**Internal Summary Report II (Task 1.1, Step 3)**

**Final Version**

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# Introduction

This "Internal Summary Report" presents the results of Task 1.1, Step 3, i.e. the results of the "In-depth Analysis", and provides (provided) the basis for the revision and further development of the Roof Report before and at CBE4, as well as for the work done in Step 4 and at the CBEs in general (i.e. preparing the discussions at the CBEs, agreeing on common indicators/possible common indicators, and deciding which descriptors can be possibly reported in Part A, and which will probably reported in Part B).

Hence, the present report itself is a compilation of the information gathered. The information presented here has strongly influenced the revision of the Roof Report before and at CBE4 and the way the common indicators are "recorded" now.

Also, the revised COM Decision 477/2010 and its analysis was carried out in parallel to writing this report. Some insights are presented below, but the analysis of the revised COM Decision also more importantly influenced all CBE discussions and the revision of the Roof Report.

The report compiles the information available presently regarding:

* Activities towards regionally harmonized reporting and/or common indicators in the European Regional Sea Conventions (Bucharest Convention/BSC, UNEP/MAP, OSPAR and HELCOM).
* The ongoing revision of the COM Decision 477/2010 and its importance/relevance for the project and RO/BG reporting in 2018.
* The Art. 8 Guidance currently produced by ABPmer (based on the revised structure of the COM Decision), and how it influences the 2018 reporting/Art. 8 update.
* The official requirements regarding data formats and reporting (COM/EEA).
* Newest national developments in Romania and Bulgaria, namely ongoing or terminating research projects aiming at filling information gaps or defining GES, targets/indicators or monitoring parameters.
* Impacts of planned measures in RO and BG (in the national PoMs), and the consequences for the 2018 reporting and possible update of Art. 8, 9 and 10 elements (e.g. through a new "distance to target").

Disclaimer

The research on activities in the Regional Sea Conventions towards common indicators as well as the (ongoing) documentation and assessment of current developments (research projects) in the region is finalized and summarized in this Internal Summary Report II. The current status of thoughts regarding reporting requirements and data formats was clarified with EEA and summarized here as well.

The analysis of the PoMs of BG and RO and the establishment of a new distance-to-target could not be conducted due to the delays in the PoM progress in both countries. The PoM-work is in neither BG nor RO finalized[[1]](#footnote-1). While in BG a draft PoM under SEA procedure including public consultation is available, in RO the evaluation of tender proposals (for consultancy projects to develop the PoMs) has only just started (information provided by RO NFP on 19.09.2016), as there were significant problems with the tendering process. The RO PoM is not expected before February 2017. The finalization of the POM and funding and conducting of monitoring under MSFD are the main foci of both countries at the moment, and they are not currently in a position (due to technical, financial and human resource capacity constraints) to advance with the 2018 Art. 8, 9 and 10 updates.

# 1 Overview of HELCOM, OSPAR, UNEP/MAP and BSC work on the development of Roof Reports/common indicator systems towards regional coherent reporting in 2018

The aim of this section is to provide a concise summary on the concept of common/core indicators and the status and process of their development at HELCOM, OSPAR, UNEP/MAP and the BSC. Common/core Indicators[[2]](#footnote-2) are tools for evaluating the progress towards achieving the MSFD Good Environmental Status (GES) of marine waters or regionally harmonized environmental objectives (such as the Black Sea Action Plan/BSAP). They are either state or pressure indicators[[3]](#footnote-3).

Ideally, cost-efficient measures are devised by reference to environmental targets, which quantify the reduction of the pressures required for achieving or maintaining GES. By doing so, environmental targets and associated indicators bridge the gap between the current status and the desired (good) status of the marine environment[[4]](#footnote-4), ideally on a regional scale. This is taken forward by the RSC through their work on core/common indicators and assessment methods.

Although the development of a comparable, MSFD-aligned indicator set for the Black Sea is unlikely in the near future, the work of HELCOM, OSPAR and UNEP/MAP is of potential relevance for BG and RO, both from the methodological point of view (as discussed at CBE5) and as a working template. In general it must be kept in mind, however, that regional indicators are mostly very specific, i.e. tailored to specific physical and environmental conditions of the marine region in question.

The common indicators and the RSC-specific process and form of presentation presented in this report (see Annex I) served the support project as an important point of orientation for the revision of the Roof Report and for how to present and "record" common indicators.

The factsheet that is developed for a more detailed presentation of common indicators as well as initial assessment results is also based on the analysis of other RSC´s activities (mainly OSPAR and HELCOM), as well as on the GD13 document on common indicators.

**1.1 HELCOM - Core Indicators in HOLAS II[[5]](#footnote-5)**

HELCOM core indicators are commonly agreed indicators among the Contracting Parties of the Helsinki Convention. A core indicator measures the progress towards a BSAP (Baltic Sea Action Plan) objective and/or an MSFD criterion. In HELCOM, they are based on three main principles: (1) They enable comparison of monitoring data and assessment results across the entire Baltic Sea region; (2) have a scientific basis and (3) can reflect changes due to anthropogenic pressures, thus enabling improvement of the environmental status by management measures on land or at sea.

HELCOM’s work on the development of common Baltic-wide indicators has been ongoing for more than a decade. More recently, the methodology on designing (quantitative) indicators and environmental targets reflecting the GES has been systematically revised and updated through a number of interconnected projects, such as HELCOM HOLAS and CORESET I. HELCOM CORESET II, which ended in 2015, further operationalized existing and developed additional indicators. At the moment, HELCOM is preparing the Second Holistic Assessment of the Ecosystem Health Of the Baltic Sea (HOLAS II), which will produce an update on the overall state of ecosystem health in the Baltic Sea (running until 2018). The second HOLAS will be based on HELCOM core indicators.

As of today, the process of adoption of HELCOM core indicators is still ongoing. Only finally agreed and adopted indicators are published on HELCOM website. Initially, HELCOM planned to have all indicators to be used for HOLAS II purposes adopted, and consecutively published, soon after the 51st Heads of Delegation meeting (HOD 51-2016) in December 2016. However, notwithstanding some progress made this regarding at the 51st HOD meeting,[[6]](#footnote-6) still not all study reservations could be lifted and not all indicators could be adopted, raising concern regarding the delay in the timeline of the HOLAS. At the meeting, Contracting Parties that still had study reservations on the individual indicators agreed that a solution could be found to apply these indicators in HOLAS II by indicating that the results are of intermediate/test character and that the indicators may need further development. The Meeting requested these Contracting Parties to come back with information to which indicators the solution could be applied and the specific wording could be agreed by the online meeting of State and Conservation in January 2017. Furthermore, the HOD supported the proposal by GEAR 15-2016 regarding the use of indicators in HOLAS II, according to which:

(a) if core indicators are not operational on a Baltic-wide scale, the indicators could still be used in the sub-basins where they are operational if agreed by countries sharing that basin; and

(b) if pre-core indicators will be shifted to core indicators or if core indicators will become operational for additional assessment units during 2017, to consider including them in the final version of HOLAS II by mid-2018.

The most recent official compilation of the development of HELCOM indicators was prepared for the 51st HELCOM HOD Meeting on 14-15 December 2016.

The meeting document presents the status of adoption of HELCOM core indicators (Annex 3 of the HOD 51-2016 meeting document), which can be divided into three groups:

(1) Adopted core indicators. The indicators presented in this first group address five categories: Eutrophication, Hazardous substances, Non-indigenous Species (NIS),Biodiversity & Foodweb and Pressure. Some of them are already defined quite extensively on the HELCOM website, while information on others is still missing. To provide an example, one of the adopted core indicators for Eutrophication is Chlorophyll-a, defined as “average chlorophyll-a concentration in the surface (0 – 10 m) during summer (June – September)” Additionally, for some of these core indicators, indicator specific national study reservations are mentioned (see Annex I, Table 1).

(2) Pre-core indicators proposed to be shifted to core indicators but not adopted as such by HOD 51-2016 (see. Annex I, Table 2).

(3) Pre-core indicators and candidate indicators[[7]](#footnote-7) as of the outcome of HOD 51-2016. They belong to the categories Biodiversity & Foodweb, Eutrophication, Hazardous Substances, Litter, Underwater noise and Pressure. For two categories (Litter and Underwater noise) there are no adopted core indicators at the moment. “Beach litter” and “continuous low frequency anthropogenic sound” are examples of pre-core indicators, whereas “Microlitter in the water column” is currently a candidate indicator (see Annex I, Table 3).

**1.2 OSPAR - Common Indicators in the Intermediate Assessment 2017[[8]](#footnote-8)**

The general aims and functions of OSPAR common indicators are similar to those of HELCOM core indicators and shall not be further discussed here. After the adoption of the MSFD, OSPAR CPs expressed the intention to organize future OSPAR monitoring using common indicators. After a main initial agreement in 2013 and further updating in 2014, this process is still ongoing today: Every 10 years, OSPAR produces a Quality Status Report (QSR), the last of which has been published in 2010. The QSR provides policy makers and the wider public with a condensed overview of current knowledge on trends in pressures and impacts and the quality status of the North-East Atlantic and its Regions (i.e. the OSPAR Maritime Area). In the context of the MSFD process, it has been however decided to prepare a so called “Intermediate Assessment 2017 (IA 2017), which will provide information on the developments since 2010 and will at the same time help those Contracting Parties bound by the EU MSFD in the updating of their Art. 8 assessment under the Directive (due in 2018).

The work on the IA 2017 is coordinated by the Intersessional Correspondence Group to manage preparation and publication of the Intermediate Assessment 2017 and the QSR 2021 (ICG-MAQ). At the ICG-MAQ meeting on 19 April 2016, it was decided that indicators should be finalized until August 2016 and that there would be an extended meeting of the ICG in October (CoG(2) 2016) for final consideration of the indicators and for signing them off. As of mid-July 2016, there was still a degree of uncertainty about how the work of the IA 2017 will progress across the various committees and chapter leads (see the Summary record of the last ICG-MAQ meeting on 14 July 2016 for agreed timelines). At OSPAR Commission meeting in 2016, the ICG-MAQ explained that all efforts are being made to present the finalized draft of IA 2017 it time for its adoption by OSPAR 2017 meeting.

Recently, OSPAR made publicly available on its website a compilation of common and candidate indicators, identified in its meetings of 2013, 2014 and 2015. The compilation comprises common indicators contributing to the IA 2017, as agreed by the OSPAR Commission and candidate indicators delivering a case study to the IA 2017. At the moment, common and candidate indicators are available for Descriptors 1, 2, 4, 5, 7, 8, 10 and 11. They are aligned across five OSPAR regions[[9]](#footnote-9) (see Annex I, Table 4).

Also, the approach of the IA 2017 towards presenting descriptors and common indicators is noteworthy. The draft outline of the document separately lists individual pressures arising from human activities and includes all available information relevant for their description and assessment (such as integration of relevant JAMP[[10]](#footnote-10) products and relationship between COMP[[11]](#footnote-11) application and common indicators in case of eutrophication) in one place. This approach is similar/corresponds to the one selected for the Roof Report between Bulgaria and Romania of presenting available common indicators (compare the section on indicators in the Roof Report).

