for achieving GES.

Other descriptors are only described at descriptor level and are vague.

Overall score

Descriptor 3 is assessed as adequate. Descriptors 2, 5, 7, 8, 9 and 11 are assessed as being partially adequate as they are only defined at descriptor level or lack thresholds.

Descriptors 1, 4 and 6 are assessed as inadequate as they do not go beyond existing legislation of mainly protected species, without assessing if this would be sufficient for achieving GES and missing some key aspects of biodiversity. Descriptor 10 is also assessed as inadequate.

INITIAL ASSESSMENT (ART. 8)

Strong points

Overall, the Initial Assessment is performed in a detailed manner, especially for contaminants, litter and underwater noise.

The main pressures have been identified and described, including microbial pathogens.

Weak points

Not all relevant habitats and functional groups are covered.

The assessment of the pressures and impacts is general and not detailed.

The initial assessment is primarily a collection of existing information but almost no judgment on current status and trends in status is made.

Overall score

The assessment of Descriptors 2, 8, 10 and 11 is considered adequate. For all other descriptors the assessment is partially adequate as the initial assessment is general and qualitative.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

Germany has developed an extensive list of targets and associated indicators.

Weak points

A number of targets are rather expressions of GES than actual targets defined to help achieve GES (e.g. some indicators for Descriptors 2, 8 and 9).

Most targets are not specific enough (even when they addressing specific issues) and are not systematically quantified.

Many targets and the associated indicators are only qualitative and these targets still need further development.

Overall score

None of the targets are assessed as being adequate. The targets for Descriptors 2, 3 and 7 are considered inadequate because they lack attributes which make them SMART.

The targets for Descriptors 1, 4, 6, 5, 8, 9 10 and 11 are considered partially adequate since they do not fully address the three biodiversity descriptors (Descriptors 1, 4, 6), miss quantification (Descriptor 5), express GES (Descriptors 8, 9) or miss threshold values (Descriptors 10, 11).

CONSISTENCY

The approach followed by Germany is not overall consistent in terms of the approach used for the setting of GES and targets for all descriptors and across the two (sub-)regions. In a number of cases there is a difference between the information reported in the paper report and in the reporting sheets. This is mainly the case for the GES definitions of Descriptors 3, 5, 8 and 11, which are further developed at the indicator level in the reporting sheets. Some targets have been defined more as a description of GES (Descriptors 2, 8 and 9). In other cases (Descriptor 5) they do not address the identified pressures.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

While data and knowledge gaps are generally acknowledged and broadly identified, Germany often relies on future work in the framework of the MSFD and of the Regional Sea Conventions without further specifications as to when, how and by whom they will be addressed.

RECOMMENDATIONS

Germany should:

- a. Strengthen the GES definition of the biodiversity descriptors to go beyond what is in existing legislation;
- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and

baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;

- c. Address knowledge gaps identified in the initial assessment, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- d. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results for 2018;
- e. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD;
- f. Improve the consistency between the criteria used in GES, the assessment of the impact and the proposed targets;
- g. Enhance the cohesion between approaches in the two relevant regions.

Greece

GENERAL ISSUES

Marine waters

Greece's marine waters fall within one marine region, the Mediterranean Sea, and three marine subregions, the Adriatic Sea; the Ionian Sea and the Central Mediterranean Sea; and the Aegean-Levantine Sea. No formal subdivisions have been identified.

Areas assessed

The GES definitions and targets are defined for the whole of the Greece's marine waters together, with no distinction of specific assessment areas.

The initial assessment in the paper report considers at most five different assessment areas: three areas in the Aegean subregion (North, South and Central), the Adriatic and Ionian Seas together and the Levantine assessment area separately.

In terms of aggregation rules, Greece has made a number of aggregated judgements in relation to GES but it has not clearly defined aggregation rules and it is not always clear how it has come to these conclusions.

Regional cooperation

In terms of regional cooperation, Greece refers to the efforts made to assess data coming from neighbouring countries in order to ensure some consistency in the definition of GES and the establishment of targets and indicators.

Other features

Greece has carried out an economic and social analysis using the DPSIR approach. The socio-economic analysis of marine uses is based on a combination of the ecosystem services approach and the water accounts approach. The marine water accounts approach seems to be the approach also used for the analysis of the costs of degradation.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

All the descriptors under the MSFD are covered and for all descriptors, with the exception of Descriptor 3, a general definition of GES is provided. In a few cases, a number of more specific conditions are added.

EU requirements and standards are used (e.g. for D 8, 9).

For Descriptor 8, the definition of GES also partly covers radionuclides, which is considered a good practice.

Weak points

There is lack of clarity in what constitutes GES (in particular for Descriptor 3) and a lack of consistency between the paper report and the reporting sheets.

There is no systematic use of the 2010 Commission Decision criteria and indicators and in most cases no threshold values and baselines are provided. Thus, the GES definition is not considered to be measurable.

Overall score

Descriptor 5 is assessed as adequate, as it covers all the criteria and most indicators and provides sufficient thresholds for GES to be measured.

Five GES definitions are considered as partially adequate (Descriptor 1, 4, 8, 9 and 11) mainly due to a lack of or uncertainty concerning baseline/thresholds and absence of coverage of all the Decision criteria.

For the remaining descriptors (Descriptor 2, 3, 6, 7 and 10) the determination of GES does not meet the minimum requirements and is assessed as inadequate. No information is provided about baselines or reference points to assess progress towards GES.

INITIAL ASSESSMENT (ART. 8)

Strong points

The structure of the initial assessment is relatively clear and, for a number of pressures, an attempt is made to judge the level of, and impacts from, the pressure in relation to GES.

An extensive list of non-indigenous species has been reported and their current status and pathways of introduction have been identified. For commercial fish and shellfish, Greece performed an assessment at a relatively high level of detail. It has also made a relatively detailed assessment of contamination by radionuclides in the five assessment areas.

Weak points

For a number of pressures, the initial assessment is limited to a collection of information from existing literature without a clear objective to assess current status.

Impacts from pressure are rarely reported on (e.g. Descriptor 5) or are reported only in a general way (e.g. Descriptor 2, 3). No assessment has been made of the pressure from underwater noise (Descriptor 11).

The initial assessment considers at most five different assessment areas; however this is not consistent throughout the report and for a number of pressures the assessment is made for the whole of the country's marine waters.

Overall score

Three initial assessments for the pressure/impact are considered as adequate (Descriptor 3, 5 and 10) thanks to a good qualitative judgment made in relation to GES on trends, the provision of thresholds and baselines and of substantial information on knowledge gaps and plans to address them.

Five initial assessments for the pressure/impact are considered as partially adequate (Descriptor 2, 6, 7, 8 and 9) mainly due to a lack of judgement in relation to GES and a limited assessment of impacts.

Only the initial assessments for Descriptors 1 and 4 are considered as inadequate, mainly due to the limited provision of information and the lack of judgement of status in relation to GES.

No initial assessment was undertaken on the level of pressure from underwater noise (Descriptor 11), but sufficient justification is provided for this issue.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

Environmental targets and indicators have been adopted by Ministerial Decision No. OIK 1175/2012, conferring a strong legal status upon Greece's environmental targets and indicators.

The setting of environmental targets and indicators is consistent for all descriptors (although there are some differences between targets in the paper report and the reporting sheets).

Weak points

Many environmental targets are monitoring targets (e.g. Descriptor 4, 8 and 10) and are not sufficient to achieve GES. In most cases, no threshold values or baselines are provided and the targets do not cover the different pressures and impacts identified in the initial assessment.

The role of the associated indicators (i.e. for assessing the achievement of the environmental targets) is not always clear.

Overall score

Targets related to Descriptors 5 and 9 are partially adequate since, although qualitative and lacking in detail, are considered realistic.

The targets of all the remaining descriptors (Descriptor 1, 2, 3, 4, 6, 7, 8, 10 and 11) are considered inadequate, mainly due to the fact that they are not SMART, they lack threshold values and baselines and it is unclear how they will achieve GES.

CONSISTENCY

The approach followed by Greece in the assessment of pressures and impacts and the definition of GES and the setting of environmental targets is in general terms consistent. Low consistency has been reported for Descriptor 2, while for Descriptor 11, it was not possible to assess the consistency since there was no proper assessment of pressures and impacts.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

Data and knowledge gaps are usually identified and described for each article (GES, initial assessment and targets).

However, plans to address knowledge and data gaps are usually quite vague, limited to the mention of on-going or planned research projects (without specific details about the projects) and without details of timescales or responsibilities.

RECOMMENDATIONS

Greece should:

- a. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- b. Address knowledge gaps identified in the initial assessment, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- c. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results for 2018;
- d. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD.

Ireland

GENERAL ISSUES

Marine waters

Ireland's marine waters fall within the North-East Atlantic Ocean marine region and within the marine sub-region known as the Celtic Seas. Their marine waters include coastal waters, as defined under the Water Framework Directive, and an EEZ. An area of Continental Shelf beyond the EEZ is also included, whilst other such areas await the outcomes of UNCLOS processes. There are areas of overlap and gaps with UK waters at both the coastal boundaries with Northern Ireland and the median line boundary in the Irish Sea and Celtic Sea.

Areas assessed

For the purposes of reporting on MSFD Articles 8, 9 and 10 Ireland has defined a single assessment area, covering their entire marine waters. The use of such a large assessment scale can mask more localised but nevertheless significant problems for particular areas or biodiversity components.

Regional cooperation

Ireland is party to the OSPAR Convention. Efforts for regional coordination within the regional convention, as well as through ICES and bilaterally with UK and FR, are extensively described.

Other features

Ireland has followed a water account approach for their economic and social assessment and an ecosystem-service approach to estimate the costs of degradation. There are insufficient details (in the reporting sheet) to adequately assess this analysis.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

Ireland addresses GES for all descriptors, and includes some criterion-level details.

They have systematically used existing EU requirements and standards and place a strong emphasis on work and standards under the RSC (OSPAR).

Weak points

GES is defined mainly at the descriptor level, but including some elements of the criteria; it is generally only qualitative and therefore not measurable.

When using OSPAR and EU requirements and standards e.g. for Descriptor 8, Ireland does not address potential issues of hierarchy between those requirements.

Overall score

No Descriptors are assessed as adequate.

Descriptors 1, 2, 3, 4, 5, 7, 8, 10 and 11 are assessed as partially adequate, as they either do not fully address the Decision criteria or they lack key elements or specificity.

Descriptors 6 and 9 are assessed inadequate as they are below the minimum requirement.

INITIAL ASSESSMENT (ART. 8)

Strong points

On the whole, the main pressures and their sources have been identified and reported on.

New assessments have been made in relation to emerging issues e.g. marine litter.

Weak points

There is generally limited assessment of impacts from pressures, particularly in a quantitative manner, and few conclusive judgments on current status.

For many descriptors and assessment topics, no new assessment has been made specifically for the implementation of the MSFD.

Overall score

The Initial assessment is assessed as being adequate for Descriptors 2, 3, 5, 8, 10 and 11, with generally good coverage of the main pressures and their sources; assessments of impacts and overall status are however more limited.

For Descriptors 1, 4, 6 and 7, the initial assessment is considered partially adequate, with several key elements missing (e.g. birds, mammals) and limited assessments of impacts.

For Descriptor 9, the initial assessment is considered inadequate, with very limited assessments of contaminants in shellfish.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

Targets for Descriptor 5 are considered SMART, ambitious and well-focused towards a reduction in impacts.

Targets for Descriptors 3, 7, 8 and 9 are also well specified, although overall lacking in certain elements.

Weak points

There are no targets for Descriptors 1, 4, 6 and 11.

Environmental targets are often not sufficiently clear or SMART to be measurable.

A number of targets and the associated indicators to these targets still need further development and are expected to be operational only in 2014 or 2018.

Overall score

The targets for Descriptor 5 have been assessed as adequate.

The targets for Descriptors 2, 3, 7, 8, and 9 have been assessed partially adequate since they lack some specificity or coverage and are thus not fully quantifiable.

The targets for Descriptors 1, 4, 6 and 11 are absent and therefore inadequate.

CONSISTENCY

There is a good level of consistency between GES, the initial assessment and the environmental targets for most descriptors.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

As a rule, extensive justification/explanation is provided on gaps in data/knowledge and assessment methodology. However, Ireland does not always specify how these gaps will be addressed and sometimes relies on developments at EU or regional level, without always clear deadlines.

RECOMMENDATIONS

Ireland should:

- a. Strengthen the GES definition of the biodiversity descriptors in a way which goes beyond what is in existing legislation;
- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- c. Address knowledge gaps identified in the initial assessment, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- d. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results for 2018;
- e. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD.

Italy

GENERAL ISSUES

Marine waters

Italy's marine waters are part of the marine region of the Mediterranean Sea and cover the sub-regions of the Adriatic Sea, the Ionian Sea and the Central Mediterranean Sea and the Western Mediterranean Sea. No formal subdivisions have been identified.

