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| Description: Description: SEA PROT final 2  **Marine Strategy Framework Directive (MSFD)**  ***Common Implementation Strategy*** |

**Reporting on the 2018 update of articles 8, 9 & 10 for the**

**Marine Strategy Framework Directive**

**MSFD GUIDANCE DOCUMENT 14**

**APRIL 2018**

**(revised in April 2019)**

Further guidance for reporting, including use of the MSFD web reporting tool and schemas is available from: <http://cdr.eionet.europa.eu/help/msfd>.

***Disclaimer:***

*This document has been developed through a collaborative programme involving the European Commission, all EU Member States, the Accession Countries, and Norway, international organisations, including the Regional Sea Conventions and other stakeholders and Non-Governmental Organisations. The document should be regarded as presenting an informal consensus position on best practice agreed by all partners. However, the document does not necessarily represent the official, formal position of any of the partners. Hence, the views expressed in the document do not necessarily represent the views of the European Commission.*

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LIST OF ACRONYMS

|  |  |
| --- | --- |
| BSC | Black Sea Convention (Convention on the Protection of the Black Sea Against Pollution) |
| CDR | Central Data Repository |
| CFP | Common Fisheries Policy |
| DCF | Data Collection Framework (CFP) |
| DPSIR | Drivers, Pressures, State, Impact and Response (assessment framework) |
| EC | European Commission |
| EEA | European Environment Agency |
| EIONET | European Environment Information and Observation Network |
| ETC-ICM | European Topic Centre on Inland, Coastal and Marine Waters |
| EU | European Union |
| EUNIS | European nature information system |
| GES | Good Environmental Status (MSFD Articles 3(5) and 9) |
| GIS | Geographical information system |
| HD | Habitats Directive |
| HELCOM | Convention on the Protection of the Marine Environment of the Baltic Sea Area |
| ICES | International Council for the Exploration of the Sea |
| INSPIRE | Infrastructure for Spatial Information in the European Community |
| MRU | Marine Reporting Unit |
| MS | Member States |
| MSFD | Marine Strategy Framework Directive |
| OSPAR | Convention for the Protection of the Marine Environment of the North-East Atlantic |
| PoM | Programme of Measures (MSFD Article 13) |
| QA | Quality assurance |
| QC | Quality control |
| ReportNet | Eionet’s infrastructure for supporting data flows (e.g. by Member States for reporting obligations under an EU Directive) |
| RSC | Regional Sea Convention |
| SOS | Sensor Observation Service |
| UNEP/MAP | Convention for Protection of the Mediterranean Sea against Pollution (United Nations Environment Programme - Mediterranean Action Plan) |
| WFD | Water Framework Directive |
| WFS | Web Feature Service |
| WMS | Web Map Service |
| WISE | Water Information System for Europe |
| XML | Extensible Mark-up Language |

**Marine Strategy Framework Directive (MSFD)**

*Common Implementation Strategy*

**Reporting on the 2018 update of articles 8, 9 & 10 for the Marine Strategy Framework Directive**

# Introduction

## Reporting requirements in 2018 under the MSFD

According to article 17(2) of the Marine Strategy Framework Directive (MSFD), Member States (MS) have to update their marine strategies every six years. This requires articles 8 (initial assessment), 9 (determination of the Good Environmental Status) and 10 (establishment of targets) to be updated by 15 July 2018, and notified to the European Commission (EC) by 15 October 2018 at the latest.

This reporting guidance[[1]](#footnote-2) has been developed with the aim of assisting and facilitating this 2018 reporting obligation by MS in their implementation of the Directive. As far as possible, the results of and the recommendations from the Fitness Check on environmental reporting and monitoring[[2]](#footnote-3) have been considered in preparing this reporting guidance, e.g. taking into consideration indicators, reducing text-based reporting and making reference to information that is available at national or regional level.

## How the Commission will use the reported information

The information provided by the MS will be used by the European Commission for assessing whether the elements notified are consistent with the requirements of the MSFD in each Member State (i.e. compliance assessment), as well as the coherence of frameworks within the different marine regions or subregions and across the Union. Also, it will serve the preparation of reports, for example for the European Parliament, Council and the general public, on the implementation of the MSFD and to show the progress towards achieving Good Environmental Status (GES) of Europe’s seas.

In addition, the European Environment Agency (EEA) will use the information provided to perform its tasks under MSFD article 20(3b) and to contribute to its assessments.

All the information reported will be made publicly available through WISE-marine[[3]](#footnote-4), a web-based content management system that will show the efforts made across Europe on the implementation of the MSFD and the current state of the marine environment in relation to Good Environmental Status (GES).

# Content of reports

## Overview of the articles to be reported

The preparation of articles 8, 9 and 10 in 2012 provided the basis and starting point for the Member State's marine strategies, upon which the monitoring programmes (art. 11) and the programmes of measures (art. 13) were built in 2014 and 2015 respectively. According to Article 17, the information reported on these three articles in the first cycle of the MSFD needs to be updated in 2018, taking account of progress made since the last reporting in 2012, including:

1. The outcomes of the EC's assessment of the 2012 reports[[4]](#footnote-5);
2. Establishment of monitoring programmes (article 11) in 2014 which aim, *inter alia*, to collect data and information to assess progress towards achieving GES and targets;
3. Commission Decision (EU) 2017/848 on GES criteria and methodological standards, which replaces Decision 2010/477/EU. This revised Decision provides the basis for updating the determinations of GES and for assessing the extent to which GES is being achieved[[5]](#footnote-6);
4. Commission Directive (EU) 2017/845 which amends the MSFD by replacing its Annex III[[6]](#footnote-7);
5. Relevant assessments undertaken under other EU policies and international conventions;
6. Advancements in scientific and technical knowledge and in methods for assessment.

Article 9 of the Directive requires MS to determine, in respect of each marine region or subregion concerned, a set of characteristics for GES on the basis of the qualitative descriptors listed in Annex I of the Directive.

Commission Decision 2010/477/EU provided the criteria to be used by MS to assess the extent to which GES is being achieved, and thus formed the basis for the determinations of GES in 2012. However, this Decision has been replaced by a new Decision which was adopted in May 2017. MS are to use the new Decision for the update of their marine strategies in 2018, to the extent possible. The new Decision provides more detail per criterion than the 2010 Decision, including *inter alia,* a) prioritisation of criteria, b) scales of assessment, c) how to derive the extent to which GES is achieved, d) when it is expected to use the assessments coming from the coastal and territorial waters (as defined under the Water Framework Directive) regarding eutrophication and contamination and other assessments, e) criteria for selecting the species and habitats to be assessed, and f) units of measurement for each of the criteria.

In view of this transition period between application of the 2010 and 2017 GES Decisions, the 2018 reporting system will accommodate the possibility of reporting based on the 2010 Decision. A mapping of the 2010 Decision and the revised one is provided in [Annex I](#_ANNEX_I:_Relationship), where the elements from the old Decision that are not covered by the new one have also been included and will be available for selection in the reporting tools.

Article 8 of the Directive requires MS to make an assessment of their marine waters. The update of this assessment in 2018 should take account of the data resulting from the monitoring programmes defined in the first cycle (2014, article 11), as well as assessments coming from other processes, such as the Regional Sea Convention (RSC) assessments, or Directives such as the Water Framework Directive (WFD). The assessment comprises three elements:

* An analysis of the predominant essential features and characteristics, and the current environmental status of their marine waters (Art 8(1a)). This analysis should be based on the indicative list of characteristics set out in Table 1 of the revised Annex III of the Directive. The analysis should cover the physical and chemical features, the habitat types, the biological features and the hydro-morphology.
* An analysis of the predominant pressures and impacts, including human activity, on the environmental status of those waters (Art 8(1b)), based on the list of elements in Table 2 of the revised Annex III of the Directive (including the updated list of pressures in Table 2a and the new list of uses and human activities in Table 2b).
* An economic and social analysis of the use of the marine waters, and of the cost of degradation of the marine environment (Art 8(1c)), based on the list of uses and human activities marked with an \* in Table 2b of the revised Annex III.

Compared with 2012, in which the reporting provided an incomplete and inconsistent set of assessments on the state of the marine waters at that time, it is essential that the updated reports in 2018 for Article 8(1a) and (1b) provide clear and specific information on the current status of the marine waters in order to determine the progress towards achieving GES. The specifications for this are laid out in the GES Decision (2017) and thus form the basis of the reporting described here.

Article 10 of the Directive requires that, on the basis of their initial assessment, MS establish a comprehensive set of environmental targets and associated indicators for their marine waters. The aim of the targets and indicators is to guide progress towards achieving GES in the marine environment, taking into account the indicative lists of pressures and impacts set out in Table 2a of the revised Annex III to the Directive and of characteristics set out in MSFD Annex IV.

The updating of Article 10 provides MS with the opportunity to assess progress with each of the targets defined in 2012 (or in some cases revised later following the Commission's recommendations in the 2014 Article 12 assessment). It is also possible to reflect on the appropriateness of the targets, which in some cases were more compatible with GES determinations under Article 9, and to add new targets if deemed necessary. Lastly, MS developed their Programmes of Measures (Article 13, reporting due March 2016) in order to deliver their environmental targets and hence to help achieve GES; the 2018 updates should provide a link back to these measures, thereby ensuring linkages between the different stages in the marine strategies.

Figure 1 represents the main articles to be reported under the MSFD, as well as the logical connections among them. In white, are the articles to be reported in 2018, while the articles in grey fall under other MSFD reporting obligations.

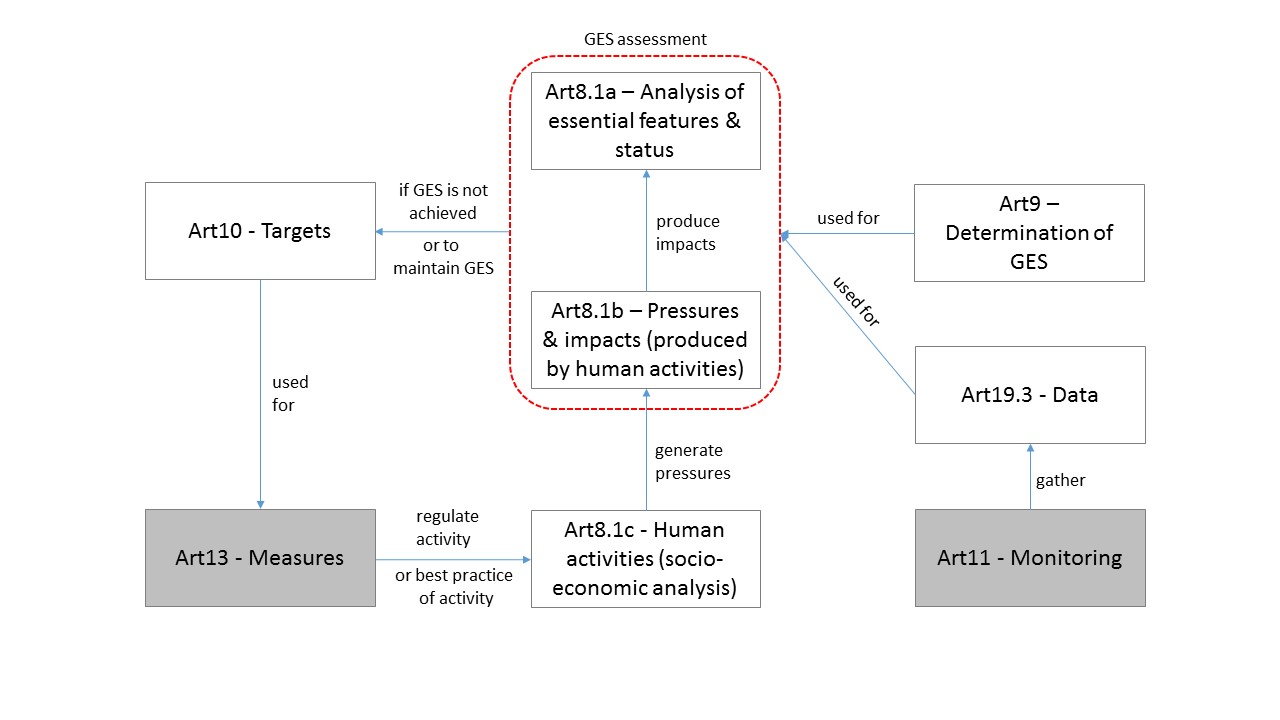


Figure 1 Main articles to be reported under the MSFD and their interconnections

## Reporting package

The reporting package in 2018 comprises:

1. structured reporting of information via XML;
2. regional and national indicator assessments that are made available online;
3. the supporting assessment data sets, made available online as per MSFD Article 19(3);
4. in addition text-based national reports and, where appropriate, regional 'roof' reports may be submitted.

The XML files and associated indicator reports, including associated data sets, aim to include all the information considered necessary for the EC and EEA to perform their assessments, and to help MS implement their own policies.

### XML files

The Commission's Article 12 assessment of the 2012 reporting, together with feedback from MS on the 2012 reporting process, showed that improvements should be made for the subsequent reporting exercises, such as:

* Requesting more quantitative information where possible, which avoids ambiguity in interpretation of the information and allows for its aggregation for statistical and dissemination (European, regional and national) purposes;
* Easing the reporting process for MS (e.g. fewer reporting fields, automation as far as possible, code lists for the main variables) and the national policy process by provision of reporting tools;
* Possibility to link to the assessment reports performed under other relevant instruments (e.g. WFD) and to regional assessment reports and indicators performed under the RSCs.

In order to address these issues, a new data model has been developed and forms the basis for the schemas to be used to produce the XML files for the 2018 reporting.

MS will have three possible ways to prepare the XML files:

1. to generate XML files themselves, based on the schemas (e.g. from a national database);
2. to compile the information in an Access database and convert it to XML files (Access database and a converter will be made available in CDR website); or
3. to use web-forms[[7]](#footnote-8) that will produce the XML files.

In all cases, the XML files need to be uploaded to the corresponding country folder in CDR[[8]](#footnote-9).

These options (use of web-forms and preparation of XML files) are the same as followed for reporting on MSFD Articles 11 and 13 in 2014 and 2016 respectively.

All the tools, as well as the present Reporting guidance, are available in the MSFD reporting resources page under CDR help[[9]](#footnote-10).

Before releasing an envelope with XML files in ReportNet, there will be the possibility of running a Quality Assurance check, to ensure that there are no errors in the files. This is the same QA routine that will be run when releasing the envelope to ensure that the deliveries from Member States have the required quality. The QA specifications are available in the MSFD reporting resources page.

The schemas in Table 1 have been developed for the 2018 reporting. Detailed guidance is provided in [Annex III](#_ANNEX_III:_Schemas). There should be separate reports per subregion, but held in the same XML file. In order to help the Member States to prepare a single file per schema, a “Merge” tool has been developed and made available in the CDR help page.

Table 1 Schemas for 2018 reporting on MSFD Article 17 updates of Articles 8, 9 and 10.

| **Schema name** | **Number of files needed** | **Contents** |
| --- | --- | --- |
| ART9\_GES | 1 file per MS | GES determination |
| ART8\_GES | 1 file per MS | Assessment results concerning current status of marine waters and the predominant pressures and environmental impacts of human activities |
| ART8\_ESA | 1 file per MS | Socio-economic analysis of the uses of marine waters and the costs of degradation |
| ART10\_Targets | 1 file per MS | Targets and associated indicators, including an assessment on the progress towards achieving them |
| Indicators | 1 file per MS | Basic information on the indicators used by the MS (national or regional) for the assessments, including links to where published and to underlying datasets |

### Indicator assessments

The Article 8 assessments on state and pressures, indicating progress towards achieving GES, and on the economic and social analysis, are typically informed by indicator assessments which draw from the available monitoring data in a structured manner for each assessment topic. The indicators can cover all aspects of the DPSIR framework, where there may be indicators related to the analysis of the main characteristics, others related to the analysis of pressures and impacts and others related to the socioeconomic analysis. Similarly, progress in achieving the Article 10 targets is to be measured through associated indicators. Typically, the indicator assessments provide detailed information including the matrices, metrics and methods used, as well as the results. Selected information from each indicator assessment (e.g. elements assessed, values and trends) can be used to populate the XML reports.

