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In-Depth Assessment of the EU Member States' Submissions for the Marine Strategy Framework Directive under Articles 8, 9 and 10 on Hydrographical Conditions Descriptor 7

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Abstract

According to the Marine Strategy Framework Directive (MSFD), in 2012 Member States had to report on the initial assessment of their marine waters (art. 8), on the determination of good environmental status (art. 9) and on the establishment of environmental targets and associated indicators (art. 10). At the request of DG Environment, the Joint Research Centre of the European Commission has carried out an in-depth assessment (IDA) of the reporting done by Member States. This document presents the result of this IDA for MSFD Descriptor 7 (Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems), carried out on the basis of reporting from the following Member States (MS): Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Portugal, Romania, Slovenia, Spain, Sweden, United Kingdom.

The aims of the IDA were: i) to evaluate comparability and coherence of methods and in particular their relation to the assessments under other European and international frames and the latest scientific evidence, ii) to provide recommendations for improved implementation of the MSFD in the second cycle (2018) and iii) to support the review and the possible revision of the Commission Decision (2010/477/EU). In this IDA document, relevant issues are addressed, followed by suggestions and potential actors regarding the MSFD Descriptor 7.

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1. Introduction

EC JRC has analysed the EU Member States reports on Marine Strategy Framework Directive articles 8, 9 and 10 for the completeness, comparability and coherence of assessments. In preparation of the process for reviewing the MSFD Commission Decision 2010/477/EU it was found appropriate to integrate the resulting [JRC in-depth assessment](#) report with a dedicated issue on MSFD Descriptor 7 (D7).

D7 is dedicated to assess permanent alteration of hydrographical conditions due to human activities causing impacts at local or broader scales and reflecting long-term changes in the ecosystems. Unlike all other descriptors, there was no MSFD Task Group report to support a consistent lay down of criteria and methodological standards regarding hydrographical conditions. In addition, there have been some discussions on the complexity of achieving a common understanding for assessment of GES for this descriptor. D7 overlaps with parts of the WFD for coastal waters and in respect to the hydromorphological objectives in the context of river basin management plans. Other frameworks that may contribute to the assessment of D7 are the Environmental Impact Assessment (EIA) Directive 2011/92/EU, on the assessment of the effects of certain public and private projects on the environment, and the Strategic Environmental assessment (SEA) Directive 2001/42/EC, on the assessment of the effects of certain plans and programmes on the environment.

1.1 Scope of the in-depth assessment

On request from DG Environment to support the implementation of MSFD (Art. 12), JRC has performed the in-depth assessment (IDA) of D7 as reported by the Member States for Article 8, 9, and 10. The aims of the IDA are limited to provide an overview and eventually identify additional issues arising from the analysis on assessments made by MS within Art 8,9,10 reporting.

- To evaluate comparability and coherence of methods and in particular their relation to the assessments under other policy frameworks and the latest scientific evidence.
- To provide recommendations for improved implementation in the second MSFD cycle
- To support the review process of the Commission Decision 2010/477/EU on criteria and methodological standards

The aim of this report is to present a holistic assessment of the implementation of MSFD per Member State rather than to judge or comment on particular Member States practices.

2. Assessment methodology

2.1 Input for D7 IDA

The JRC assessment for D7 is based on the individual national overview reports prepared for DG ENV by Milieu and the information collected on the reporting sheets provided by MSs (as required in the MSFD implementation process, files version from September 2013). Additionally, the original MSs reports were occasionally consulted in

order to improve content of this document, but also to include Malta in the assessment (it was not available in the Milieu reports, nor in the reporting sheets). From the total number of 23 MSs involved in the MSFD implementation process, the available information considered in this report includes 21 MSs (Annex I). No final documents were available for Poland. Croatia was not included officially in the delivering of Art. 8, 9 and 10 because of its recent EU membership in 2013 and therefore it has not been considered in the IDA.

2.2 Methodological evaluation

A set of questions was developed to create a database for a total of 21 MS. Using this database, basic graphs have been produced and included in this document in order to show the proportion of countries that are considering certain elements for the assessment of D7.

Results are presented in three sections including separately the inputs for MSFD Article 8 (Section 3.2, Information on Initial Assessments), Article 9 (Section 3.1, Determination of GES) and Article 10 (Section 3.3, Environmental Targets).

3. Results

3.1 Determination of GES (Art. 9)

3.1.1 Definition of GES and MSFD requirements

A total of 16 MSs out of 21 have delivered a definition of GES at descriptor level, according to MSFD Annex I. 7 MSs out of 21 have included the criteria set down in COM DEC 2010/477/EU, and a further 3 MS have partially included these criteria. 1 MS included different criteria to those in COM DEC 2010/477/EU. At indicator level, only 2 MSs out of 21 have included details as specified in COM DEC 2010/477/EU, whilst 2 MSs partially included indicators as specified in COM DEC 2010/477/EU. 1 MS included different indicators to those in COM DEC 2010/477/EU.