Areas assessed

The GES definitions and targets are, in most cases, defined for the whole of Italy's marine waters together, with no distinction of specific assessment areas. Assessment areas were defined for the initial assessment, differing according to the topic in question. Italy indicates that these areas may coincide with or may be representative of the sub-regions.

Regional cooperation

Italy is party to the Barcelona Convention. Efforts of regional coordination have been described, in which the necessity of obtain a successful coordination amongst countries, mainly through existing international cooperation instruments, has been stressed. Italy participated in a first meeting of trilateral coordination with France and Spain to compare country approaches and the general frame and implementation of the initial assessment, determination of GES and environmental targets for the Western Mediterranean Sea sub-region.

Other features

The economic and social analysis of marine uses has been undertaken using the water accounts approach. Data and methodologies have been briefly described for each subregion or for the entire Mediterranean region, depending upon the activity considered (professional, commercial, recreational fisheries, tourism, ports, oil and gas). Results, when available, are traceable, even though they are often not provided due to lack of information and data gaps.

Italy has followed a cost-based approach to evaluate the costs of degradation. The sources of information have been described but the methodology is barely mentioned and the description is not exhaustive. Costs of degradation has been considered as a whole in the paper report and information gaps are clearly highlighted, whereas neither specific plans or actions nor a time schedule to address these gaps have been reported.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

The approach used to define GES varies. For some descriptors GES is defined at descriptor level (Descriptor 11), in other cases is defined only at criterion level (Descriptors 2, 8 and 9),

in other cases at descriptor, criteria and indicator level (Descriptors 5, 10), and for the remaining descriptors, at criterion and indicator levels (Descriptor 3, 7).

Strong points

All descriptors are covered.

Italy has provided a threshold when setting GES for Descriptor 3 indicators 3.3.1 and 3.3.3. These have been applied with a threshold requiring that the indicator should remain stable or show significant positive trends for commercial fish all stocks; this is considered a best practice.

Weak points

Some GES definitions are still to be developed. In general there is a lack of ambition in the GES definitions.

Overall score

Descriptors 1, 3, 5, 6, 2, 7, 8 and 9 are assessed as partially adequate, mainly due to a lack/uncertainty concerning baseline/thresholds.

Descriptors 4, 10 and 11 are assessed as inadequate as they are below the minimum requirement or lack specification/ambition.

INITIAL ASSESSMENT (ART. 8)

Overall, the initial assessment is mainly descriptive.

Strong points

Information gaps are clearly identified; these gaps affect the identification of pressures and impacts for the descriptors.

The initial assessment is well-focused on the needs of the marine strategy; Italy has made a fair attempt to provide judgments on status and trends, with the exception of Descriptors 8 and 9.

Various assessment areas have been used for the initial assessment, depending on the descriptor.

Weak points

Pressures are sparsely reported for some descriptors in accordance to availability of information and analysis, whereas impacts are often not provided. Judgments on the current status in relation to GES are not consistently made.

Overall score

The initial assessment for Descriptor 7 is assessed as being adequate. Italy reports on the percentage of areas affected and a judgement on current status is provided. In addition, the knowledge gaps are clearly identified and the plans to address them well described.

Seven initial assessments for the pressure/impact are considered as partially adequate (Descriptor 1, 2, 3, 4, 5, 6 & 10 (for West Mediterranean and Adriatic)) mainly due to a lack of judgment in relation to GES.

The initial assessments for the pressure/impact are considered as inadequate for Descriptor 8 and missing for Descriptors 9 and 11.

ENVIRONMENTAL TARGETS (ART. 10)

In general, the environmental targets were more clearly presented and more complete (e.g. with indications of the associated indicator) in the paper report than in the reporting sheets. Therefore, the assessment has focused on the version from the paper report.

Strong points

In relation to Descriptor 3, Italy has included an environmental target addressing recreational fisheries.

Italy has set a target, and developed an assessment methodology, to reduce marine litter ingested by the sea turtle *Caretta caretta*, a promising alternative for the Fulmars' target in the North-East Atlantic Ocean.

Weak points

The vast majority of environmental targets are defined as 'interim' targets with the exception of those set for Descriptor 8. Italy has not set environmental targets for Descriptors 7, 9 and 11. Moreover, there is a general lack of ambition, in relation to both GES definitions and targets.

Overall score

One descriptor has partially adequate targets (Descriptor 10) mainly due to a lack of threshold values and baselines.

The targets of Descriptor 1, 2, 3, 4, 6, 5 & 8 are considered as inadequate, mainly due to the fact that the identified targets are generic or not all relevant for that descriptor (and the defined GES).

No targets have been defined for D 7, 9 and 11.

CONSISTENCY

In general it can be said that the GES definitions and the initial assessment are very specific in regard to species and habitats of which most are not explicitly referred to in the targets. There is, for instance, also no specific target for birds while they are part of the GES definition for Descriptor 1. There is more consistency between the determination of GES, its assessment and targets for Descriptor 3. Consistency could not be checked for the missing elements (Descriptor 7, 9, 11).

There are sometimes discrepancies between the paper report and the reporting sheets; when the differences were more substantial; as a rule, the assessment was based on the most complete/clearer version.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

Data and knowledge gaps are generally identified and well described for each Article (GES, initial assessment and targets).

The need to establish monitoring campaigns and standardized sampling is highlighted and frequently mentioned but specific plans are not always provided.

RECOMMENDATIONS

Italy should:

- a. Strengthen methodology for the socio-economic analysis allowing assessment of the degradation/restoration costs and MSFD implementation costs/benefit analysis;
- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- c. Address knowledge gaps identified in the initial assessment, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- d. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results for 2018;
- e. Ensure that the targets cover all relevant pressures, are measurable, SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD;
- f. Improve the consistency between the criteria used in GES, the assessment of the impact and the proposed targets.

Latvia

GENERAL ISSUES

Marine waters

Latvia's marine waters extend from the seaward side of the border from which their territorial waters are measured and cover their territorial sea and EEZ, which extend to the border with Estonia and Sweden. Latvia has agreements setting international maritime boundaries with Sweden and Estonia but not Lithuania.

Areas assessed

Latvia has defined a number of assessment areas depending on the topic under consideration. They include: open rocky and open sandy coasts of the south-east Baltic Sea, moderately open rocky and moderately open sandy coasts of the Gulf of Riga, the transitional waters of the Gulf of Riga, the open part of the Baltic Sea (i.e. territorial sea and EEZ) and the central part of the Gulf of Riga.

Regional cooperation

Latvia refers extensively to regional cooperation via HELCOM and uses HELCOM assessments, indicators and assessment units for their Initial Assessment but reports that corresponding criteria were not developed for all of the MSFD descriptors. Latvia has also not managed to fully participate in the HELCOM work to attempt to harmonise the determination of GES across Member States.

Other features

Latvia has used the ecosystem approach for the economic and social analysis of marine uses and the cost of degradation, using the guidelines provided by WG-ESA to inform their national ESA approach.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

GES is quantified for Descriptors 3, 5 and 9. Descriptor 3 applies the primary indicators provided in the Commission Decision for criteria 3.1 and 3.2 and, in line with Commission guidance, sets the thresholds at F_{MSY} and SSB_{pa} or SSB_{MSY} although only for cod, salmon, sprat herring and flounder.

Weak points

Not all the MSFD descriptors are covered in the determination of GES; descriptors 4, 7, 8, 10 and 11 are not defined. The descriptors for biodiversity (Descriptor 1 and 6) are more in line with what would be expected for Descriptor 5 (eutrophication). Descriptor 2 does not consider their spread through current pressures. The definition for Descriptor 9 only extends to the

concentration of contaminants and does not address the frequency of regulatory levels being exceeded.

Overall score

Of the descriptors for which definitions were given, four were considered to be partially adequate (Descriptor 2, 3, 5 and 9), two are inadequate (Descriptor 1, 6) and the others are not defined.

INITIAL ASSESSMENT (ART. 8)

Strong points

Assessment of stocks of commercial fish and shellfish are well described and quantified.

Descriptor 8 uses available data from HELCOM to provide a quantitative assessment of contamination by hazardous substances, although this relates to the Baltic Sea as a whole, rather than just Latvian waters. Results from an EU LIFE project on MPAs within the Gulf of Riga provide useful information on the contamination of fish and shellfish by heavy metals. In Descriptor 9, a good effort has been made to assess the current status, by assessment area and by substance, against GES thresholds. For descriptor 5, a quantified assessment of pressures is presented covering all the relevant nutrients and organic matter.

Weak points

The Initial assessment on physical loss and damage is limited in scope, there is no reference to HELCOM or WFD reports and no justification for how they reach the conclusion that the current level of impacts is 'good'.

For most descriptors, the assessment of the impacts is very limited. The assessment for Descriptor 2 seems to have been undertaken in the absence of solid data on non-indigenous species and their distribution, abundance and impacts.

Overall score

In the aspects where Initial Assessments were undertaken, six were considered to be partially adequate and two were inadequate (Descriptor 2, 6) because impact, level of and trend in pressure were not assessed. Impact Assessments for Descriptors 7, 10 and 11 were not undertaken because of a lack of data.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

Targets for Descriptor 3 are measurable and use the proper reference points of F_{MSY} and SSB_{pa} although these would need to cover all relevant commercial fish stocks to achieve GES by 2020. The set of targets and indicators presented for Descriptor 9 have the same values as the GES threshold values; achievement of the target should ensure achievement of GES.

Weak points

Biodiversity targets only address the quality of the benthic environment and ignore other aspects of biodiversity. The text of the target as set out in the reporting sheet is considered to be more appropriate as a definition of GES for habitats and species than for wider biodiversity.

The target for Descriptor 2 is a "close approximation" of the MSFD Annex I text. Neither environmental targets nor associated indicators have been defined in the paper report. Many descriptors have no targets set.

Overall score

Only three descriptors have targets set (Descriptor 3, 5 and 9). These are all considered as partially adequate. Descriptors 1 and 6 are inadequate since they have only limited targets and Descriptor 2 is also inadequate because it repeats the generic definition of GES. Descriptors 4, 7, 8, 10 and 11 have no targets set.

CONSISTENCY

Consistency between the definition of GES, the initial assessment and the environmental targets varies across the descriptors. Where no information has been given (Descriptor 7, 10 and 11), it is impossible to assess. For Descriptors 1, 4 and 6, there is a lack of consistency between the initial assessment and GES or target definitions for all aspects, with the exception of benthic habitats, which is the only component for which a target has been defined.

There are differences between the paper report and the reporting sheets, for instance for Descriptor 3. Despite this, consistency is high since F_{MSY} and SSB_{pa} reference points were used for defining GES, setting targets and doing assessments.

There was a high level of consistency for Descriptor 9, as the same threshold values, corresponding to EU regulatory levels, were used for all three aspects.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

Latvia reports comprehensively on the gaps in the availability of statistical data in relation to its economic and social analysis. It explains that there is a lack of scientific information on pressures on the marine environment. Spatial and temporal resolution of the available information is recognised as being too low for adequate assessments to be made and there is no method of distinguishing between local and transboundary impacts.

There are no plans presented about how such data gaps will be addressed.

RECOMMENDATIONS

Latvia should:

- a. Strengthen the GES definition of the biodiversity descriptors which goes beyond what is in existing legislation;
- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- c. Address identified knowledge gaps identified in the initial assessment, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- d. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results for 2018;
- e. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD;
- f. Improve the consistency between the criteria used in GES, the assessment of the impact and the proposed targets.

Lithuania

GENERAL ISSUES

Marine waters

Lithuania's marine waters include 'internal waters', the territorial sea and the Exclusive Economic Zone. The territorial sea covers 1,849km² and the EEZ covers 6,426.6km². 'Internal waters' are not defined but may encompass WFD coastal and transitional waters.

The southern part of the EEZ borders the Russian Federation (Kaliningrad) while the western area shares a maritime border with Sweden. The northern part borders Latvian waters. Latvia notes that there is no agreement setting international maritime borders with Lithuania, although Lithuania does not refer to this situation.

Areas assessed

Lithuania has defined four subdivisions of its marine waters: transitional, coastal, territorial and EEZ.

Regional cooperation

There is limited information on regional cooperation, but participation in HELCOM-organised working groups and seminars is mentioned. However, Lithuania notes that not all Baltic Sea countries attended the relevant meetings for individual descriptors so cooperation at descriptor level across the region was intermittent.

Other features

For economic and social analysis of marine uses, Lithuania used a non-typical approach. It follows a logical scheme, which reflects all possible uses of the marine environment, using social and economic analysis methods.

For analysis of the cost of degradation, the Ecosystem Services Approach, the Thematic Approach or the Cost-based Approach has been applied, depending on the availability of data. Data availability appears to be patchy but there is no overall assessment of gaps or of how gaps should be addressed.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

It is noted that the attention given to seabird abundance is encouraging, with specific species indicators provided and concrete GES boundaries and baselines for calculations.

Weak points

GES is not defined for Descriptors 7, 10 and 11. Species are addressed only through seabirds and fish. Even where indicators exist, they are not species-specific. There is no reference to

habitats, functional groups or ecosystem components. GES definitions for the biodiversity descriptors seem to be different for coastal, marine and transitional waters with different thresholds.