**1.3 UNEP/MAP - Common Indicators in IMAP[[12]](#footnote-12)**

At the 15th COP Meeting in 2008 the UNEP/MAP CPs committed themselves to a progressive application of the Ecosystem Approach (EcAp) and agreed on a respective roadmap with several steps, with the aim of mainstreaming EcAp into the work of UNEP/MAP and achieving GES in the Mediterranean Sea (Decision IG.17/6). Work directed towards the development of common indicators started in 2012-2013. On COP level, it has been followed-up through the decision IG.20/4 (COP17 in 2012) and decision IG.21/3 COP18 in 2013). Most recently, in February 2016 the 19th COP Meeting adopted the Integrated Monitoring and Assessment Programme (IMAP) 2016-2021 and in its framework also agreed on a list with 27 indicators, of which 23 are common and 4 candidate indicators [[13]](#footnote-13).­ These indicators are grouped along 11 Ecological Objectives (EOs), which were adopted at the COP17 in 2012 (see decision IG.20/4, Annex II) together with associated Operational Objectives and Indicators. They correspond with the 11 qualitative MSFD Descriptors for determining GES (compare Annex I, Table 5). Currently, the adopted IMAP covers ecological objectives related to biodiversity (EO1), non-indigenous species (EO2), eutrophication (EO5), hydrography (EO7), coast (EO8), contaminants (EO9), and marine litter (EO10). While some of the elements of fisheries (EO3) and marine food webs (EO4) are partly covered by the monitoring and assessment of EO1 and EO2 and the CPs agreed on the list of common indicators developed by the General Fisheries Commission for the Mediterranean (GFCM) , the monitoring and assessment specifics of EO3 are still being developed by the GFCM, in close cooperation with UNEP/MAP. During the initial phase of IMAP implementation, the Secretariat in cooperation with GFCM intends to develop a clear roadmap on the monitoring programme and assessment also for EO4 (marine food webs) and EO6 (sea-floor integrity).

At the COP 19 Meeting it was agreed that, by the end of 2016, the UNEP/MAP Secretariat together with CPs and through CORMONs (EcAp Correspondence Group on Monitoring) will complete the development of common indicators and establishment of respective common indicator assessment fact sheet structure.[[14]](#footnote-14) The CORMONs has been assigned with the task to further develop the candidate indicators towards common indicators as well as to further refine the specifics of agreed common indicators during the implementation of the initial phase of IMAP (2016-2019). A timely conclusion of this process is crucial, as common indicators and common indicator assessment fact sheets established for them shall become the basis for the 2017 Status Quality Report as well as other planned integrated assessments to be produced by the UNEP/MAP Secretariat, including 2019 State of Environment and Development Report and 2023 State of Environment Report.

**1.4 Black Sea Commission - Regional Reporting Indicators**

In the Black Sea Commission (BSC) , only Bulgaria and Romania are EU Member States with the obligation to implement the MSFD.

The MSFD was adopted shortly before the Black Sea Strategic Action Plan (BS SAP) 2009 was approved. The underlying philosophies of the MSFD and the BS SAP are different but complementary. The BS SAP is based on targeting environmental priority problems for the Black Sea; its management targets do not directly state what the environmental status should be as a result of the activities undertaken under the BS SAP. In the framework of the Final Diagnostic Report 2010 (produced by the BSC PS with the financial support of the European Environment Agency (EEA)), a summary of the suitability of Black Sea data (of BSIS and external data sources) for calculation of BSC and EEA indicators and MSFD descriptors was prepared. As a result, some indicators were identified for almost all MSFD descriptors (except Descriptor 10). In 2015, the BSC approved regional reporting indicators, to be reported annually to the BSC by the respective Advisory Groups supporting the BSC. The indicators are grouped in six tables, according to the thematic focus of Advisory Groups (e.g. Biodiversity, Land-based pollution etc.). Some of the agreed indicators are also quite relevant for the MSFD implementation process.

The BSC approved the Black Sea Integrated Monitoring and Assessment Programme in October 2016. BSIMAP was built in the light of MSFD implementation, taking into account descriptors, GES and targets. After the approval of BSIMAP by the BSC in October, these regional reporting indicators became a part of it. Its adoption is a positive step, as the indicators contribute to the harmonisation of the reporting format across BS countries and could provide the basis for comparing general environmental trends of the Black Sea marine environment. However, more efforts are needed towards harmonisation of methodological approaches in determining GES by descriptors, criteria and/or indicators at the regional level, in order to better align the MSFD and BS SAP 2009 implementation processes in the future.

As a result, at the present moment, Bulgaria and Romania do not consider that the BSC regional reporting indicators could provide an adequate basis for MSFD monitoring and assessment and are therefore progressing with the identification of common indicators under the MSFD. In the scope of regional coordination, under the support project „Administrative and technical support for MSFD implementation in Bulgaria and Romania- phase I and II” Romania and Bulgaria have jointly identified and set up a number of common indicators specifically for MSFD which cover some aspects (criteria) of the descriptors. Both Member states have the willingness to share the data and knowledge achieved during the implementation MSFD with the other Black Sea countries to support the integration process between MSFD and the regional Black Sea Integrated Monitoring and Assessment Programme (BSIMAP) as far as possible.

# 2 COM Decision 477/2010/EU and its relevance for the project and RO/BG reporting in 2018

The revision of the COM Decision 477/2010/EU was given a positive opinion by the Marine Strategy Regulatory Committee on the 10th of November 2016. The approved version is still a draft text as it has not yet been through the scrutiny of the European Parliament and the Council. Any further changes are anticipated to be minor procedural corrections.

It follows the approach established in previous drafts of establishing primary and secondary criteria for each descriptor (and where appropriate, differentiated e.g. by ecosystem component), and the establishment of threshold values or levels where appropriate. The threshold values should be established by Member States through regional or sub-regional cooperation, or through cooperation at Union level, taking into account regional or sub-regional specificities (depending on the criterion or descriptor). It also provides for some aspects, such as the method of determining overall status for some species and for species groups, to be agreed through cooperation. The timeframe for these aspects is not clear. In relation to threshold values, Member States must endeavour to establish them within the time-limit set for the first review of their Initial Assessment and determination of Good Environmental Status (due 2018), and as soon as possible thereafter where this was not possible.

The revised COM Dec also more clearly sets out the link between the assessment of pressures and of environmental status, by defining the pressure criteria that should be considered in the assessment of species and habitats, and by harmonising the recommended assessment scales between the two. The revised COM Dec provides greater clarity on aspects such as measurement units for monitoring, and elements to address, which will facilitate greater coherence among Member States.

The focus on regional or sub-regional cooperation in agreeing lists of criteria elements to address, and in setting threshold values, firmly establishes the requirement for greater coordination among Member States, and confirms the need for the current project which is helping facilitate this coordination between Bulgaria and Romania, and building capacity in the two Member States to address the revised Decision.

The revised COM Dec was considered in the work on the revision of the Roof Report done in cooperation with BG and RO before CBE4 (2-4th November), and will be considered in all steps to come.

# 3 Art. 8 Guidance currently, and how it influences the 2018 reporting/Art. 8 update

The "Guidance for Assessments under Article 8 of the Marine Strategy Framework Directive — Integration of Assessment Results" is being prepared by ABPmer on behalf of the Drafting Group on Good Environmental Status (DG GES) and DG Environment of the European Commission. It aims to support Member States, working together in each marine region or sub-region including through the Regional Sea Conventions where appropriate, in the production of compatible outputs from status and other assessments so that they can contribute to regional and EU-scale compilations of information, presenting the extent to which GES is achieved, and facilitate communication of the environmental status of the marine environment to managers and the public.

The Guidance has been developed alongside and in close coordination with the revision of Commission Decision 2010/477/EU on Criteria and Methodological Standards. It sets out an "assessment flow" for each descriptor, detailing the steps that Member States need to take in their assessment (e.g. determining the criteria to address, determine the elements for assessment, establish threshold values), and provides recommended methods for the integration of indicators, elements and criteria in determining the status of the descriptor. These integration approaches have been informed by the outputs from the technical review process that contributed to the revision of the Commission Decision, further technical work by ICES on Descriptors 1 and 3, discussions and contributions of the WG GES Workshop on Article 8 MSFD assessments on 20th-21st April 2016, feedback from Member States following the presentation of integration approaches at WG GES on 21st June 2016, and contributions from DG GES.

The latest version of the Guidance was submitted to and discussed at the Working Group on Good Environmental Status (WG GES) meeting on 6th December 2016. Some recommendations were made. After finalisation of the Guidance, it will be submitted for approval by the Marine Strategy Coordination Group, so that Member States and Regional Sea Conventions may use it as a basis for their work in 2017 on updating their initial assessments.

As far as possible, the Guidance will be used in the project with regard to all elements of Article 8 assessments.

# 4 Reporting requirements and data formats

According to EEA information (December 2016), COM (by WG DIKE) and EEA are working on the development of a guidance for the 2018 reporting of Art. 8, 9 and 10 updates. Reporting in 2018 will try to incorporate the old and revised COM GES Decision as far as possible. What is obvious is that the reporting for the Black Sea marine region will not be required to provide the same details (e.g. on common indicators) as OSPAR and HELCOM.

# 5 Local Developments/Research Projects

In table 5.1 below, the ongoing research projects related to MSFD implementation in Romania and Bulgaria and beyond (i.e. in the Black Sea) are presented. At each CBE, the projects relevant for the MSFD Descriptors discussed at the event were and will be presented and discussed, and the table is constantly be updated when new information is available.