Since 2012, considerable efforts have been made in each region to coordinate the development of indicators suited to the needs of MSFD assessments. Indicators have thus become the basis of the assessments performed at the regional level. Indicators are not yet available at the regional level for all MSFD topics in all regions. Where these regional indicators are not yet available, Member States use those available at national level.

Therefore, these indicator assessments have been incorporated as a key piece of the 2018 reporting. It is expected that Member States will make use of those regional indicators that are relevant for their waters, whilst complementing these with additional national indicators, where needed.

Where indicator assessments are made available on regional or national web sites, the URL link will be requested in the [indicator schema](#_Indicators_2), to provide access to all the information related to the indicator assessment, including the methodologies, data sets used and results. Provision of a URL link avoids the need to directly report the entire indicator assessment. Several RSCs are making their indicator assessments available online.

The reporting on articles 8 and 10 will request the code of the corresponding indicator(s) used for each feature assessment, thereby linking to the indicator schema.

To facilitate consistency in the presentation of indicator assessments across a wide range of topics and regions/countries, a *common indicator structure* was developed by the MSFD Common Implementation Strategy (CIS), in collaboration with the Regional Sea Conventions (Guidance Document 13[[10]](#footnote-11)). Member States are encouraged to use the *common indicator structure*, whenever possible.

[Annex V](#_ANNEX_V:_Common) of the present guidance includes a schema following the *common indicator structure* for the publication of these indicators. Use of this schema would allow the possibility of including the regional and national indicators into a WISE-marine indicators library (i.e. to have the indicator assessment displayed in WISE-Marine). The annex includes also the mapping of the fields to the ‘Indicators’ schema to be reported. It is expected that the schemafor the *common indicator structure* will have limited use in 2018 reporting, but could be introduced over time.

### Supporting data

The datasets used for the assessments are to be made available, as set out in MSFD Article 19(3) of the Directive, and in compliance with the INSPIRE Directive “Implementing Rules (IR)”.

The MSFD CIS Technical Group on Marine Data (TG DATA) has developed a document on Recommendations for the publication of datasets under Article 19(3), where the relevant INSPIRE elements have been included. This document is also available in the MSFD reporting resources page.

Article 19(3) is to be fulfilled, in respect of data and information resulting from the [updating of] initial assessments made pursuant to Article 8, by publishing the datasets used for the indicators assessments. The URL where the datasets have been published, together with the URL to the metadata of these datasets, are requested in the indicators schema (section 3.7), as well as in the *common indicator structure* ([Annex V](#_ANNEX_IV:_Common)).

### Text-based reports

Member States typically prepare text-based reports at the national level, using these to serve their public consultation obligations under MSFD Article 19(2) and finalising them so that the Marine Strategies are adopted within their national planning.

In addition to the XML files and associated indicator reports and datasets, Member States may submit their national text-based reports as part of their reporting obligation.

Table 2 recommends the contents to be covered in the national text-based reports. The outline follows the elements provided by the MSFD itself and by the revised GES Decision and Annex III and the headlines covered by xml reporting. Member States may use the table of contents to structure their national text reports.

If the Member State has adopted an alternative structure, then a correspondence table between this contents list and that followed in the Member State report is requested to facilitate access to the information by the Commission.

Table 2 Proposed outline of contents for 2018 Article 8, 9 and 10 text-based report

| **Overall topic** | **Themes** |
| --- | --- |
| Introductory sections | Background, general characteristics of the marine waters, process and methodologies for preparation of the report, public consultation, etc. |
| Objective of the MSFD - Good Environmental Status (Art. 9) | Updated determination of GES, taking account of the 2017 GES Decision to the extent possible |
| Uses of the marine environment (Art 8 (1c))  DPSIR: **Drivers** (activities) | Uses and human activities in or affecting the marine environment (MSFD Annex III, Table 2b uses/activities marked with \*)  Economic and social analysis of uses and human activities:  Physical restructuring of [rivers,] coastline and seabed  Extraction of non-living resources  Production of energy  Extraction of living resources  Cultivation of living resources  Transport  Urban and industrial uses  Tourism and leisure  Security and defence  Education and research |
| Pressures and impacts on the marine environment (Art. 8 (1b))  DPSIR: **Pressures** (and environmental impacts) | Anthropogenic pressures and their impacts (GES Decision Part I and MSFD Annex III Table 2a)  Biological pressures:  Introduction or spread of non-indigenous species (D2)  Extraction of, or injury to, wild species (includes D3)  Other biological disturbances  Physical pressures:  Physical disturbance to the seabed (D6)  Physical loss of the seabed (D6)  Hydrological changes (D7)  Substances, litter and energy pressures:  Nutrient and organic matter enrichment (D5)  Contamination (in environment and seafood) (D8, D9)  Litter (D10)  Underwater noise and other forms of energy (D11)  Climate change |
| State of the marine environment (Art. 8 (1a))  DPSIR: **State** (including environmental impacts) | Structure, functions and processes of marine ecosystems (GES Decision Part II and MSFD Annex III Table 1)  Marine species (D1):  Birds  Mammals  Reptiles  Fish  Cephalopods  Marine habitats:  Pelagic habitats (D1)  Benthic habitats (D6, D1)  Marine ecosystems, including food webs (D4, D1) |
| Cost of degradation (Art 8 (1c))  DPSIR: **Impact** (loss of ecosystem services) | Cost of degradation of the marine environment (loss of ecosystem services)[[11]](#footnote-12) |
| Environmental targets to achieve GES (Art. 10)  DPSIR: **Response** (with links to Art. 13 Measures) | Progress in achievement of 2012 environmental targets  Update of targets, links to Programme of Measures |

### Regional quality status reports

The Regional Sea Conventions have developed assessments on the status of the marine environment in 2017 and 2018, namely HOLAS II[[12]](#footnote-13) (HELCOM), 2017 Intermediate Assessment[[13]](#footnote-14) (OSPAR), Quality Status Report[[14]](#footnote-15) (Barcelona Convention) and State of Environment Report (Bucharest Convention). These reports include assessments which may contribute directly to the 2018 reporting needs of MS, e.g. by providing (sub)regionally-consistent indicator assessments for relevant topics. These reports may be used by Member States for 2018 MSFD reporting purposes as follows:

1. To provide relevant information for the XML file (see Section 5);
2. To provide indicator assessments which can be reported via URL links (section 2.2.2);
3. To provide information to be incorporated into national text-based reports or to be submitted as a regional 'roof report' (section 2.2.4).

## Illustrative examples

In this section, some examples are provided to show how the XML reporting has been developed and structured via an underlying data model. More examples are included in Annex II.

### Integrated reporting

As shown in Figure 1, all the main reporting articles of the MSFD are connected according to a planning logic. Therefore, the reporting should allow each article to be linked according to this overall scheme. These linkages were built into each stage in the reporting of the first cycle; they have now been fully updated through development of an underlying data model on which the 2018 XML schemas are based.

The reporting schemas described here will allow the possibility to make these linkages, as well as the needed QA/QC processes to provide coherence to the information to be submitted by Member States.

Table 3 provides an example of the main outcomes expected from an integrated reporting, where all articles are brought together for planning purposes (note that this is simplified from the schemas).

Table 3 Example for D5 (eutrophication) regarding an integrated view of the articles to be reported

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Art. 9** | | | | | | | | **Art. 8(1a, b)** | | | | **Art. 10** | | | | | **Art. 13** | | |
| **What is the policy objective?** (GES for MSFD) | | | | | | | | **Assessment of pressures and impacts Assessment of state, including impacts Current environmental status (in relation to GES)** | | | | **Targets to achieve GES** | | **Progress with target** | | | **Activities affecting target (& GES)?** | **Actions needed to achieve targets & GES** | |
| **Annex I** Descrip-tor | **Annex III** Pressure/ bio-diversity element | **GES Decision** Theme | **GES Decision (2017)** Criterion | **GES Decision (2017)** Justification (1ary criteria, delays) | **Art. 9(1)** MS (sub)regional determination | | **GES determin-ation date/type** | **Element assessed** (MS specified) | **Element: source** (EU, regional, national) | **Indicator** (regional/ national) - includes link to datasets | **Art.8 assess-ments** | Target | Indicator | Target value to be achieved | Target value achieved | Target achieved? | Activity (Table 2b Annex III) | Measure | Measure source |
| **Schema:** | | ART9\_GES | | ART9\_GES | | | | ART8\_GES | | | | ART10\_Targets | | | | | ART13\_Measures | | |
| **Field in schema:** | | Feature | GEScom-ponent | Justification NonUse  Justification Delay | GESDescription | | Determin-ationDate, UpdateType | Element, Element Code | Element Source | Related Indicator |  | TargetCode, Description | Related Indicator | Target Value | Value Achieved | Target Status | Feature | Related Measures | Policy |
| D5 | Input of nutrients | Eutroph-ication | D5C1 | Text | Descriptor level:  MS (sub)regional text (based on Annex I Descriptor) | Criterion level:  MS (sub) regional text (based on 2017 Decision criterion) | YYYYMM  Same as last reported determin-ation | DIN | Regional: HELCOM | Concent-ration in water URL to regional/national indicator and data | Art.8 assessment outputs (see examples in Table 4 and Table 5 and Annex II) | Reduce N by X% or to Z levels (MAI/ CART) | Riverine input levels | Reduce by N tonnes/y | Z tonnes/ year | Not yet achieved | Agriculture | Reduce fertilizer use | CAP |
| Urban development | Waste water treatment | UWWTD |
| TN | Airborne input levels | Reduce by Y tonnes/y | W tonnes/ year | Not yet achieved | Industrial development | Industrial emission controls | NEC |
| Transport (shipping) | Shipping emissions | MSFD (NECA) |
| DIP | Reduce P by Y tonnes | etc. | As above | | | Urban (detergents) | Domestic products (detergents) | MSFD |
| D5C2 | Text | MS (sub) regional text | YYYYMM  Modified from last determin-ation | Chloro-phyll-a | Concent-ration in water URL | See pressure targets  State/impact targets (e.g. as reported in 2012) are in effect expressions of GES and are more appropriately reported under Article 9. | |  | | | |  | |
| D5C5 | Primary criterion not used because xxxxxxx |  |  |  |  |
| D5C3, D5C4, D5C6, D5C7, D5C8 |  | MS (sub) regional text | YYYYMM  New determin-ation | - | - |

### Article 8 assessments outputs

The new GES Decision provides details on how to express the extent to which GES has been achieved for each Descriptor. These Decision specifications are presented here in the form of output tables per Descriptor, based on a common overall structure (ART8\_GES schema). They integrate the characteristics of marine environment, indicated in the Annex III MSFD, to provide a logical link at criterion element level between Article 9 and Article 8 assessment. Outputs are expected to be provided at different levels of integration (elements, criteria), depending on the Descriptor. Table 4 and Table 5 show example outputs for D3 (commercial fish and shellfish) and D8 (contaminants) assessments. A full set of examples, covering all descriptors, is provided in [Annex II](#_ANNEX_II:_Illustrative) (embedded spreadsheet). The reporting system has accommodated all kinds of integration levels needed.

Table 4 Simplified example of D3 (commercial fish and shellfish) assessment (grey cells require no information); see Annex II for full version.

| Feature | Element assessed | Criterion | Parameter (indicator) | Target level (D3C1, D3C2), threshold value (D3C3) | Values achieved | Unit | Proportion of MRU over which TV is to be achieved | Proportion of MRU over which threshold has been achieved | Unit | Trend | Criterion status | Status of population (element) | Extent to which GES is achieved | Acheiving GES by 2020 | Method-ological standards: source (EU, regional, national) | Main pressures |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Feature | Element, ElementCode | GES component | Parameter  Related Indicator | Threshold Value | Value Achieved | ValueUnit | Proportion  Threshold Value | Proportion Value Achieved | Proportion Unit | Trend | Criterion Status | Element Status | GESExtent Achieved, GESExtent Unit | GES achieved | Integration Rule Description | Related Pressures |
| Commerc-ially-exploited fish and shellfish | **Cod**  (North Sea, eastern English Channel and Skagerrak stock) | D3C1 | Fishing mortality rate | 0.31 | 0.27 | annualised rate |  |  |  | Stable | Good | Not good | Proportion of populations in good status: 43% (3 out of 7 populations)  Number of populations not assessed: 2 | GES expected to be achieved by 2020 | EU level (MSFD CIS) | Extraction of species |
| D3C2 | Spawning stock abundance | 150,000 | 125,000 | Tonnes |  |  |  | Improving | Not good |
| D3C3 | Age & size distribution | Not yet set |  |  |  |  |  |  | Not assessed |
| **Cod**  (Kattegat stock) | D3C1 | Fishing mortality rate | 0.31 | 0.3 |  |  |  |  | Stable | Good | Good  D3C3 not assessed |
| D3C2 | Spawning stock abundance | 70,000 | 78,000 | Tonnes |  |  |  | Deteriorating | Good |
| D3C3 | Age & size distribution | Not yet set |  |  |  |  |  |  | Not assessed |
| **Plaice**  (eastern English Channel) | D3C1 | Fishing mortality rate | 0.25 | 0.19 | annualised rate |  |  |  | Improving | Good | Good |
| D3C2 | Spawning stock abundance | 25,826 | 30,000 | Tonnes |  |  |  | Improving | Good |
| D3C3 | Age & size distribution | 0.6 | 0.4 | % |  |  |  | Unknown | Good |
| **Lemon sole**  (North Sea, Skagerrak, Kattegat, eastern English Channel) | D3C1 | Fishing mortality rate | 0.4 | 0.6 | annualised rate |  |  |  | Stable | Not good | Not good |
| D3C2 | Spawning stock abundance | 30,000 | 45,000 | Tonnes |  |  |  | Improving | Good |
| D3C3 | Age & size distribution | Not yet set |  |  |  |  |  |  | Not assessed |
| **Herring**  (North Sea, Skagerrak, Kattegat, eastern English Channel) | D3C1 | Fishing mortality rate | 0.33 | 0.30 | annualised rate |  |  |  | Stable | Good | Good  D3C3 assessed but no threshold value |
| D3C2 | Spawning stock abundance | 1.5e+oo6 | 1.8e |  |  |  |  | Stable | Good |
| D3C3 | Age & size distribution | Not yet set | 32 | cm |  |  |  | Stable | Unknown |
| **Norway lobster**  (Skagerrak & Kattegat) |  |  |  |  |  |  |  |  |  |  | Not assessed |
| **Brown crab**  (national stock) |  |  |  |  |  |  |  |  |  |  | Not assessed | National |

Table 5 Simplified example of D8 (contaminants) assessment (grey cells require no information); see Annex II for full version.

| Feature | Element assessed | Criterion | Parameter (indicator) | Threshold value | Value achieved | Unit | Proportion of MRU over which TV is to be achieved | Proportion of MRU threshold has been achieved | Unit for proportion (%, km2) | Trend | Criterion status | Element status | Extent to which GES is achieved | Acheiving GES by 2020 | Method-ological standards: source (EU, regional, national) | Main pressures |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Feature | Element, ElementCode | GES component | Parameter  Related Indicator | Threshold Value | Values Achieved Upp-Low | Value Unit | Proportion Threshold Value | Proportion Threshold Value Achieved | Proportion Threshold ValueUnit | Trend | Criterion Status | Element Status | GESExtent Achieved, Unit | GES achieved | Integration Rule Description | Related Pressures |
| Contaminants - UPBT substances | Mercury (and its compounds) | D8C1 | Concentration in water | 0.06 | 10.5 – 0.05 | μg/L | 95 | 50 | % area of MRU achieving threshold value | Improving | Not good | Not good | 50% (1 out of 2 substances) in good status | GES expected to be achieved later than 2020; Article 14 exception reported | Regional (RSC) | Input of other substances |
| Heptachlor | Concentration in water | 2 x 10-5 | 2.7 x 10-5 – 2.0 x 10-5 | μg/L | 95 | 100 | Stable | Good | Good |
| Contaminants - non UPBT substances | Lead (and its compounds) | Concentration in biota | 19 | 15 - 7 | μg/kg ww | 95 | 97 | Deteriorating | Good | Good | 66% (4 out of 6 substances) in good status | GES expected to be achieved by 2020 |
| Dichlorvos | Concentration in water | 0.3 | 0.02 – 0.1 | μg/L | 95 | 100 | Stable | Good | Good |
| Tributyltin-cation | Concentration in water | Σ = 0.004 | Σ = 0.006 - Σ = 0.003 | μg/L | 95 | 97 | Deteriorating | Good | Good |
| Phenol | Concentration in sediment | 99 | 213 - 80 | μg/kg dw | 95 | 65 | Stable | Not good | Not good |
| Contaminants - other | Caesium-137 | Concentration in sediment | 4.4 | 5.3 – 3.5 | μg/kg dw | 95 | 70 | Stable | Not good | Not good |
| Species | *Nucella lapillus* (dog whelk) | D8C2 | Imposex | 1 | 0.95 – 0.75 | Mean Vas Deferens Index |  | <1 | % of population adversely affected | Improving | Good | Good |  |  |
| *Mytilus edulis* (blue mussel) | Lysosomal membrane stability | 8 | 12 - 9 | Min |  | 20 | Unknown | Not good | Not good |
| Habitats | Offshore circalittoral. mixed sediment | Condition indicator | 0.7 | 0.8 – 0.6 | EQR |  | 1.5 | Extent in km² of habitat adversely affected | Improving | Not good | Contributes to D6C5 |
| Offshore circalittoral sand | Condition indicator | 0.7 | 0.9 - 0.65 | EQR |  | 3.9 | Improving | Not good | Contributes to D6C5 |
| Acute pollution events |  | D8C3 | Duration & spatial extent |  | 24 | Days/y |  | 15 | Extent in km² of pressure | Improving | Not good | Triggers use of D8C4 |  |  |  | Acute pollution events |
| Species | *Sterna dougalii* (Roseate tern) | D8C4 | Individuals oiled |  | 200 | individuals |  | 2 | % of population adversely affected | Unknown | Not good | Contributes to D1 |
| *Larus marinus* (Black-backed gull) | Individuals oiled |  | 5000 | individuals |  | 20 | Unknown | Not good | Contributes to D1 |
| Benthic broad habitats | Littoral sediment (including saltmarsh) | Extent affected |  |  |  |  | 35 | Extent in km² of habitat adversely affected | Unknown | Not good | Contributes to D6C5 |
| Littoral rock and biogenic reef | Extent affected |  |  |  |  | 10 | Unknown | Not good | Contributes to D6C5 |

# Information to be reported

In this section, the specific information to be reported via XML files is described, including a description of the fields that are part of the schemas. Diagrams and tables with details of the schemas are provided in [Annex III](#_ANNEX_III:_Schemas).