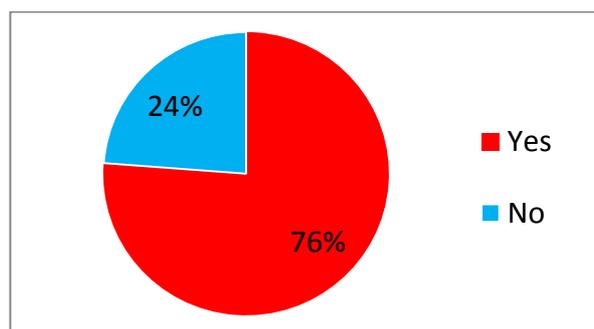


Figure 1. GES Definition at Descriptor level (according to MSFD ANNEX I)

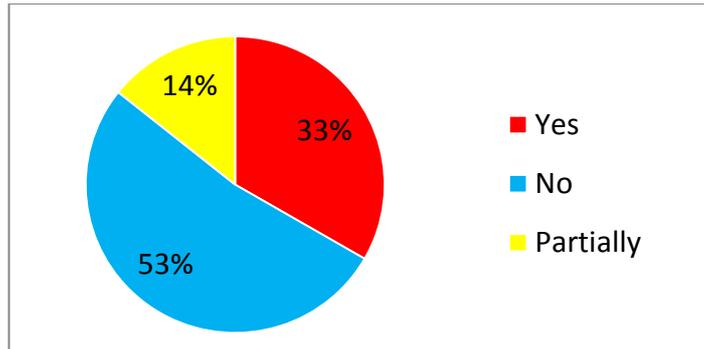


Figure 2. GES Definition at Criteria level (according to COM DEC)

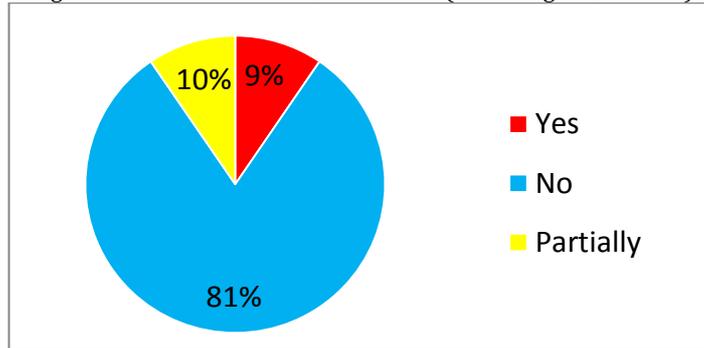


Figure 3. GES Definition at Indicator level (according to COM DEC)

Beyond the determination of GES, 6 MSs have specified the environmental components to be considered and have provided a list of features or pressures addressed by GES. The information provided in the reporting sheets and Milieu reports is not exhaustive, but selected addressed features/pressures included coastal defence works, damming of large rivers, land reclamation projects, and structures in open and coastal sea such as wind farms, ocean energy device arrays and large scale aquaculture facilities. Environmental components comprised changes in temperature, salinity, currents, erosion, sedimentation, wind waves and atmospheric conditions.

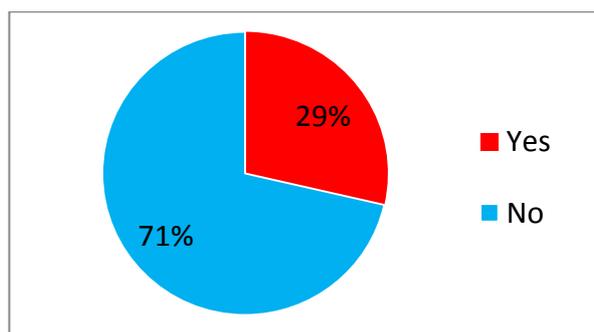


Figure 4. List of features or pressures addressed by GES

Only 2 MSs out of 21 defined baselines for the determination of GES, although an additional MS partially defined baselines. Baselines referred to Initial Assessments 2010 (2) and Report WISE WFD I cycle 2010 (1). Only 1 MS was able to partially include thresholds in their definitions.

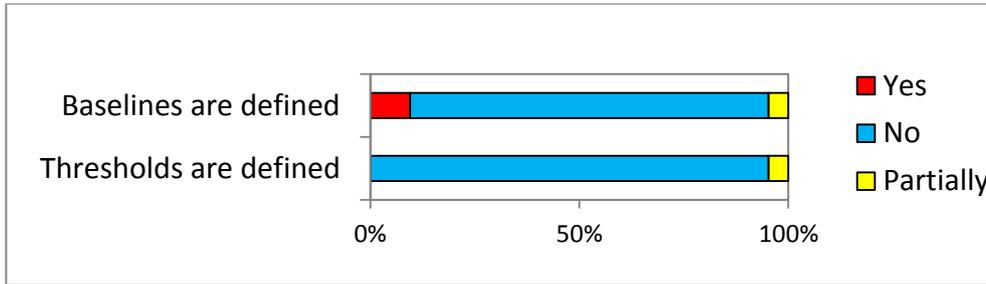


Figure 5. Baselines/Thresholds included in definition of GES

3.1.2 References to RSCs and other international frameworks

Regarding Regional Sea Conventions (RSCs), only OSPAR has produced a guidance document for the assessment of GES for D7. 4 MS out of 21 mentioned OSPAR. There were no references to UNEP/MAP, HELCOM or BSC. On the other hand, 8 MSs out of 21 mentioned other international frameworks such as EIA Directive (5), SEA Directive (5), WFD (6), Habitats Directive (HD) (5), Birds Directive (BD) (2) and Natura 2000 Network (1). In addition, 1 MS made reference to EIA national policy.