*Table 5.1: Research Projects on MSFD implementation in RO, BG and the overall Black Sea region*

| **Project Title** | **Short Description: expected input for BG/RO implementation process** | **Timing: when will results be available** | **Available outputs (if project reports etc. are available, please add web links here)** | **Were the results already used/will they be used?** | **Contact person (Name, E-Mail, Telephone)** | **Language the final results will be available** | **Parts/results relevant for the Roof Report** | **Relevance for Art. 8 assessment and common indicators** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Black Sea Hotspot Project | The HBS Project addresses major gaps in LBSA pollution (land-based sources and activities) management at national and regional levels in the Black Sea region, |  | The deliverables are on the website http://bs-hotspots.eu/ | The results were proposed to the BSC and at national level also; the results are useful to harmonise LBSs data collection and identification/ prioritization of HSs.  The results can be used in IAs for pressure/  impact analyses.  The tool proposed is very useful as there is no other Tool which would allow to prioritise point LBSs | Georgeta Alecu – project coordinator (georgeta.alecu@icpe-ca.ro) | ENG |  | The database contains data for 2010-2015 with metadata; there is no other database on LBSs in the BS region |
| Investigations on the State of the Marine Environment and Improving Monitoring Programmes developed under the MSFD – ISMEIMP (Bulgaria) | To fill the gaps for Descriptors 1, 2, 3, 4, 5 and proposals for improving the monitoring programmes on all descriptors.  Upgrading of information for the IA of marine environment (Art. 8) and understanding of GES (Art. 9).  The main outcomes of the project will be:  - the addition of new information that will be used in 2018 MSFD assessment of the marine environment, the goals and indicators for reaching GES according to Art. 8,9 and 10 of the MSFD;  - the improvement of the Art. 11 MSFD monitoring programme in accordance with the EC’s recommendations in the Art. 12 report;  -support for planning Art. 13 Programs of Measures for reaching GES.  🡪project proposed in the Action Plan | April 2017 | Due to ongoing verification process, the interim reports still are not available for public  <http://www.bsbd.org/bg/ismeimp.html>  The project’s monitoring campaigns included a number of expeditions during which samplings of phytoplankton, zooplankton, and measurements of nutrients and oxygen contents were carried out, following D1, D2, D4 and D5. Monitoring campaigns were planned for May 2015, July 2015, October 2015, November 2015, January 2016, February 2016. | The results from ISMEIMP project will be used for improving the monitoring programs under MSFD Art. 11 and starting of regular MSFD monitoring from 2017. Also these results (available data from already carried monitoring campaigns) will be used for updating of Bulgarian GES definitions, environmental targets and indicators reported under monitoring programs (exp.: saying that because some of GES definitions, environmental targets and indicators reported under Art. 9 & 10 to COM in 2013 were revised during the preparation of Art. 11 in 2014) | Tanya Milkova – Head of “Protection of marine waters and monitoring” Department, Black sea Basin Directorate (BSBD), a project manager ISMEIMP, [tanya\_milkova@bsbd.org](mailto:tanya_milkova@bsbd.org); +359 885 945 223 | Bulgarian language only | Results will be directly relevant for Task 1.1, Step 4 (i.e. the update of Art. 8, 9 and 10). Hence, the results of the project will feed into the respective sections of the Roof Report. However, results will not be published, and available only in BG. |  |
| "Improved Monitoring of Marine Waters – IMAMO" (Bulgaria) | Filling the gaps in information from the IA of the marine environment (Art. 8) and collecting data to assess the current ecological status of marine waters including information as a base for revision of GES definitions and environmental targets established in 2013 under Art. 9 & 10 and revised by the monitoring programmes prepared in 2014 under Art. 11 of MSFD.  Project activities will ensure data for Descriptors 5, 8 and 9.  IMAMO will increase the institutional capacity of the Bulgarian partners related to the monitoring and assessment of the Black Sea environment.  🡪project proposed in the Action Plan | April 2017 | The expected outputs are: establishment of real time monitoring and accredited laboratory facilities for analysis of priority substances and specific pollutants will ensure the ability of Bulgarian partners to monitor progress of subsequent measures undertaken.  Due to ongoing verification process, the interim reports still are not available for public  http://www.bsbd.org/bg/imamo\_7859623.html |  | BSBD Varna | Bulgarian language | Results will be directly relevant for Task 1.1, Step 4 (i.e. the update of Art. 8, 9 and 10). Hence, the results of the project will feed into the respective sections of the Roof Report. However, results will not be published, and available only in BG. Also, it is not clear whether results will be available before the end of the project. |  |
| MARine Litter, Eutrophication and Noise Assessment tools - MARLEN (Bulgaria) | Increase the scientific and administrative capacity for assessing and predicting environmental status in Black Sea marine waters for D5, 10, 11.  Input on monitoring expected.  🡪project proposed in the Action Plan | April 2017 | Due to ongoing verification process, the interim reports still are not available for public |  |  | Bulgarian language | (Interim results were discussed at CBE4.) |  |
| Field observations of cetaceans: Tursiops truncatus, Phocoena phocoena and Delphinus delphis in Bulgarian exclusive economic zone (EEZ) in the Black Sea (Bulgaria) | A project aimed at monitoring the populations of marine mammals in Bulgarian territorial waters and the BG EEZ. It should provide adequate evaluation of the population status of the three marine mammals. The results from the project have been evaluated under the work on D1 – Marine mammals in the scope of ISMEIMP project and some results have been used for comparison of data gathered under already conducted surveys. |  |  |  |  |  |  |  |
| Integrated Regional monitoring Implementation Strategy in the South European Seas – IRIS- SES (7 countries, including BG/RO) | Recommendations for joint monitoring programmes in the Black Sea. | 2013-2015: Reports presenting the results, are already available on <http://iris-ses.eu/category/iris-ses-outcomes/> | [Catalogue of current monitoring programmes and analysis of pressures.](http://iris-ses.eu/activity-1-outcomes-of-the-cataloguing-of-current-monitoring-programmes-and-analysis-of-pressures/)  Final Metadatabase related to the monitoring programmes in Mediterranean and Black Sea | Results disseminated during the stakeholder meetings in each of country participating n he projects. Deliverable disseminated to the BSC | Kalliopi Pagou, project coordinator, Greece, [popi@ath.hcmr.gr](mailto:popi@ath.hcmr.gr)  Luminita Lazar, WP4 coordinator, Romania, [llazar@alpha.rmri.ro](mailto:llazar@alpha.rmri.ro) | ENG | Recommendation for joint monitoring programs; no direct application for Art. 8, 9 and 10 updates. | The excel sheet “PLANBLEU Analysis Pressures “B,C,D” provides details for the Black Sea as a whole on the pressures and impacts according to Table 2a and 2b, as well as trends. Link to MSFD descriptors are made.  The report from the Constanta workshop on using the DeCyDe tool could provide information related to the parameters in Table 1. Factsheets for BG and RO (separate) provide information on background levels and monitoring frequency of nutrients and other substances. |
| MSFD Guiding Improvements in the Black Sea Integrated Monitoring System – MISIS (BG, RO, Turkey) | Improving the availability and quality of chemical and biological data necessary for the initial assessment (Art. 8) of pressures and impacts, but also GES and monitoring programmes. | 2012-2014:  The project results have been not used during the preparation of national reports of Bulgaria under Art. 8, 9, 10 and 11 in the first MSFD cycle.  2012-2014: Reports presenting the results, are already available on  <http://misisproject.eu/index.php?task=documents_deliverables> | - Diagnostic report II (Guiding improvements in the Black Sea monitoring RO-BG-TR)  - State of Environment Report of the Western Black Sea based on Joint MISIS cruise” (SoE-WBS)  - Overview of the marine environmental monitoring in Bulgaria, Romania and Turkey" | Results disseminated during the stakeholder meetings in each of country participating in the projects. Reports disseminated through the BSC AGs meetings to the BS experts | Laura Boicenco, project coordinator, Romania; [lboicenco@alpha.rmri.ro](mailto:lboicenco@alpha.rmri.ro)  Prof. Dr. Snejana Moncheva, Director of IO-BAS (a project partner of MISIS project), snejanam@abv.bg | ENG | Information on monitoring frequency of physical, chemical and biological parameters  Gaps identified in the monitoring programmes in RO-BG  Recommendation  to support MSFD implementation at regional/subregional levels | Diagnostic report II focuses largely on describing the monitoring programme, not the actual results. Tables 90-103 state whether information is available for different parameters of Table 1 and Table 2 but no concrete information. Not sure if this is helpful but does at least provide information regarding gaps.  State of Environment Report was not available on the website.  Overview of the marine environmental monitoring on indicates how many data sets are available, how many monitoring sites. It only provides brief, general descriptions of the different parameters and their trends. Information of little help for filling out Table 1. |
| Environmental Monitoring in the Black Sea - EMBLAS (Ukraine, Georgia, Russia) | Improving the availability and quality of data on the chemical and biological status of the Black Sea, mainly through Capacity Building in Ukraine, Turkey and Georgia. | National Monitoring Reports early 2017, final reports 2018. | Improving Environmental Monitoring in the Black Sea (<http://emblasproject.org/wp-content/uploads/2013/12/EMBLAS1stProgRep2013_finalized-SV2.pdf>)  DIAGNOSTIC REPORT II: Guiding improvements in the Black Sea monitoring (<http://emblasproject.org/wp-content/uploads/2015/02/diagnostic-report-2-feb-2015.pdf>)  Additional information regarding the projects reports and publications are available at: <http://emblasproject.org/publications-reports#1> | Deliverable disseminated to the BSC during the AGs meetings | Jaroslav Slobodnik  Team Leader UNDP IRC, Turkey  E-Mail: [jaroslav.slobodnik@undp.org](mailto:jaroslav.slobodnik@undp.org) | ENG | None - BG and RO not covered.  The Project deals with GES, targets, IAs, monitoring programmes as required by MSFD in non-EU countries. | Document “Improving Environment Monitoring in the Black Sea” not helpful.  Document “Diagnostic Report II” does not provide any information specific to BG and RO; focuses on Georgia, Russia and Ukraine. |
| COast to COast NETworks of marine protected areas - COCONET (Black Sea) | Identification of possible MPA networks, detailed mapping of habitat distribution and state (linked to several descriptors), as well as an in-depth evaluation of anthropogenic impacts and threats in the pilot study areas in Bulgaria and Romania. The pilot study area in Bulgaria – the Natura 2000 site Ropotamo-Kiten - is also used as a ‘reference’ area for many of the indicators for GES. | 2012 – 2016  Some of the results available as publications at  <http://www.coconet-fp7.eu/index.php/scientific-publications>  A summary of these results can be viewed in the project’s webgis portal: <https://www.researchgate.net/publication/283715913_Diversity_and_community_structure_of_fish_in_the_Bulgarian_Black_Sea_shelf_area> | Scientific publications available at:  <http://www.coconet-fp7.eu/index.php/scientific-publications> | Deliverable disseminated to the BSC | Assoc. Prof. Dr. Valentina Todorova - Head of "Marine Biology and Ecology" Department, Institute or Oceanology - IO BAS, Head of scientific team under ISMEIMP project, vtodorova@io-bas.bg  Ferdinando Boero [boero@unisalento.it](mailto:boero@unisalento.it) | ENG |  | “Cumulative Human Impacts on Black Sea” provides information on pressures and impacts but not at MS level. Gives a score on % of impact from different pressures – table 2b  "First observation on abundance and composition of floating debris” provides information on types and distribution of marine litter – clear link to D10 – table 2a and 2b.  Radio-ecological state of North-west Black Sea“ could provide information regarding chemical characteristic. “Benthic habitat mapping” provides basic information on distribution, extent area and associated macrofauna communities in BG Black Sea. (Table 1, Habitats”). Information also on sediments.  “Diversity and community structure of fish in BG” provides information on fish diversity and community structure (Table 1, Species and Habitats) – could be relevant for D1, 4 |
| Towards a Clean, Litter-Free European Marine Environment through Scientific Evidence, Innovative Tools and Good Governance – CleanSea (BG/RO)  (A similarly named project in BG: “*Clean Rivers — Clean Sea! NGO actions for environmental protection within Black Sea area*” seems not relevant for the 2018 reporting) | Innovative monitoring tools and standard protocols to facilitate monitoring marine litter in a harmonized way.  In the Black Sea region, CleanSea organized awareness raising and stakeholder activities; a willingness-to-pay study for beach litter and limited research on seabed litter were also conducted. | 2013-2016  Some of the results already available as publications at  http://www.cleansea-project.eu/drupal/index.php | Summary of Marine Litter Policy Options (<http://www.cleanseaproject.eu/drupal/sites/default/files/project%20results/D5.16_factsheet.pdf>)  Additional information regarding the projects reports and result are available at 2013-2016  Some of the results already available at:  <http://www.cleansea-project.eu/drupal/?q=en/results-downloads> | Deliverable disseminated to the BSC | Heather Leslie  E-Mail:  [heather.leslie@vu.nl](mailto:heather.leslie@vu.nl)  Tel: +31 20 59 89597 | ENG | Possibly information on seabed litter (D10C1 and D10C2) | Policy focused – no deliverables provide information for Tables 1 or 2 |