The three articles are linked in the schemas via two common aspects: the area being reported on (Marine Reporting Unit) (section 3.1) and the particular topic being reported (feature) (section 3.2). Each schema also includes fields for the country, reporter and reporting date (section 3.8).

## Marine Reporting Unit

As has been the practice with each previous reporting round, all articles to be reported are linked to a specific Marine Reporting Unit (MRU, previously termed MarineUnit), thereby linking the reported information to a specified part of the marine waters. The MRUs can be of varying sizes, according to the appropriate scale for the different reports (e.g. region, subregion, subdivision, MS waters, WFD coastal waters, etc) as indicated in the new GES Decision by the scale of assessment to be used.

The EEA/ETC-ICM will develop reference layers[[15]](#footnote-16) of Marine Reporting Units to cover the European seas[[16]](#footnote-17), including the following layers:

1. Regions
2. Subregions
3. Subdivisions of the regions and subregions, where available (e.g. from HELCOM and OSPAR)
4. National part of a region, subregion or subdivision[[17]](#footnote-18)
5. WFD coastal waters / WFD territorial waters/ Beyond territorial waters

All the MRU codes will be inserted into the reporting system, enabling Member States to select the relevant MRUs for each part of the reporting.

The MRUs will also be made available through INSPIRE web services (e.g. WFS) and according to the relevant INSPIRE data model (Area management/restriction/regulation zones & reporting units (AM)).

Following the INSPIRE Report and evaluation[[18]](#footnote-19), the Commission has published a list of priority data sets, which will be amended by adding the MRUs, since it will be a key spatial dataset of relevance for MSFD reporting.

The preparation of the set of MRUs to cover all marine waters will take time to fully establish. In particular, the set of subdivisions (also referred to as 'assessment areas' in previous guidance, 'sub-basins' in HELCOM, etc) used for reporting is more established in the Baltic and Atlantic regions than in the Mediterranean and Black Sea regions. Consequently, until such (sub)regionally agreed subdivisions are in place, it will be possible for MS to use and update their existing national reporting areas. This can be done via updates to the schema '4geo.xml' and provision of associated GIS shapefiles (see 2012 guidance[[19]](#footnote-20)) and using the shapefile template and associated guidance available in the MSFD reporting resources page. In that case, MS are welcome to update the 4geo.xml files if they wish to use different MRUs to those already provided via Eionet or as used in 2012. In order to be able to provide updated drop-down lists of MRU codes in the web-forms, MS need to provide the updated 4geo.xml files prior to the reporting exercise, so that the MRU codes can be inserted.

## Features and elements assessed

MSFD Annex III (as amended) provides indicative lists of ecosystem elements, anthropogenic pressures and uses and human activities relevant to the marine waters that should be assessed, where relevant; these are further specified as elements in the new GES Decision, where there may be multiple elements per feature (e.g. specific contaminants for D8, specific species within each species group for D1). The information reported for each article has always to be related to a particular feature/element. In [Annex IVb](#_Feature_Enum), a list of the features is provided[[20]](#footnote-21).

Therefore, for certain features, the specific element covered should be provided (species, habitat, contaminant, marine litter category…). The name, code and the source of the code (as in [Annex IVi](#_ElementCodeSource)) are requested, where the sources for codes are:

* For species under Descriptors 1, 2, 3, 5, 8, 9 and 10: AphiaID from WoRMS. Additionally, for species under D3 and in the ICES Area, the stock key[[21]](#footnote-22) should be provided[[22]](#footnote-23).
* For habitats under Descriptors 1, 2, 6, 7 and 8: corresponding Broad Habitat Type (also included in Feature\_Enum), EUNIS code (2016 if available) or Habitats Directive code.
* For Descriptors 5, 8 and 9: WISE, WISE-B, ICES-Param or BODC codes. Additionally, for contaminants in biota (D8) and seafood products (D9) and for ingested litter (D10), the species should be provided.
* For marine litter under Descriptor 10: category to be selected from MarineLitterCategories\_Enum ([Annex IVe](#_MarineLitterCategories_Enum)).

In any case, Reference Lists of Elements, together with their corresponding ElementCode and ElementCodeSource are available in the MSFD reporting resources page[[23]](#footnote-24), in order to ensure consistency across the elements reported by Member States. MS are requested to check whether all the Elements they need to report on are in the Reference Lists. Otherwise, they are requested to contact the MSFD helpdesk in order to include any Element that is not yet in the Reference Lists.

On the other hand, the GES Decision provides all the criteria to be taken into account for the GES assessments. Within the reporting of the GES assessments, for the different features assessed, an OverallStatus is to be provided at the Descriptor level, as well as the CriteriaStatus for those criteria that have been used in the corresponding assessment. The GEScomponent enumeration ([Annex IVc](#_GEScomponent_Enum)) includes all the GES components (Descriptors and Criteria) included in the revised Decision (a mapping of the new Decision criteria to the 2010 criteria and indicators is provided in [Annex I](#_ANNEX_I:_Mapping_1)); the old criteria and indicators which are not covered by the new Decision have been retained to aid the transition in reporting between the two Decisions.

## Article 9: GES determination

The schema ‘ART9\_GES’, developed for the reporting of the GES determinations, aims to collect descriptive information at the Descriptor or criterion level, with links to relevant MRUs and features. The threshold and proportion values applicable to the features/elements and contributing to the GES determination are to be provided under the schema ‘ART8\_GES’, together with the achieved values (section 3.4).

The schema includes fields to cover the following topics:

1. GES component: descriptors or criteria for which the GES determination is provided. The criterion level uses the new GES Decision. Whenever Member States have based their GES determinations on the 2010 Decision, they should link to the equivalent new GES Decision code, based on the mapping to 2010 criteria and indicators provided in [Annex I](#_ANNEX_I:_Mapping_1) or to the 2010 criteria and indicators when there is no 2017 criterion equivalent;
2. Justification for non-use: why it is not appropriate to use a primary criterion for the determination of the GES (GES Decision Art. 3(1));
3. Justification for delayed GES determinations: why, where relevant, threshold values, lists of criteria elements or methodological standards have not yet been established at Union, regional or subregional level (GES Decision Art. 5(2));
4. Feature: features to which the GES determination applies. Specific elements of these features (e.g. specified species or contaminants) are to be included in the ART8\_GES schema. Features include the indicative lists provided in the MSFD Annex III;
5. Description: text description of the (updated) GES determination, which can be linked to the descriptor level and/or criterion level. Specific threshold and proportion values per feature or element are to be included in the ART8\_GES schema;
6. Determination date*:* the date when the GES determination has been reported;
7. Update type: whether the GES determination reported in 2018 is as previously reported (i.e. in 2012 or later if updated following the EC Article 12 assessment) (not modified), modified from the previously reported determination or new;
8. Marine Reporting Unit: area(s) to which the GES determination(s) apply(ies).

A prefilling has been done with the information reported by the Member State in 2012 (or later if updated) and the corresponding XML files have been made available in the MSFD reporting resources page for their use by Member State in their reports.

The corresponding diagram and table with guidance for the reporting of the schema elements are in [Annex IIIa](#_Indicators).

## Article 8(1a, b): assessments against GES

The schema ‘ART8\_GES’ is to be used for reporting on the assessment of current environmental status, and on the pressures and impacts, under Articles 8(1a) and (1b). The schema accommodates the requirements of the new Decision for assessing the extent to which GES has been achieved. This includes the specific elements assessed for the features covered by the GES determination, together with their threshold values (where needed and available) and, where needed as part of the GES determination, the proportion of the assessment area (MRU) over which the threshold values are to be achieved. The rest of the schema accommodates the outputs from the assessment for each Descriptor in relation to the GES determination under Article 9(1).

According to the draft *MSFD Article 8 guidance[[24]](#footnote-26)*, different levels of integration across criteria and elements, depending on the Descriptor being assessed, are needed to express the extent to which GES has been achieved in accordance with the new Decision. All these levels comprise the parameters and criteria levels, while the descriptor level is addressed differently across the mentioned guidance. The present schema allows the possibility of reporting the results at the appropriate level of integration. Where integration rules are not yet available at EU or regional level, the Member State can report the national approaches used to determine the extent to which GES has been achieved.

The schema includes fields to cover the following topics:

1. Marine Reporting Unit: area to which each assessment applies;
2. Feature: the specific feature(s) (from those specified as being relevant in the GES determination) being assessed. Features include the indicative lists provided in the MSFD Annex III;
3. Element: elements of the feature used in the assessment, together with the source of the list (e.g. an EU, regional or nationally-defined list); elements need to be given for species (D1, D2, D3, D5, D8, D10), habitats (D1, D2, D6, D7, D8), ecosystem/trophic guilds (D4), eutrophication-related elements (D5), contaminants (D8, D9) and litter categories (D10). For D3, different fish populations (stocks) need to be reported, for D9 the species used to assess each contaminant need to be expressed, and for D10 the species used to assess litter ingestion need to be expressed;
4. Criteria: criterion for which the thresholds and assessment results are reported;
5. Parameter: parameter assessed (as used in the related indicator);
6. Threshold value: where applicable and defined, the value(s) defined for the parameter. If appropriate, a range of values can be reported, as well as a qualitative threshold in cases where a quantitative threshold is not yet available. The source of the threshold value, such as the relevant EU legislation, Regional Sea Convention or national policy process, should be reported;
7. Value achieved: value(s) resulting from the calculation of the parameter (in the indicator assessment);
8. Proportion threshold value: the proportion or area over which the threshold value is to be achieved (in order to achieve GES);
9. Proportion value achieved: the proportion or area over which the threshold values have been achieved in the MRU;
10. Trend: indicate whether there is improvement or deterioration or the situation is stable compared with the previous 6-year reporting period; the trend is particularly important in cases where a threshold value is not yet available. It is also particularly relevant given that environmental status can be slow to respond to measures and so a trend can give an indication that progress is being made towards GES, even if not yet reached;
11. Parameter achieved: indicate for the element/criteria/parameter whether the threshold value has been achieved or not over the required proportion of the MRU (depending on the descriptor, there may be further integration of results needed to report overall status);
12. Related indicator: indicator(s) from which the assessment has been extracted (as reported under the schema ‘Indicators’);

From the results above, the status of each criterion and for each element is reported, as follows:

1. Criteria status: the status of the criteria as ‘Good’ OR ‘Not good’, based on an integration rule applied across the parameters used;
2. Element status: when applicable, indicate the status of the specific element as ‘Good’ OR ‘Not good’, based on an integration rule applied across the criteria used;

Finally, from the results of the first (criteria-level) and, where needed second (element-level) steps, the ‘Overall status’ on the extent to which GES has been achieved per descriptor, where needed, is reported as follows:

1. GES extent threshold: threshold boundary defined to have achieved GES;
2. GES extent achieved: indicates to what extent GES has been achieved for the Feature (as a percentage or proportion), including how this is measured (e.g. number of contaminants or species, extent of area);
3. GES achieved: select from the following options: ‘GES achieved’, ‘GES expected to be achieved by 2020’, ‘GES expected to be achieved later than 2020, no Article 14 exception reported’, ‘GES expected to be achieved later than 2020, Article 14 exception reported[[25]](#footnote-27)’, ‘Not assessed’, 'Not relevant' or ‘Unknown’.
4. Assessment period: start and end date of the 6-year assessment period, reflecting the latest year for which the assessment is applicable (e.g. whether the assessment covers 2011-2015 data or 2012-2016 data when reported in 2018). Note that a longer time series of data may be used in the assessment (which should be documented in the indicator assessment);
5. Related pressures: the pressures that are affecting the feature/elements assessed. It is suggested to restrict the number of pressures reported (e.g. up to three) to those considered most preventing GES from being achieved or providing risk that GES cannot be maintained.
6. Related targets: target(s) defined because GES has not yet been achieved (as reported under the schema ‘ART10\_Targets’);
7. Integration rules: the type of rule used to integrate the parameters to criterion, the criteria to element or the elements to overall status, and a description of how the rules have been applied (or link to a suitable reference).

Also, text Description fields have been included in each one of the classes, in order to allow comment on the information reported at each level of aggregation (note this field is not intended to duplicate information provided in the indicator assessment, accessible via the ‘Related indicator’ field). In the case of the Description field at the parameter level, the information on the metric used to get to the value achieved for this parameter is requested.

The resulting values coming from the RSC indicators, as well as the WFD and CFP assessments, have been prefilled whenever available and are available in the MSFD reporting resources page for their use by Member State in their reports.

The corresponding diagram and table with guidance for the reporting of the schema elements are in [Annex IIIb](#_MSFD8_1ab_Assessments_1). Annex VI includes a list of the GES assessments to be provided per Descriptor.

## Article 8(1c): economic and social analysis

The schema 'ART8\_ESA' is for reporting on the economic and social analysis of the uses of marine waters and on the costs of degradation, as required under Article 8(1c). The overall report structure and contents follows that used in 2012 reporting, excepting the list of uses and activities is updated to reflect the new MSFD Annex III Table 2b (those marked with an \* when relevant to the marine waters of the MS), and there is an updated set of ecosystem service classes.

The schema includes fields to cover the following topics:

1. Marine Reporting Unit: area to which each assessment applies;
2. Feature: select the relevant use/activity, ecosystem service or pressure (only in certain cases) to which the assessment applies; for relevant activities, the NACE codes should be provided. Features include the indicative lists in the MSFD Annex III;
3. Related GES component: for cases where it is relevant, Descriptors or Criterion associated to the assessment (optional field, only to be used for approaches such as the cost-based in the Cost of degradation assessment, when it is done by ‘degradation theme’).

The economic and social analysis of the use of marine waters is covered by the following fields:

1. Description: description of the use/activity (e.g. its characteristics in the area reported), of the approach to the economic and social analysis and of the assessment outcomes, including the results of the assessment when the ecosystem services approach is used;
2. Employment: direct employment (\*1000 FTE) under the specific activity in the area assessed;
3. Production value: production value (€ million) of the specific activity in the area assessed;
4. Value added: value-added (€ million) by the specific activity in the area assessed;
5. Related indicator: indicator(s) from which the assessment results have been extracted (indicator codes reported under the schema ‘Indicators’);
6. Related pressures: pressure(s) that are caused by the activity; it is suggested to restrict the number of pressures reported (e.g. up to three) to those considered of most relevance to achieving or maintaining GES in the area.
7. Related ecosystem services: ecosystem service(s) that the activity is dependent on.