Overall score

Determination of GES for Descriptors 2, 8 and 9 is considered to be partially adequate.

Determination of GES for Descriptors 1, 3, 4, 5 and 6 is considered to be inadequate due to a number of factors, including an inequality of attention given to all the relevant criteria of the Commission Decision and failure to require fish stocks to be within safe biological limits.

INITIAL ASSESSMENT (ART. 8)

Strong points

The assessment for Descriptor 2 provides a list of non-indigenous species and identification of the main transmission vectors. The assessment also covers impact, level of and trend in pressure both in general and in different habitats.

For Descriptor 9 a quantitative assessment is made of current levels of contamination for all relevant substances included in the GES definition and a conclusive judgement is given. The process also includes an assessment of levels of radionuclides, which is considered to be best practice.

Weak points

No reference is made to the WFD or HELCOM reports on physical loss and damage (Descriptor 6).

There is inconsistency between level of detail provided in the paper report and the reporting sheet, especially in Descriptors 8 and 11.

For Descriptor 7, some pressures have been described but the impacts cited have not been sufficiently assessed. It is considered that with the amount of information available in HOLAS, a more robust assessment would have been possible.

Overall score

The Initial Assessments for Descriptors 2 and 9 were considered adequate, while those covering Descriptors 1, 4, 5, 6, 8 and 11 were judged to be partially adequate.

Those for Descriptors 3, 7 and 10 were considered to be inadequate due to stocks not being assessed in relation to MSY, insufficient assessment according to the reference material available and the age of data used respectively.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

The environmental targets and associated indicators for Descriptor 3 consider the exploitation at F_{MSY} of three stocks (cod, sprat and Baltic herring) in a SMART context and with a clear deadline of achievement by 2020.

Weak points

No environmental targets are established for Descriptors 7, 10 or 11.

For Descriptor 1, the overall target is an expression of GES rather than an operational tool that will help achieve GES. The targets for Descriptor 5 are also considered to fall into this category.

For contaminants in Descriptor 8, it is considered that there is no overall target that sets the goal towards which all other indicators should aim. None of the Descriptor 8 targets are pressure-based; instead all are state-based.

Overall score

The environmental targets for Descriptor 3 are considered adequate but those for Descriptors 1, 2, 5, 8 and 9 are noted as being inadequate. Several were merely an expression of GES, instead of specific objectives that related to particular pressures, and were unlikely to help achieve GES by the target date of 2020. No environmental targets were established for Descriptors 7, 10 and 11.

CONSISTENCY

Consistency between definitions of GES, initial assessments and environmental targets varies across the descriptors. Some (Descriptor 3, 5, 8) have a high level of consistency between their definitions and target indicators, but that is often because they are the same thing rather than one being a practical mechanism to achieve the other. For Descriptor 1, 4 and 6, the picture is mixed; the initial assessment is only partially consistent with the GES definition and misses out mammals and protected species but does report on a number of seabed and water column habitats that are not addressed by the definitions of GES for Descriptors 1 or 6.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

It is evident that data gaps clearly exist. Data and knowledge gaps are mentioned in an ad hoc manner throughout the paper report on the initial assessment.

There are no detailed plans presented of how these gaps will be addressed.

RECOMMENDATIONS

Lithuania should:

- a. Strengthen methodology for the socio-economic analysis allowing assessment of the degradation/restoration costs and MSFD implementation costs/benefit analysis;
- b. Strengthen the GES definition of the biodiversity descriptors which goes beyond what is in existing legislation;
- c. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- d. Identify knowledge and information gaps and address these , i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- e. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results for 2018;
- f. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD;
- g. Improve the consistency between the criteria used in GES, the assessment of the impact and the proposed targets.

The Netherlands

GENERAL ISSUES

Marine waters

The Netherlands is part of the North East Atlantic region and Greater North Sea subregion. The Wadden Sea and the estuaries Oosterschelde and Westerschelde have been specifically excluded.

Areas assessed

The assessment area is the Dutch marine waters as a whole. No more specific assessment areas have been defined. There is no indication on aggregation scales.

Regional cooperation

The Netherlands, as a contracting party of OSPAR, describe extensively its regional coordination efforts. There has been a high level of information sharing and coordination for the initial assessment and GES determination but The Netherlands underline that the timelines and ambitious requirements of the MSFD prevented the coordination on GES and setting of targets.

Other features

The Netherlands have used the water account approach for its economic and social analysis of the marine uses and a cost-based approach for assessing the cost of degradation. Fourteen marine uses/activities have not been reported upon and the Netherlands provides explanations in response to the completeness assessment in order to justify these gaps. The Netherlands consider that there is no information gap, but that the information would be updated for the Programme of Measures.

The Netherlands have assessed that the additional government expenditure on the implementation of the marine strategy between 2012 and 2020 will be approximately 26 million euros, mainly for seabed protection, intensifying the policy on marine litter, addressing gaps in knowledge and monitoring.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

All the descriptors under the MSFD are covered. Relevant international or EU legislation and OSPAR decisions have been acknowledged.

Weak points

GES is defined only at the descriptor level and generally merely reproduces the definitions set in Annex I of the Directive without further specification or quantification. The criteria from the Decision have not been applied for the determination of GES.

For Descriptor 7, reference is made to the possibility to compensate in accordance with the Birds and Habitats Directives. However, this consideration should not be part of determination of GES.

Overall score

Descriptor 9 is assessed as partially adequate as it makes reference to Community legislation.

For all other descriptors the determination of GES does not meet the minimum requirements and is assessed as inadequate. No information is provided about baseline or reference points to assess progress towards GES. No reference is made for GES to the Birds/Habitats Directives, Water Framework Directive definitions or OSPAR EcoQOs for the biodiversity descriptors.

INITIAL ASSESSMENT (ART. 8)

Strong points

Extensive justification is given on gaps in knowledge and information. The assessment of features has identified the relevant predominant habitats, species groups and ecosystems. The reporting of habitats is done sufficiently.

The pathways for introduction of invasive non-indigenous species have been identified.

The Netherlands included data on recreational fisheries and assessed the impacts of fisheries in a qualitative and quantitative manner.

It reports on the level of pressure by contaminants and past trends.

The Netherlands made a judgment on the state of the ecosystem of the North Sea (as being not good although this is not related to their definition of GES).

Weak points

Impacts of pressures are not systematically addressed.

There is no judgment made as to the pressure and impact neither of physical damage nor for invasive species.

The Netherlands explained that the Initial Assessment was made prior to defining GES and therefore no judgement is made on the status of the marine waters in relation to GES. However, despite this it states that GES will not be achieved in 2020 for certain descriptors.

Overall score

The Initial assessment is assessed as being adequate for Descriptors 1, 3, 7 and 9 thanks to reference to reports on features, pressures and trends.

Descriptor 11 is assessed as inadequate because only qualitative information is provided, even not specific for the Netherlands. All other descriptors are partially adequate since no judgement on the state was made and there was only a limited assessment of impacts.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

The targets set for the biodiversity-related descriptors are combined and are consistent as a set. The targets set for Descriptor 3 are ambitious and measurable.

Weak points

The Netherlands used the criteria of the Decision to define targets and not GES. They mention that for Descriptors 1, 3, 4, 6 and 10 GES in 2020 is not attainable and for Descriptors 5 and 8 only partially attainable. The targets for 2020 are therefore interim targets setting the course towards GES. The aim is, when GES cannot be reached in 2020, to reach it in 2027.

Not all targets are SMART. Many indicators are still under development. The collective set of targets is unlikely to lead to a reduction of pressures and impacts as they are mainly state-based targets.

Overall score

Targets related to Descriptors 3 and 7 are adequate thanks to being in line with the Commission objectives and even beyond when aiming at eliminating discards.

The setting of the targets is assessed as inadequate for Descriptors 2 and 11 since they are not measurable or no pressure targets have been defined.

Targets related to Descriptors 1, 4, 6, 8, 9 and 10 are partially adequate, as the targets are not SMART, lack detail, ambition or relate to state.

CONSISTENCY

The overall approach followed by the Netherlands is inconsistent as it defines GES in a generic manner (qualitative) and the environmental targets are used at the criteria level.

The set of targets and indicators is consistent with the impacts (Descriptor 5) or pressures reported in the initial assessment. For Descriptor 10 the linkage between GES and the initial assessment and targets is not made (no targets /assessment on micro-litter).

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

An extensive justification is provided on identified gaps. Knowledge gaps are identified, notably for the assessment of biodiversity features and in relation to pressures for noise, litter and ocean acidification. Priority topics have been identified such as to develop indicators for marine ecosystems, related to effects of disturbances; the risk of micro-plastics; the

establishment of noise levels and the accumulation of effects on the marine ecosystem. Related to measures, priority is given to cost-effective measures under the Common Fisheries Policy, seabed protection and combatting marine litter.

It is not entirely clear how the data and knowledge gaps will be addressed. Mention is made of ongoing OSPAR work and the preparedness by the Netherlands to conduct research in collaboration with national and international institutes and EU and international research programmes.

RECOMMENDATIONS

The Netherlands should:

- a. Strengthen methodology for the socio-economic analysis allowing assessment of the degradation/restoration costs and MSFD implementation costs/benefit analysis;
- b. Strengthen the GES definition of the biodiversity descriptors which goes beyond what is in existing legislation;
- c. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- d. Address knowledge gaps identified in the initial assessment, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- e. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results for 2018;
- f. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD;
- g. Improve the consistency between the criteria used in GES, the assessment of the impact and the proposed targets;
- h. Address the scope of marine waters, as defined in the Directive, through full inclusion of WFD Coastal Waters.

Portugal

GENERAL ISSUES

Marine waters

Portugal reports only for its continental sub-division (i.e. mainland waters) and partially for its extended continental shelf area beyond 200nm. There are no reports from the Azores and Madeira islands (Macaronesia).

Areas assessed

Regarding the continental sub-division, Portugal has used various assessment areas depending on the descriptor, based on the geographical boundaries and the specificities of the descriptor. For the extended continental shelf, Portugal chose five areas corresponding to the OSPAR marine protected areas. However, it does not focus specifically on the subsoil and seabed, which is precisely where its competencies lie.

Regional cooperation

Portugal shows efforts to ensure regional coordination, within regional conventions and through bilateral contacts with Spain and France. These are extensively described. Portugal also refers often to OSPAR and ICES background documents, mainly in the initial assessment.

Other features

Portugal has followed a water account approach for its economic and social analysis. The methodology has been comprehensively described for each of the marine sub-divisions. The average level of confidence in the results is high as they are based on statistical and other sources of credible entities. The cost of degradation has been estimated following a cost-based approach. Portugal intends to develop further the analysis of the cost of degradation by the end of 2013 so that the results are available on time for the preparation of the programme of measures.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

Portugal has reported on GES for all descriptors.

Weak points

In general terms the report is unclear with regards to the definition of GES. Moreover, there are insufficient details provided so as to evaluate if and when GES level is achieved.

Overall score

Descriptor 9 is partially adequate since it refers to official levels and is measurable. All the other descriptors are inadequate as they are defined at descriptor level only and lack specificity and baselines.

INITIAL ASSESSMENT (ART. 8)

Strong points

Portugal has made a comprehensive assessment of the relevant types and causes of pressures, physical loss and damage in its marine waters, including microbial pathogens. It provides a detailed description of the assessment of contamination in fish and seafood. Portugal acknowledges that information on the full spatial distribution and intensity of physical loss and damage is not homogeneous and therefore the assessment areas vary depending on the specific indicators and the information available.

Weak points

The main pressures on each seabed habitat type have not been identified.

Portugal considers that GES is currently achieved for several descriptors in spite of acknowledging that due to insufficient information it is not possible to draw conclusive judgment on the physical losses and damages.

Overall score

An assessment of underwater noise was not made. Five descriptors have been assessed partially adequate (Descriptors 3, 5, 7, 8 and 9) because of lack of information on impacts. The remaining descriptors are assessed as adequate.

ENVIRONMENTAL TARGETS (ART. 10)

Weak points

Portugal has in many cases defined targets as plans to address information and data gaps or to increase the knowledge rather than as targets defined to reach GES. Portugal has set a limited number of specific targets and, most importantly, has not defined specific environmental targets for the biodiversity descriptors.

Overall score

The descriptors for which Portugal has defined targets are assessed as being inadequate (Descriptor 8, 9, 10, 11) as environmental targets to monitor progress towards GES have not been defined. Descriptor 3 is partially adequate.

CONSISTENCY

The approach used by Portugal for defining GES and setting targets is inconsistent. GES is defined in general terms and at high level and targets are missing.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

Portugal discusses data and knowledge gaps in a very comprehensive manner. Logically, the extended continental shelf is the area where information is most scarce. Many targets aim at addressing data and knowledge gaps through research and monitoring. However, they are very general and are not time-bound. Several gaps in knowledge have no specific plans to address the problems.