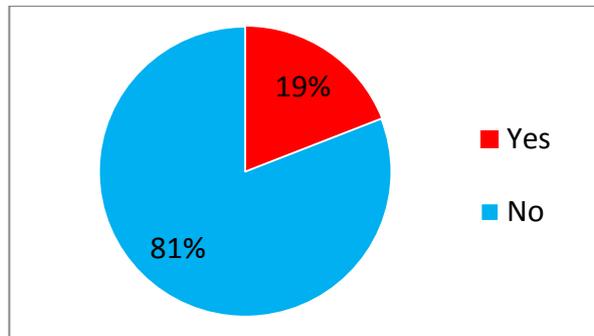


Figure 6. Reference to Regional Sea Conventions

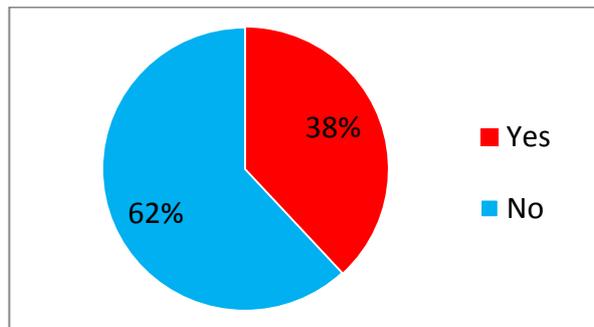


Figure 7. Reference to other international frameworks

3.2 Information on Initial Assessment (Art. 8)

19 MSs out of 21 delivered information on the Initial Assessment, of which 13 provided a qualitative assessment and 6 MSs provided both qualitative and quantitative elements. Data availability, meaning general qualitative and/or quantitative information, for most MSs was limited (17) or very limited (1); only 1 MS reported to have consistent data availability, while 2 MSs lacked any data for the Initial Assessment. According to the Milieu reports and information from the reporting sheets, 1 MS has

provided reports on trends and 4 MSs have done so in a limited way. 16 MSs were not able to provide any information on trends.

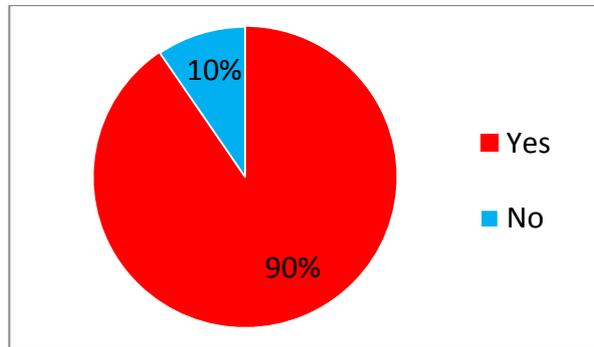


Figure 8. Information provided on Initial Assessment

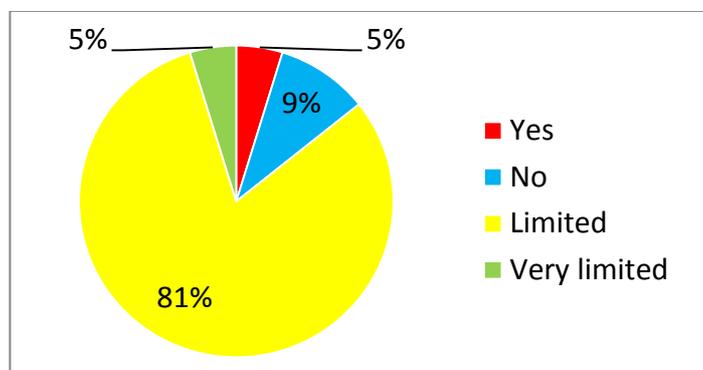


Figure 9. Data availability

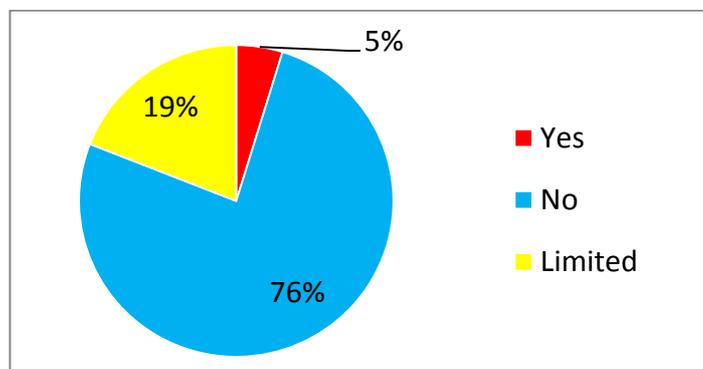


Figure 10. Trends availability

Regarding general data availability, 10 MSs were able to deliver lists of relevant pressures for D7, with a further 6 MSs delivering limited information on these pressures and 1 MS delivering very limited information on these pressures. 4 MSs were not able to deliver any information on pressures.