The cost of degradation assessment is covered by the following fields:

1. Approach: to indicate which approach (method) has been used for the calculation of the costs of degradation;
2. Description: description of main costs or changes due to degradation; details, where relevant, of the importance or value of the theme, or on the benefits derived from it;
3. Cost of degradation type: selected from a list of types (e.g. preventing costs, mitigation costs);
4. Results: provide results of the estimated costs (cost-based approach), or a qualitative or quantitative indication of the value of the changes in the ecosystem (ecosystem services approach). Any residual impacts that may be generated should be described here;
5. Related indicator: indicator(s) from which the assessment results have been extracted (indicator codes reported under the schema ‘Indicators’).

The corresponding diagram and table with guidance for the reporting of the schema elements are in [Annex IIIc](#_MSFD8_1c_ESA).

## Article 10: environmental targets

The schema 'ART10\_Targets' collects both general description of the Target, together with other relevant fields, such as the target values to be achieved and the achieved values.

The schema includes fields to cover the following details about each target:

1. Marine Reporting Unit: area to which each target and its assessment applies;
2. Target code: code used for the target;
3. Target description: description/definition of the target;
4. Timescale: timescale for achievement of the target.
5. Update date: date when the target has been defined (in 2012, modified following the Article 12 assessment, or in 2018);
6. Update type: whether the target reported in 2018 is as previously reported (i.e. in 2012 or later if updated following the EC Article 12 assessment) (not modified), modified from the previously reported target, new or no longer required;
7. GES component: Descriptor or Criteria to which the target applies;
8. Feature: feature(s) to which the target applies;

For reporting on progress in achieving the target, the following fields are requested:

1. Related indicator: indicator(s) from which the assessment has been extracted (as reported under the schema ‘Indicators’);
2. Element: elements of the feature used in the assessment; elements need to be given for species (D1, D2, D3, D5, D8, D10), habitats (D1, D2, D6, D7, D8), ecosystem/trophic guilds (D4), eutrophication-related elements (D5), contaminants (D8, D9) and litter categories (D10). For D3, different fish populations (stocks) need to be reported, for D9 the species used to assess each contaminant need to be expressed, and for D10 the species used to assess litter ingestion need to be expressed;
3. Parameter: parameter assessed (as used in the related indicator);
4. Target value: where applicable, value defined for the target;
5. Value achieved: value(s) resulting from the calculation of the parameter (in the indicator assessment);
6. Target status: whether the target has been achieved or not;
7. Assessment period: Start and end date of the assessment;
8. Description: Description of the assessment outcomes;
9. Related measures: measure(s) that are used to deliver the target (measure codes reported under the Programmes of Measures reporting).

A prefilling has been done with the information reported in 2012 (or later if updated), and the corresponding XMLs have been made available in the MSFD reporting resources page for their use by Member State in their reports. Regarding the link with the Programmes of Measures (PoM), a prefilling has been done with the measures submitted under the PoM reporting (2015).

The corresponding diagram and table with guidance for the reporting of the schema elements are in [Annex IIIe](#_MSFD9_GES).

## Indicators

This ‘indicator’ schema is applicable to indicators used for Article 8 assessments (including pressure and socio-economic indicators) and to indicators related to Article 10 targets (to show progress towards achievement of the targets).

As described in section 2.2.2, it is expected that Member States, as well as the RSC, will publish their indicator assessments online. This is the reason why only limited information needs to be captured via XML.

The schema includes fields to cover the following topics:

1. Indicator code: to be submitted as the Unique identifier for the indicator;
2. Indicator title: as used in the Common indicator structure (see [Annex V](#_ANNEX_IV:_Common));
3. Related GES component: Descriptor or Criteria to which the indicator applies (whenever the indicator is a socio-economic indicator, or if it is linked to a target that is not related to a specific GES component, it should be marked as ‘Not Relevant’);
4. Feature: feature(s) that has been assessed (it can be an Ecosystem component, Pressure, Use/Activity or Ecosystem service);
5. Indicator source: whether it is a national indicator, from a Regional Sea Convention, from the CFP or from the WFD;
6. Indicator unique reference: URL or DOI (Digital Object Identifier) where the whole indicator assessment can be accessed. The publication online is expected to follow the Common Indicator Structure[[26]](#footnote-28), where all details regarding methodology and assessment results are included;
7. Related environmental target: target(s) for which the indicator can show progress (where the indicator is applicable to Article 10);
8. Marine Reporting Unit: area(s) to which the assessment(s) apply(ies);

And the following fields are requested for the underpinning datasets:

1. URL: URL or DOI for the data from the relevant monitoring programme and the dataset underpinning the indicator assessment (or web service);
2. MD\_URL: Unique resource locator for the metadata (or web service).

A QC routine will check if the links are valid and the dataset or service and corresponding metadata are accessible.

The information on the RSC indicators, as well as the CFP assessments, has been prefilled whenever available, and the corresponding XML files have been made available in the MSFD reporting resources page for their use by Member State in their reports.

The corresponding diagram and table with guidance for the reporting of the schema elements are in [Annex IIId](#_Indicators_1).

## Metadata of the reporter

Within all the schemas, the reporter information, containing the fields of Table 6, is to be reported.

Table 6 Fields on metadata of the reporter

| **Class** | **Schema element** | **Description** | **Property** | **Guidance** |
| --- | --- | --- | --- | --- |
| ReporterInfo | CountryCode | Country reporting | Required. Two-letter ISO country code. | Enter corresponding country code from CountryCode\_Enum |
| ReporterInfo | ContactName | Name of the reporter | Optional | Free text (max. 100 characters) |
| ReporterInfo | ContactMail | Email of the reporter or functional email of the organisation | Required | Enter corresponding eMail (max. 50 characters) |
| ReporterInfo | ContactOrganisation | Name of the reporter’s organisation and address | Required | (max. 1000 characters) |
| ReporterInfo | ReportingDate | Date when the reporting has been done | Required | YYYY-MM-DD |

# Quality Control specifications

Quality control (QC) specifications have been developed to ensure that the XML files submitted by Member States are as required in the schema specifications and the guidance. Among these, there are:

* Element checks: they will check whether all the elements provided in the file have the required content/format.
* Within-schema checks: they will check all the dependencies among elements within each of the schemas.
* Cross-schema checks: they will check all the dependencies among the schemas reported.

Feedback will be provided to MS through *warnings* and *blockers*, so that they can be aware of errors and amend the submitted files when the envelope is released in ReportNet. The QAs can also be run in CDR to the files before releasing the envelope, so that the Member State can ensure the delivery of files without errors.

The QC specifications are part of the reporting package and can be downloaded from EEA’s repository (<https://svn.eionet.europa.eu/repositories/Reportnet/Dataflows/MarineDirective/MSFD2018/MarineDB/Stored%20Procedures/>).

# Links to other policy processes (WFD, CFP, RSC)

The information coming from the most recent WFD, CFP and RSC assessments has been prefilled, whenever their use is required by the GES Decision (WFD, CFP), or where relevant (RSCs), according to the schemas and schema elements where it matches. This prefilling is offered as an option from which Member States will be able to select for their reporting those aspects that they wish to reuse from these sources and submit as part of their 2018 MSFD report. The MS will have the option to use, modify or not use the information prefilled from these other sources.

For WFD, the status classification of the coastal water bodies (and territorial waters in the case of the chemical status) reported at the Quality Element level has been used to populate relevant fields for some criteria/elements (D5 and D8), using the schema ‘ART8\_GES’.

For CFP, the assessed information relating to criteria D3C1 (fishing mortality rates) and D3C2 (spawning stock biomass) per fish stock are provided from the latest ICES assessments. For these stocks, the unique stock assessment key provided via the ICES Stock assessment database has been used, where the relevant assessment information (SSB, F) are contained (see example[[27]](#footnote-29)).

The regional indicators information from HELCOM and OSPAR has been prefilled for the schema ‘Indicators’ and from HELCOM for the schema ‘ART8\_GES’.

# Reporting process: steps

The reporting process for preparing the XML files comprises the following steps. These files are generated automatically by completing the web-forms or can be generated directly from Member State databases:

**Step 1.** As a preliminary step, MS are requested to submit to CDR updated 4geo.xml files (when necessary), in order to generate the MRU codes/names. This will allow the codes to be inserted into the reporting tools (web-forms and Access database).

**Step 2.** Once the reporting exercise starts MS should first complete ‘ART9\_GES’ schema, with a general description of the determination of GES at the descriptor and/or criterion level.

**Step 3.** MS should then complete the ‘Indicators’ schema, to provide the basic information for all the assessments that have been performed. Afterwards, the indicator codes will be used within the other schemas (ART8\_GES, ART8\_ESA, ART10\_Targets).

**Step 4.** Then the ‘ART10\_Targets’ schema should be addressed, with a general description of Targets, links to associated indicators and information on progress made. This will also generate the set of target codes to be referred to in the ART8\_GES schema.

**Step 5.** The third schema to be completed is ‘ART8\_GES’, which includes the elements, threshold and proportion values that are the specific parts of the Article 9 GES determination but intrinsically linked to the Article 8 assessment, as well as the link to the indicators that have been used within the different assessments (from step 3) and the targets (from step 4).

**Step 6.** Finally, the schema of ‘ART8\_ESA’ should be completed.

**Step 7.** Createan envelope in the corresponding country folder in ReportNet (folders related to the “MSFD - Articles 8, 9 and 10 - XML data” reporting obligation[[28]](#footnote-30)) and upload the XML files. Run the corresponding QAs to ensure a delivery without errors. Submit the XML files by releasing the envelope, which will generate a ‘receipt’ (see section 7.3).

# Procedures and format for reporting

This section outlines the mechanisms for preparing the reporting information, its formats and the transmission procedure as part of the formal requirement to notify the Commission.

## Technical support for reporting

For details on the technical preparation of the reports, including use of the on-line web-form application for reporting and preparation of xml schemas, as well as the applicable quality control rules, please refer to the EEA ReportNet resource page:

<http://cdr.eionet.europa.eu/help/msfd>.

During the reporting process, an **MSFD Helpdesk** ([msfd.helpdesk@eionet.europa.eu](mailto:msfd.helpdesk@eionet.europa.eu)) will be in operation to support both content and technical queries which may arise.

Note that only nominated reporters are able to report. The list of reporters is available in the following link: <http://www.eionet.europa.eu/ldap-roles/?role_id=extranet-msfdreporter-data>. A Member State (members from WG DIKE or the MSCG) may change one or more of its nominated reporters by contacting the MSFD Helpdesk.

## Reporting language

Member States have the right to complete the reporting sheets in any official EU language.

However, reporting in English is strongly encouraged by the EC for the following reasons:

1. The information reported will be needed to support and enhance ongoing cooperation amongst MS within a region or subregion (when the information is made accessible via WISE-Marine, for example); use of a common language will facilitate such cooperation.
2. The translation of a MS's information into a common language will support its further use in aggregation of the information to regional, European and global scales for ongoing State of the Environment reporting.
3. The Commission has 6 months in which to undertake its Article 12 assessment. It will greatly assist this process if the information is available in a common language. This short time period means it is not feasible to have the information formally translated; consequently, translation by the MS itself prior to submission will help avoid misinterpretation of the information reported.

Some Member States may not want to take the responsibility to submit the content of the reporting sheet in English, as there is a risk of misinterpretation due to the translation between the adopted version (in national language) and what would be considered as the “official reported information” by the Commission that will be used for the article 12 assessment. On the other hand, translation by the Commission Services in order to undertake its Article 12 assessment is also subject to possible risks of misinterpretation of what was reported by the Member State.

## Formal notification

Formal notification of the Member State's report(s) should follow the standard practice, as follows:

The Member State's Permanent Representation to the European Commission should send to the Commission[[29]](#footnote-31) a) a suitable cover letter indicating the relevant Directive and articles to which the notification refers and b) the receipt(s) obtained from ReportNet of all the reports (files) that have been deposited in relation to this notification.

The cover letter and ReportNet receipt(s) can be sent in hard copy or electronically (as pdf).

The reports deposited in ReportNet as part of the notification should be:

1. Validated XML files for the following schemas: ‘ART9\_GES’, ‘ART8\_GES’, ‘ART8\_ESA’, ‘ART10\_Targets’ and ‘Indicators’. Each file should hold the data and information defined in the schemas, including URL links to the relevant publicly and permanently available indicator assessments and associated data sets;
2. Text-based report(s) as described in section 2.2.4 and Table 2, if considered necessary. Where the structure of the report differs to that in Table 2, a correlation table showing where the sections in Table 2 can be found (pages, section number) should be provided;
3. In cases where the indicator assessments under point (a) are not available online, these should be submitted in pdf format (for example, as annexes to the report under point (b));
4. In cases where the Marine Reporting Units used are defined by the Member State (i.e. additional to those prepared by the EEA/ETC-ICM), an updated ‘4geo.xml’ file, together with associated GIS shapefiles[[30]](#footnote-32), should be provided.

Each Member State has the right to submit any further information it considers appropriate as part of its formal notification. This could, for example, include joint documentation ('roof report') prepared via a Regional Sea Convention or summary documentation used for the Article 19(2) public consultation (where this differs to the text-based report under point (b) above).