RECOMMENDATIONS

Portugal should:

- a. Strengthen the GES definition of the biodiversity descriptors which goes beyond what is in existing legislation;
- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- c. Address knowledge gaps identified in the initial assessment, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- d. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD;
- e. Improve the consistency between the criteria used in GES, the assessment of the impact and the proposed targets.

Romania

GENERAL ISSUES

Marine waters

Romania's marine waters were delineated according to OU 71/2010, which transposes into national law the provisions of the MSFD. Therefore it is understood that the marine waters extend from the 1 NM line to the outer limit of the EEZ. Coastal waters and transitional waters were delineated according to the WFD. For both of them, the landward boundary is represented by the shoreline and the offshore limit is represented by the 1 NM line. Romania has included transitional waters in the scope of its MSFD reporting while transitional waters are not included in the scope of Article 3(1) of the MSFD.

Areas assessed

Romania has defined three assessment areas for the purposes of MSFD reporting, which it uses quite systematically for the initial assessment and in certain cases for the definition of GES and for the environmental targets as well. The three areas are: "Coast", "Transitional" and "Marine".

GES definitions and targets are defined for the whole of Romania's marine waters together, with no distinction for specific assessment areas. Romania has made no aggregated judgements in relation to GES nor has it defined aggregation rules.

Regional cooperation

Romania mentions an agreement between the Ministries of Environment and Water of Bulgaria and Romania in order to discuss their obligations under the MSFD but no details on actual BG/RO cooperation are given.

There are very few references to cooperation at regional (Black Sea) level or to Bucharest Convention documents, with the notable exception of Descriptor 3, where most of the proposed targets are at regional level.

Romania reports poor communications as one of the coordination problems but it is not clear whether it means at regional level or at bilateral level with Bulgaria.

Other features

The method used for the economic and social analysis of marine uses is the water accounts approach. Romania refers to the recommendations of WG ESA in the introduction to the ESA chapter in the initial assessment paper report. The activities described include industry, ports, tourism, aquaculture and fisheries, offshore structures, oil and gas exploitation, shipping, waste disposal.

The analysis of the cost of degradation is undertaken using the cost-based approach. As explained by Romania in the reporting sheet, the degradation costs were assessed based on the costs of the measures adopted to protect the marine environment.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

For the descriptors where this was done, GES description is consistent with relevant EU legislation such as the Habitats Directive and the Water Framework Directive. In the cases where some data were available (Descriptor 1, 5), there was a good effort to define GES.

Weak points

GES was not defined for Descriptors 4, 6, 7, 9, 10 and 11.

There is no systematic use of the 2010 Commission Decision criteria and indicators and in most of the cases no threshold values and baselines are provided. Thus, the GES definitions are not measurable and in some cases non-committal (“GES could be defined as”).

Overall score

Even in the cases where GES was defined (Descriptor 1, 2, 3, 5, 8), they were considered inadequate due mainly to a lack/uncertainty concerning the baseline/thresholds and not covering all the Decision criteria.

INITIAL ASSESSMENT (ART. 8)

Strong points

Considerable effort to consolidate and present an assessment related to biodiversity, non-indigenous species, fisheries, contaminants and eutrophication.

Weak points

Absence of initial assessment for several descriptors (Descriptor 9, 10, 11) and very limited assessment for Descriptor 7.

Overall score

Out of the provided assessments the ones for contaminants, eutrophication, fish and non-indigenous species are considered partially adequate (Descriptor 2, 3, 5, 8) and the others inadequate. Data and knowledge gaps are mentioned only sporadically in the initial assessment report. Information gaps are not discussed in a synthetic manner and there are no plans presented of how these gaps will be addressed. Few judgments are made on the current status in relation to GES.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

Considerable effort to set quantitative targets, where data was available (Descriptor 1, 3, 5, 8).

Weak points

No targets defined for Descriptors 2, 4, 6, 7, 9, 10, 11.

In most of the cases, no threshold values and baselines are provided and the targets do not cover the different pressures and impacts identified in the initial assessment.

The role of the associated indicators (i.e. for assessing the achievement of the environmental targets) is not always clear.

For Descriptors 5 and 8 there are different targets in the reporting sheets and in the paper report (much less and more general in the paper report, for Descriptor 5 exclusively on pressures).

Overall score

Targets related to Descriptors 1 and 8 are partially adequate; although they are not always quantitative, detailed and time-related, they are realistic and concrete.

Targets on Descriptor 3 are considered inadequate because it is not clear how they relate to MSY reference points and there is no clear timeline for achieving them.

CONSISTENCY

Only for Descriptors 1, 3, 5 and 8 is the information provided about GES, targets and initial assessment sufficient to formulate comments about consistency.

The approach followed in the assessment of pressures and impacts and the definition of GES and the setting of environmental targets is in general terms consistent, with the notable exception of Descriptor 3, where stock status seems to be assessed as being at GES while considerable reduction of fishing effort is reflected in the targets: it is not clear on which advice/arguments the targets are based.

There are many inconsistencies between the reporting sheets and the paper report (in the level of details and the information reported).

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

Data and knowledge gaps are mentioned only sporadically in the initial assessment report. Information gaps are not discussed in a synthetic manner and there are no plans presented of how these gaps will be addressed.

RECOMMENDATIONS

Romania should:

- a. Strengthen the GES definition of the biodiversity descriptors which goes beyond what is in existing legislation;

- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate,;
- c. Identify knowledge and information gaps and address these, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- d. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results for 2018;
- e. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD;
- f. Improve the consistency between the criteria used in GES, the assessment of the impact and the proposed targets;
- g. Address the scope of marine waters, as defined in the Directive, through exclusion of WFD Transitional Waters.

Slovenia

GENERAL ISSUES

Marine waters

Slovenia's marine waters are part of the marine sub-region of the Adriatic Sea. No formal subdivisions have been made.

Areas assessed

Slovenia's initial assessment, characteristics of GES and associated targets and indicators have been developed for Slovenia's marine waters as a whole.

Regional cooperation

Slovenia is party to the Barcelona Convention. Slovenia reports participation in five meetings at regional level for coordination of approaches for the initial assessment and definition of GES, with Italy and Croatia, and on the establishment of environmental targets, with Italy.

Other features

The economic and social analysis of marine uses for Slovenia has been undertaken using the water accounts approach and Slovenia has followed an ecosystem services approach to evaluating the cost of degradation. For both assessments, a number of economic sectors related to the use of marine waters are listed and a qualitative and quantitative description of each activity is provided.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

All the descriptors under the MSFD are covered.

Slovenia has set a threshold for indicator 3.3.3 (for all commercial species the 95 percentile of the fish length distribution is stable or rising) which is considered a best practice.

Weak points

The definition of GES is generally vague or not specific, with the exception of Descriptor 5.

The approach used to define GES varies. For some descriptors, GES is defined at descriptor level (Descriptor 7, 9, 10), in other cases at both descriptor and criteria level (Descriptor 1, 4, 5, 8) and in the remaining cases at criterion level only (Descriptor 2, 6, 11). Descriptor 3 is defined only at indicator level.

The list of species selected by Slovenia as covered by their GES definition includes only protected/listed habitats; it does not cover fish or cephalopods and does not address all marine species equally.

Overall score

Seven GES definitions are considered as partially adequate (Descriptor 1, 3, 5, 8, 9, 10, 11) since it is consistent with the Commission Decision but either are qualitative or partially defined or lack thresholds or reference values.

For the remaining descriptors (Descriptor 2, 4, 6, 7), the determination of GES is assessed as inadequate, since it does not meet the minimum requirements and is lacking a measurable baseline or reference points to assess progress towards GES.

INITIAL ASSESSMENT (ART. 8)

Strong points

The initial assessment is mainly descriptive but there is a fair attempt to quantify many elements (with the exception of Descriptor 8) and to make a judgement on the status of the marine environment in relation to GES (i.e. Descriptor 1, 2, 4, 5, 9).

Slovenia has performed additional studies for the initial assessment on non-indigenous species (Descriptor 2). It has also reported on microbial pathogens (Descriptor 9) and the assessment is considered adequate.

Weak points

Judgements on the current status in relation to GES are not consistently made.

Overall score

Three initial assessments for the pressure/impact are considered as adequate (Descriptor 5, 10, 11) thanks to a good qualitative judgment made in relation to GES on trends, the provision of thresholds and baselines, identification of main causes of pressure and addressing the impacts and provision of substantial information on knowledge and data gaps and plans to address them. For Descriptors 10 and 11, the current state of knowledge is taken into consideration for the overall score.

Six initial assessments for the pressure/impact are considered as partially adequate (Descriptor 1, 2, 3, 4, 6, 9) since the information provided is limited and mainly qualitative and there is a lack of judgement in relation to GES as well as a limited assessment of impacts.

Only the initial assessments for Descriptors 7 and 8 are considered as inadequate, mainly due to limited and no quantifiable information and the lack of judgement of status in relation to GES.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

Slovenia has set environmental targets for all descriptors. For some descriptors, the targets are divided into “environmental objectives” (focused on the reduction of pressures or impacts)

and “operational objectives” (e.g. focused on the development of indicators or the gathering of information).

Slovenia has included an environmental target addressing recreational fisheries.

Weak points

Many of the environmental targets are interim ones, with various elements still to be developed e.g. method for assessment, baseline and proportion of areas affected.

For Descriptors 3, 6, 7 and 9, some targets (in terms of proportion or year) are not defined but rather Slovenia has introduced values ‘x’ to be completed later.

There is also a lack of thresholds/reference conditions for environmental targets and a significant number of them are only interim targets.

Some environmental targets (Descriptor 2, 3, 7, 11) are defined in a vague and general way, sometimes phrased as a GES definition.

Impacts from pressure are not sufficiently reported on.

Overall score

Only the target related to Descriptor 5 is considered adequate, as it is specific, measurable, achievable and realistic, impact-related, ambitious and consistent.

Targets related to Descriptors 1, 2, 8, 9 and 10 are partially adequate as they are insufficiently specific to be SMART, baselines are vaguely defined or there are no thresholds.

The targets of all the remaining descriptors (Descriptor 3, 4, 6, 7, 11) are considered as inadequate, mainly because they are not operational, not measurable, non-committal and lack threshold values and baselines.

CONSISTENCY

The approach followed by Slovenia in the assessment of pressures and impacts and the definition of GES and the setting of environmental targets is in most cases not fully consistent.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

There is a systematic identification of knowledge and data gaps combined with several surveillance environmental targets to address these (i.e. Descriptor 5, 8).

The plans to address these gaps are usually quite vague and without details of timescales or responsibilities.

RECOMMENDATIONS

Slovenia should:

- a. Strengthen the GES definition of the biodiversity descriptors which goes beyond what is in existing legislation;
- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- c. Address knowledge gaps identified in the initial assessment, i.a. through the monitoring programme under the MSFD and research programmes, focusing on those descriptors considered as inadequate or partially adequate;
- d. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results for 2018;
- e. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD;
- f. Improve the consistency between the criteria used in GES, the assessment of the impact and the proposed targets.

Spain

GENERAL ISSUES

Marine waters

Spain's marine waters are part of two regions: the Mediterranean and the North-East Atlantic, covering two sub-regions: the Bay of Biscay and the Iberian coast and Macaronesia in which the Canaries are located.

Areas assessed

Within these regions and sub-regions, Spain has determined the following five sub-divisions for the purposes of the implementation of the MSFD:

- The North Atlantic subdivision
- The South Atlantic subdivision
- Estrecho and Alborán subdivision (Mediterranean South part)
- The Levantino-Balear subdivision (Mediterranean North part)
- The Macaronesia (Canary) subdivision

For several descriptors, Spain has defined specific aggregation rules that are described in the relevant sections.

Some differences within GES definitions have been identified across sub-divisions, however, the reasons for these differences are not always clear.

Regional cooperation

Spain is party to OSPAR and the Barcelona Convention. Activities, structures and efforts for regional coordination, within both regional conventions are extensively described. The general document for the marine strategy also presents general and particular targets set by the relevant conventions. It also refers to ACCOBAMS and the London Convention.

Other features

In addition to targets for each of the descriptors, Spain has set generic targets which apply to all descriptors at a time in each of the sub-divisions. These relate to monitoring systems, public participation and access to information as well as the need to coordinate across competent authorities and stakeholders. Although very general, they set some basic principles which complement the more specific targets established by descriptor.

Spain has followed a water account approach for its economic and social assessment. The methodology has been comprehensively described and the analysis done for each of the

marine sub-divisions. The cost of degradation has been estimated following a cost-based approach.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

Spain addresses GES for all descriptors at the criteria level and sometimes at indicator level. GES has been further specified for the subdivisions. The definition of GES is often very detailed, expressed in a quantifiable manner and thoroughly described in accompanying text.

Spain applied methods for the North East Atlantic in the Mediterranean when these methods not available there.

Aggregation rules are defined for a number of GES descriptors (Descriptor 5, 8, 9).

Weak points

The manner of how to aggregate GES for the many different species, habitats and ecosystems is not defined.

The level of fishing mortality which is set as GES for Descriptor 3 is set below the required F_{MSY} . Descriptor 4 misses thresholds and baselines and a specification of the main trophic groups to be considered.