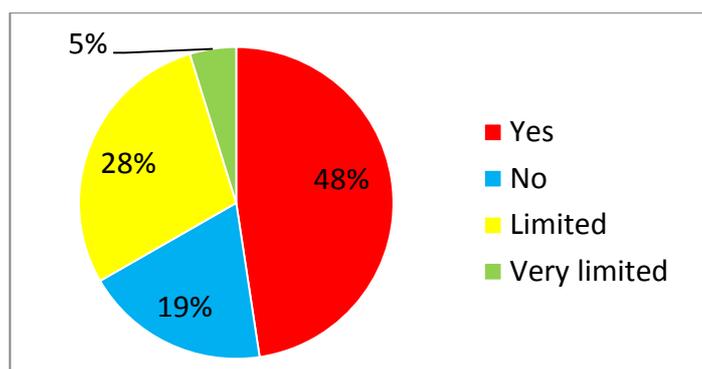


Figure 11. List of Relevant Pressures

3 MSs linked this descriptor to the biodiversity descriptors: D1 (2), D4 (1) and D6 (2). This is important to consider as it may be necessary to link information across descriptors in order to make an appropriate assessment for D7, but also for D1 (habitats) and D6.

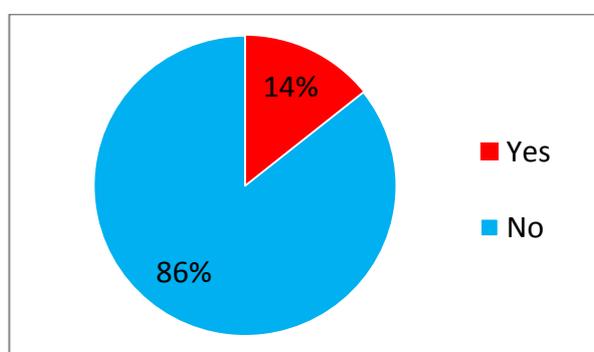


Figure 12. Reference to other MSFD descriptors

3.2.1 Information on selected pressures

Within the reporting sheets, pressures within the water column and sea bed compartments were considered. Out of the 21 MSs, 2 were considered to have included consistent information on pressures in the water column in their assessments (Figure 13), while 16 MSs had limited information on pressures in the water column and 1MS could only provide very limited information. 2 MSs were unable to include information on pressures in the water column.

Only 1 MS was considered to have included consistent information on pressures on the seabed in the Initial Assessment (Figure 14), although 15 MSs provided limited information and 1 MS provided very limited information on seabed pressures. 3 MSs did not include pressure on the seabed in their assessments.