# ANNEX I: Relationship between Decision (EU) 2017/848 criteria and the criteria and indicators in Decision 2010/477/EU

P-I-S: Pressure, Impact or State criterion

| Criteria | P-I-S | **Primary criteria (bold)**, Secondary criteria | 2010/477/EU Criteria or Indicators codes |
| --- | --- | --- | --- |
| D2C1 | Pressure | **D2C1 Newly-introduced NIS** | – |
| D2C2 | Pressure | D2C2 Established NIS | 2.1, 2.1.1 |
| D2C3 | Impact | D2C3 Adverse effects of NIS on species and habitats | 2.2, 2.2.1, 2.2.2 |
| D3C1 | Impact | **D3C1 Fishing mortality rate (F)** | 3.1, 3.1.1, 3.1.2 |
| D3C2 | State | **D3C2 Spawning stock biomass (SSB)** | 3.2, 3.2.1, 3.2.2 |
| D3C3 | State | **D3C3 Population age and size distribution** | 3.3, 3.3.1, 3.3.3, 3.3.4 |
| D5C1 | Pressure | **D5C1 Nutrient concentrations** | 5.1, 5.1.1 |
| D5C2 | Impact | **D5C2 Chlorophyll a concentration** | 5.2.1 |
| D5C3 | Impact | D5C3 Harmful algal blooms | 5.2.4 |
| D5C4 | Impact | D5C4 Photic limit | 5.2.2 |
| D5C5 | Impact | **D5C5 Dissolved oxygen concentration** | 5.3.2 |
| D5C6 | Impact | D5C6 Opportunistic macroalgae of benthic habitats | 5.2.3 |
| D5C7 | Impact | D5C7 Macrophyte communities of benthic habitats | 5.3.1 |
| D5C8 | Impact | D5C8 Macrofaunal communities of benthic habitats | – |
| D6C1 | Pressure | **D6C1 Physical loss of the seabed** | 6.1 in part |
| D6C2 | Pressure | **D6C2 Physical disturbance to the seabed** | 6.1 in part |
| D6C3 | Impact | **D6C3 Adverse effects from physical disturbance on benthic habitats** | 6.1.2 |
| D7C1 | Pressure | D7C1 Permanent alteration of hydrographical conditions | 7.1, 7.1.1 |
| D7C2 | Impact | D7C2 Adverse effects from permanent alteration of hydrographical conditions on benthic habitats | 7.2, 7.2.1, 7.2.2 |
| D8C1 | Pressure | **D8C1 Contaminants in environment** | 8.1, 8.1.1 |
| D8C2 | Impact | D8C2 Adverse effects of contaminants on species and habitats | 8.2 in part, 8.2.1 |
| D8C3 | Pressure | **D8C3 Significant acute pollution events** | 8.2.2 (pressure aspect) |
| D8C4 | Impact | D8C4 Adverse effects of significant pollution events on species and habitats | 8.2 in part, 8.2.2 (impact aspect) |
| D9C1 | Pressure | **D9C1 Contaminants in seafood** | 9.1, 9.1.1 |
| D10C1 | Pressure | **D10C1 Litter** | 10.1 in part, 10.1.1, 10.1.2 |
| D10C2 | Pressure | **D10C2 Micro-litter** | 10.1 in part, 10.1.3 |
| D10C3 | Pressure | D10C3 Litter ingested | 10.1 in part, 10.2.1 |
| D10C4 | Impact | D10C4 Adverse effects of litter on species | 10,2 |
| D11C1 | Pressure | **D11C1 Anthropogenic impulsive sound** | 11.1, 11.1.1 |
| D11C2 | Pressure | **D11C2 Anthropogenic continuous low-frequency sound** | 11.2, 11.2.1 |
| D1C1 | Impact | **D1C1 Mortality rate from incidental by-catch** | – |
| D1C2 | State | **D1C2 Population abundance** | 1.2, 1.2.1 |
| D1C3 | State | **D1C3 Population demographic characteristics (Mammals, turtles, commercial fish & cephalopods, HD fish)** (Birds, non-commercial fish & cephalopods) | 1.3, 1.3.1 |
| D1C4 | State | **D1C4 Population distributional range and pattern (Mammals, turtles, HD fish)** (Birds, non-HD fish, cephalopods) | 1.1, 1.1.1, 1.1.2 |
| D1C5 | State | **D1C5 Habitat for the species (Mammals, turtles, HD fish)** (Birds, non-HD fish, cephalopods) | Supporting habitat for species in D1 chapeau text but not specifically included as an indicator |
| D1C6 | State | **D1C6 Pelagic habitat condition** | 1.6 in part, 1.6.1 in part, 1.6.2 in part, 1.6.3 in part |
| D6C4 | State | **D6C4 Benthic habitat extent** | 1.5, 1.5.1, 6.1.1 |
| D6C5 | State | **D6C5 Benthic habitat condition** | 1.6 in part, 1.6.1 in part, 1.6.2 in part, 1.6.3 in part, 6.2, 6.2.1, 6.2.2, 6.2.3, 6.2.4 |
| D4C1 | State | **D4C1 Trophic guild species diversity** | 1.7 in part, 1.7.1 in part |
| D4C2 | State | **D4C2 Abundance across trophic guilds** | 1.7 in part, 1.7.1 in part, 4.3, 4.3.1 |
| D4C3 | State | D4C3 Trophic guild size distribution | 4.2, 4.2.1 |
| D4C4 | State | D4C4 Trophic guild productivity | 4.1, 4.1.1 |
|  |  | Not included in 2017 Decision | 1.1.3 |
|  |  | Not included in 2017 Decision | 1.3.2 |
|  |  | Not included in 2017 Decision | 1,4 |
|  |  | Not included in 2017 Decision | 1.4.1 |
|  |  | Not included in 2017 Decision | 1.4.2 |
|  |  | Not included in 2017 Decision | 1.5.2 |
|  |  | Not included in 2017 Decision | 3.3.2 |
|  |  | Not included in 2017 Decision | 5.1.2 |
|  |  | Not included in 2017 Decision | 5,2 |
|  |  | Not included in 2017 Decision | 5,3 |
|  |  | Not included in 2017 Decision | 9.1.2 |

# ANNEX II: Illustrative examples of Article 9 and Article 8 (1a, b) reporting outputs

Worked examples are presented in the embedded spreadsheet:

1. The examples demonstrate how the requirements of the GES Decision can be expressed in the XML schemas, and aim to cover a variety of possible scenarios for reporting (e.g. use of regional or national information, use of primary and/or secondary criteria, various different outcomes from the assessments).
2. Example information for every criterion is provided, using information which is as realistic as possible (taken in many cases from existing assessments), but is provided for illustrative purposes only.
3. Cells where no information is needed for a particular descriptor are greyed out (dark grey – not needed, light grey not needed depending on previous entries, e.g. if Parameter is entered, ParameterOther is not needed).
4. The examples cannot cover all possible reporting needs of Member States, but provide further testing of the schemas and demonstrate their flexibility to cover all the Descriptors and multiple ways in which Member States can report their information. Further, some information is still under development (e.g. threshold values at regional and EU levels) and national alternatives may not be available.



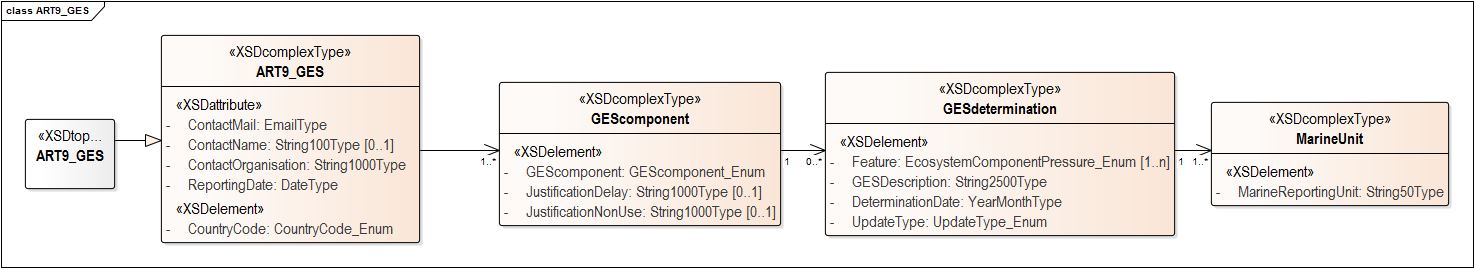
# 

# ANNEX III: Schemas

## ART9\_GES

According to what has been described in section 3.3, Figure 2 represents the structure of the schema.

Figure 2 XSD diagram of 'ART9\_GES'



Based on the schema, Table 7 provides the details of the schema fields.

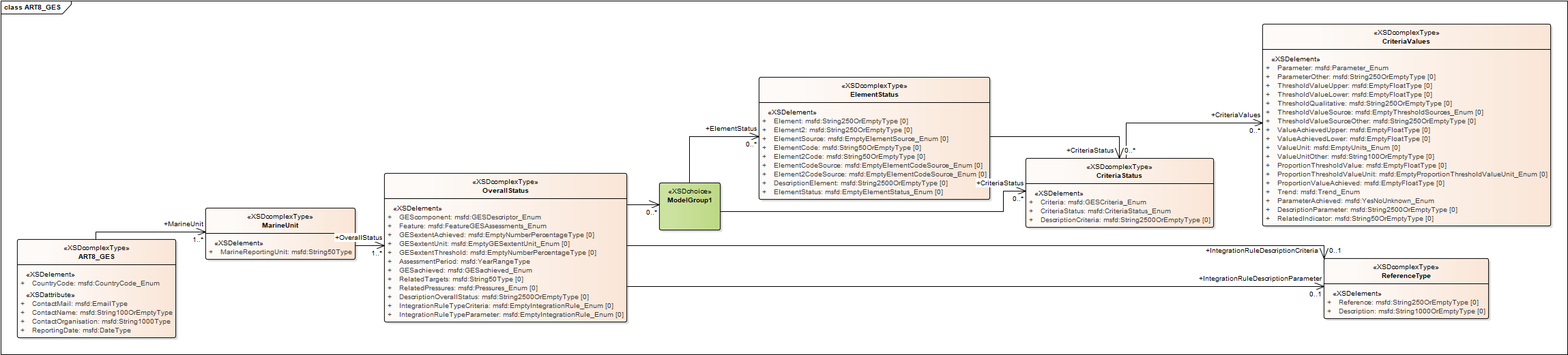
Table 7 Fields of the schema 'ART9\_GES'

| **Schema class** | **Schema field** | **Description** | **Property** | **Guidance** |
| --- | --- | --- | --- | --- |
| GEScomponent | GEScomponent | Descriptor or criteria for which the GES determination is provided, or a justification for non-use (primary criterion) is provided | Required | Enter corresponding ‘Descriptor’ OR ‘Criteria’ code from List: GEScomponent\_Enum. |
| GEScomponent | JustificationNonUse | Justification for why it is not considered appropriate to use a primary criterion for determination of GES, which MS were informed, how and when (GES Decision Art 3(1)) | Conditional: required for primary criteria that have not been used for determination of the GES | Free text (max. 1000 characters). |
| GEScomponent | JustificationDelay | Justification, where relevant, for why threshold values, lists of criteria elements or methodological standards have not yet been established at Union, regional or subregional level (GES Decision Art. 5(2)). Explanation for cases where these are available but are not used. | Conditional: required where relevant | Free text (max. 1000 characters). Where threshold values are not yet established at Union, regional or subregional level (where required by Decision (EU) 2017/848), provide a justification under the relevant criterion. Where lists of criteria elements or methodological standards are not yet established at Union, regional or subregional level (where required by Decision (EU) 2017/848), provide a justification under the relevant Descriptor. In cases where this information is available from other policies/mechanisms but not used, a justification should be provided. |
| GESdetermination | Feature | Feature(s) to which the GES determination applies | Required (when a GESDescription is provided) | Enter the codes of the Features for which the GES determination applies (from List: Feature\_Enum). The Features relevant for each Descriptor and criterion are given in Annex VI.  It is recommended that a single GES determination is reported for a Feature (or group of Features for D1), using all relevant criteria, AND is applicable to the same MRU (or set of MRUs). Where appropriate, a separate GES determination for the Feature(s) can be reported for another MRU (or set of MRUs) e.g. a determination for Feature ‘eutrophication’ for all the relevant D5 criteria, applied to coastal waters (one or multiple MRUs), and a separate determination applied to offshore waters (one or multiple MRUs). This alignment between Features and MRUs aims to ensure the GES determination for a given Feature/area is clearly expressed, and will assist the assessment of the Feature, and its component elements and criteria, in each area (MRU) under Article 8. |
| GESdetermination | GESDescription | Description of the GES determination, based on either the MSFD Annex I descriptor text (when defined at Descriptor level) or the criterion text in Decision (EU) 2017/848 (when defined at criterion level). | Required (when a justification for non use of a primary criterion is not provided) | Free text (max. 2500 characters). The description (at Descriptor and/or criterion level) should be applicable to the Feature reported in the area(s) reported (MRU(s)). Where appropriate, separate descriptions can be reported for the same Feature in different areas (MRUs) (e.g. coastal and offshore determinations for D5 eutrophication).  Where threshold values for elements of a Feature differ between MRUs, the values are reported in the Art8\_GES schema, and therefore do not need to be reported as separate GES descriptions in the Art9\_GES schema. In this sense, the GES description can be more generically expressed and apply to multiple MRUs (with the Article 8 assessment reported to each MRU, using the threshold value specific to that MRU). |
| GESdetermination | DeterminationDate | Date when this GES determination is reported | Required (when a GESDescription is provided) | YYYYMM |
| GESdetermination | UpdateType | Indicate whether the GES determination reported is as reported previously (e.g. in 2012), modified or new | Required (when a GESDescription is provided) | Enter: ‘Same as last reported determination’, ‘Modified from reported determination’ OR ‘New determination’, compared with previous (2012 or later) reporting of Article 9(1) (some determinations were updated due to the 2014 Article 12 assessment). |
| MarineUnit | MarineReportingUnit | Area(s) where the GES determination(s) applies | Required (when a GESdetermination is provided) | Enter all relevant Marine Reporting Units to which the GESdetermination applies (MarineUnitID, as reported by MS in 4geo.xml file). In cases where the GES determination for a particular Descriptor differs between different parts of MS marine waters (such as in different subregions), different GES determinations should be entered and linked to the corresponding MRUs. In cases where there is no GES determination for the descriptor or a primary criterion (i.e. a non-use justification is provided), provide a suitable MRU (e.g. the marine waters of the MS) to enable the justification to be linked to a geographical area. |

## ART8\_GES

According to what has been described in section 3.4, Figure 3 represents the structure of the schema.

Figure 3 XSD diagram of ‘ART8\_GES’



Based on the schema, Table 8 provides the details of the schema fields.

Table 8 Fields of the schema ‘ART8\_GES’