| Development of innovative Tools for understanding marine biodiversity and assessing good Environmental Status - DEVOTES | Improve the understanding of the relationships between pressures from human activities and their effects on marine ecosystems to support the achievement of GES.  Developing indicators to assess biological components, as well as addressing challenges for determining GES (Art. 9) including indicators for assessing status.  An additional work package focuses on further developing monitoring systems (Art. 10) to address existing gaps. | 2012-2016: results are expected when? | Information regarding the Deliverables and Milestones available at:  <http://www.devotes-project.eu/deliverables-and-milestones/> | Project not relevant for BG and RO MSFD implementation. | Angel Borja Project Coordinator  E-Mail: [aborja@azti.es](mailto:aborja@azti.es)  Maria C. Uyarra Project Manager  E-Mail: [mcuyarra@azti.es](mailto:mcuyarra@azti.es)  Tel: +34667174430  For Bulgaria: Prof. Dr. Snejana Moncheva: Director of IO-BAS (a project partner of MISIS project), snejanam@abv.bg | ENG | Was discussed at CBE3 - not relevant. | Report “Pressure-Impact links” provide information linking pressures to impacts and habitat types. Black Sea overall information: table 11-19. Bulgaria specific Table 21, 26, 31, 36, 41, Figure 15, 20, 25. Information on aquaculture, benthic trawls and dredges, fishing pelagic trawls, mooring, anchoring, shipping general, port construction, flood defence, industrial discharges, agriculture, tourism, military, waste water treatment – table 2b |
| Policy-oriented marine Environmental Research in the Southern European Seas – PERSEUS (BG/RO) | Case study approach.  PERSEUS identified the main environmental risks in the Black Sea as:  - Coastal areas: Alteration of hydrographical conditions (D7), Nutrient and organic enrichment (D5), Chemical pollution (D8, D9), Physical damage and habitat loss (D6), Non-indigenous species (D2), Marine litter (D10).  - Open sea: Alteration of hydrographical conditions (D7), Chemical pollution (D8, D9), Non-indigenous species (D2), Overfishing (D3), Marine litter (D10).  - New knowledge – studies on eutrophication and chemical contamination (identification and quantification of inputs and concentrations), marine litter. | The project results have been not used during the preparation of national reports of Bulgaria and Romania under Art. 8, 9, 10 and 11 in the first MSFD cycle.  2012-2015  Results available at  <http://www.perseus-net.eu/site/content.php?locale=1&locale_j=en&sel=642> | Some information regarding the project results available at:  <http://www.perseus-net.eu/site/content.php?locale=1&locale_j=en&sel=642>  Information on PERSEUS publications available at:  <http://www.perseus-net.eu/site/content.php?locale=1&locale_j=en&sel=528> | Used for status assessment in RO; but not adaptable for BG waters (case studies on D8 and D9 only in RO waters). | Evangelos Papathanassiou  Project Coordinator  Email: [vpapath@hcmr.gr](mailto:vpapath@hcmr.gr) | ENG | Insights on D8C1 and D9C1 (Romania).  Bulgaria did not receive data (because RO did the work on contaminants; and only case studies were analyzed). | Document “baseline pressure black sea” provides qualitative information on the following pressures: alteration of hydrographical conditions, chemical pollution, physical damage and loss of habitats, non-indigenous species, over-fishing, marine litter and noise- table 2b. It is not specific regarding BG or RO. Discusses Black Sea throughout so indicating specific pages to review is not possible.  Document “Assessing pressures impacting the environment” links the main risks relating to D2,5,8,9,10 to main activities fisheries aquaculture, transport and ports, tourism, offshore exploitation and land based activities (page 21-22) – table 2b. Continues to describe the above sectors in more detail. See pages 34-36, 45-46, 61 for specific tables for Black Sea alone. Otherwise, Black Sea info is mixed with Med sea info - page number refs therefore not possible. For each sector trends are described.  Document “assessment of coastal pressures” provides information on changes in environmental parameters and impacts on plankton (Table 2), food web interactions (table 1), pressures on seagrass meadows (table 1 and 2a), impacts on shallow water habitats (table 1 and 2a), analysis of functional community changes in demersal fish (table 2a), impact on non-indigenous species (table 2a), impacts of chemical pollution (table 2a), impact of litter (table 2a) – see pages 39,41,44,46,50,53,55.  Document provides information on pressures changes in riverine fluxes, nutrients and organic enrichment, introduction of contaminants, physical damages, extraction of species, NIS, littler and noise and whether increasing, decreasing or staying the same in figure on page 60. |
| Cross-Border MARitime Spatial PLANning in the Black Sea MARSPLAN – BS | The project aims:  -to elaborate MSP methodology, MSP indicators, MSP legislation support, and plans;  -to elaborate a complete analysis of the Romanian and Bulgarian marine areas  -to design a MSP Plan for Romania-Bulgaria cross-border area  -to develop MSP strategies, vision | 2015-2017.  Second implementation report planned for January 2017, but not delivered yet ("series of delays"). | not yet | MSP Directive implementation, national - MSP transposition | Mr. Alexandru SOARE, Director, Directorate General for Regional Development and Infrastructure, [alexandru.soare@mdrap.ro](mailto:alexandru.soare@mdrap.ro)  Institute of oceanology – BAS (Bulgaria) | ENG | Unclear. | Project does not appear to have a website  The SoE Report for BG and RO will include a high range of maps – general features of coastal and marine environment, uses and activities, pressures and conflicts between marine users. |
| Assistance Mechanism for the Implementation of Maritime Spatial Planning (ECORYS) | Assistance mechanism to asked to conduct studies on subjects defined by the EU Commission in cooperation with Member States experts, to fill gaps on knowledge | 2015-2016 | not yet  http://msp-platform.eu/ | Inventory of projects and countries fishes | s.Pro, AngelaSchultz-Zehden,  asz@sustainable-projects.eu  ECORYS, Bruxelles, BE – Jan Maarten de Vet  JanMaarten.deVet@ecorys.com | ENG | The project produces Maritime Spatial Planning Fiche for each EU country in relation to MSP, but also to MSFD |  |
| New methodologies for an ecosystem approach to spatial and temporal management of fisheries and aquaculture in coastal areas (ECOAST) | ECOAST results support the EU and national policies through the provision of tools & data for an ecosystem based allocation of space and sustainable use of marine resources in coastal areas on case specific basis The project outcomes will produce case specific evaluation of the  ecological footprints of aquaculture and fisheries in coastal areas,  maps of optimal areas for fisheries and aquaculture,  evaluation of compatibility between fisheries, aquaculture  and other human activities in coastal areas, | 2016-2019 | not yet | They will be used for a wise management of marine fisheries resources | Fabio Grati, ISMAR - CNR Italia,  [fabio.grati@an.ismar.cnr.it](mailto:fabio.grati@an.ismar.cnr.it) | ENG, IT | Unclear. | Project started in march. Doesn’t seem to have a website  Data on spatial distribution of commercial fish, vessels, and other fishery activities. Data on fishery pressure. |
| Protecting the ocean: our collective responsibility, our common interest  Supporting the development of cost-effective ocean literacy in Europe  (ResponSEAble) | Supporting the emergence of an effective and dynamic ocean knowledge system that will contribute to raising awareness on everybody’s (individual and collective, direct and indirect) responsibility and interest in a healthy and sustainable ocean. | 2015-2019 | http://www.responseable.eu/ | They will be used for all marine cases and stories | Iulian Nichersu, DDNIRD Tulcea, [iuli@ddni.ro](mailto:iuli@ddni.ro) | ENG | Awareness project. Not helpful for the Roof Report. | No deliverables so far. |
| NATIONAL DATA COLLECTION PROGRAMME (NDCP) for basic biological, technical, environmental and socio-economic fisheries data for the periods 2011 - 2013, 2014 - 2016, under the EU Data Collection Framework (DCF). | 1. Module of the evaluation of the fishing sector;  2. Module of the evaluation of the economic situation of the aquaculture and processing industry;  3. Module of evaluation of the effects of the fishing sector on the marine ecosystem;  4. Module for management and use of the data | 2015-2018 (yearly) | Deliverable  ROMANIAN ANNUAL REPORT ON THE NATIONAL DATA COLLECTION PROGRAMME FOR FISHERIES  https://datacollection.jrc.ec.europa.eu/ | -MS report annually on the implementation of their National Programmes. STECF evaluates these Annual Reports.  -Part of the data collected by the MS is uploaded in databases managed by the JRC. Report used by NAFA, GFCM, STEFC-JRC, BSC | Program Coordinator  dr. eng. Simion NICOLAEV  Email: [snicolaev@alpha.rmri.ro](mailto:snicolaev@alpha.rmri.ro)  responsible scientific for study  dr. eng. Valodia MAXIMOV  Email: [vmaximov@alpha.rmri.ro](mailto:vmaximov@alpha.rmri.ro) | RO and ENG | Input for common definitions of targets and indicators for D3. | Looking into the Annual reports and their corresponding excel sheets, I am not entirely sure what information they are providing, whether it focuses on how they do their monitoring or whether results are also included – I have saved the RO report from 2013 and its excel in the folder (see JRC infront). I found a report by the JRC “DSF data report for 2014” the data submitted by BG and RO – pointed to poor quality, low or no coverage on information regarding species abundance/biomass, biological parameters, catch/landings |
| EC/FP7: Co-creating ecosystem-based fisheries management solutions MARE FRAME, Grant Agreement PC7 KBBE:2013-7- single -stage No. 613571 | The overall objective of MareFrame is to remove the barriers preventing more widespread use of EAFM through development of new tools and technologies, development and extension of ecosystem models and assessment methods, and development of a decision support framework that can highlight alternatives and consequences; all in close collaboration with the stakeholders in the co-creation processes.  Case Study: Black Sea Turbot  Objective: Restoring the Western stock of Black Sea turbot to productive levels through an Ecosystem Approach to Fisheries Management. | 2017 | Project Deliverables  <http://mareframe-fp7.org/deliverables/> | To be used for future fishery advice | Anna Kristinn Danielsdottir  [contact@mareframe-fp7.org](mailto:contact@mareframe-fp7.org)  [annak@matis.is](mailto:annak@matis.is) | ENG | Input for common definitions of targets and indicators for D3. | This project focuses on modelling, measures and management approaches as opposed to environmental status, pressures and impacts. Could not find relevant information on the project’s deliverables. However, could also not find a mentioned database they created with lots of data. The case study description of the Black Sea seems to focus on one fish species. |
| European Maritime Spatial Planning Platform | The European MSP Platform is an information and communication gateway designed to offer support to all EU Member States in their efforts to implement Maritime Spatial Planning (MSP) in the years to come. | Available | MS reports for RO/BG on marine activities | Not yet | http://www.msp-platform.eu/ | EN | For updating Art. 8 |  |
| Romanian National Project -  Study on the development of a set of operational indicators to measure progress towards achieving GES at the marine ecosystem according to the requirements of the MSFD | The project is focused on D1, D3, D4, D6, D2, D5. The aim of the project is to develop the operational indicators for assessing of status. | February 2017 | A report will be delivered. | Not yet | Beneficiary – Ministry of Env, Waters and Forest, responsbile: Otilia Mihail.  National Institute for Marine Research and Development Grigore Antipa from Constanta is in charge.  Project coordinator – Laura Boicenco (lboicenco@alpha.rmri.ro) | RO | Input to D1, 3 – Fish, D1,6 – Benthic habitats, D1,6 – Pelagic habitats, D2 – NIS and D5 – Eutrophication. The aim of the project is to develop the operational indicators for assessing of status. | Indicator development for D1, D3, D4, D6, D2, D5. |
| Red List Project - Romania | The project is focused on D1 requirements.  The aim of the project is to establish the Red List of vulnerable marine species for the Romanian Black Sea coast and to present a methodology to assess these species in order to issue a law regarding their protection, in accordance with the requirements of the Bucharest Convention. | December 2016 | A report will be delivered. | Not yet | Beneficiary – Ministry of Env, Waters and Forest, responsbile: Otilia Mihail.  National Institute for Marine Research and Development Grigore Antipa from Constanta is in charge.  Project coordinator - Oana Marin (omarin@alpha.rmri.ro) | RO | Input on D1.  The aim of the present project is to establish the vulnerability degree of the marine species | Input on the on the species list, with accent on the vulnerable species. |
| Study on Land- Based Pressures from the Romanian Black Sea littoral in the framework of MSFD | Inventory of the main land based sources and DPSIR assessment for the development of pressure indicators for eutrophication and contaminants. | December 2016 | A report will be delivered | Not yet | Beneficiary – Ministry of Env, Waters and Forest, responsbile: Otilia Mihail  NIMRD from Constanta is in charge. Project coordinator - Luminita Lazar (llazar@alpha.rmri.ro) | RO | Input on pressures assessment and programme of measures. The aim of the project is to develop the operational indicators for pressure assessment |  | |