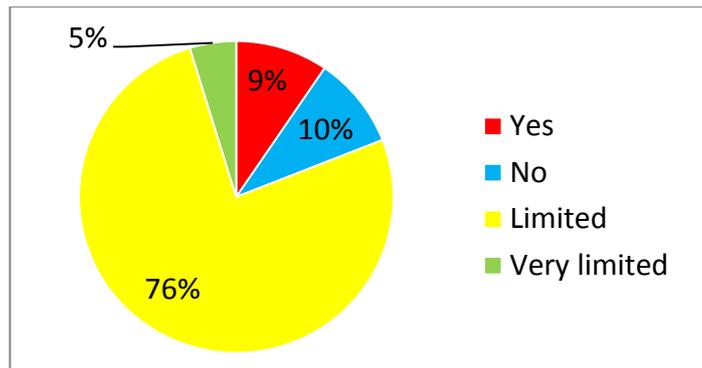


Figure 13. Information available on pressures on the water column

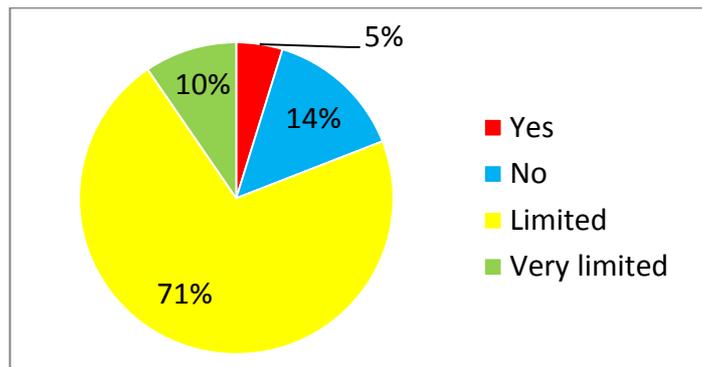


Figure 14. Information available on pressures on the seabed

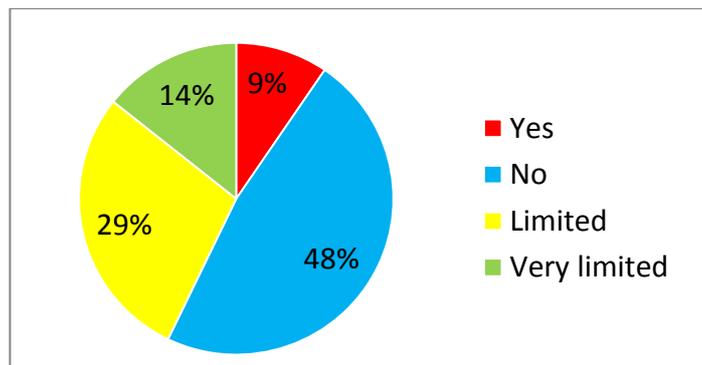


Figure 15. Information available on Acidification

Marine acidification was addressed under D7 by several MSs (Figure 15). 2 MSs were considered to have consistent information, while 6 MSs provided limited information on marine acidification and 3 MSs included very limited information on this additional pressure. 10 MSs did not report on this issue. On the other hand, one country provided an independent assessment on marine acidification not related to D7.

3.2.2 Information on impacts

Only 1 MS was considered to have included consistent information on all three categories of impacts in the Initial Assessments: water column, seabed and functional groups. 8 MSs provided limited information on impacts in the waters column, whereas 6 MSs provided very limited information. 6 MS did not report on impacts in the water column. 9 MSs provided limited information on impacts on the seabed and 5 MSs included very limited information. 6 MSs did not report on impacts on the seabed.

Information on impacts on functional groups proved the most challenging and 10 MS did not report on these impacts. 6 MSs included limited information and 3 MSs very limited information on the levels of impacts on functional groups.

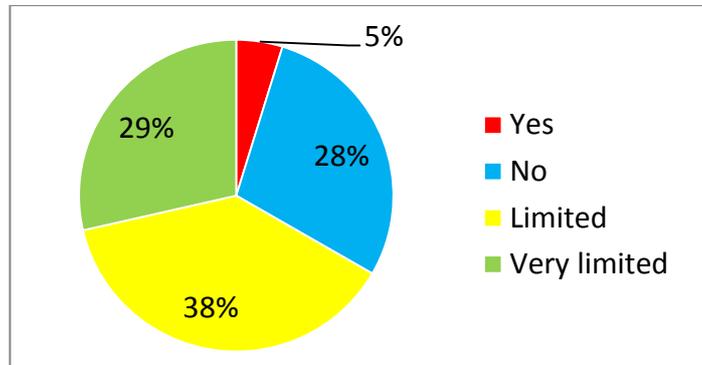


Figure 16. Information available on impacts on the water column

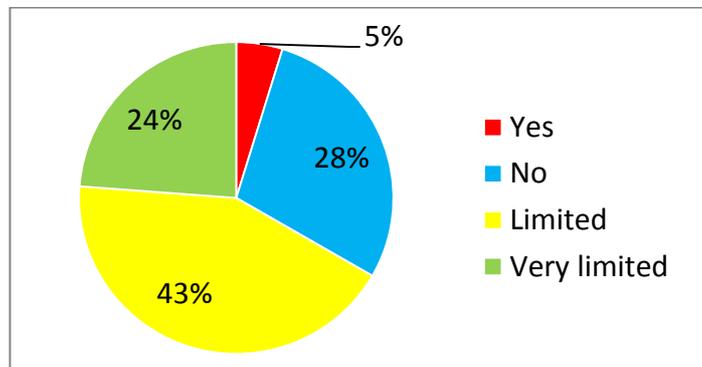


Figure 17. Information available on impacts on the seabed

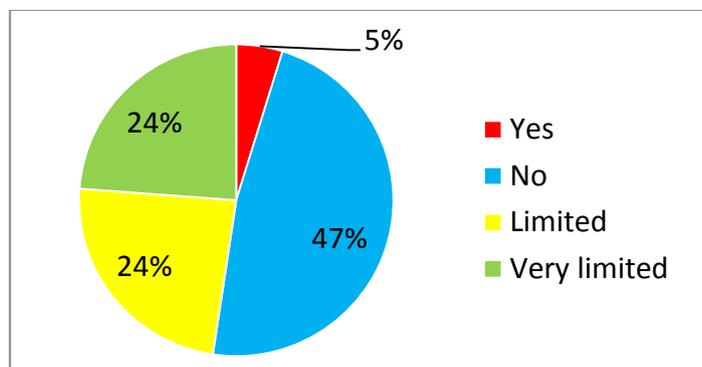


Figure 18. Information available on impacts on functional groups

3.2.3 References to RSCs and other international frameworks

3 out of the 21 MSs made reference to the RSC frameworks. 2 MSs directly referenced the OSPAR Quality Status Report (OSPAR QSR 2010), and 1 made reference to HELCOM 2007 reports. Although not directly referenced, according to the Milieu reports a further 3 assessments were consistent with OSPAR QSR 2010 and 2 with UNEP/MAP report on State of the Mediterranean Marine and Coastal Environment (UNEP/MAP SoMMCER 2013).