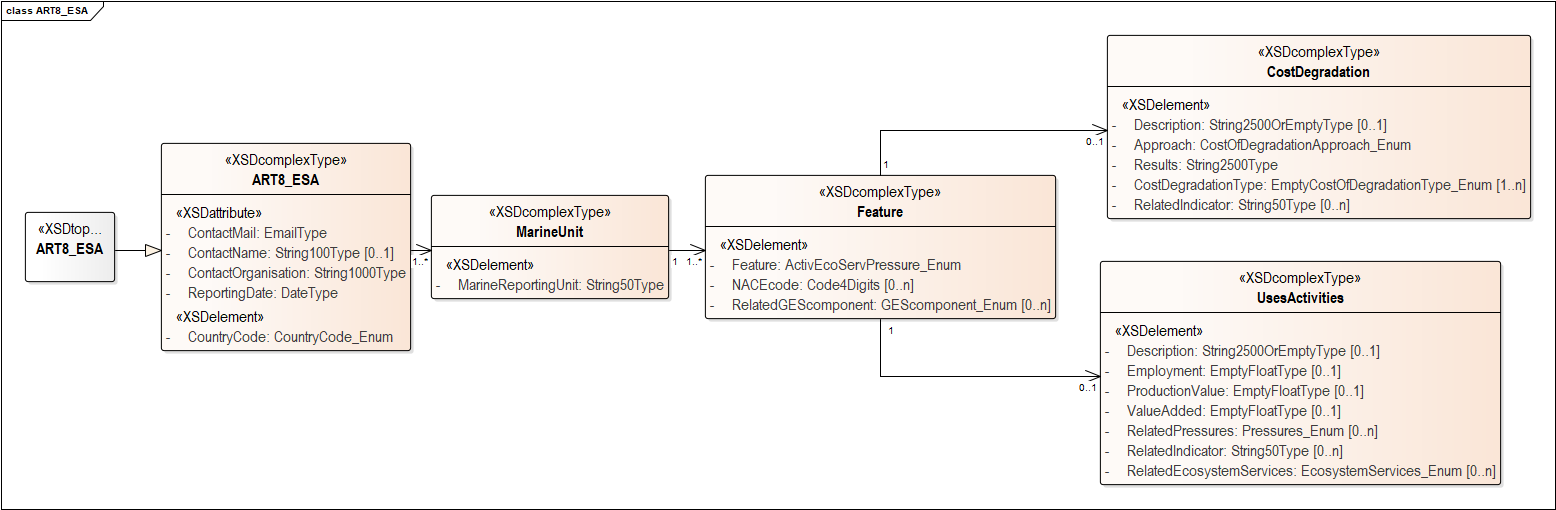
| **Schema class** | **Schema field** | **Description** | **Property** | **Guidance** |
| --- | --- | --- | --- | --- |
| MarineUnit | MarineReportingUnit | Area where the assessment applies and the 'extent to which GES has been achieved' is reported for the descriptor. | Required | Enter a Marine Reporting Unit (MarineUnitID, as reported by MS in 4geo.xml file). |
| OverallStatus | GEScomponent | Descriptor for which the assessment is reported | Required | Enter corresponding ‘Descriptor’ code from List: GEScomponent\_Enum. Relevant ‘Criteria’ codes are to be reported in the ‘CriteriaStatus’ class. |
| OverallStatus | Feature | Feature to which the assessment applies | Required | Enter the code of the Feature that has been assessed (from List: Feature\_Enum) for this Descriptor and MRU. The relevant Features for each Descriptor and criteria are given in Annex VI and their use is illustrated in the worked examples in Annex II.  The features reported under Art8\_GES should also be included in the related GES determination (Art9\_GES).  Within a Descriptor assessment, a Feature should not be duplicated within an MRU, but may be repeated for different MRUs (e.g. reporting the Feature ‘Eutrophication’ in a coastal MRU and an offshore MRU for the D5 assessment). Also the same Feature may be reported for different Descriptors (e.g. the Feature ‘benthic broad habitats’ may be reported for D2C3, D7C2, D8C4, D6C3 and D6C4/C5, as these are assessing benthic broad habitats for differing impacts and state).  The Article 8 assessment report aims to give an assessment of the extent to which the Feature has achieved GES within the MRU. Consequently the component elements, criteria and parameters reported for the Feature should be reported at the same scale (i.e. within the same MRU rather than spread across several MRUs), even though the parameters/indicators may not all cover the same area. Note that assessments for D2C2, D2C3, D4 and D7 do not necessarily lead to an assessment of GES extent achieved. |
| OverallStatus | GESextentThreshold | Threshold defined for achievement of GES | Required (when GESextentAchieved is reported) | Percentage OR number (Number applicable only for D2) |
| OverallStatus | GESextentAchieved | Indicate, where relevant, to what extent GES has been achieved for a Feature | Required (where applicable) | Percentage OR number (Number applicable only for D2) |
| OverallStatus | GESextentUnit | Indicate the unit for GES extent | Required (when GESextentAchieved is reported) | Enter: ‘Proportion of species in good status within species group’ (D1C1-C5), 'Proportion of habitats in good status’ (D1C6, D6C4-C5), ‘Number of newly-introduced species’ (D2C1), ‘Proportion of populations in good status’ (D3), ‘Proportion of area in good status’ (D5, D11), ‘Proportion of substances in good status’ (D8C1, D9), ‘Proportion of litter categories in good status’ (D10C1, D10C2, D10C3) OR ‘Not relevant’. |
| OverallStatus | GESachieved | Indicate whether GES has been achieved or not | Required | Enter ‘GES achieved’, ‘GES expected to be achieved by 2020’, ‘GES expected to be achieved later than 2020, no Article 14 exception reported’, ‘GES expected to be achieved later than 2020, Article 14 exception reported’, ‘Not assessed’, ‘Not relevant’ OR ‘Unknown’. |
| OverallStatus | DescriptionOverallStatus | Description of or comment on the Overall Status assessment. | Optional | Free text (max. 2500 characters). Whenever a schema prefilled with EU (WFD, CFP) or regional (RSC) information has been modified or not used, provide reasons here. |
| OverallStatus | AssessmentPeriod | Start and end date for the 6-year assessment period | Required | YYYY-YYYY |
| OverallStatus | RelatedPressures | Pressures that are or may have an impact on the feature assessed | Required | Enter as many ‘Pressures’ codes as necessary (as in Feature\_Enum list 'Anthropogenic pressures on the marine environment (Table 2a)', NOT from list 'Pressure levels and impacts in marine environment') whenever they are considered relevant (e.g. provide the top three pressures). In cases where there is no clear pressure relationships, enter ‘Unknown’. |
| OverallStatus | RelatedTargets | Target(s) defined under Article 10 which are relevant for the feature being assessed (i.e. addressing relevant pressures and impacts) | Required (where applicable) | Enter as many target codes as relevant (as reported in the schema ART10\_Targets.xml). |
| OverallStatus | IntegrationRuleTypeCriteria | Integration rule type applied when more than one criterion is used to assess the element. | Required (when more than one criterion has been used per element) | Enter code from List: IntegrationRule\_Enum. Enter 'Not relevant' in cases where there is only one criterion used per element. Use also for D4 and D5 for the integration of elements to define overall status for a D4 ecosystem or for D5). |
| OverallStatus | IntegrationRuleDescriptionCriteria | Description of how the rule has been applied | Required (where applicable) | Free text (max. 1000 characters) or provide URL or attach file (to be uploaded to the same folder as the XML). |
| OverallStatus | IntegrationRuleTypeParameter | Integration rule type applied when more than one parameter is used to assess the criterion. | Required (when more than one parameter has been used per criterion) | Enter code from List: IntegrationRule\_Enum. Enter 'Not relevant' in cases where there is only one parameter used per criterion. |
| OverallStatus | IntegrationRuleDescriptionParameter | Description of the rule applied | Required (where applicable) | Free text (max. 1000 characters) or provide URL or attach file (to be uploaded to the same folder as the XML). |
| ElementStatus | Element | Specific element of the Feature which is assessed (species, habitat, contaminant…) | Required (where applicable) | Enter the name of the species (D1C1-C5, D2C1, D2C2, D3, D5C3, D8C2, D8C4, D10C4), habitat (D1C6, D2C3, D6C3-C5, D7C2, D8C2, D8C4), ecosystem/trophic guild (D4), eutrophication-related elements (D5), contaminants (D8C1, D9) or litter category (D10C1-C3). To be selected from the MSFD Reporting Reference Lists (<http://cdr.eionet.europa.eu/help/msfd>). If the list does not contain the elements needed, contact [msfd.helpdesk@eionet.europa.eu](mailto:msfd.helpdesk@eionet.europa.eu).  Elements are always linked to a Feature, excepting for D6C1, D6C2, D7C1, D8C3, D11C1 and D11C2 when an element is not reported (as it would be the same as the Feature).  Elements should not be duplicated within a Feature report (for a particular Feature/MRU/Descriptor). |
| ElementStatus | ElementCode | Code of Element | Conditional (when Element is provided) | Enter the corresponding code or ID (associated to different Elements from the MSFD Reporting Reference Lists), as reflected in Reporting Guidance section 3.2. |
| ElementStatus | ElementCodeSource | Source of ElementCode | Conditional (when the ElementCode is provided) | Enter code for the source of the Element code (as in the MSFD Reporting Reference Lists). |
| ElementStatus | Element2 | Associated element of the element that is assessed | Conditional: when GEScomponent is ‘D3’ (stocks), ‘D9’ (species) or ‘D10C3’ (species affected). | Enter the name of the population (stock) for the commercial species assessed (D3), the species used to assess the contaminant level (D9) and the species used for litter ingestion assessment (D10C3). For D8C1, if Parameter is ‘Concentration in biota’, provide the species assessed in ParameterOther and not Element2, because other matrices (water or sediment) may also be reported for the same contaminant).  Element2 should not be duplicated within an Element report (for a particular Feature/MRU/Descriptor). |
| ElementStatus | Element2Code | Code of Element2 | Conditional (when Element2 is provided) | Enter the corresponding code or ID (associated to different Elements from the MSFD Reporting Reference Lists), as reflected in Reporting Guidance section 3.2. |
| ElementStatus | Element2CodeSource | Source of ElementCode2 | Conditional (when the ElementCode2 is provided) | Enter code from List: ElementCodeSource\_Enum. When ‘Other’ is selected, provide details in field ‘DescriptionElement’. |
| ElementStatus | ElementSource | Source of the agreed list of elements used in the assessment | Conditional (when the Element is provided) | Enter: ‘EU’, ‘HELCOM’, ‘OSPAR’, ‘BARCON’, ‘BSC’, ‘MS in (sub)region’, ‘ICES’, 'GFCM', ‘CFP’, ‘National’, OR ‘Other’. When ‘Other’ is selected, provide details of this in field ‘DescriptionElement’. |
| ElementStatus | DescriptionElement | Description of the element assessment outcomes, when needed | Optional | Free text (max. 2500 characters).  Provide details here if 'Other' is selected for 'ElementCodeSource', 'Element2CodeSource' or 'ElementSource'', when 'Directional trends' and 'Pressure-based proxy' has been used and when ElementStatus or CriteriaStatus is 'Good, based on low-risk'. |
| ElementStatus | ElementStatus | Indicate the status of the specific element (species, habitat, contaminant) based on the outcomes of the criterion used | Required (where applicable) | Enter: ‘Good’, 'Good, based on low risk', ‘Not good’, 'Not assessed' OR ‘Unknown’. If 'Good, based on low risk' is selected, provide a justification in 'DescriptionElement'.  When a single criterion is reported for an element (or Element/Element2 combination), no integration rules are needed at criteria level and the status of the element should normally match the CriteriaStatus value (e.g. CriteriaStatus = Good, ElementStatus = Good). If an opposing value is reported for ElementStatus, a reason should be provided in DescriptionElement. |
| CriteriaStatus | Criteria | Criterion for which the assessment is reported | Required | Enter corresponding ‘Criteria’ code from List: GEScomponent\_Enum.  Criteria are always linked to an element, excepting for D6C1, D6C2, D7C1, D8C3, D11C1 and D11C2 where an element is not reported and the criterion is linked directly to the Feature.  A criterion should not be duplicated within an Element report (or Element/Element2 combination) (for a particular Feature/MRU/Descriptor). |
| CriteriaStatus | CriteriaStatus | Indicate the status of the criteria based on the outcomes of the parameters used | Required (where applicable) | Enter: ‘Good’, 'Good, based on low risk', ‘Not good’, 'Contributes to assessment of another criterion', ‘Unknown’ OR 'Not assessed'. If 'Good, based on low risk' is selected, provide a justification in 'DescriptionElement'. When “CriteriaStatus” is ‘Not assessed’, then the class CriteriaValues does not need to be reported.  When a single parameter is reported for a criterion, no integration rules are needed at parameter level and the status of the criterion should normally match the ParameterAchieved value (e.g. ParameterAchieved = Yes; CriteriaStatus = Good). If an opposing value is reported for CriteriaStatus, a reason should be provided in DescriptionCriteria. |
| CriteriaStatus | DescriptionCriteria | Description of the criteria assessment outcomes, when needed | Optional | Free text (max. 2500 characters). |
| CriteriaValues | Parameter | Parameter assessed | Required | Enter code from List: Parameters\_Enum. If 'Other' is selected, provide details in field 'ParameterOther'.  Parameter is always linked to a criterion.  A parameter should not be duplicated within a criterion report (for a particular Element/Feature/MRU/Descriptor), excepting when ‘Other’ is used. In these cases the ParameterOther value should not be duplicated for that criterion. |
| CriteriaValues | ParameterOther | Parameter assessed | Conditional (if Parameter is ‘Other’) | Free text (max. 250 characters). |
| CriteriaValues | ThresholdValueUpper | Value defined as threshold. Whenever the threshold has been defined as a range: upper value. | Conditional: required if a value is provided under ThresholdValueLower. | Number |
| CriteriaValues | ThresholdValueLower | Whenever the threshold has been defined as a range: lower value. | Optional (where available) | Number (for use when the value to be achieved should be between the upper and lower threshold values entered). |
| CriteriaValues | ThresholdQualitative | Definition of the threshold if ever it is not quantitative | Optional (where available) | Free text (max. 250 characters). |
| CriteriaValues | ThresholdValueSource | Provide the source of the threshold value, e.g. taken from other legislation or policies, or defined through regional processes or nationally | Conditional (when ThresholdValueUpper is provided) | Enter one code from List: ThresholdSources\_Enum.  When 'Other' is selected, provide details in field 'ThresholdValueSourceOther'.  When 'Directional trends' or 'Pressure-based proxy' is selected, indicate if this is national or (sub)regionally agreed under 'ThresholdValueSourceOther'. |
| CriteriaValues | ThresholdValue SourceOther | Whenever the threshold value has been taken from the application of other legislation or policies, source | Conditional (if ThresholdValueSource is ‘Other’) | Free text (max. 250 characters). |
| CriteriaValues | ValueAchievedUpper | Value resulting from monitoring and assessment. Whenever the value has to be provided as a range: upper value. | Conditional: required if a value is provided under ValueAchievedLower. | Number. For multiple samples/sites in the MRU, provide the upper (this field) and lower (next field) values in the dataset. The proportion of values achieving the threshold value should be expressed in 'ProportionValueAchieved'. |
| CriteriaValues | ValueAchievedLower | Whenever the value has to be provided as a range: lower value. | Optional (where available). | Number |
| CriteriaValues | ValueUnit | Unit in which the value is expressed | Conditional: required when ValueAchievedLower is provided | Enter code from List: Units\_Enum. When 'Other' is selected, provide details in field 'ValueUnitOther'. |
| CriteriaValues | ValueUnitOther | Unit in which the value is expressed | Conditional (if ValueUnit is ‘Other’) | Free text (max. 20 characters) |
| CriteriaValues | ProportionThresholdValue | Proportion of MRU area over which the threshold value set is to be achieved | Conditional (where relevant) | Number |
| CriteriaValues | ProportionValueAchieved | Proportion of MRU area, or of the species group or habitat type within the MRU, over which the threshold value set has been achieved, OR extent of adverse effect (not achieving threshold values) | Optional (where available) | Number |
| CriteriaValues | ProportionThresholdValueUnit | Unit for proportion/extent | Conditional: required when Proportion ThresholdValue is provided | Select one from list:  ‘% area of MRU achieving threshold value’  '% of population achieving threshold value'  '% of samples achieving threshold value'  '% area of habitat achieving threshold value'  '% area of habitat adversely affected’  '% of species group adversely affected'  ‘extent in km2 of MRU adversely affected'  'extent in km2 of habitat adversely affected'  'extent in km2 of pressure'.  'Adversely affected' indicates values are below the threshold value. |
| CriteriaValues | Trend | Trend in status compared with previous 6-year reporting period | Required | Enter: ‘Improving’ (status improving, pressure or impact reducing), ‘Stable’, ‘Deteriorating’ (status deteriorating, pressure or impact increasing), ‘NotRelevant’ OR ‘Unknown’. |
| CriteriaValues | ParameterAchieved | Indicate whether the threshold value has been achieved or not (over the required proportion of the assessment area) | Required | Enter: 'Yes' OR 'No', based on ThresholdValue AND, where appropriate, ProportionValue, OR ‘Unknown’, ‘Not assessed' or 'Yes, based on low risk'. |
| CriteriaValues | DescriptionParameter | Description of the parameter assessment outcomes, when needed | Optional | Free text (max. 2500 characters). Describe here the metric that has been used to get the ValueAchieved (e.g. annual average; winter average; percentile 90; etc.) |
| CriteriaValues | RelatedIndicator | Indicator/s from which the assessment has been extracted | Required (where available) | Enter as many indicator codes as necessary (as reported by MS under the schema ‘Indicators’). |

## 

## ART8\_ESA

According to what has been described in section 3.5, Figure 4 represents the structure of the schema.

Figure 4 XSD diagram of 'ART8\_ESA’



Based on the schema, Table 9 provides the details of the schema fields.

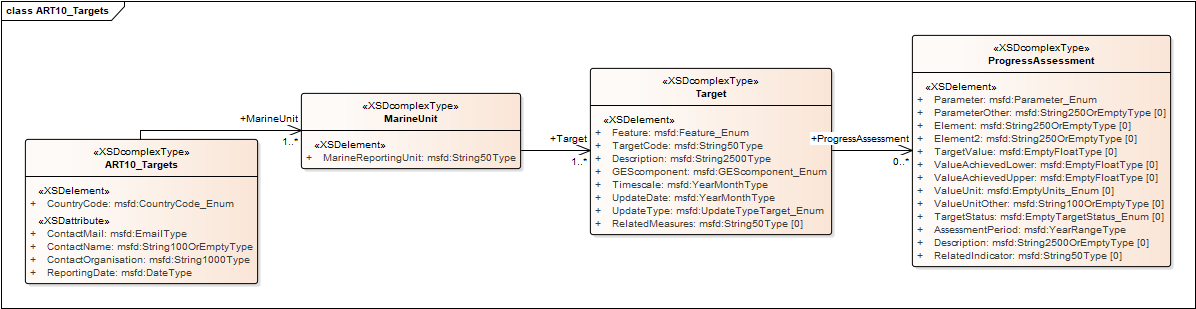
Table 9 Fields of the schema 'ART8\_ESA’

| **Schema class** | **Schema field** | **Description** | **Property** | **Guidance** |
| --- | --- | --- | --- | --- |
| MarineUnit | MarineReportingUnit | Area where the Assessment applies | Required | Enter a Marine Reporting Unit (MarineUnitID, as reported by MS in 4geo.xml file). |
| Feature | Feature | Feature to which the assessment applies | Required | Enter corresponding ‘Use/Activity’, ‘Ecosystem Service’, or ‘Pressure’ code from List: Feature\_Enum. Pressure codes would be expected when the cost-based approach is done by ‘degradation theme’, instead of by ‘human activity’ (in the cost of degradation assessment). |
| Feature | NACEcode | Enter the NACE codes relevant to the Use/activity (from which the socio-economic data are derived) | Required (where applicable) | Enter the relevant NACE codes from List: NACECodes\_Enum. If the sector is not in the list, enter the corresponding NACE code (2, 3 or 4-digit codes are allowed). |
| Feature | RelatedGEScomponent | Descriptors or criterion to which the assessment is related | Optional | Enter as many Descriptors or Criterion codes as necessary from List: GEScomponent\_Enum. |
| UsesActivities | Description | Description of the use/activity (e.g. its characteristics in the area reported), of the approach to the analysis and of the assessment outcomes, including the results of the assessment when the ecosystem services approach is used | Optional | Free text (max. 2500 characters). |
| UsesActivities | Employment | Direct employment (\*1000 FTE) under the activity | Optional | Number |
| UsesActivities | ProductionValue | Production value (€ million) of the activity | Optional | Number |
| UsesActivities | ValueAdded | Value-added (€ million) by the activity | Optional | Number |
| UsesActivities | RelatedPressures | Pressures that are produced by the activity | Required (where applicable) | Enter as many ‘Pressures’ codes (from Feature\_Enum list 'Anthropogenic pressures on the marine environment (Table 2a)', NOT from list 'Pressure levels and impacts in marine environment') as necessary (suggest up to three pressures). In the case where there is no clear pressure relationships, enter ‘Unknown’. |
| UsesActivities | RelatedIndicator | Indicators used for the assessment | Required (where applicable) | Enter as many indicator codes as necessary (as reported under the schema ‘Indicators’). |
| UsesActivities | RelatedEcosystemServices | Ecosystem services that the activity is dependent on | Optional | Enter as many ‘EcosystemServices’ codes as necessary (from Feature\_Enum). |
| CostDegradation | Description | Describe main costs or changes due to degradation and, where relevant, provide details on the importance or value of the theme, or on the benefits derived from it, and details on what aspects have been included. | Optional | Free text (max. 2500 characters). |
| CostDegradation | Approach | Indicate which approach has been used for the calculation of the cost of degradation | Required | Enter ‘Cost-based’, ‘Ecosystem services’, ‘Thematic’ OR ‘Other’ (to be explained in the field Description). |
| CostDegradation | CostDegradationType | Cost of degradation type | Optional | Enter as many types as needed: ‘monitoring and information costs’, ‘preventing and avoidance costs’, ‘enhancement costs’, ‘transaction costs’, ‘opportunity costs’, ‘mitigation costs’ OR ‘residual impacts, with reference to the current legislation objectives’. |
| CostDegradation | Results | Provide estimated costs or qualitative or quantitative indication of the value of the changes or consequences to the human well-being | Required | Free text (max. 2500 characters). Indicate any residual impacts that may be generated. |
| CostDegradation | RelatedIndicator | Indicators used within the assessment | Required (where applicable) | Enter as many indicator codes as necessary (as reported by MS under the schema Indicators.xml). |

## ART10\_Targets

According to what has been described in section 3.6, Figure 5 represents the structure of the schema.