# 6 Impacts of PoM and new "distance to target"

***"State of the Art" of national Programmes of Measures of Bulgaria and Romania***:

**Bulgaria:**

* Public consultation on draft PoM was open in March 2016. At the end of September, an adjusted version of the PoM and SEA report was expected. Because of the necessity to reconcile the PoM with the SEA procedure, the public consultation of the PoM was extended to 9th December 2016. Bulgaria has refined the text in the measure factsheets in cooperation with other government services, i.e. the Ministry of Agriculture and Food, Ministry of Transport, Ministry of Health, etc.
* The strategic document of Marine Strategy of Republic of Bulgaria and final national Program of Measures (PoM) for the period 2016-2021 were adopted by the Council of Ministries by the end of December 2016.

**Romania:**

* According to the National Focal Point, conclusions from the PoM can be expected in February 2017.

Hence, no conclusions on the impact of the PoMs on current status and a new "distance to target" can be established at the moment.

# Annex I. Tables of Core/Common Indicators of HELCOM, OSPAR, UNEP/MAP and BSC

1. **Core Indicators of HELCOM (Tables 1-3):**[[15]](#footnote-15)

**Table 1**: Adopted core indicators with indicator definitions (where available) and indicated remaining study reservations

|  |  |  |  |
| --- | --- | --- | --- |
| **Theme** | **Core indicator** | **Definition of indicator (where available)\*\*\*** | **Remaining indicator specific national study reservations as of the outcome of HOD 51-2016** |
| Eutrophication | Chlorophyll-a | Average chlorophyll-a concentration in the surface (0 – 10 m) during summer (June – September) |  |
| Nitrogen/DIN | Average DIN concentration in the surface (0 – 10 m) during winter (December – February)​ |  |
| Phosphorous/DIP | Average DIP concentration in the surface (0 – 10 m) during winter (December – February)​ |  |
| Water clarity | Average Secchi depth during summer (June – September)​ |  |
| Oxygen debt | Average oxygen debt below halocline |  |
| Total nutrients | The input of nutrients is an indicator of eutrophication pressure on the marine ecosystem. The HELCOM nutrient reduction scheme defines maximum allowable inputs of nitrogen and phosphorous to Baltic Sea sub-basins, and inputs should not exceed these environmental targets in order to eventually obtain GES in terms of eutrophication. This core indicator presents progress in the different Baltic Sea sub-basins towards reaching the MAI. |  |
| Hazardous substances | Hexabromocyclododecane (HBCDD) |  |  |
| Metals (Cd, Pb, Hg)[[16]](#footnote-16) |  | Estonia, Denmark (State and Conservation 5-2016)  - Secondary threshold value for Cd in fish liver |
| Polybrominated biphenyl ethers (PBDE) |  |  |
| Perfluorooctane sulphonate (PFOS) |  |  |
| Polyaromatic hydrocarbons (PAH) and their metabolites[[17]](#footnote-17) |  | Denmark (HOD 50-2016 para 4-48)  - Primary threshold value on metabolites (1-hydroxypyrene)  - Secondary substance fluoranthene secondary threshold value for sediment |
| Polychlorinated biphenyls (PCB)[[18]](#footnote-18) and dioxins and furans |  | Denmark (HOD 50-2016)  - Secondary threshold CB-118 in biota |
| TBT and imposex[[19]](#footnote-19) |  | Denmark (HOD 50-2016 para 4.48)  - Primary threshold TBT in sediment,  - Secondary threshold TBT in mussels  - Primary threshold imposex |
| White-tailed eagle productivity |  |  |
| Radioactive substances |  |  |
|  |  |  |
| NIS | Trends in arrival of new non-indigenous species |  |  |
| Biodiversity and food-web | Abundance of waterbirds in the breeding season | As a rule, GES is achieved when the abundance of 75% of the considered bird species does not decline by more than 30% compared to a baseline period (1991-2000). |  |
| Abundance of waterbirds in the wintering season | The wintering waterbirds are considered to reflect GES when at least 75% of the considered species deviate less than 30% downwards from the baseline condition during the reference period 1991-2000. |  |
| Distribution of Baltic seals |  |  |
| Population trends and abundance of seals |  |  |
| Nutritional status of seals |  |  |
| Reproductive status of seals |  |  |
| Number of drowned mammals and waterbirds in fishing gear |  |  |
| Abundance of coastal fish key functional groups | As a rule, GES is achieved when the abundance of piscivores (i.e. fish that feed on other fish) is high and the abundance of cyprinids (i.e. fish that feed on e.g. benthic invertebrates) is within an acceptable range. |  |
| Abundance of key coastal fish species | As a rule, GES is achieved when the abundance of typical species of fish, such as perch and flounder, in the coastal areas of the Baltic Sea is above a set site and species specific boundary. |  |
| Abundance of salmon spawners and smolt | Determination of whether GES is reached is based on a comparison of estimated smolt production in rivers flowing into the sea, (also making use of additional supporting data on numbers of adult spawners), with an estimated potential smolt production capacity. |  |
| Abundance of seatrout spawners and parr | The determination of whether GES is reached is based on a comparison of the observed parr densities in rearing habitats with the reference potential parr densities in the specified habitats. |  |
|  |  |  |
| State of the soft-bottom macrofauna community[[20]](#footnote-20) |  |  |
| Seasonal succession of functional phytoplankton groups[[21]](#footnote-21) |  |  |
| Proportion of large fish in the community (LFI) |  | Lead Country presented approach for trend based threshold value and assessment of available dataset for HOLAS II purposes was not endorsed at State and Conservation 5-2016 (outcome para 4J.26). Germany, Estonia and Poland provided written comments regarding their reservations after the meeting. |
| Zooplankton mean size and total stock |  | Poland (HOD 51-2016 outcome para 6.9) regarding Gdansk basin  ZEN ZIIM invited to submit threshold value proposals to 26 January online meeting of State and Conservation |
| Pressure | Inputs of nitrogen and phosphorous to the sub-basins |  |  |
| Operational oil-spills from ships |  |  |

\* Revision or new GES boundary proposed to this meeting of HELCOM HOD 50-2016, see document 4-16..  
\*\* Whereas some indicators are already defined quite extensively on HELCOM website, information on others is still missing.

**Table 2**: List of pre-core indicators proposed to be shifted to core indicators but not adopted as such by HOD 51-2016

|  |  |  |  |
| --- | --- | --- | --- |
| **Theme** | **Pre-core indicator** | |  | | --- | | **Study reservation on shift to core indicator** | |
| Biodiversity & foodweb | Diatom/Dinoflagellate index | **Denmark** (State and Conservation 5-2016): national testing of the diatom-dinoflagellate index does not show relevant responses to nutrient stress  **Poland** (HOD 51-2016): Lack of data |
| Cumulative impact on benthic biotopes | **Denmark** (State and Conservation 5-2016 para 4J.50) reservation placed due to lack of data and current state of the indicator  **Poland** (HOD 51-2016): Lack of data |
| Eutrophication | Cyanobacterial bloom index | **Germany** (HOD 51-2016 outcome para 6.17) expressed aim to clarify reservation by considering applicability of satellite data when results are available.  **Denmark** (State and Conservation 5-2016, para 4J.41) analysis of the western Baltic Sea to be carried out before being shifted to core, however agreed that the indicator can be used in HOLAS II by indicating that the results are of interim/test character (HOD 51-2016 para 6.22-6.23)  Threshold value proposal to be discussed at State and Conservation online meeting 26 January |
| Litter | Beach litter | **Sweden** (State and Conservation 5-2016) can support the interim definition of GES, however is not able to endorse the shift from pre-core to core indicator. |

**Table 3:** List of HELCOM pre-core and candidate indicators as of the outcome of HOD 51-2016

|  |  |  |
| --- | --- | --- |
| **Theme** | **Indicator** | **Current status** |
| Biodiversity and foodweb | Lower depth limit distribution of the macrophyte community | Pre-core |
| Condition of benthic habitats | Pre-core |
| Harbour porpoise distribution and abundance | Candidate |
| Seal pup weight at weaning | Candidate |
| ‘marine mammal health’[[22]](#footnote-22) | Candidate |
| Distribution of seabirds | Candidate |
| Breeding success in guillemots of Gotland | Candidate |
| Maximum length fish in the pelagic community | Candidate |
| State of hard-bottom communities | Candidate |
| Biomass ratio of opportunistic and perennial macroalgae | Candidate |
| Phytoplankton community composition as a foodweb indicator[[23]](#footnote-23) | Candidate |
| Phytoplankton species assemblage clusters based on environmental factors | Candidate |
| Phytoplankton taxonomic diversity | Candidate |
| Eutrophication | Shallow water oxygen | Pre-core |
| Phytoplankton spring bloom intensity based on chl-a | Pre-core |
| Deep-water oxygen consumption | Candidate |
| Hazardous substances | Reproductive disorders: malformed eelpout and amphipod embryos[[24]](#footnote-24) | Pre-core |
| Acetylholinesterase inhibition | Pre-core |
| Diclofenac concentration | Pre-core |
| Estrogenic-like chemicals and effects | Pre-core |
| Lysosomal membrane stability (LMS) | Pre-core |
| Fish disease index | Pre-core |
| Micronucleus test | Pre-core |
| PCB and dioxins for fish safe to eat | Candidate |
| EROD activity | Candidate |
| LItter | Beach litter | Pre-core |
| Litter on the seafloor | Pre-core |
| Microlitter in the water column | Candidate |
| Underwater noise | Continuous low frequency anthropogenic sound | Pre-core |
| Distribution in time and space of loud low- and mid-frequency impulsive sound | Pre-core |
| Pressure | Dredging and dumping of dredge materials | Candidate |