4 MSs made reference to other international frameworks including EIA (4), WFD (1), HD (2), BD (2), and large scale projects were also specifically referred to by 1 MS.

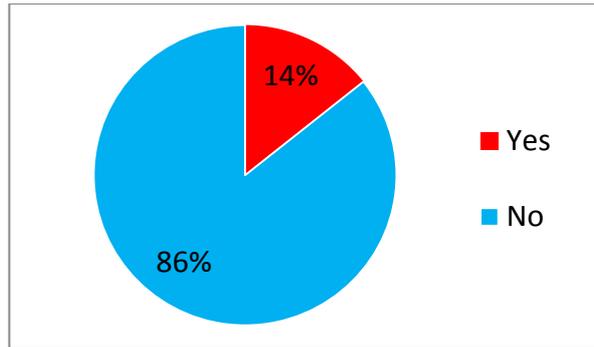


Figure 19. Reference to Regional Sea Conventions

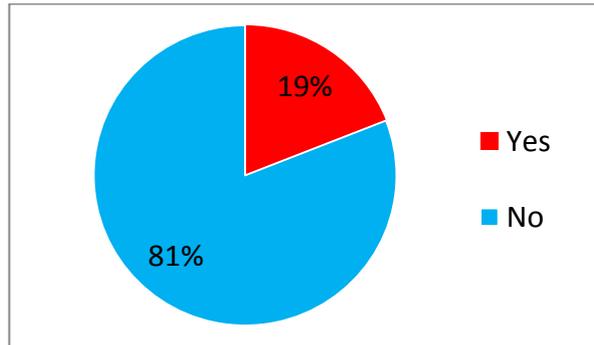


Figure 20. Reference to other international frameworks

3.3 Environmental Targets (Art. 10)

14 MSs out of 21 delivered targets, with a further MS reporting on general environmental targets not specific to D7. 6 MSs have not defined environmental targets and associated indicators. Furthermore, 6 MSs have identified targets related to EIA for new projects.

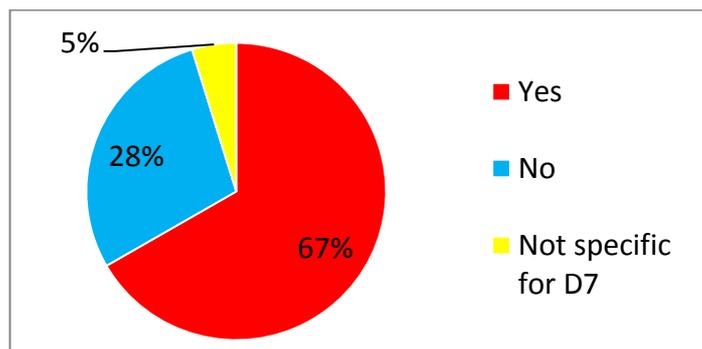


Figure 21. Environmental Targets

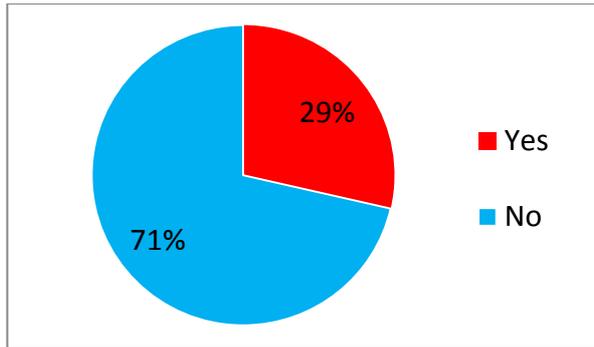


Figure 22. Reference to EIAs approach

3 MSs have referred to other MSFD descriptors in their target definitions: D1 (2), D3 (1), D4 (2), D5 (1), D6 (1), D11 (1). 3 MSs referred to RSCs in setting their targets: OSPAR (3), HELCOM (1). 6 MSs made reference to other international frameworks, including EIA (5), WFD (1), Convention on Biological Diversity (CBD) (1), SEA (1), HD (1), Marine spatial planning (2), HB (1) and the European Nature Information System (EUNIS) (1).