The description of GES for Descriptors 10 and 11 is very generic and qualitative and lacks specification.

Overall score

Descriptors 1 and 9 are assessed as adequate (for both Atlantic and Mediterranean Sea).

Descriptors 2, 5, 6, 7 and 8 are assessed as partially adequate as no limit to new introduction concentrations (Descriptor 2), threshold values and baselines are not provided (Descriptor 5), the condition of the sea-floor habitats misses specification on ecosystem elements (Descriptor 6), as the scale of change is not defined (Descriptor 7) and the applied methodology has not yet agreed reference values (Descriptor 8).

Descriptors 3, 4, 10 and 11 are assessed as inadequate as they are below the minimum requirement (Descriptor 3) or lack specification (Descriptor 4, 10, 11).

INITIAL ASSESSMENT (ART. 8)

Strong points

Extensive information is provided, which is often also quantitative and specific on the status of the marine environment. Justification is given on gaps in knowledge and information and how to address these gaps.

All relevant pressures have been identified and reported on, including microbial pathogens.

For several descriptors (e.g. Descriptor 3, 5, 8, 9), Spain has made an assessment of the current status of their marine waters using the characteristics defined for their GES which shows that GES for Descriptor 3 and in coastal areas for Descriptors 5 and 8 is not met everywhere.

The assessment of features is comprehensive and covers all major habitat zones (although water column habitats receive only limited attention).

Weak points

Spain reported by means of many extensive reports which misses a comprehensive structure and lacks summaries and clarity on conclusions.

Impacts of pressures are not systematical reported on.

Overall score

The initial assessment is assessed as being adequate for all descriptors, except for Descriptor 2 which is assessed partially adequate due to missing information on impacts and trends, Descriptor 7 because the description of habitats potentially affected by changes is not complete and no trend is provided, and Descriptor 5 (in the Mediterranean Sea) due to limited information in terms of nutrient and organic loads to the sea and not all impacts are adequately covered.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

Spain provides a wide range of targets, addressing the pressures, the state or the impacts. It has defined a large set of biodiversity targets which can be applied to several descriptors. They are detailed and specific.

The targets for Descriptor 7 are extensive: there are six environmental targets with associated indicators.

The environmental targets and associated indicators have a robust legal status.

Weak points

In contrast to their comprehensiveness, most environmental targets are not quantified, miss thresholds or are not measurable.

Overall score

Descriptor 7 is assessed as adequate. Descriptor 11 as inadequate as it is more an expression of GES and not specific enough. All other descriptors have been assessed partially adequate with regard to the environmental targets since they are described (extensively) qualitative and not quantified or miss thresholds.

CONSISTENCY

Overall, the approach to set GES and targets and to undertaking the initial assessment is consistent across descriptors and sub-divisions. For Descriptors 3, 5, 8 and 9 Spain has made an assessment of the current status of their marine waters using the characteristics defined for their GES although for Descriptor 5 not all sources or pressures are covered.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

Spain discusses data and knowledge gaps in a very comprehensive manner, for each descriptor. Many environmental targets include targets aimed at addressing data and knowledge gaps through research and monitoring.

RECOMMENDATIONS

Spain should:

- a. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- b. Ensure that the targets cover all relevant pressures, are SMART and sufficiently ambitious in order to achieve the requirements and timelines of the MSFD.

Sweden

GENERAL ISSUES

Marine waters

Sweden's marine waters are part of the North East Atlantic Ocean and the Baltic Sea regions. Sweden has made no formal subdivision of the marine areas.

Areas assessed

It has defined some assessment areas in its legislation, two in the North Sea and nine in the Baltic. One additional assessment area (Oresund) seems to be part of the two regions.

Regional cooperation

Sweden is part of both HELCOM and OSPAR Regional Sea Conventions and also held bilateral meetings with Denmark, Norway, Finland and Estonia in order to develop its MSFD reporting under articles 8, 9 and 10.

Other features

Sweden has given a robust legal status to its GES definitions, environmental targets and indicators by incorporating them in legislation. This can be singled out as a good practice.

The economic and social analysis of marine uses carried out by Sweden uses a combination of the ecosystem services approach and the water accounts approach.

After an analysis of the link between driving forces and ecosystem services, three ecosystem services have been selected for an in-depth analysis: biodiversity, reduced eutrophication and aesthetic values. The analysis is mainly qualitative but socio-economic indicators identified in the North Sea and Baltic Sea regions (employment, sales, completed treatment value, wages, and in some cases social indicators) have also been analysed as a complement to the ecosystem approach. Economic data from 2009 has been provided for all reported activities (2010 for tourism and recreation). The marine part of the tourism sector was determined using GIS analysis.

For the analysis of the cost of degradation, the ecosystem services approach is also used. In addition, Sweden has analysed two future scenarios (2020 and 2050) and compared the impacted results with reference conditions.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

Overall, Sweden's GES definitions are set in comprehensive manner, covering all descriptors, and also at the level of criteria. They take into account existing EU law and other standards from the relevant Regional Sea Conventions.

For Descriptor 2, Genetically Modified Organisms are included in the non-indigenous species GES definition.

Weak points

However, all too often, the GES set remains difficult to measure, as indicators are not yet operational, or definitions remain too vague. For the biodiversity-related descriptors, for instance, the GES definition is too unspecific, not referring to baselines or thresholds. In addition, Sweden rarely goes beyond existing standards.

Overall score

The GES definition for Descriptor 4 is considered adequate.

The GES definitions for Descriptors 1, 2, 3, 5, 8, 9, 10 and 11 are partially adequate, as they are sometimes incomplete or too imprecisely quantified.

The GES definition for Descriptor 7 is inadequate as no measurable indicators can be derived from this definition and no baseline or thresholds are provided.

INITIAL ASSESSMENT (ART. 8)

Strong points

On the whole, the initial assessment gives a good impression of the main pressures affecting Sweden's marine waters. They have been identified and reported on the information available in OSPAR and HELCOM, making extensive use of this information.

Weak points

Some descriptors however are more poorly covered; this in particular the case for Descriptor 7 (hydrographical changes) where the initial assessment does not reflect sufficiently the information available in OSPAR and HELCOM on the topic. Overall, quantitative assessments are often missing, as well as judgments on status and trends.

Overall score

The initial assessment is considered adequate for Descriptor 3 in the North East Atlantic and Descriptor 5 in the Baltic Sea. Descriptor 7 is deemed inadequate because it does not reflect the existing level of knowledge. Descriptor 11 is not addressed. The other descriptors are partially adequate since the assessment is mainly qualitative and the assessment of impacts is limited.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

A strong point of Sweden's targets is that they are defined as Environmental Quality Standards and incorporated into their legislation. There is a strong connection with existing EU laws and regional standards, whether from OSPAR, HELCOM or both.

Weak points

The lack of applicable threshold values remains, however, an issue for many descriptors, hampering measurability, with many indicators and targets still in need of further development, by 2014 or sometimes even only by 2018. The targets not all address the pressures

Overall score

The targets for Descriptors 1 and 4 are considered inadequate (they focus on fish and do not address mammals and birds or specific habitats). Descriptor 7 is also inadequate as it does not address all relevant aspects, such as sediment transport. For Descriptor 9 Sweden explains that the targets covering Descriptor 8 are also relevant for Descriptor 9 which is inadequate because of the different substances concerned.

Targets for Descriptor 2, 3, 5, 6, 8 and 10 are assessed as partially adequate, mainly based on their lack of measurability. There are no targets for Descriptor 11.

CONSISTENCY

A good practice from Sweden is that it makes links for targets between various descriptors, thereby addressing their inter-linkages. Otherwise, GES definitions are overall consistent with targets, though in some instances, they are less consistent with the initial assessment.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

Data and knowledge gaps are identified in a systematic way and described in detail. Specific information gaps have been identified, in particular, in the field of biodiversity, non-indigenous species, commercial fish, sea-floor integrity, hydrographical changes, marine litter and underwater noise.

Sweden has included an analysis of the development needs of a number of indicators for GES (and targets), and plans to address these gaps are referred to, focusing on work in the Regional Sea Conventions and at EU level, as well as on additional monitoring needs.

RECOMMENDATIONS

Sweden should:

- a. Strengthen the GES definition of the biodiversity descriptors which goes beyond what is in existing legislation;
- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- c. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results for 2018.

United Kingdom

GENERAL ISSUES

Marine waters

The UK's marine waters fall within the North-East Atlantic Ocean region and within the sub-regions known as the Celtic Seas and the Greater North Sea, and in the Mediterranean Sea region within the Western Mediterranean Sea subregion.

Their marine waters in the NE Atlantic region include coastal waters, as defined under the Water Framework Directive, and a Renewal Energy Zone (REZ). An area of Continental Shelf beyond the REZ (Hatton Rockall area) is also included, whilst other such areas await the outcomes of UNCLOS processes. In the Mediterranean they have defined marine waters out to 3nm of Territorial Seas around Gibraltar.

There are areas of overlap and gaps with Ireland's marine waters at both the coastal boundaries with Ireland and the median line boundary in the Irish Sea and Celtic Sea. The marine waters around Gibraltar are also require further clarification.

Areas assessed

For the purposes of reporting on MSFD Articles 9 and 10 the UK has defined GES and targets for the UK marine waters as a whole⁴⁴, but reflecting significant biogeographical differences if present. For MSFD Article 8, the UK has used eight biogeographically-defined assessment areas for the North Sea/Celtic Seas subregions.

The UK indicates that the boundaries between the Celtic Seas and Greater North Sea subregions are still under consideration.

Regional cooperation

The UK is party to the OSPAR Convention. Efforts for regional coordination within the regional convention, as well as bilaterally with neighbouring countries, are extensively described.

Other features

The UK has used the ecosystem services approach for their economic and social assessment and to estimate the costs of degradation, with its assessment undertaken at the UK level. It notes that it will develop its data at a scale more suited to MSFD implementation in time for the next (2018) assessment.

⁴⁴ Reporting on Gibraltar was received too late (September 2013) to be considered. The rest of this report therefore refers only to the Greater North Sea and Celtic Seas parts of the UK report.

DETERMINATION OF GOOD ENVIRONMENTAL STATUS (ART. 9)

Strong points

The UK addresses GES for all descriptors, and often includes some criterion-level details.

They have systematically used existing EU requirements and standards and place a strong emphasis on work and standards from the RSC (OSPAR).

They have incorporated the dynamic nature of the ecosystem into their determination of GES for Descriptor 1, acknowledging that natural and climatic changes over time may necessitate modifications of GES definitions.

For Descriptors 8 and 9, concentrations of contaminants should not increase, even if currently below regulatory maximum levels.

Weak points

GES is defined mainly at the descriptor level, but with some elements of the Decision criteria; it is generally only qualitative and therefore not measurable. However, the UK provides further specifications for GES for Descriptors 1 and 4 by specifically linking its GES definitions to the environmental targets defined under Art. 10.

Overall score

Descriptors 1, 2, 3, 4, 5, 7, 8, 9, 10 and 11 are assessed as partially adequate, as they either do not fully address the Decision criteria or they lack key elements or specificity.

Descriptor 6 is assessed as inadequate, as it does not cover all criteria or define its terms or baseline and is not specific enough to be measurable.

INITIAL ASSESSMENT (ART. 8)

Strong points

The initial assessment is based largely on a recent (2010) comprehensive assessment of UK waters, which has thoroughly assessed most aspects required by MSFD and derived judgements on environmental status (albeit not in relation to the UK's definition of GES).

On the whole, the main pressures and their sources have been identified and reported on.

Weak points

There is a lack of quantification of physical disturbance pressures despite availability of suitable data.

There is limited assessment of impacts from certain pressures (e.g. nutrient enrichment), particularly in a quantitative manner, and few conclusive judgments on current status.

Overall score

The initial assessment is assessed as being adequate for Descriptors 1, 2, 4, 8, 10 and 11, with generally good coverage of the main pressures and their sources; assessments of impacts and overall status are however more limited.

For Descriptors 3, 5, 6, 7 and 9, the initial assessment is considered partially adequate, with several key elements missing or poorly assessed (e.g. sea-floor damage, organic matter enrichment, seafood contamination) and limited assessments of impacts.

ENVIRONMENTAL TARGETS (ART. 10)

Strong points

Substantial detail or clear specification is provided for Descriptors 1, 3, 4, 5, 6, 7 and 11.

Weak points

The targets for Descriptors 1, 3 (partially), 4 and 6 are effectively expressions of GES and would better sit under Art. 9. Many provide normative definitions of GES and require more specific quantitative thresholds to be fully measurable.

Environmental targets are often not sufficiently clear or SMART to be measurable.

Overall score

The targets for Descriptor 1, 3, 4, 5, 6, 7 and 11 have been assessed as adequate although targets for Descriptors 1, 3, 4, 6 are, however, mostly state-oriented with limited reference to reductions in specific pressures and impacts.