1. **Common Indicators of OSPAR (Table 4):**[[25]](#footnote-25)

**Table 4:** OSPAR common and candidate indicators (status as of autumn 2016)

| **Indicator⃰** | **Explanation / title** | **Region I (Arctic Waters)** | **Region II (Greater North Sea)** | **Region III (Celtic Seas)** | **Region IV (Bay of Biscay/ Iberian Coast)** | **Region V (Wider Atlantic)** |
| --- | --- | --- | --- | --- | --- | --- |
| D1 Mammals 3 | Seal abundance and distribution |  |  |  |  |  |
| D1 Mammals 4 | Cetacean abundance and distribution |  |  |  |  |  |
| D1 Mammals 5 | Grey seal pup production |  |  |  |  |  |
| D1 Mammals 6 | Marine mammal bycatch |  |  |  |  |  |
| D1 Birds 1 | Marine bird abundance |  |  |  |  |  |
| D1 Birds 2 | Breeding success of kittiwake |  |  |  |  |  |
| D1 Birds 3 | Breeding status of marine birds |  |  |  |  |  |
| D1 Birds 4 | Non-native/invasive mammal presence on island seabird colonies |  |  |  |  |  |
| D1 Birds 5 | Marine bird bycatch |  |  |  |  |  |
| D1 Birds 6 | Distribution marine birds |  |  |  |  |  |
| D1 Fish Ceph 1 | Fish abundance |  |  |  |  |  |
| D1 Fish Ceph 2 | OSPAR EcoQO proportion of large fish (LFI) |  |  |  |  |  |
| D1 Fish Ceph 3 | Mean maximum length of demersal fish and elasmobranchs |  |  |  |  |  |
| D1 Fish Ceph 4 | By-catch rates of Chondrichthyes |  |  |  |  |  |
| D1 Fish Ceph 5 | Conservation status of elasmobranch and demersal bony-fish species (IUCN) |  |  |  |  |  |
| D1 Fish Ceph 6 | Proportion of mature fish |  |  |  |  |  |
| D1 Fish Ceph 7 | Distributional range |  |  |  |  |  |
| D1 Fish Ceph 8 | Fish distributional pattern |  |  |  |  |  |
| D1/6 BentHab1 | Typical species composition |  |  |  |  |  |
| D1/6 BentHab2 | Condition of benthic habitat defining communities. (Multi-metric indices) |  |  |  |  |  |
| D1/6 BentHab3 | Physical damage of predominant and special habitats |  |  |  |  |  |
| D1/6 BentHab4 | Area of habitat loss |  |  |  |  |  |
| D1/6 BentHab5 | Size-frequency distribution of bivalve or other sensitive/indicator species |  |  |  |  |  |
| D1 PelHab 1 | Changes of plankton functional types (life form) index Ratio |  |  |  |  |  |
| D1 PelHab 2 | Plankton biomass and/or abundance |  |  |  |  |  |
| D1 PelHab 3 | Changes in biodiversity index (s) |  |  |  |  |  |
| D2 NIS | Rate of new introductions of NIS |  |  |  |  |  |
| D4 FoodWeb 1 | Reproductive success of marine birds in relation to food availability |  |  |  |  |  |
| D4 FoodWeb 2 | Production of phytoplankton |  |  |  |  |  |
| D4 FoodWeb 3 | Size composition in fish communities (LFI) |  |  |  |  |  |
| D4 FoodWeb 4 | Changes in average trophic level of marine predators (cf MTI) |  |  |  |  |  |
| [[26]](#footnote-26) |  |  |  |  |  |  |
| D4 FoodWeb 6 | Biomass, species composition and spatial distribution of zooplankton |  |  |  |  |  |
| D4 FoodWeb 7 | Fish biomass and abundance of dietary functional groups |  |  |  |  |  |
| D4 FoodWeb 8 | Biomass trophic Spectrum |  |  |  |  |  |
| D4 FoodWeb 9 | Ecological Network Analysis diversity) |  |  |  |  |  |
| D5[[27]](#footnote-27) nutrient inputs | Nutrient inputs in water and air |  |  |  |  |  |
| 2 |  |  |  |  |  |  |
| D5 nutr conc | Winter nutrient concentrations |  |  |  |  |  |
| D5 chlorophyl | Chlorophyll concentration |  |  |  |  |  |
| D5 *Phaeocystis* | Species shift/indicator species: Nuisance species *Phaeocystis* |  |  |  |  |  |
| D5 oxygen | Oxygen |  |  |  |  |  |
| D7 area affect | Extent of area affected – physical |  |  |  |  |  |
| D7 habit affect | Spatial extent of habitats affected |  |  |  |  |  |
| D7 habit function | Changes in habitat functions |  |  |  |  |  |
| D8 input metal | Inputs of Hg, Cd and Pb via water and air |  |  |  |  |  |
| D8 metals (biota) | Metal (Hg, Cd, Pb) concentrations in biota |  |  |  |  |  |
| D8 metals (sedim) | Metal (Hg, Cd, Pb) concentrations in sediment |  |  |  |  |  |
| D8 PCBs (biota) | PCB concentrations in biota |  |  |  |  |  |
| D8 PCBs (sedim) | PCB concentrations in sediments |  |  |  |  |  |
| D8 PAHs (biota excluding fish) | PAHs concentrations in biota |  |  |  |  |  |
| D8 PAHs (sedim) | PAHs concentrations in sediments |  |  |  |  |  |
| D8 Organotin (biota) | Organotin concentrations in biota |  |  |  |  |  |
| D8 Organotin (sedim) | Organotin concentrations in sediments |  |  |  |  |  |
| D8 PBDE (biota) | PBDE concentrations in biota |  |  |  |  |  |
| D8 PBDE (sedim.) | PBDE concentrations in sediments |  |  |  |  |  |
| D8 HCB (biota) | HCB (hexachlorobenzene) concentrations in biota |  |  |  |  |  |
| D8 HCBD (biota) | HCBD (hexachlorobutadiene) concentrations in biota |  |  |  |  |  |
| D8 HCBD (sedim) | HCBD (hexachlorobutadiene) concentrations in sediments |  |  |  |  |  |
| D8 imposex | Imposex/intersex |  |  |  |  |  |
| D8 fish disease | Externally visible fish diseases |  |  |  |  |  |
| D8 LMS | Lysosomal stability (LMS) |  |  |  |  |  |
| D8 bile metab | Bile metabolites (of PAHs) |  |  |  |  |  |
| D8 micronuclei | Micronuclei (MN) |  |  |  |  |  |
| D8 EROD | EROD |  |  |  |  |  |
| D10 on beach | Beach litter |  |  |  |  |  |
| D10 on seabed | Litter on the sea floor |  |  |  |  |  |
| D10 in Fulmar | Fulmar litter ingestion (impact and floating litter) |  |  |  |  |  |
| D10 microplastic | Microplastics |  |  |  |  |  |
| D11 impulsive | Impulsive noise |  |  |  |  |  |
| D11 ambient | Ambient noise |  |  |  |  |  |

**⃰**The following color code has been applied:

|  |  |
| --- | --- |
|  | Common indicator contributing to the IA2017, as agreed by OSPAR Commission. |
|  | Candidate indicator delivering a case study to the IA2017 |
|  | Priority candidate indicators (in Regions other than where it is already common) |
|  | Candidate indicator not prioritised |

1. **Common Indicators of UNEP/MAP (Table 5):[[28]](#footnote-28)**

**Table 5:** List of UNEP/MAP common and candidate indicators

|  |
| --- |
| **Biodiversity and NIS related common indicators** |
| **Biodiversity (EO1)** |
| 1. Habitat distributional range (EO1) to also consider habitat extent as a relevant attribute;  2. Condition of the habitat’s typical species and communities (EO1);  3. Species distributional range (EO1 related to marine mammals, seabirds, marine reptiles);  4. Population abundance of selected species (EO1, related to marine mammals, seabirds, marine reptiles);  5. Population demographic characteristics (EO1, e.g. body size or age class structure, sex ratio, fecundity rates, survival/mortality rates related to marine mammals, seabirds, marine reptiles); |
| **Non-Indigenous Species (EO2)** |
| 6. Trends in abundance, temporal occurrence, and spatial distribution of non-indigenous species, particularly invasive, non-indigenous species, notably in risk areas (EO2, in relation to the main vectors and pathways of spreading of such species). |
| **Fisheries related common indicators** |
| 7. Spawning stock Biomass (EO3);  8. Total landings (EO3);  9. Fishing Mortality (EO3);  10. Fishing effort (EO3);  11. Catch per unit of effort (CPUE) or Landing per unit of effort (LPUE) as a proxy (EO3);  12. Bycatch of vulnerable and non-target species (EO1 and EO3) |
| **Pollution and litter related common and *candidate* indicators** |
| **Eutrophication (EO5)** |
| 13. Concentration of key nutrients in water column (EO5);  14. Chlorophyll-a concentration in water column (EO5); During the initial phase of IMAP implementation, work will be undertaken to develop GES thresholds and reference conditions for nutrients, transparency, and oxygen, using an adequate geographical scale as well as harmonize existing assessment tools through workshops, dialogue, comparative exercises at regional/sub-regional/subdivision levels. |
| **Contaminants (EO9)** |
| 17. Concentration of key harmful contaminants measured in the relevant matrix (EO9, related to biota, sediment, seawater);  18. Level of pollution effects of key contaminants where a cause and effect relationship has been established (EO9);  19. Occurrence, origin (where possible), and extent of acute pollution events (e.g. slicks from oil, oil products and hazardous substances) and their impact on biota affected by this pollution (EO9);  20. Actual levels of contaminants that have been detected and number of contaminants which have exceeded maximum regulatory levels in commonly consumed seafood (EO9);  21. Percentage of intestinal enterococci concentration measurements within established standards (EO9); |
| **Marine litter (EO10)** |
| 22. Trends in the amount of litter washed ashore and/or deposited on coastlines (including analysis of its composition, spatial distribution and, where possible, source.) (EO10);  23. Trends in the amount of litter in the water column including microplastics and on the seafloor (EO10);  ***24. Candidate Indicator:*** Trends in the amount of litter ingested by or entangling marine organisms focusing on selected mammals, marine birds and marine turtles (EO10); |
| **Coastal ecosystems and landscapes and hydrography related common and *candidate* indicators** |
| **Hydrography (EO7)** |
| 15. Location and extent of the habitats impacted directly by hydrographic alterations (EO7) to also feed the assessment of EO1 on habitat extent; |
| **Coastal ecosystems and landscapes (EO8)** |
| 16. Length of coastline subject to physical disturbance due to the influence of man-made structures (EO8) to also feed the assessment of EO1 on habitat extent;  ***25. Candidate Indicator:*** Land use change (EO8) |
| **Energy including underwater noise related *candidate* indicators (EO11)** |
| ***26. Candidate indicator:*** Proportion of days and geographical distribution where loud, low, and mid-frequency impulsive sounds exceed levels that are likely to entail significant impact on marine animals (EO11);  ***27. Candidate Indicator:*** Levels of continuous low frequency sounds with the use of models as appropriate (EO11). |