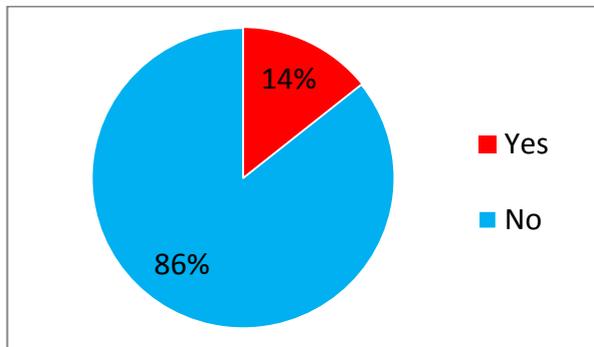


Figure 23. Reference to other MSFD descriptors

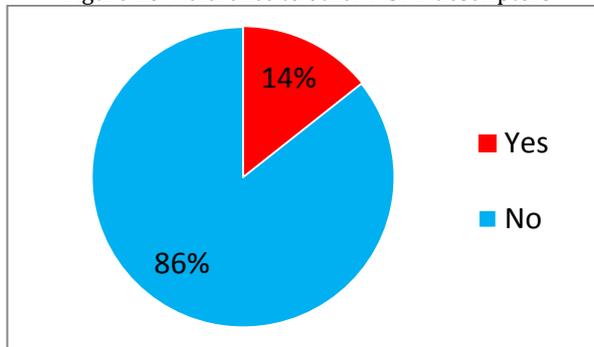


Figure 24. Reference to RSCs

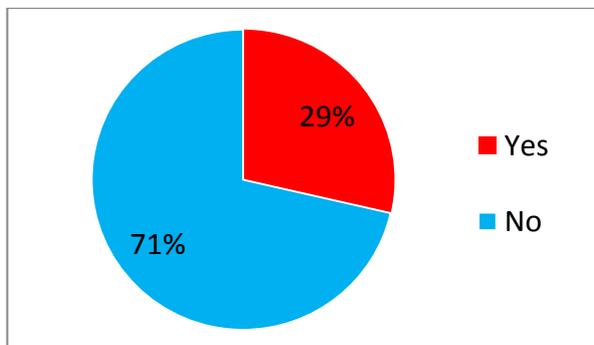


Figure 25. Reference to other international frameworks

5 MSs defined baselines for their targets, but only 1 MS managed to include thresholds. Baselines referred mostly to Initial Assessments carried out in 2012. In addition, 1 MS referred to OSPAR QSR 2010 and 1 MS considered available climatological series.

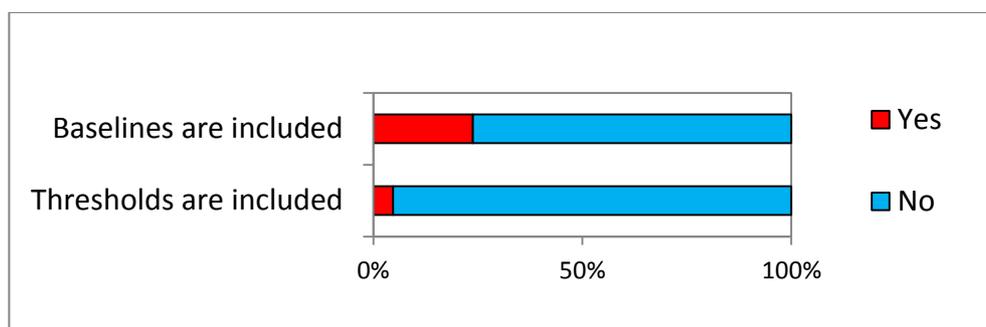


Figure 26. Baselines/Thresholds defined

4. Discussion on findings

A lack of data and knowledge have been cited as the main reasons preventing delivery of adequate reports to Articles 8, 9 and 10 requirements for D7. Three quarters of the MSs defined GES at the descriptor level, but there is large variability in the definitions. Baselines and targets for GES were almost non-existent. Some MSs managed to provide an assessment or judgement on their GES for D7, but these assessments were subjected to a lack of appropriate data sets and knowledge rather than based on cogent Initial Assessment results. 6 MSs included further specification beyond the determination of GES by providing lists of features or pressures addressed by GES.

There is a general lack of guidance for the assessment of GES for D7, with only one available guidance document from OSPAR (MSFD Advice document on Good environmental status - D7: Hydrographical conditions, a living document - Version 17 January 2012). Moreover, several countries from North East Atlantic region did not include the OSPAR guidance in their reporting. There is a basic need in terms of common understanding and harmonising of existing information, and guidance on changes in hydrographical conditions. Despite indications made in the MSFD definition of D7, a large number of countries did not mention or include elements from the WFD (e.g., hydromorphological objectives), nor other relevant frameworks such as the EIA Directive, the SEA Directive or Maritime Spatial Planning. As an example, EIA documents regarding infrastructures in the coastline deliver information following a consistent approach and should therefore be a relevant source of data.

Most of the MSs delivered information on the Initial Assessment, but a large proportion of this was qualitative due to data limitations; data was frequently classified as limited, very limited or not available. There was not consistency in the approach among MSs in terms of selecting different scales (e.g., subregional or local), using a set of physical parameters (e.g., temperature, salinity, currents, turbidity,...) or considering certain elements for the assessment of cumulative impacts (e.g., types for coastal infrastructures). Further development of common understanding on the data and knowledge needed for assessment is necessary in order to allow a better compilation of existing data and planning of future activities. Information on pressures was more comprehensive than that on impacts, with the impacts on functional groups proving particularly challenging. Half of the MSs considered the consequences of acidification,

although the proportion of affected assessment area reported by MSs varied greatly, as did the quality of the data. The use of acidification or climate change data should be aimed to identify shifts in existing baselines, allowing appropriate assessment of human activities causing impacts on hydrographical conditions.