The targets for Descriptors 8, 9 and 10 have been assessed as partially adequate since they lack some specificity or coverage (e.g. contaminants in water) or are not sufficiently focused on reductions in pressures and impacts (e.g. surveillance targets for litter).

The targets for Descriptors 2 are considered inadequate as they lack specification and are therefore not measurable.

CONSISTENCY

There is a good level of consistency between GES, the initial assessment and the environmental targets for most descriptors.

IDENTIFIED GAPS AND PLANS TO ADDRESS THEM

As a rule, extensive justification/explanation is provided on gaps in data/knowledge and assessment methodology, accompanied most of the time by plans to close these gaps, albeit generally rather vague.

RECOMMENDATIONS

The UK should:

- a. Strengthen the GES definition of the biodiversity descriptors which goes beyond what is in existing legislation;
- b. Improve GES definitions including through regional cooperation using the work of the Regional Seas Convention as much as possible focusing on quantitative aspects and baselines, with the aim to make GES measurable, focusing especially on those descriptors assessed as inadequate or partially adequate;
- c. Further develop its approaches to assessing (quantifying) impacts from the main pressures to lead to improved and more conclusive assessment results for 2018.

APPENDIX 3: SUMMARY FINDINGS FOR EACH MARINE REGION

The tables presented for each marine region provide a summary of the assessment of coherence, using the following keys:

Keys	Meaning
++	High level of coherence
+	Moderate level of coherence
-	Low level of coherence

Baltic Sea region

The evaluation for the Baltic region includes the national implementation reports of DE, DK, EE, FI, LT, LV and SE. The implementation report from PL was not available at the time of drafting of this report.

SUMMARY OF THE COHERENCE ASSESSMENT

	GES	Initial Assessment	Environmental targets
	-	Pressures: + Features: -	+
D2	-	++	+
D3	+	+	+
D4	-	See D1	See D1
D5	++	++	+
D6	-	See D1	See D1
D7	-	-	+
D8	+	++	+
D9	+	++	++
D10	-	+	+
D11	-	+	-

Overall, the level of coherence is mixed with the initial assessment having the highest level of coherence. The setting of GES is only showing a high level of coherence for eutrophication (Descriptor 5). One explanation for this result is that the work on development of common indicators in HELCOM was not fully completed on time. Nevertheless, given the high level of investment in regional coordination through HELCOM and the significant results that HELCOM had produced by 2010-2012, the overall findings are surprisingly low.

COVERAGE OF ARTICLES 8, 9 AND 10 FOR EACH OF THE 11 DESCRIPTORS

Coverage of the eleven descriptors is not uniform with some Member States not having defined GES for some descriptors.

A majority of Member States have made an initial assessment of all the relevant pressures, except two Member States.

Four Member States out of seven did not define environmental targets for a number of descriptors.

Descriptors 7, 10 and 11 are the descriptors for which there are most gaps.

JUDGEMENT ON CURRENT STATUS IN RELATION TO GES

Only two Member States have made systematic judgements on the current status of the marine environment (in relation to all relevant pressures/features), using indicators and criteria which are used both for Article 8 and for Article 9 (GES).

USE OF EU REQUIREMENTS AND STANDARDS

All Member States but one have used EU requirements and standards in their definition of GES for the relevant descriptors (Descriptor 1, 3, 5, 7, 8 and 9) but sometimes in different ways.

USE OF THE COMMISSION DECISION CRITERIA AND INDICATORS

The approach adopted for the definition of GES varies substantially across the Member States of the Baltic Sea region. Three Member States (EE, LT, LV) have defined GES only at indicator level, as a rule, but not systematically covering all indicators of the Commission Decision. One Member State (SE) has defined GES at criteria and indicator level, closely following the structure of the Commission Decision. One Member State (FI) has defined GES at criteria level, as a rule. One Member State (DK) has defined GES only at descriptor level (with some exceptions for the biodiversity descriptors defined at criteria level). Finally, the remaining Member State (DE) has used a mixed approach, whereby it has defined GES at descriptor level for approximately half of the descriptors and at criteria/indicator level for the other half.

Certain criteria or indicators are almost never fully covered, namely indicator 5.1.2 on nutrient ratios, indicators 5.2.3 on the abundance of opportunistic macroalgae and 5.2.4 on species shift in floristic composition as well as criterion 9.1 on levels, number and frequency of contaminants is and indicator 9.1.2 on the frequency of regulatory levels being exceeded.

REFERENCE TO THE WORK OF THE REGIONAL SEA CONVENTIONS

The work of HELCOM is referred to by the Member States of the Baltic Sea region for almost all of the descriptors. However, the use and integration of HELCOM results in the national implementation varies considerably.

A number of HELCOM documents are referred to in different places, including the HELCOM Baltic Sea Action Plan, the HELCOM HOLAS report and the HELCOM CORESET/TARGREV reports⁴⁵. In addition, specific tools/reports are used by the Member States for the individual descriptors:

⁴⁵ See BSEP 122 and 136 at <http://helcom.fi/helcom-at-work/publications>

- a. Biodiversity: HELCOM list of species and habitats;
- b. NIS: HELCOM bio-pollution index;
- c. Commercial fisheries: HELCOM assessment of the status of the coastal fish community;
- d. Eutrophication: HELCOM HEAT and HELCOM assessments on eutrophication;
- e. Contaminants: HELCOM GES boundaries for priority hazardous substances and HELCOM assessments on hazardous substances;
- f. Marine litter: HELCOM assessment of the marine litter problem.

Other regional sources of information have been used by some Member States, such as the Baltic Sea Alien Species Database for Descriptor 2.

LEVEL OF INFORMATION ON DATA/KNOWLEDGE GAPS AND WAYS TO ADDRESS THEM

Several Member States (DE, DK, LV, SE) have systematically identified data and knowledge gaps, to varying levels of detail. Three of these Member States (DE, DK, SE) have also provided plans to close these gaps, mostly within the context of EU or Regional Sea Convention work. Two Member States (FI, SE) have provided timelines regarding the development of GES and targets and indicators for a number of descriptors where development is needed (in particular the biodiversity descriptor (Descriptor 1) but also NIS (Descriptor 2), commercial fish (Descriptor 3), sea-floor integrity (Descriptor 6), hydrographical change (Descriptor 7), marine litter (Descriptor 10) and noise (Descriptor 11)).

North East Atlantic Ocean region

The evaluation for the North East Atlantic Ocean region includes the national implementation reports of BE, DE, DK, ES, FR, IE, NL, PT (except for the Azores), SE and UK (except for Gibraltar).

SUMMARY OF THE COHERENCE ASSESSMENT

The following table presents a summary of the assessment of coherence at regional and subregional levels:

	GES	Initial Assessment	Environmental targets
D1	-	Pressures: ++ Features: -	-
D2	-	++	-
D3	+	+	-
D4	-	See D1	-
D5	++	++	+
D6	-	See D1	-
D7	++	+	++
D8	++	++	++
D9	++	++	++
D10	++	++	+
D11	-	++	-

At subregional level:

SR	GES			Initial Assessment			Environmental targets		
	NS	CS	BB	NS	CS	BB	NS	CS	BB
D1	-	+	-	P: ++ F: -	P: ++ F: +	P: ++ F: +	-	-	-
D2	-	+	-	++	++	++	-	+	-
D3	+	-	-	+	+/>++	+/>++	-/>+	-	-
D4	-	-	-	See D1	See D1	See D1	-	-	-
D5	++	++	+	++	++	++	-	++	-
D6	-	-	-	See D1	See D1	See D1	-	-	-
D7	++	++	-	+	++	++	++	++	+
D8	++	++	-	++	++	+	++	++	-
D9	++	++	-	++	++	+	++	++	+
D10	++	+	+	++	++	++	-	+	++
D11	-	++	-	++	++	+	-	-	+

NS Greater North Sea

CS Celtic Seas

BB Bay of Biscay and Iberian Coast

Overall, the level of coherence is highest out of all the four marine regions but still with considerable scope for improvement. The setting of GES is showing a high level of coherence for eutrophication (Descriptor 5), hydrographical changes (Descriptor 7), contaminants

(Descriptors 8 and 9) and litter (Descriptor 10). In particular the initial assessment is showing that the OSPAR work, in particular the Quality Status Report, has been extensively used and has provided a valuable input to the MSFD implementation at national level. A possible reason for not having a higher level of coherence may be that the work on the development of common indicators in OSPAR was not fully completed on time. Further improvements are, however, possible, in particular as regards the common understanding of applying GES and targets which varies considerably between Member States.

COVERAGE OF ARTICLES 8, 9 AND 10 FOR EACH OF THE 11 DESCRIPTORS

All Member States have defined GES for all descriptors.

A majority of Member States have made an initial assessment of all the relevant pressures, except two Member States (PT, SE), which did not make an assessment of the pressure from underwater noise and other forms of energy.

Four Member States out of ten did not define environmental targets for a number of descriptors.

JUDGEMENT ON CURRENT STATUS IN RELATION TO GES

Only a limited number of Member States in the region have made a judgement on the current status of the marine environment (in relation to certain pressures/features) using the same indicators and criteria for both Articles 8 and 9 (DK, ES, PT). The other Member States have either not made a conclusive judgement on the current status or have done so not in relation to GES but in relation to other standards.

USE OF EU REQUIREMENTS AND STANDARDS

Eight out of ten Member States have systematically used EU requirements and standards in their definition of GES for the relevant descriptors. The remaining two Member States have referred to EU requirements and standards only in a very limited manner.

USE OF THE COMMISSION DECISION CRITERIA AND INDICATORS

Five Member States out of ten (BE, ES, FR, SE, UK) have defined their GES at least at criterion level as a rule (sometimes defining GES for one or two descriptors only at descriptor level). Two Member States (DE, IE) have used a mixed approach, whereby they have defined GES at descriptor level for approximately half of the descriptors and at criteria/indicator level for the other half. A final category of three Member States (DK, NL, PT) have defined GES only at descriptor level as a rule (with a few exceptions for one Member State (DK)).

Those Member States, which have defined GES at criteria level, have also used some of the Decision's indicators. Only two Member States (FR, SE) have followed the structure of the Commission Decision quite consistently for all descriptors (but even these Member States have not defined GES for all individual indicators). Descriptor 10 is covered only at descriptor level by six Member States (DE, DK, ES, IE, NL, PT).

Certain criteria are almost never fully covered namely criterion 2.2 on environmental impact of invasive NIS fully, indicator 5.1.2 on nutrient ratios and indicator 5.2.3 on the abundance of opportunistic macroalgae, criterion 8.2 on effects of contaminants, acute pollution events criterion 9.1 on levels, number and frequency of contaminants and indicator 9.1.2 on the frequency of regulatory levels being exceeded.

REFERENCE TO THE WORK OF THE REGIONAL SEA CONVENTIONS

All Member States but one have regularly referred to, and often used, the work of OSPAR in their GES definition, their initial assessment and the setting of their environmental targets. However, there are sometimes differences in the way the regional results have been integrated into the national implementation.

A number of OSPAR documents are referred to in different places, including the 2010 OSPAR Quality Status Report (QSR)⁴⁶ which has been referred to by all Member States albeit by some more consistently than by others. In addition, specific tools/reports are used by the Member States for the individual descriptors although their application varies:

- a. The OSPAR COMP procedure;
- b. OSPAR advice for the biodiversity descriptors and for Descriptor 7;
- c. OSPAR's Environmental Assessment Criteria (EAC)
- d. OSPAR's Ecological Quality Objectives (EcoQO), including, in particular the one on northern fulmars.

LEVEL OF INFORMATION ON DATA/KNOWLEDGE GAPS AND WAYS TO ADDRESS THEM

All Member States but one (BE) have systematically identified data and knowledge gaps, to varying levels of detail. Out of these, five Member States have also, in general, provided plans to address these gaps (ES, FR, NL, SE, UK). Two Member States (DE, DK) rely mostly on on-going work at regional or EU level to address data and knowledge gaps.

⁴⁶ <http://qsr2010.ospar.org/en/index.html>

Mediterranean Sea region

The evaluation for the Mediterranean Sea region includes the national implementation reports of CY, EL, ES, FR, IT, MT and SI. The implementation report of HR arrived to late to be included in this assessment.

SUMMARY OF THE COHERENCE ASSESSMENT

The following tables present a summary of the assessment of coherence at regional and subregional levels:

At regional level:

	GES	Initial Assessment	Environmental targets
D1	-	Pressures: ++	-
		Features: -	
D2	-	++	-
D3	-	-	-
D4	-	See D1.	-
D5	+	+	+
D6	-	See D1.	-
D7	+	+	-
D8	+	-	-
D9	++	+	++
D10	+	+	+
D11	+	-	+

At subregional level, the level of coherence was not assessed when, in a subregion with two Member States, one of the Member States did not report on an element (e.g. Cyprus has not defined targets for Descriptor 2 so coherence has not been assessed for the Aegean-Levantine Sea subregion).