1. **Regional Reporting Indicators of BSC (Tables 6-11):**

**Table 6:** Summary of suitability of Black Sea data collection (of BSIS and external data sources) to the BSC and EEA indicators and MSFD descriptors together with proposed methodologies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicator group** | **Indicator name / type** | **BSC indicators** | **EEA-CSI** | **MSFD-GES descriptors** |
| Eutrophication | NO3+NO2 (S) | Y⃰ | Y | Y (D5) |
| PO4 (S) | Y | Y | Y (D5) |
| N/P (S) |  | Y |  |
| Chlorophyll-a (S) | Y | Y | Y (D5) |
| Ocean color in support of Chl-a (S) | N⃰ ⃰ | N | N |
| Hypoxic situations, expansion of zones of hypoxia (I) | Y | N | Y (D5,D6,D7) |
| Harmful algal blooms (I) | N | N | Y (D5) |
| Primary production | N | N | Y (D5) |
| Hazardous substances and oil (contamination) | HSs in biota (S) | Y | Y | Y (D8,D9) |
| HSs in sediments (S) | Y | Y? | Y (D8) |
| Biological effects of HS (I) | N | N | Y (D8) |
| Shipping | Discharge of oil from refineries and offshore installations (P) | N | Y | N |
| Illegal discharges of oil at sea (P) | Y | Y | N |
| Accidental oil spills from shipping (P) | Y | Y | N |
| Shipping density (P) | Y | N | N |
| Loads | Loads: Inputs of nutrients and Hazardus substances from direct (point) sources (P) | Y | N | Y (D5) |
| Marine litter | Marine Litter: Amount/composition/sources | N | N | Y (D10) |
| Biodiversity | Biomass of microalgae | Y | N | Y (D1,D5,D6) |
| Biodiversity: species’ composition / number of species / species’ richness | Y | N (species diversity only) | Y (D1,D5,D6) |
| Macroalgae Distribution | Y | N | Y (D1,D5,D6) |
| Seagrasses | N | Y? |  |
| NIS/IAS | Y | N | Y (D2) |
| Designated Protected Areas | Y | Y |  |
| Threatened and protected species | Y | Y |  |
| Fisheries and aquaculture | Fishing fleet capacity / fishing effort (P) | Y | Y | N |
| Fish stock biomass (S) and its sub-indicators | Y | Y | Y (D3) |
| Fish catches / biomass | Y | Y | Y (D3) |
| Total landings | Y |  |  |
| Fishing mortality | Y | N | Y (D3) |
| Spawning Stock Biomass | Y | N | Y (D3) |
| Aqua. Production | Y | N | N |
| Climate change | SST (surface water temperature) | N | N | N |
| SLR (sea level rise) | Y\* | N | N |
| Northward movement of species | N | Y | N |
| Total number of Med species /expansion area | N | N | N |
| Invasive Species diversity and abundance | Y | N | Y (D1,D5,D6) |
| Bathing waters | Bathing water: Chemical and microbiological parameters | Y | Y | N |

⃰ Y= Yes ⃰ ⃰ N= No

**Table 7:** Regional Reporting indicators agreed by the BSC Advisory Group on the Pollution Monitoring and Assessment (AG PMA)

|  |  |  |
| --- | --- | --- |
| **Agreed Indicators** | **Explanation** | **Comments** |
| **Trix** | TRIX = [log (Chl × D%O2 × Nmin × Ptot.) + k] / m \* | K=1.5 and m=1.2 are constant use particularly for Northern Adriatic. For Black Sea could be necessarily to calculate another. |
| **Oxygen Saturation level at critical depth** | 1. In bottom layer in coastal waters (up to 50m depth) in late summer times 2. For deep water column sigma-T is 15,4-15,5 in late summer times |  |
| **Inorganic N, P, Si in the surface layer** | Maximum concentrations in surface layer end of winter-spring |  |
| **Ninorganic /Pinorganic** | **Inorganic N** per **Inorganic P**  🡪in surface layer |  |
| **Ninorganic/Si** | **Inorganic N** per **Si**  🡪in surface layer |  |
| **BEAST (Black Sea Euthrophication Assessment Tool)** | **Core set indicators grouped as causes - inorganic nitrogen, inorganic phosphorus (phosphates), direct effects - chlorophyll a , indirect effects - bottom oxygen (where available), Secchi.** | To be defined by each country according to its reference values – within B2B each country had an expert who worked for BSC |
| **Water transparency, where relevant** |  |  |

\* Chl: Concentration of Chlorophyll – a, µg/L

D%O2: Absolute deviation of oxygen saturation of 100% (in any direction)

Nmin : Concentration of mineral nitrogen (nitrite + nitrate + ammonium) it is very important to specify u.m. (µg/L? – as in the original formula)

Total P: Concentration of total phosphorus, u.m. (µg/L? – as in the original formula)

**Table 8:** Regional Reporting indicators agreed by the BSC Advisory Group on Control of Pollution from Land Based Sources **(AG LBS)**

* Amount of Total discharge (point sources)
* Amount of Untreated discharges (point sources)
* Amount of insufficiently treated discharge (point sources)
* Number and amount(volume) of Accidents that impacted Black Sea (if any)
* Rivers

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Parameters/Status, BS State** | **BG** | **GE** | **RO** | **RU** | **TR** | **UA** |
|  |  |  |  |  |  |  |
| **Annual Flow km3/year** |  |  |  |  |  |  |
| **TP Tonnes/year** |  |  |  |  |  |  |
| **TN Tonnes/year** |  |  |  |  |  |  |
| **Inorganic N (will be calculated) Tonnes/year** |  |  |  |  |  |  |
| **Inorganic P discharge Tonnes/year** |  |  |  |  |  |  |
| **Trace Metal (common ones will be selected\*) Tonnes/year** |  |  |  |  |  |  |
| **TSS Tonnes/year** |  |  |  |  |  |  |
| **TPH Tonnes/year** |  |  |  |  |  |  |
| **BOD5 Tonnes/year** |  |  |  |  |  |  |

\* copper is the only common trace metal reported by all 6 countries

**Table 9:** Regional Reporting indicators agreed by the BSC Advisory Group on the Conservation of Biological Diversity **(AG CBD)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Parameters/Status, BS State** | **BG** | **GE** | **RO** | **RU** | **TR** | **UA** |
| **Phytoplankton biomass (seasonal trends for the last 3 years)** |  |  |  |  |  |  |
| **Phytoplankton abundance (seasonal trends for the last 3 years)** |  |  |  |  |  |  |
| **Max concentration of blooming species** |  |  |  |  |  |  |
| **Diatoms/Dinofflagelates biomass ratio (only for spring)** |  |  |  |  |  |  |
| **H-Shannon 95 (biomass)** |  |  |  |  |  |  |
| **Chl a (seasonal trends for the last 3 years)** |  |  |  |  |  |  |
| **Mesozooplankton biomass (for 3 years)** |  |  |  |  |  |  |
| **Biomass of *Noctiluca* (%)** |  |  |  |  |  |  |
| **Mesozooplankton H-Shannon (biomass, abundance)** |  |  |  |  |  |  |
| **Jellatinous macrozooplankton biomass and abundance** |  |  |  |  |  |  |
| **Macrophytobenthos (EEIc \*)** |  |  |  |  |  |  |
| **Macrozoobenthos (M-AMBI\*)** |  |  |  |  |  |  |
| **Number of new introduced non-indigenous species (for each 6 years)** |  |  |  |  |  |  |
| **Marine protected areas (in number and in % every 5 years)** |  |  |  |  |  |  |

Some notes to table on CBD Regional Reporting indicators:

1. Reporting period for each country of CBD AG is 1 January-31 December of previous year before the date of reporting;

2. Only pelagic organisms need to inform seasonal data (spring, summer, autumn, winter);

3. Each year should be necessary to give the trend for some parameters (phyto- and zooplankton biomass, chlorophyll-a concentration, meso- and macrozooplankton seasonal biomass);

4. Maximal concentration (add the “abundance” and “biomass”) of blooming species;

5. Excluded biomass data for calculation of mesozooplankton H-Shannon Index.

**Table 10:** Regional Reporting indicators agreed by the BSC Advisory Group on the Environmental Aspects of the Management of Fisheries and other Marine Living Resources (AG FOMLR)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| N | Parameters | BG\* | GE\* | RO\* | TU\* | UA\* | RU\* |
| 1 | TOTAL CATCH: |  |  |  |  |  |  |
| - Total landing | X | x | X | X | x |  |
| - Total landing per species | X | x | X | X | x |  |
| - Discards | X |  | X |  |  |  |
| 2 | FISHING EFFORT: |  |  |  |  |  |  |
| - Fishing fleet by size: < 6 m, 6-12 m, 12-18 m, 18-24 m, > 24 m | X | x | X | X | x |  |
| - Fishing fleet by gears | X | x | X | X | x |  |
| - GT x Day | X | x | X |  |  |  |
| - kW x Day | X | x | X |  |  |  |
| - Number of fishing gears per type | X | x | X |  | x |  |
| 3 | STOCK ASSESSMENT: |  |  |  |  |  |  |
| - Total biomass | X | x | X |  | x |  |
| - Spawning biomass | X | x | X |  | x |  |
| 4 | RECRUITMENT | X | x | X |  | x |  |
| 5 | FISHING MORTALITY | X | x | X |  | x |  |
| 6 | By-CATCHES: |  |  |  |  |  |  |
| - Vulnerable species (sturgeons etc.) | X |  | X |  | x |  |
| - Cetaceans | X | x | X |  | x |  |
| 7 | Catches per unit of effort (CPUE) on surveys | X | x | X |  | x |  |
| 8 | MARICULTURE: |  |  |  |  |  |  |
| - Total production | X | x | X | X | x |  |
| - Total production per species | X | x | X | X | x |  |
| - Number of mariculture enterprises | X | x | X | X | x |  |
| - Restocking activities | X | x | X | X | x |  |
| 9 | FISHING FREE ZONES |  |  |  |  |  |  |
| - Number and area (km2) | X | x | X |  | x |  |
| - Area for temporary restriction (prohibition) | X | x | X | X | x |  |
| 10 | NUMBER AND NAME OF STOCKS BELOW BIOLOGICAL SAFETY LIMITS (BSL) | X |  | X | X | x |  |
| 11 | NUMBER OF BOTTELNOSE DOLPHINS IN CAPTIVITY (?) |  |  |  |  |  |  |
| 12 | ADDITIONALLY: |  |  |  |  |  |  |
| - Fishing ground |  |  |  |  |  |  |
| - Legal framework |  |  |  |  |  |  |
| - Management measures |  |  |  |  |  |  |
| - National fisheries programs |  |  |  |  |  |  |
| - Employment in fishery |  |  |  |  |  |  |
| - Fish consumption |  |  |  |  |  |  |
| * Import/export of fish |  |  |  |  |  |  |
|  | * Number of landing ports |  |  |  |  |  |  |