Figure 5 XSD diagram of ‘ART10\_Targets’



Based on the schema, Table 10 provides the details of the schema fields.

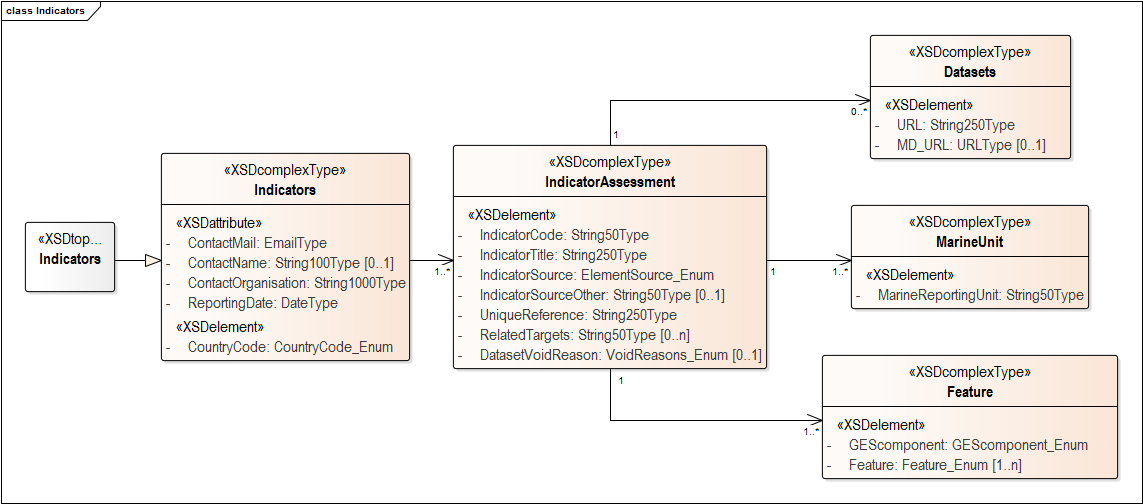
Table 10 Fields of the schema ‘ART10\_Targets’

| **Schema class** | **Schema field** | **Description** | **Property** | **Guidance** |
| --- | --- | --- | --- | --- |
| MarineUnit | MarineReportingUnit | Area where the Target applies | Required | Enter a Marine Reporting Unit (MarineUnitID, as reported by MS in 4geo.xml file). |
| Target | Feature | Feature(s) to which the Target applies | Required (more than one value is allowed) | Enter as many Features as needed from List: Feature\_Enum.  When the target relates to reducing a pressure, enter the relevant pressure from 'Anthropogenic pressures on the marine environment (Table 2)' in the List: Feature\_Enum (i.e. do not use an option from 'Pressure levels and impacts in marine environment' as these relate to assessments under Article 8 of pressures and their impacts in the marine environment).  When the target relates to reducing impacts on ecosystem components, enter the relevant components from 'Structure, functions and processes of marine ecosystems, Table 1' in the List: Feature\_Enum. |
| Target | TargetCode | Code used for the Target | Required | Enter target code as reported by MS in 2012. If it is a new target, enter a new code (max. 50 characters). |
| Target | Description | Description of the Target | Required | Free text (max. 2500 characters).  The target should define the gap, or part of the gap, between current state and GES, i.e. the reduction in pressure or impact that is needed to achieve GES. Targets should not define aspects of a GES determination, but what is to be achieved (through reducing pressures and impacts) to achieve the GES determination. |
| Target | GEScomponent | Descriptor or Criteria to which the target applies | Required (more than one value is allowed) | Enter corresponding ‘Descriptor’ OR ‘Criteria’ code from List: GEScomponent\_Enum. |
| Target | Timescale | Timescale for achievement of the Target | Required | YYYYMM |
| Target | UpdateDate | Date where the Target has been officially adopted | Required | YYYYMM |
| Target | UpdateType | Report on whether the Target reported under Description is as per 2012, modified from the 2012 definition, new or no longer needed | Required | Enter: ‘Same as 2012 definition’, ‘Modified from 2012 definition’, ‘New target’ OR ‘Target no longer needed’. For latter option, explain the reason for this under ProgressAssessment: Description. |
| Target | RelatedMeasures | Measure(s) codes that have been defined to achieve the target | Required (where applicable) | Enter as many measure codes as necessary (as reported by MS under the Article 13 Programmes of Measures reporting). In the case of new targets, if they are not related to any reported measure, enter ‘NotApplicable’. |
| ProgressAssessment | Element | Specific element covered (species, habitat, contaminant…) by the target | Required (where applicable) | Enter the name of the species (D1C1-C5, D2C1-C2, D3, D5C3, D8C2, D8C4, D10C4), habitat (D1C6, D2C3, D6C3-C5, D7C2, D8C2, D8C4), ecosystem/trophic guild (D4), eutrophication-related elements (D5), contaminants (D8C1, D9) or litter category (D10C1-C3). To be selected from the MSFD Reporting Reference Lists (<http://cdr.eionet.europa.eu/help/msfd>). If the list does not contain the elements needed, contact [msfd.helpdesk@eionet.europa.eu](mailto:msfd.helpdesk@eionet.europa.eu). |
| ProgressAssessment | Element2 | Additional element that is part of the measurement | Conditional: when GEScomponent is ‘D3’ (stocks), ‘D9’ (species) or ‘D10C3’ (species affected). | Enter the name of the population (stock) for the commercial species assessed (D3), the species used to assess the contaminant level (D9) and the species used for litter ingestion assessment (D10C3). For D8C1, if Parameter is ‘Concentration in biota’, provide the species assessed in ParameterOther and not Element2, because other matrices (water or sediment) may also be reported for the same contaminant). |
| ProgressAssessment | Parameter | Parameter assessed | Required | Enter code from List: Parameters\_Enum. |
| ProgressAssessment | ParameterOther | Parameter assessed | Conditional (if Parameter is ‘Other’) | Free text (max. 250 characters). |
| ProgressAssessment | TargetValue | Value defined as Target (for quantified targets) | Optional (where available) | Number |
| ProgressAssessment | ValueAchievedUpper | Value(s) resulting from monitoring. Where applicable, provide a range. | Optional (where available) | Number |
| ProgressAssessment | ValueAchievedLower | Whenever the value has to be provided as a range: lower value. | Optional (where available). | Number |
| ProgressAssessment | ValueUnit | Unit in which the value is expressed | Conditional: required when ValueAchieved is provided | Enter code from List: Units\_Enum. |
| ProgressAssessment | ValueUnitOther | Unit in which the value is expressed | Conditional (if ValueUnit is ‘Other’) | Free text (max. 20 characters) |
| ProgressAssessment | TargetStatus | Indicate whether the Target value has been achieved or not | Required (where applicable) | Select: 'Target achieved' OR 'Target not yet achieved'. |
| ProgressAssessment | AssessmentPeriod | Start and end date of the 6-year assessment | Required | YYYY-YYYY |
| ProgressAssessment | Description | Description or comment on the assessment outcomes | Optional | Free text (max. 2500 characters). When ‘Target no longer needed’ is entered under ‘UpdateType’, provide an explanation here. |
| ProgressAssessment | RelatedIndicator | Indicator(s) used to assess progress towards target | Required (where applicable) | Enter as many indicator codes as necessary (as reported by MS under the schema Indicators.xml). |

## Indicators

According to what has been described in section 3.7, Figure 6 represents the structure of the schema.

Figure 6 XSD diagram of 'Indicators'



Based on the schema, Table 11 provides the details of the schema fields.

Table 11 Fields of the schema 'Indicators'

| **Schema class** | **Schema field** | **Description** | **Property** | **Guidance** |
| --- | --- | --- | --- | --- |
| IndicatorAssessment | IndicatorCode | Unique identifier for the indicator | Required | Use sub(region) code plus RSC/MS code plus defined alpha-numeric code (e.g. ABI-OSPAR-Nutrients2017) (max. 50 characters). When a regional indicator that is published is used, enter the regional code. If the regional indicator hasn´t been published and there is a national indicator, enter the national code. |
| IndicatorAssessment | IndicatorTitle | Title of indicator | Required | Free text (max. 250 characters). |
| IndicatorAssessment | IndicatorSource | Indicate the source of the indicator assessment | Required | Enter: ‘EU’, ‘HELCOM’, ‘OSPAR’, ‘BARCON’, ‘BSC’, ‘MS in (sub)region’, ‘ICES’, ‘CFP’, ‘GFCM’, ‘National’, OR ‘Other’ |
| IndicatorAssessment | IndicatorSourceOther | Indicate the source of the indicator assessment | Conditional (if IndicatorSource is ‘Other’) | Free text (max. 50 characters). |
| IndicatorAssessment | UniqueReference | Citable reference unique to resource | Required | Provide the URI or DOI as unique reference of the indicator (max. 250 characters). |
| IndicatorAssessment | RelatedTargets | Target to which the indicator is linked | Conditional: required when the indicator is applicable to Article 10 | Enter the relevant target code (as reported by MS under the schema ART10\_Targets.xml) (max. 50 characters). |
| IndicatorAssessment | DatasetVoidReason | Given reason not to report any dataset | Conditional: required when dataset are not reported | Enter: ‘Data being prepared for publication’, ‘Data not publicly accessible’ OR ‘Data not in an electronic format’. |
| Feature | GEScomponent | Descriptor or Criteria relevant to the indicator | Required | Enter corresponding ‘Descriptor’ OR ‘Criteria’ from List: GEScomponent\_Enum. |
| Feature | Feature | Feature(s) to which the indicator applies | Required | Enter as many Features as needed from List: Feature\_Enum. |
| MarineUnit | MarineReportingUnit | Area(s) where the indicator applies | Required | Enter all relevant Marine Reporting Units to which the Indicator applies (MarineUnitID, as reported by MS in 4geo.xml file). |
| Datasets | URL | Unique reference identifier of the dataset | Required | Provide the URI or DOI where the dataset or web service can be accessed. Link to the relevant data from Article 11 monitoring programme and to the dataset used for the indicator assessment. |
| Datasets | MD\_URL | Unique resource locator for the metadata | Optional | URL where the metadata of the dataset or web service are discoverable. |

# ANNEX IV: Enumeration lists

## CountryCode\_Enum

| **Code** | **Lable: Country name** |
| --- | --- |
| AT | Austria |
| BE | Belgium |
| BG | Bulgaria |
| CY | Cyprus |
| CZ | Czech Republic |
| DE | Germany |
| DK | Denmark |
| EE | Estonia |
| EL | Greece |
| ES | Spain |
| FI | Finland |
| FR | France |
| HR | Croatia |
| HU | Hungary |
| IE | Ireland |
| IT | Italy |
| LT | Lithuania |
| LU | Luxembourg |
| LV | Latvia |
| MT | Malta |
| NL | Netherlands |
| PL | Poland |
| PT | Portugal |
| RO | Romania |
| SE | Sweden |
| SI | Slovenia |
| SK | Slovakia |
| UK | United Kingdom |

## Feature\_Enum

The present enumeration includes features and elements listed in MSFD Annex III tables, as well as the features corresponding to the pressures levels and impacts in the marine environment to be used within the GES assessments, and a list of ecosystem services that may be relevant for the reporting of the Economic and social analysis.

The features for which a GES determination and a GES conclusion is expected to be provided under ART9\_GES and ART8\_GES schemas respectively are highlighted in bold blue (for more information, see [Annex VI](#_ANNEX_VI:_GES)). The broad habitat types are expected to be reported as Elements within ART8\_GES schema.

The rest of the features have been listed for their potential use under the schemas ART8\_ESA, ART10\_Targets and Indicators.