At subregional level:

SR	GES				Initial Assessment				Environmental targets			
	MWE	MAD	MIC	MAL	MWE	MAD	MIC	MAL	MWE	MAD	MIC	MAL
D1	-	-	-	-	P: ++	P: ++	P: ++	P: ++	-	-	-	-
					F: +	F: -	F: -	F: -				
D2	+	-	-	-	++	++	++	++	-	-	++	N/A
D3	-	-	-	-	-	+	+	-	-	-/+	-/+	-
D4	-	-	-	-	See D1	See D1	See D1	See D1	-	-	-	-
D5	++	+	++	-	+	+	+	+	+	-	++	-
D6	-	-	-	-	See D1	See D1	See D1	See D1	-	-	-	-
D7	+	-	-	-	++	+	++	+	-	-	N/A	N/A
D8	-	+	+	-	-	-	-	++	-	+	-	-
D9	+	++	++	++	-	-	-	+	N/A	++	N/A	++
D10	+	+	+	+	++	+	-	+	++	+	-	N/A
D11	+	+	++	++	-	-	N/A	N/A	-	-	-	N/A

	GES	Initial Assessment	Environmental targets
MWE	Western Mediterranean Sea		
MAD	Adriatic Sea		
MIC	Ionian Sea & Central Mediterranean Sea		
MAL	Aegean-Levantine Sea		

Overall, the level of coherence is moderate to low and also very different between the different sub-regions. The setting of GES is showing a high level of coherence for contaminants in seafood (Descriptor 9). For other descriptors, the GES setting, the initial assessment and the target definition is relatively coherent, in particular in some sub-region. However, there is considerable scope for improvement at all levels and on most issues.

COVERAGE OF ARTICLES 8, 9 AND 10 FOR EACH OF THE 11 DESCRIPTORS

All Member States have defined GES for all descriptors, except one Member State which has not defined GES for Descriptor 4.

A majority of Member States have made an initial assessment of all the relevant pressures, except two Member States which did not make an assessment of the some specific pressure.

Four Member States out of six did not define environmental targets for a number of descriptors. :

JUDGEMENT ON CURRENT STATUS IN RELATION TO GES

Many Member States in the region have attempted to make a judgement on the current status of their marine environment – in relation to certain pressures/features – using indicators and criteria which are used both for Article 8 and for Article 9 (GES). However, most of the time the indicators and criteria are not quantitative and/or are based on expert judgement

USE OF EU REQUIREMENTS AND STANDARDS

Four out of six Member States have systematically used EU requirements and standards in their definition of GES for the relevant descriptors although sometimes in a different way. The remaining two Member States have referred to the EU requirements and standards only in a very limited manner.

USE OF THE COMMISSION DECISION CRITERIA AND INDICATORS

As a rule, all Member States in the marine region but one have defined GES at least at criterion level, using some or all of the criteria of the Commission Decision for each Descriptor. One Member State has defined GES as a rule at descriptor level. Most Member States have also used some of the Decision's indicators.

Descriptors 7, 10 and 11 are often covered only at descriptor level.

Certain criteria are almost never fully covered namely criterion 2.2 on environmental impact of invasive NIS, indicator 5.1.2 on nutrient ratios, criterion 8.2 on effects of contaminants, indicator 8.2.2 on acute pollution events and criterion 9.1 on levels, number and frequency of contaminants as well as indicator 9.1.2 on the frequency of regulatory levels being exceeded.

REFERENCE TO THE WORK OF THE REGIONAL SEA CONVENTIONS

Only half of the Member States have regularly referred to the work of the Barcelona Convention in their initial assessment. However, there is rarely a specific reference to the Barcelona Convention Ecosystem Approach. The Barcelona list of protected species is mentioned by four Member States.

Most Member States have also made references to, and/or used, OSPAR standards. In particular, OSPAR's Environmental Assessment Criteria have been used by four Member States in their definition of GES for Descriptor 8.

LEVEL OF INFORMATION ON DATA/KNOWLEDGE GAPS AND WAYS TO ADDRESS THEM

Several Member States have systematically identified data and knowledge gaps, to varying levels of detail. All of these Member States but one have also provided plans to close these gaps, e.g. in the form of high-level objectives/targets focused on further research and improved monitoring.

Black Sea region

The evaluation for the Black Sea region includes the national implementation reports of BG and RO, although for BG, only their implementation of Article 9 and 10 was assessed within the available time which does not allow for a coherence assessment of Article 8.

SUMMARY OF THE COHERENCE ASSESSMENT

The following table presents a summary of the assessment of coherence. The level of coherence was not assessed when the two Member States (or one of the two) did not report on an element (e.g. no GES or targets defined for Descriptor 11). The assessment of coherence is based on the comparability of the elements reported by the two Member States. Coherence of the Initial Assessment was not assessed, due to the late reporting by Bulgaria.

	GES	Environmental targets
D1	-	- / +
D2	-	N/A
D3	-	- / +
D4	N/A	N/A
D5	+	+
D6	N/A	N/A
D7	N/A	N/A
D8	-	-
D9	N/A	N/A
D10	N/A	N/A
D11	N/A	N/A

Overall, the level of coherence is very low which is partially to do with the fact that one of the two Member States has often not defined GES or set targets for a particular descriptor. Where both Member States have provided input, only for eutrophication (Descriptor 5) a moderate level of coherence is observed.

COVERAGE OF ARTICLES 9 AND 10 FOR EACH OF THE 11 DESCRIPTORS

Neither Member State has defined GES for Descriptors 7, 9, 10 and 11. Consequently, the two countries have not set environmental targets for these descriptors (except Descriptor 9 for which one Member State has set targets without having defined a GES).

USE OF EU REQUIREMENTS AND STANDARDS

Both Member States have used EU requirements and standards where relevant but only to a certain extent and not necessarily systematically.

USE OF THE COMMISSION DECISION CRITERIA AND INDICATORS

One Member State has defined GES at indicator level but not always following the structure of the Commission Decision or using the same indicators. The other Member State has used a mixed approach, defining GES at descriptor, criteria or indicator level, depending on the descriptor.

The Commission Decision indicators have been used by both countries to specify some of their targets, either using them literally or specifying them further.

REFERENCE TO THE WORK OF THE REGIONAL SEA CONVENTIONS

The two Member States have made very limited references to the work of the Bucharest Convention when defining their GES or setting their targets. The only references to the Bucharest Convention relate to its list of protected species and its list of priority hazardous substances.

LEVEL OF INFORMATION ON DATA/KNOWLEDGE GAPS AND WAYS TO ADDRESS THEM

One Member State has identified data and knowledge gaps much more consistently and systematically than the other. This Member State has also provided a number of high-level recommendations / plans to address these gaps for descriptors for which knowledge gaps are very important. But timelines and concrete steps to be taken to address the gaps are not provided.

APPENDIX 4: UNDERSTANDING OF MSFD ARTICLES 9 AND 10 AND THEIR RELATIONSHIP USED IN THE METHODOLOGY TO ASSESS MEMBER STATES' REPORT

The aim of this appendix is to provide clarification on the Commission services' understanding of Art 9 and 10 of the MSFD used in their assessment of Member States' reports and leading to the assessment criteria in Appendix 1 and the summary findings and recommendations per Member State set out in Appendix 2⁴⁷. This understanding is the basis for discussion with Member States on the follow up to this report. It should be used to apply the recommendations set out in the Commission report (including its annex) and should be the starting point for discussion to develop a better common understanding on these questions together with Member States.

INTRODUCTION

The Marine Strategy Framework Directive sets out a legislative frame in broad terms which allows a large degree of flexibility and discretion for Member States in its implementation

The European Commission is provided by the MSFD with a number of mandates, which aim at ensuring a minimum level of coherence, comparability and in some cases harmonization of the interpretation and implementation of the Directive. These mandates are established, in particular, by the Articles. 9(3), 11(4) and 24. Before using these mandates as set out in the recommendations to this report, a common understanding is needed on the roles of Article 9 and 10.

GOOD ENVIRONMENTAL STATUS

Article 1(1): *This Directive establishes a framework within which Member States shall take the necessary measures to achieve or maintain good environmental status in the marine environment by the year 2020 at the latest.*

Article 3(4): *'environmental status' means the overall state of the environment in marine waters, taking into account the structure, function and processes of the constituent marine ecosystems together with 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 area concerned;*

Article 3(5): *'good environmental status' means the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations, i.e. [...]*

Article 3(6): [GES] *'criteria' means distinctive technical features that are closely linked to qualitative descriptors;*

⁴⁷ The Commission services recall that the interpretation of EU legislation is the prerogative of the European Court of Justice.

Article 9 Determination of good environmental status

Article 9(1): *By reference to the initial assessment made pursuant to Article 8(1), Member States shall, in respect of each marine region or subregion concerned, determine, for the marine waters, a set of characteristics for good environmental status, on the basis of the qualitative descriptors listed in Annex I.*

Member States shall take into account the indicative lists of elements set out in Table 1 of Annex III and, in particular, physical and chemical features, habitat types, biological features and hydro-morphology.

Member States shall also take into account the pressures or impacts of human activities in each marine region or subregion, having regard to the indicative lists set out in Table 2 of Annex III.

Article 9(3): *Criteria and methodological standards to be used by the Member States, which are designed to amend non-essential elements of this Directive by supplementing it, shall be laid down, on the basis of Annexes I and III, in accordance with the regulatory procedure with scrutiny referred to in Article 25(3) by 15 July 2010 in such a way as to ensure consistency and to allow for comparison between marine regions or subregions of the extent to which good environmental status is being achieved. Before proposing such criteria and standards the Commission shall consult all interested parties, including Regional Sea Conventions.*

Good environmental status (GES) is the core concept of what has to be achieved by the MSFD. All operational provisions are in one way or another linked to GES, which is the central feature allowing the measurement of progress and success. It is also associated with a precise deadline ("*by the year 2020 at the latest*", see Art. 1(1)) and the main element from which exemptions can be applied (Art. 14). It is therefore paramount that Member States can determine GES, and monitor and assess whether it has been achieved (ideally in a quantitative way). In other words, Member States must be able to determine whether marine waters (or parts thereof) are in good status or not. If they are not, it must be clear how the marine waters can be brought (back) into good status.

Assessment element 1: *GES must be determined and monitored on the basis of environmental state.*

Within the concept of DPSIR (drivers, pressure, state, impact and response), status or state is set within a wider role of environmental assessment and management. The definition of environmental status contained in Art. 3(4) confirms this understanding. However, by introducing "good" as a qualification of desired status, it brings in an element of impact into the concept. This is further confirmed by the nature of the qualitative descriptors (Annex I), which all introduce some form of impact description (e.g. "do not adversely alter the ecosystems"). It is clear from the DPSIR model that both state and impact are linked to pressures; some of the qualitative descriptors make that link explicitly (e.g. "properties and quantities of marine litter"). Nevertheless, this does not mean that GES can be determined and monitored through quantifiable pressure indicators (these can be introduced through the targets, see below). Environmental Status (ES) refers to any specific, overall state of the environment, whereas Good Environmental Status (GES) is the particular state of the environment in which the oceans and seas are healthy, the ecosystem is functioning and there

is an acceptable (or better “sustainable”) level of human-induced impact on the environment. Hence, “good” defines a boundary between acceptable and non-acceptable or sustainable and unsustainable.

Assessment element 2: *Good in GES has to be defined through a quantifiable boundary between a state that is acceptable in terms of the MSFD and a state that is not acceptable. In principle, GES also equates to “sustainability use” of the marine environment.*

In order to be acceptable, GES must conform to the definition contained in Art. 3(5) and therefore ensure the fulfilment of Arts. 1(2) and 1(3) (in particular “*by ensuring that the collective pressure of such activities is kept within levels compatible with the achievement of good environmental status and that the capacity of marine ecosystems to respond to human-induced changes is not compromised, while enabling the sustainable use of marine goods and services by present and future generations*”). This means that “good” is not necessarily set at the level of a pristine state or “reference conditions” (e.g. as defined in the Water Framework Directive). Instead, it allows human activities and a certain inevitable negative impact they may have on the marine environment, but it defines the limits of this impact to ensure that these activities remain sustainable.

Furthermore, the GES criteria, which constitute technical features to enable status to be determined, must be “*distinctive*” (Art. 3(6)). The criteria provide the parameters upon which the assessment of status must be made. To allow the assessment of GES, i.e. to describe a boundary between good and not good status as distinctively as possible, threshold values (or qualitative descriptions) must be determined for these criteria. This boundary would describe the limit between an acceptable and an unacceptable level. Thus, it would be ideal to determine quantifiable GES “boundaries” (=threshold) on the basis of an “assessment” (which looks at the level/intensity of human activities which can endanger the “*ecologically diverse and dynamic oceans and seas which are clean, healthy and productive*”). Such an approach is implicit in the Directive since Art. 14(4) exempts Member States from taking “*specific steps where there is no significant risk to the marine environment.*” Where it is (scientifically) not possible to determine quantifiable GES “boundaries” (based on specific criteria) on the basis of risk at the moment, an interim step could be to determine GES “proxies” or normative definitions (as, for example given in Annex V of the WFD for biological quality elements). Such “proxies” must take into account the precautionary principle. They can also be set in the form of a target and related indicator as set out in Annex IV, point (3).