\* - Availability of the parameters, provisionally

**Table 11:** Regional Reporting indicators agreed by the BSC Advisory Group on the Environmental Safety Aspects of Shipping **(AG ESAS)**⃰

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Parameter/BS State** | **BG** | **GE** | **RO** | **RU** | **TR** | **UA** |
| **Ship calls, *inter alia*:** |  |  |  |  |  |  |
| Tankers |  |  |  |  |  |  |
| Chemicals |  |  |  |  |  |  |
| Gas (LNG) |  |  |  |  |  |  |
| Others |  |  |  |  |  |  |
| **Cargo turnover, mln tons, *inter alia*:** |  |  |  |  |  |  |
| General Cargo |  |  |  |  |  |  |
| **Oil, mln tonnes** |  |  |  |  |  |  |
| **Chemical goods** |  |  |  |  |  |  |
| **Gas, mln tonnes** |  |  |  |  |  |  |
| Others |  |  |  |  |  |  |
| **Number of ports** |  |  |  |  |  |  |
| **Capacity of terminals, *inter alia:*** |  |  |  |  |  |  |
| **Oil terminals, mln tonnes per year** |  |  |  |  |  |  |
| **Gas terminals, mln tonnes per year** |  |  |  |  |  |  |
| **Port reception facilities (PRF), actual load** |  |  |  |  |  |  |
| For oily waters, cub. M |  |  |  |  |  |  |
| For garbage, cub. M |  |  |  |  |  |  |
| For sewage, cub. M |  |  |  |  |  |  |
| Number, volume, location and causes of accidental pollution/spills |  |  |  |  |  |  |
| Number, volume and location of illegal pollution/spills |  |  |  |  |  |  |
| **Number of penalties imposed for marine pollution from ships** |  |  |  |  |  |  |
| **Dumping of dredged materials, volume** |  |  |  |  |  |  |

\* Issues covered by MARPOL Annex 6 and BWM indicators to be elaborated and added in the nearest future

# Annex II: Comparative Tables

The comparative tables are worked on in parallel in the Roof Report document. Hence, they are not added here to avoid adding additional length to the document and to avoid work on different documents simultaneously.

1. Status November 2016; at the end of December 2016, the national Program of Measures of Bulgaria was adopted by the Council of Ministers and the national text – based report was reported electronically to COM via the Reportnet platform in the beginning of January 2017. [↑](#footnote-ref-1)
2. HELCOM uses the term “core” indicators, whether OSPAR and UNEP/MAP prefer the term “common” indicators. However, both terms mean essentially the same. [↑](#footnote-ref-2)
3. Pressure core/common indicators measure an anthropogenic pressure directly, and also the progress towards an environmental target. State core/common indicators measure the progress towards a GES-boundary. The environmental target and/or the GES-boundary are described in detail in every operational core/common indicator, as well as the assessment methods and rationale. State core/common indicators are indirectly linked to anthropogenic pressures, and the link is described either qualitatively or quantitatively as appropriate. [↑](#footnote-ref-3)
4. Compare HELCOM, 2016. Joint documentation of regional coordination of Programmes of Measures in the Baltic Sea area, p. 4. [↑](#footnote-ref-4)
5. The present section is written based on the information available on HELCOM website, including information from HELCOM meetings and several projects, relevant in the context of HELCOM’s work on core indicators. See HELCOM Meeting portal at: <https://portal.helcom.fi/default.aspx> for meeting documents; HELCOM (2010): Ecosystem health of the Baltic Sea in 2003–2007 – HELCOM Initial Holistic Assessment. Balt. Sea Environ. Proc. No. 122. for information on HOLAS and respective sections of HELCOM website for information on CORESET I, II, HOLAS II and published core indicators. [↑](#footnote-ref-5)
6. So for example, the candidate indicators on ’Litter on the Seafloor’ and ’Distribution in time and space of loud low- and mid-frequency impulsive sound’ and ‘Shallow water oxygen’ were shifted to pre-core indicators; Denmark and Germany lifted general (study) reservations on the indicators etc. [↑](#footnote-ref-6)
7. Pre-core indicators have been identified as necessary by the HELCOM Contracting Parties for the Baltic Sea Action Plan and MSFD purposes. The indicators in question have not been adopted as core indicators e.g. because some aspects of the indicator may be under developed and/or agreement on the indicator among the CPs may be intermediate. Contracting Parties should monitor the parameters relevant for the pre-core indicators, with the understanding that they can later be based on compilations of data from sources other than coordinated HELCOM monitoring data. In contrast, candidate indicators include indicators on which there is not yet a common understanding on the concept but a need for the indicator has been identified to cover gaps in the requirements of the BSAP or the MSFD. [↑](#footnote-ref-7)
8. The present section is written based on the information available on OSPAR website. For meeting documents, see Summary record of ICG-MAQ(2) 16/08/01, Summary record of ICG-MAQ(1) 2016, Summary record of OSPAR 16th Meeting (OSPAR 16/20/1-E); for developments on Core Indicators, see OSPAR, 2014. OSPAR Coordinates Monitoring in the North-East Atlantic; Publication Nr. 622/2014 and the Draft Structure of the Intermediate Assessment 2017. [↑](#footnote-ref-8)
9. Region I: Arctic Waters, Region II: Greater North Sea, Region III: Celtic Seas, Region IV: Bay of Biscay and Iberian Coast and Region V: Wider Atlantic. [↑](#footnote-ref-9)
10. JAMP: OSPAR Joint Assessment and Monitoring Programme. [↑](#footnote-ref-10)
11. COMP: Common Procedure for identification of the eutrophication status of the OSPAR maritime area. [↑](#footnote-ref-11)
12. The present section is written based on the information available on UNEP/MAP website at: <http://www.unepmap.org/index.php> and UNEP/MAP Secretariat website at: <http://drustage.unep.org/unepmap/> as well as meeting records of COP Meetings, meetings of Correspondence Group on Good Environmental Status (COR GEST), Correspondence Group on Monitoring (CORMON) and the 4th and 5th EcAp Coordination Group. For meeting documents, see inter alia: Report of the Meeting of the MAP Focal Points (13-16 October 2015) of 23rd December 2015 (UNEP(DEPI)/MED WG.421/26); Report of the MED POL Focal Points Meeting (16-19 June 2015) of 30th July 2015 (UNEP(DEPI)/ MED WG.417/17); decision IG.22/7; decision IG.21/3; decision IG.20/4 and decision IG.17/6. [↑](#footnote-ref-12)
13. Hereby, Decision IG.22/7 defines a common indicator as an indicator that summarizes data into a simple, standardized, and communicable figure and is ideally applicable in the whole Mediterranean basin, or at least on the level of sub-regions, and is monitored by all Contracting Parties. Candidate indicators are, in contrast, defined as indicators which still have many outstanding issues regarding their monitoring and assessment and therefore are recommended to be monitored in the initial phase of IMAP on a pilot and voluntary basis. [↑](#footnote-ref-13)
14. The common indicator assessment fact sheets provide information on the status of the environment and information needed to evaluate the severity of environmental problems and distance from EcAp targets, ecological objectives and GES description. They are linked to specific Ecological Objectives (EOs) and together with these indicate whether the GES related to the specific EO is met or not. Notably, in October 2015, the UNEP/MAP had already prepared a draft common assessment indicator factsheet, of which it informed the WG DIKE (the Working Group on Data, Information and Knowledge Exchange) at the Group’s 12th meeting on 12th October 2015. See the "Report of the meeting of the integrated Monitoring Correspondence Group, Athens, March 2015" for recommendations and newest versions of factsheets (D5, D10) at <https://wedocs.unep.org/rest/bitstreams/7568/retrieve>. [↑](#footnote-ref-14)
15. Prepared mainly based on the document “Outcome of the 51st Meeting of the Heads of Delegation” (HOD 51-2016) and the information on core indicators available on HELCOM website. [↑](#footnote-ref-15)
16. agreed thresholds: primary threshold Hg biota, primary threshold Cb, Pb water, secondary thresholds Cd mussels and sediments, Pb mussels, fish liver and sediments. [↑](#footnote-ref-16)
17. agreed thresholds; primary threshold benzo(a)pyrene, secondary substance fluoranthene secondary threshold value crustaceans, secondary substance anthracene secondary threshold value sediment. [↑](#footnote-ref-17)
18. agreed thresholds of the core indicator: primary threshold value dioxin in biota, primary threshold non-dioxin like PCBs in biota. [↑](#footnote-ref-18)
19. agreed thresholds: secondary threshold TBT in water. [↑](#footnote-ref-19)
20. Denmark has a remaining study reservation on the indicator (HOD 51-2016 outcome para 6.10), however agreed that the indicator can be used in HOLAS II by indicating that the results are of interim/test character (HOD 51-2016 outcome para 6.22-6.23). [↑](#footnote-ref-20)
21. Denmark has a remaining study reservation on the indicator, however agreed that the indicator can be used in HOLAS II by indicating that the results are of interim/test character (HOD 51-2016 outcome para 6.22-6.23). [↑](#footnote-ref-21)
22. The specific indicator has not yet been specified, however the intention to develop new health indicators for marine mammals has been noted by State and Conservation 5-2016 and that this intention should be reflected in HOLAS II (outcome para 4J.10). [↑](#footnote-ref-22)
23. The indicator was endorsed to be shifted from candidate to core indicator and the proposed threshold values was endorsed by State and Conservation 5-2016. At HOD 51-2016 Poland placed a study reservation on the shift of status for the indicator, thus it is still a candidate indicator (outcome para 6.18). [↑](#footnote-ref-23)
24. proposed to be used as supplementary indicator in HOLAS II by Finland and Sweden (State and Conservation 5-2016 outcome paragraph 4J.49). [↑](#footnote-ref-24)
25. Redrawn from the Background paper on OSPAR common and candidate indicators, made publicly available by OSPAR in autumn 2016. [↑](#footnote-ref-25)
26. ‘D4 FoodWeb 5 “change of plankton functional type” was merged with D1 Pelagic Habitat 1. “Changes of plankton functional types (life form) index Ratio” and therefore deleted as a D4 Food web indicator by OSPAR 2015’ [↑](#footnote-ref-26)
27. Indicators ‘D5 “Nutrient inputs in water and air” (Region II)’ and ‘D5 “Nutrient inputs in water” (Region IV)’ were combined to ‘D5 Nutrient inputs in water and air (Regions II & IV)’. [↑](#footnote-ref-27)
28. As agreed in the decision IG.22/7 (Feb. 2016). [↑](#footnote-ref-28)