Two thirds of the MSs provided environmental targets, although not all of these were associated with indicators. A quarter of MSs managed to define baselines for their environmental targets – these were almost consistently defined as the Initial Assessment 2012 levels. One MS included thresholds for environmental targets. Apart from the lack of existing baselines and thresholds, the establishment of environmental targets was heterogeneous, not allowing comparison among countries.

5. Conclusions

The analysis of the summary information provided by consultant Milieu and the reporting sheets, along with occasional consulting on the original MSs reports for Art. 8, 9 and 10, allowed extraction of some general key findings. The general lack of guidance for the assessment of GES in D7, along with the non-existence of a MSFD Task Group report, hindered the development of harmonized approaches due to the lack of common understanding on the scope of this descriptor during the reporting on Art. 8, 9 and 10. This lack of common understanding affected the whole process, denoting a lack of data and knowledge that could be improved through the development of concrete definitions and guidance to tackle the identified issues. Table 1 describes each addressed relevant issue, followed by suggestions and potential actors, where deemed appropriate.

In June 2014, DG ENV launched a call of interest to participate in the experts' network of the MSFD Competence Centre for collaboration in the review of the MSFD Commission Decision 2010/477/EC. The foreseen MSFD expert network on D7 will play a key role in order to develop actions regarding some of the identified issues.

Table 1. List of key issues derived from the in-depth assessment for D7, suggestions and potential actors

Issues on reporting	Suggestions	Potential actors
Wide heterogeneity in the kind of information reported.	Create common understanding on the kind of data needed, on the assessment approaches and on the data collection process. Prepare guidance for the implementation of MSFD on D7.	MSFD Expert Network on D7
Inconsistency in reports regarding Article 8, 9 & 10 implementation, the use of pressures and impacts and their link with criteria and indicators.	Create clear links between pressures and impacts (Annex III, Table 2 of MSFD) and criteria and indicators (COM DEC 2010/477/EU) taking into account the connection with Table 1 in Annex III of MSFD.	MSFD Expert Network on D7, MSFD GES, Annex III review process
Differences between paper reports and electronic sheets; missing or not adequately reported information; similar information is reported under different fields; Different level of detail in the reported information and high variability in the way of presenting the data.	Electronic reports should reflect paper reports to facilitate the assessment of Art 8, 9 and 10. The required information in the electronic reports could be significantly reduced and the process could be automated by using drop-down boxes with specific option.	MSFD DIKE
Improving the efficiency and homogeneity of reporting sheets;	Coherence in reporting to allow for accurate and meaningful IDA. Improve	MSFD DIKE

improve data access and data management	electronic forms, data & metadata availability	
<i>Issues on methodologies</i>	<i>Suggestion</i>	<i>Potential actions/actors</i>
Inconsistencies in methodological approaches, thresholds and limits.	Identification of commonly agreed appropriate and comparable approaches and parameters to ensure a minimum level of coherence. Ensure common understanding, providing rules and guidance. Guidance for the implementation of D7	MSFD Expert Network on D7, RSCs
Spatial inconsistency within and among MS regarding scales: regional, subregional or local. Lack of coordination at regional scales regarding the RSCs work.	Development of concrete definitions on scales and guidance to facilitate the assessment of the different scales.	MSFD CIS, MSCG, MSs, RSCs
<i>Issues on implementation</i>	<i>Suggestion</i>	<i>Potential actions/actors</i>
Conceptual problems in the interpretation of the scope of the descriptor (e.g. incorporation of acidification): no common understanding.	Development of concrete definitions and guidance to facilitate the interpretation of the scope, issues and terms that have been found to be unclear to facilitate common understanding.	MSFD CIS
Definitions of GES and environmental targets often not existing.	Create coherence in reporting GES and targets through jointly developed guidance.	MSFD Expert Network on D7, GES Group, MSFD CIS

6. References/Sources

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ANNEX I

Member States included in the analysis

Member State	Abbreviation	RSC
Belgium	BE	OSPAR
Bulgaria	BG	Black Sea
Cyprus	CY	UNEP/MAP
Denmark	DK	OSPAR/HELCOM
Estonia	EE	HELCOM
Finland	FI	HELCOM
France	FR	OSPAR - UNEP/MAP
Germany	DE	OSPAR- HELCOM
Greece	EL	UNEP/MAP
Ireland	IE	OSPAR
Italy	IT	UNEP/MAP
Latvia	LV	HELCOM
Lithuania	LT	HELCOM
Malta	MT	UNEP/MAP
Netherlands	NL	OSPAR
Portugal	PT	OSPAR
Romania	RO	Black Sea
Slovenia	SI	UNEP/MAP
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