Assessment element 3: *GES must be determined for an entire marine region or sub-region. There is limited flexibility for Member States. Rules for temporal and spatial aggregation are essential for the application of GES.*

The compliance area for the determination of GES, as defined in Art. 9(1), is the marine region or subregion. This is also explicitly mentioned in Art. 3(5): “*Good environmental status shall be determined at the level of the marine region or subregion ...*”. At the same time, it is for Member States to “*determine, for the marine waters, a set of characteristics for good environmental status*”. However, this provision is conditioned by a number of other provisions in the Directive, including the references to Annexes I and III and the link to Article 8, as well as Article 9(3) where criteria and methodological standards of Decision 2010/477/EU must be used. Furthermore, the several requirements on regional coordination,

coherence and comparability limit the discretion that Member States have, at least as regards some form of common minimum requirements.

In practice, this can be implemented as follows:

Every Member State determines a set of characteristics for GES for the marine waters in each marine region or subregion concerned. Therefore at a national level the compliance area is limited to the marine waters over which the Member State exercises jurisdictional rights. The second step consists of harmonising or, at least, coordinating the determination of GES with other Member States within the respective region or subregion. The need to coordinate the determination of GES results from Art. 5(2)(a)(ii), which imposes on the Member States the obligation to ensure, that the elements of the strategy required to achieve the objectives of the Directive are coherent and coordinated across marine regions and subregions.

It is possible to reverse the order, namely by elaborating common assessment and GES criteria (and where necessary also targets and related indicators) for an entire marine (sub-)region first, e.g. through the Regional Sea Conventions. However, Member States should then translate the agreed common criteria etc. into the national implementation process and communicate them to the Commission as part of their national report.

Article 4(2) of the Directive also offers the possibility to implement the Directive by reference to subdivisions. These additional subdivisions can assist in the implementation but should not be confused with the compliance area.

Based on these elements, it is therefore essential that Member States specify their methods for spatial and temporal aggregation of assessments, in order to relate the assessments against GES, which could be undertaken at smaller geographical scales, to the determination of GES at (sub-)regional level. Such methods should be, to a certain extent, specified or standardized across the EU to “ensure comparability between monitoring and assessment” (cf. Art. 11(4)) beyond those already laid down in Decision 2010/477/EU.

Assessment element 4: *Member States must determine a set of characteristics for GES on the basis of Annex I and Decision 2010/477/EU and taking account of Annex III but not limiting themselves to these descriptors and the criteria proposed by the Commission.*

In order to ensure a coherent approach towards setting the characteristics for GES, MSFD Annex I contains a list of qualitative descriptors, for which the Decision 2010/477/EU sets out a set of criteria for their assessment. However, it is clearly indicated that “*The criteria for the achievement of good environmental status are the starting point [emphasis added] for the development of coherent approaches in the preparatory stages of marine strategies, including the determination of characteristics of good environmental status ...*”⁴⁸. In other words the descriptors and criteria provide “the basis”⁴⁹ for setting the characteristics of GES, but should not be treated as an exhaustive catalogue. The goal is to create a high quality description of GES based on minimum requirements..

⁴⁸ Commission Decision of 1 September 2010 on criteria and methodological standards on good environmental status of marine waters (2010/477/EU), rec. (1).

⁴⁹ Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy, Art. 9(1).

Assessment element 5: *The European Commission can harmonise GES criteria and GES methodological standards, as well as specifications and standardised methods for monitoring and assessment, but not targets and indicators.*

Such harmonisation shall "ensure consistency" and "allow for comparison between marine regions or subregions"⁵⁰ and thereby improve coherence. Such harmonization can only be achieved in the form of "minimum requirements". On the one hand, the MSFD introduces flexibilities to be applied by the Member States and allows taking into account the differences in both environmental characteristics and human activities and their pressures between the marine (sub-)regions. On the other hand, the Treaty allows Member States to set more ambitious objectives for the environment at any time (Art. 194 TFEU). The Commission already partly exercised these rights with the Decision 2010/477/EU.

ENVIRONMENTAL TARGETS

Article 3(7): *'environmental target' means a qualitative or quantitative statement on the desired condition of the different components of, and pressures and impacts on, marine waters in respect of each marine region or subregion. Environmental targets are established in accordance with Article 10;*

Article 10(1): *On the basis of the initial assessment made pursuant to Article 8(1), Member States shall, in respect of each marine region or subregion, establish a comprehensive set of environmental targets and associated indicators for their marine waters so as to guide progress towards achieving good environmental status in the marine environment, taking into account the indicative lists of pressures and impacts set out in Table 2 of Annex III, and of characteristics set out in Annex IV.*

When devising those targets and indicators, Member States shall take into account the continuing application of relevant existing environmental targets laid down at national, Community or international level in respect of the same waters, ensuring that these targets are mutually compatible and that relevant transboundary impacts and transboundary features are also taken into account, to the extent possible.

Assessment element 1: *Environmental targets are management tools, not objectives. They support the achievement of GES but cannot replace a (quantifiable) GES determination.*

Member States are required to "establish a comprehensive set of environmental targets and associated indicators for their marine waters so as to guide progress towards achieving good environmental status in the marine environment" (Art. 10(1)). This means that targets and related indicators constitute an operational tool in case when the marine waters are not in good status. If good status is already achieved, it can be maintained (and monitored) without setting targets. Furthermore, GES and targets are (in most cases) not exchangeable and both the differentiation between them as well as the way they relate should be clearly identified.

⁵⁰ Ibidem, rec. (25).

Finally, Annex IV sets out an “indicative list of characteristics to be taken into account for setting environmental targets”, which underlines the difference between GES assessment criteria and operational targets and indicators. It must be underlined that apart from the possibility to amend Annex IV (Art. 24(1)) or to set methodological standards (Art. 24(2)), the Commission has no particular mandate to harmonise targets or associated indicators. This means that there is a large degree of flexibility for Member States in the establishment of targets.

Assessment element 2: *Targets and related indicators can be very different in nature, have various purposes and can be based on characteristics, pressures, status or impacts thereby complementing the GES assessment.*

Annex IV, point (2) describes three types of targets, namely:

- a. *targets establishing desired conditions based on the definition of good environmental status;*
- b. *measurable targets and associated indicators that allow for monitoring and assessment; and*
- c. *operational targets relating to concrete implementation measures to support their achievement.*

In the same annex, point (3) states that targets can be “*specification of environmental status to be achieved or maintained and formulation of that status in terms of measurable properties of the elements characterising the marine waters of a Member State within a marine region or subregion*”. Such targets, which reflect the type (a) above, could be similar or identical to GES. In case they are identical, however, there is limited added value for such a target within the conceptual framework of the MSFD. But a state target which is set at a less ambitious level than GES may be useful or necessary in some specific cases, for instance as an intermediate step.

Assessment element 3: *Member States should consider social and economic concerns in the setting of targets but not in determining GES.*

Annex IV, point (9) indicates that the setting of environmental targets should be given “*due consideration of social and economic concerns*.” Meanwhile, the determination of GES must not take these considerations into account because the assessment of GES is the result of a scientific, risk-based assessment which, where necessary, takes the precautionary principle into account. Social and economic arguments which may make it difficult to achieve GES can and must be taken into account through the exemptions (mainly Art. 14(4)).

APPENDIX 5. OVERVIEW OF COORDINATING COMPETENT AUTHORITIES FOR THE MARINE STRATEGY FRAMEWORK DIRECTIVE

Member State	Name and Address of Coordinating Competent Authority
Austria	Federal Minister for Agriculture and Forestry, Environment and Water Management (Bundesminister für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft – BMLFUW) Stubenring 1, 1012 Vienna Website: http://www.lebensministerium.at/
Belgium	The Marine Environment Service of the Health, Food Safety and Environment Federal Public Service, DG Environment (FOD Volksgezondheid, Veiligheid van de Voedselketen en Leefmilieu – Dienst Marien Milieu) Place Victor Hortaplein 40/010, Brussels 1060 Website: http://www.beldonor.be/eportal/Environment/index.htm
Bulgaria	Minister of Environment and Water (MoEW) 22 Maria Louiza Blvd, Sofia, 1000 Website: http://www2.moew.government.bg/index_e.html
Cyprus	Minister of Agriculture, Natural Resources and Environment Loukis Akritas Avenue, Nicosia 1411 Website: http://www.moa.gov.cy/moa/agriculture.nsf/index_en/index_en?OpenDocument
Croatia	Not reported
Czech Republic	Not reported
Denmark	Danish Nature Agency (Naturstyrelsen – NST) under the Ministry of the Environment Haraldsgade 53, Copenhagen 2100 Website: http://www.nst.dk
Estonia	Ministry of Environment (Keskkonnaministeerium) Narva Maantee 7a, Tallinn 15172 Website: http://www.envir.ee/
Finland	Ministry of Environment (Ympäristöministeriö/Miljöministeriet) Kasarmikatu 25, Po-Box 35, FI-00023 Valtioneuvosto Website: http://www.ymparisto.fi
France	Ministry of Ecology, Sustainable Development, Transport and Housing (now entitled Ministry of Ecology, Sustainable Development and Energy – Ministère de l'écologie, du développement durable et de l'énergie) La Grande Arche, 92055 La Défense, Paris Website: http://www.developpement-durable.gouv.fr/
Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit – BMU) Robert-Schuman-Platz 3, Bonn 53175 Website: http://www.bmu.de/
Greece	Special Secretariat for Waters of the Ministry of Environment, Energy and Climate Change (Ειδική Γραμματεία Υδάτων – SSW) Iatridou 2 & Kifissias 124 str., Athens 11526 Website: http://www.ypeka.gr
Hungary	Ministry of Rural Development (Vidékfejlesztési Minisztérium) Kossuth Lajos tér 11, 1055 Budapest Website: www.vm.gov.hu

Member State	Name and Address of Coordinating Competent Authority
Ireland	Department of the Environment, Community and Local Government (DECLG) Newtown Road, Wexford Website: http://www.environ.ie
Italy	Ministry for the Environment, Land and Sea (Ministero dell'ambiente e della tutela del territorio e del mare – MATTM) Via Cristoforo Colombo, n. 44, 00147 Rome Website: http://www.minambiente.it
Latvia	Ministry of the Environmental Protection and Regional Development (Vides aizsardzības un reģionālās attīstības ministrija – VARAM) Peldu 25, Rīga LV-1494 Website: http://www.vidm.gov.lv
Lithuania	Ministry of Environment of the Republic of Lithuania (Lietuvos Respublikos aplinkos ministerija – AM) Jakšto 4/9, Vilnius LT-01105 Website: http://www.am.lt
Luxembourg	Ministry for Home Affairs and the Greater Region (Ministère de l'Intérieur et à la Grande Région) 19, rue Beaumont, Luxembourg L-1219 Website: www.waasser.lu
Malta	Office of The Prime Minister (Uffiċċju tal-Prim Ministru – OPM) Merchants Street, Valletta VLT 1170 Website: https://opm.gov.mt/home
Netherlands	Ministry of Infrastructure and the Environment (Minister van Infrastructuur en Milieu – IenM) Postbus 20901, The Hague 2500 EX Website: http://www.rijksoverheid.nl/ministeries/ienm
Poland	Chief Inspectorate of Environmental Protection (Główny Inspektorat Ochrony Środowiska) 52/54 Wawelska Street, 00-922 Warsaw http://www.gios.gov.pl
Portugal	National Institute for Water (Instituto da Água, I.P. – INAG) Av. Almirante Gago Coutinho nº30, 1049-066 Lisbon Website: http://www.inag.pt/
Romania	Ministry of Environment and Forests (Ministerul Mediului si Padurilor – MMP) Libertatii 12, Bucharest 040129 Website: http://www.mmediu.ro
Slovak Republic	Ministry of Environment of the Slovak Republic (Ministerstvo životného prostredia Slovenskej republiky – MŽP SR) Nám. Ľ.Štúra 1, 812 35 Bratislava Website: http://www.minzp.sk/en/
Slovenia	Ministry of the Environment and Spatial Planning (Ministrstvo za okolje in prostor – MOP) Dunajska 48, Ljubljana SI-1000 Website: www.mop.gov.si
Spain	Ministry of the Environment and Rural and Marine Affairs (Ministerio de Medio Ambiente, y Medio Rural y Marino – MARM) Pza. San Juan de la Cruz s/n, Madrid 28071 Website: www.marm.es

Member State	Name and Address of Coordinating Competent Authority
Sweden	The Swedish Agency for Marine and Water Management (Havs- och vattenmyndigheten – SwaM) Box 11 930, Gothenburg 404 39 Website: www.havochvatten.se
United Kingdom	UK (except Gibraltar): Secretary of State, Department for Environment, Food and Rural Affairs (Defra) Nobel House 17 Smith Square, London, SW1P 3JR Website: http://www.defra.gov.uk Gibraltar: Department of Environment, Duke of Kent House, Line Wall Road Website: http://www.gibraltar.gov.gi/environment/environment