The list of ecosystem services is based on an unpublished work from ‘Culhane *et al*’ (ETC-ICM).

| **Subject (Annex III table)** | **Theme** | **Sub-theme** | **Label: Features and elements** | **Code** |
| --- | --- | --- | --- | --- |
| Structure, functions and processes of marine ecosystems (Table 1) |  | | All marine ecosystem elements | EcosysElemAll |
| Species |  | All marine species | SppAll |
| Birds | All birds | BirdsAll |
| **Grazing birds** | BirdsGrazing |
| **Wading birds** | BirdsWading |
| **Surface-feeding birds** | BirdsSurfaceFeeding |
| **Pelagic-feeding birds** | BirdsPelagicFeeding |
| **Benthic-feeding birds** | BirdsBenthicFeeding |
| Mammals | All mammals | MamAll |
| **Small toothed cetaceans** | MamCetacSmall |
| **Deep-diving toothed cetaceans** | MamCetacDeepDiving |
| **Baleen whales** | MamCetacBaleenWhales |
| **Seals** | MamSeals |
| Reptiles | **Turtles** | RepTurtles |
| Fish | All fish | FishAll |
| **Coastal fish** | FishCoastal |
| **Pelagic shelf fish** | FishPelagicShelf |
| **Demersal shelf fish** | FishDemersalShelf |
| **Deep-sea fish** | FishDeepSea |
| **Commercially exploited fish and shellfish** | FishCommercial |
| Cephalopods | All cephalopods | CephaAll |
| **Coastal/shelf cephalopods** | CephaCoastShelf |
| **Deep-sea cephalopods** | CephaDeepSea |
| Habitats |  | All habitats | HabAll |
| Benthic habitats | Benthic habitats | HabBenAll |
| **Benthic broad habitats** | HabBenBHT |
| Littoral rock and biogenic reef | HabBenLitRock |
| Littoral sediment | HabBenLitSed |
| Infralittoral rock and biogenic reef | HabBenInfralitRock |
| Infralittoral coarse sediment | HabBenInfralitCoarSed |
| Infralittoral mixed sediment | HabBenInfralitMxdSed |
| Infralittoral sand | HabBenInfralitSand |
| Infralittoral mud | HabBenInfralitMud |
| Circalittoral rock and biogenic reef | HabBenCircalitRock |
| Circalittoral coarse sediment | HabBenCircalitCoarSed |
| Circalittoral mixed sediment | HabBenCircalitMxdSed |
| Circalittoral sand | HabBenCircalitSand |
| Circalittoral mud | HabBenCircalitMud |
| Offshore circalittoral rock and biogenic reef | HabBenOffshRock |
| Offshore circalittoral coarse sediment | HabBenOffshCoarSed |
| Offshore circalittoral mixed sediment | HabBenOffshMxdSed |
| Offshore circalittoral sand | HabBenOffshSand |
| Offshore circalittoral mud | HabBenOffshMud |
| Upper bathyal rock and biogenic reef | HabBenBathyalUpRock |
| Upper bathyal sediment | HabBenBathyalUpSed |
| Lower bathyal rock and biogenic reef | HabBenBathyalLowRock |
| Lower bathyal sediment | HabBenBathyalLowSed |
| Abyssal | HabBenAbyssal |
| **Other benthic habitats** | HabBenOther |
| Pelagic habitats | Pelagic habitats | HabPelagAll |
| **Pelagic broad habitats** | HabPelBHT |
| Variable salinity | HabPelagVarSalinity |
| Coastal | HabPelagCoastal |
| Shelf | HabPelagShelf |
| Oceanic/beyond shelf | HabPelagOcean |
| **Other pelagic habitats** | HabPelagOther |
|  | Other habitat types | HabOther |
| Ecosystems, including food webs | Physical and hydrological characteristics | All physical and hydrological characteristics | PhyHydroCharacAll |
| Temperature | Temperature |
| Ice | Ice |
| Wave regime | Waves |
| Current regime | Currents |
| Upwelling | Upwelling |
| Mixing | Mixing |
| Residence time | ResidenceTime |
| Freshwater input | FreshwaterInput |
| Sea level | SeaLevel |
| Bathymetry | Bathymetry |
| Turbidity (silt/sediment loads) | Turbidity |
| Transparency | Transparency |
| Sound | Sound |
| Seabed substrate and morphology | SubstrateMorphology |
| Chemical characteristics | All chemical characteristics | ChemCharacAll |
| Salinity | Salinity |
| Nutrients (N, P) | Nutrients |
| Organic carbon | OrganicCarbon |
| Dissolved carbon dioxide (pCO2) | pCO2 |
| Dissolved oxygen | Oxygen |
| pH | pH |
| Trophic guilds | All trophic guilds | TrophicGuildsAll |
| Primary producers | TrophicGuildsPrimProd |
| Secondary producers | TrophicGuildsSecProd |
| Filter-feeders | TrophicGuildsFilFeed |
| Deposit-feeders | TrophicGuildsDepFeed |
| Planktivores | TrophicGuildsPlankt |
| Sub-apex pelagic predators | TrophicGuildsPredSApexPel |
| Sub-apex demersal predators | TrophicGuildsPredSApexDem |
| Apex predators | TrophicGuildsPredApex |
| Ecosystems | **Ecosystem, including food webs** | EcosystemFoodWeb |
| **Coastal ecosystem** | EcosysCoastal |
| **Shelf ecosystem** | EcosysShelf |
| **Oceanic/deep-sea ecosystem** | EcosysOceanic |
| Anthropogenic pressures on the marine environment (Table 2a) |  | | All pressures | PresAll |
| Biological | | All biological pressures | PresBioAll |
| Input or spread of non-indigenous species | PresBioIntroNIS |
| Input of microbial pathogens | PresBioIntroMicroPath |
| Input of genetically modified species and translocation of native species | PresBioIntroGenModSpp |
| Loss of, or change to, natural biological communities due to cultivation of animal or plant species | PresBioCultHab |
| Disturbance of species (e.g. where they breed, rest and feed) due to human presence | PresBioDisturbSpp |
| Extraction of, or mortality/injury to, wild species (by commercial and recreational fishing and other activities) | PresBioExtractSpp |
| Physical | | All physical pressures | PresPhyAll |
| **Physical disturbance to seabed** | PresPhyDisturbSeabed |
| **Physical loss of the seabed** | PresPhyLoss |
| Changes to hydrological conditions | PresPhyHydroCond |
| Substances, litter and energy | | All pressures related to inputs of substances, litter and energy | PresInputAll |
| Input of nutrients – diffuse sources, point sources, atmospheric deposition | PresInputNut |
| Input of organic matter – diffuse sources and point sources | PresInputOrg |
| Input of other substances (e.g. synthetic substances, non-synthetic substances, radionuclides) – diffuse sources, point sources, atmospheric deposition, acute events | PresInputCont |
| Input of litter (solid waste matter, including micro-sized litter) | PresInputLitter |
| Input of anthropogenic sound (impulsive, continuous) | PresInputSound |
| Input of other forms of energy (including electromagnetic fields, light and heat) | PresInputOthEnergy |
| Input of water – point sources (e.g. brine) | PresInputWater |
| Pressure levels and impacts in marine environment | Biological | | **Newly-introduced non-indigenous species** | PresEnvNISnew |
| **Established non-indigenous species** | PresEnvNISestablished |
| Physical and hydrological | | **Hydrographical changes** | PresEnvHydroChanges |
| Substances, litter and energy | | **Eutrophication** | PresEnvEutrophi |
| **Contaminants - non UPBT substances** | PresEnvContNonUPBTs |
| **Contaminants - UPBT substances** | PresEnvContUPBTs |
| **Contaminants – in seafood** | PresEnvContSeafood |
| **Acute pollution events** | PresEnvAcuPolluEvents |
| **Litter in the environment** | PresEnvLitter |
| **Micro-litter in the environment** | PresEnvLitterMicro |
| **Litter and micro-litter in species** | PresEnvLitterSpp |
| **Impulsive sound in water** | PresEnvSoundImpulsive |
| **Continuous low frequency sound** | PresEnvSoundContinuous |
| Uses and human activities in or affecting the marine environment (Table 2b) |  | | All activities | ActivAll |
| Physical restructuring of rivers, coastline or seabed (water management) | | All activities related to physical restructuring of rivers, coastline or seabed | ActivRestrucAll |
| Land claim | ActivRestrucLandClaim |
| Canalisation and other watercourse modifications | ActivRestrucCanalisation |
| Coastal defence and flood protection | ActivRestrucCoastDef |
| Offshore structures (other than for oil/gas/renewables) | ActivRestrucOffshStruc |
| Restructuring of seabed morphology, including dredging and depositing of materials | ActivRestrucSeabedMorph |
| Extraction of non-living resources | | All activities related to extraction of non-living resources | ActivExtrNonLivingAll |
| Extraction of minerals (rock, metal ores, gravel, sand, shell) | ActivExtrNonLivingMinerals |
| Extraction of oil and gas, including infrastructure | ActivExtrNonLivingOilGas |
| Extraction of salt | ActivExtrNonLivingSalt |
| Extraction of water | ActivExtrNonLivingWater |
| Production of energy | | All activities related to production of energy | ActivProdEnerAll |
| Renewable energy generation (wind, wave and tidal power), including infrastructure | ActivProdEnerRenew |
| Non-renewable energy generation | ActivProdEnerNonRenew |
| Transmission of electricity and communications (cables) | ActivProdEnerCables |
| Extraction of living resources | | All activities related to extraction of living resources | ActivExtrLivingAll |
| Fish and shellfish harvesting (professional, recreational) | ActivExtrLivingFishHarv |
| Fish and shellfish processing | ActivExtrLivingFishProcess |
| Marine plant harvesting | ActivExtrLivingPlantHarv |
| Hunting and collecting for other purposes | ActivExtrLivingHunt |
| Cultivation of living resources | | All activities related to cultivation of living resources | ActivCultivAll |
| Aquaculture – marine, including infrastructure | ActivCultivAquaculMarine |
| Aquaculture – freshwater | ActivCultivAquaculFreshwa |
| Agriculture | ActivCultivAgri |
| Forestry | ActivCultivFores |
| Transport | | All activities related to transport | ActivTranspAll |
| Transport infrastructure | ActivTranspInfras |
| Transport – shipping | ActivTranspShip |
| Transport – air | ActivTranspAir |
| Transport – land | ActivTranspLand |
| Urban and industrial uses | | All urban and industrial uses | ActivUrbIndAll |
| Urban uses | ActivUrbIndUrban |
| Industrial uses | ActivUrbIndIndustrial |
| Waste treatment and disposal | ActivUrbIndWaste |
| Tourism and leisure | | All activities related to tourism and leisure | ActivTourismAll |
| Tourism and leisure infrastructure | ActivTourismInfras |
| Tourism and leisure activities | ActivTourismActiv |
| Security/defence | | Military operations (subject to Article 2(2)) | ActivMilitary |
| Education and research | | Research, survey and educational activities | ActivResearch |
| Ecosystem services |  | | All ecosystem services | EcosysServAll |
| Nutrition | Biomass | All ecosystem services related to nutrition | EcosysServNutrAll |
| Wild plants, algae and their outputs | EcosysServNutrSeafoodAlgae |
| Wild animals and their outputs | EcosysServNutrSeafoodAnimals |
| Algal seafood from aquaculture | EcosysServNutrAquacAlgae |
| Animals from in-situ aquaculture | EcosysServNutrAquacAnimals |
| Materials | Biomass | All ecosystem services related to provision of materials | EcosysServMatAll |
| Fibres and other materials from plants, algae and animals for direct use or processing | EcosysServMatRaw |
| Materials from plants, algae and animals for agricultural use | EcosysServMatAlgaeAnimalsForAquac |
| Genetic materials from all biota | EcosysServMatGenetic |
| Energy | Biomass-based energy sources | All ecosystem services related to provision of energy | EcosysServEnerAll |
| Plant-based resources | EcosysServEnerPlants |
| Animal-based resources | EcosysServEnerAnimals |
| Mediation of waste, toxics and other nuisances |  | All ecosystem services related to mediation of waste, toxics and other nuisances | EcosysServWasteAll |
| Mediation by biota | Bio-remediation by micro-organisms, algae, plants, and animals | EcosysServWasteTreatment |
| Filtration/sequestration/storage/accumulation by micro-organisms, algae, plants, and animals | EcosysServWasteRemovalByOrgan |
| Mediation by ecosystems | Filtration/sequestration/storage/accumulation by ecosystems | EcosysServWasteRemovalByEcosys |
| Mediation of smell/visual impacts | EcosysServWasteSmellVisImpacts |
| Mediation of flows |  | All ecosystem services related to mediation of flows | EcosysServFlowsAll |
| Mass flows | Mass stabilisation and control of erosion rates | EcosysServFlowsErosionPrev1 |
| Buffering and attenuation of mass flows | EcosysServFlowsErosionPrev2 |
| Liquid flows | Flood protection | EcosysServFlowsFloodProt |
| Gaseous / air flows | Ventilation and transpiration | EcosysServFlowsOxygenProd |
| Maintenance of physical, chemical, biological conditions |  | All ecosystem services related to maintenance of physical, chemical and biological conditions | EcosysServMainCondAll |
| Lifecycle maintenance, habitat and gene pool protection | Pollination and seed dispersal | EcosysServMainCondPolli |
| Maintaining Nursery Populations and Habitats | EcosysServMainCondNurs |
| Gene pool protection | EcosysServMainCondGene |
| Pest and disease control | Pest control | EcosysServMainCondPest |
| Disease control | EcosysServMainCondDis |
| Soil formation and composition | Decomposition and fixing processes | EcosysServMainCondDeco |
| Water conditions | Chemical condition of salt waters | EcosysServMainCondChem |
| Atmospheric composition and climate regulation | Global climate regulation by reduction of greenhouse gas concentrations | EcosysServMainCondClim |
| Underpinning and/or enhancing physical and intellectual interactions |  | All ecosystem services underpinning physical and intellectual interactions | EcosysServInteracPhyAll |
| Physical and experiential interactions | Experiential use of plants, animals and land-/seascapes in different environmental settings | EcosysServInteracPhyRecreat1 |
| Physical use of land-/seascapes in different environmental settings | EcosysServInteracPhyRecreat2 |
| Intellectual and representative interactions | Scientific | EcosysServInteracPhyScientif |
| Educational | EcosysServInteracPhyEducat |
| Heritage, cultural | EcosysServInteracPhyCultur |
| Entertainment | EcosysServInteracPhyEntert |
| Aesthetic | EcosysServInteracPhyAesthe |
| Underpinning and/or enhancing spiritual, symbolic and other interactions |  | All ecosystem services underpinning spiritual, symbolic and other interactions | EcosysServInteracSpiAll |
| Spiritual and/or emblematic | Symbolic | EcosysServInteracSpiSymb |
| Sacred and/or religious | EcosysServInteracSpiRelig |
| Other cultural outputs | Existence | EcosysServInteracSpiExis |
| Bequest | EcosysServInteracSpiBequ |

## GEScomponent\_Enum

| **GEScomponent** | **Code** | **Label: Descriptor or criterion** |
| --- | --- | --- |
| Descriptor | D1 | D1 Biodiversity |
| Descriptor | D1 | D1 Biodiversity - birds |
| Descriptor | D1 | D1 Biodiversity - cephalopods |
| Descriptor | D1 | D1 Biodiversity - fish |
| Descriptor | D1 | D1 Biodiversity - mammals |
| Descriptor | D1 | D1 Biodiversity - reptiles |
| Descriptor | D1 | D1 Biodiversity – pelagic habitats |
| Descriptor | D2 | D2 Non-indigenous species |
| Descriptor | D3 | D3 Commercial fish and shellfish |
| Descriptor | D4/D1 | D4 Food webs/D1 Biodiversity - ecosystems |
| Descriptor | D5 | D5 Eutrophication |
| Descriptor | D6/D1 | D6 Sea-floor integrity/D1 Biodiversity - benthic habitats |
| Descriptor | D7 | D7 Hydrographical changes |
| Descriptor | D8 | D8 Contaminants |
| Descriptor | D9 | D9 Contaminants in seafood |
| Descriptor | D10 | D10 Marine litter |
| Descriptor | D11 | D11 Energy, including underwater noise |
| Criterion | D1C1 | D1C1 Mortality rate from incidental by-catch |
| Criterion | D1C2 | D1C2 Population abundance |
| Criterion | D1C3 | D1C3 Population demographic characteristics |
| Criterion | D1C4 | D1C4 Population distributional range and pattern |
| Criterion | D1C5 | D1C5 Habitat for the species |
| Criterion | D1C6 | D1C6 Pelagic habitat condition |
| Criterion | D2C1 | D2C1 Newly-introduced NIS |
| Criterion | D2C2 | D2C2 Established NIS |
| Criterion | D2C3 | D2C3 Adverse effects of NIS |
| Criterion | D3C1 | D3C1 Fishing mortality rate (F) |
| Criterion | D3C2 | D3C2 Spawning stock biomass (SSB) |
| Criterion | D3C3 | D3C3 Population age/size distribution |
| Criterion | D4C1 | D4C1 Trophic guild species diversity |
| Criterion | D4C2 | D4C2 Abundance across trophic guilds |
| Criterion | D4C3 | D4C3 Trophic guild size distribution |
| Criterion | D4C4 | D4C4 Trophic guild productivity |
| Criterion | D5C1 | D5C1 Nutrient concentrations |
| Criterion | D5C2 | D5C2 Chlorophyll a concentration |
| Criterion | D5C3 | D5C3 Harmful algal blooms |
| Criterion | D5C4 | D5C4 Photic limit |
| Criterion | D5C5 | D5C5 Dissolved oxygen concentration |
| Criterion | D5C6 | D5C6 Opportunistic macroalgae of benthic habitats |
| Criterion | D5C7 | D5C7 Macrophyte communities of benthic habitats |
| Criterion | D5C8 | D5C8 Macrofaunal communities of benthic habitats |
| Criterion | D6C1 | D6C1 Physical loss of the seabed |
| Criterion | D6C2 | D6C2 Physical disturbance to the seabed |
| Criterion | D6C3 | D6C3 Adverse effects from physical disturbance |
| Criterion | D6C4 | D6C4 Benthic habitat extent |
| Criterion | D6C5 | D6C5 Benthic habitat condition |
| Criterion | D7C1 | D7C1 Permanent alteration of hydrographical conditions |
| Criterion | D7C2 | D7C2 Adverse effects from permanent alterations of hydrographical conditions |
| Criterion | D8C1 | D8C1 Contaminant in environment |
| Criterion | D8C2 | D8C2 Adverse effects of contaminants |
| Criterion | D8C3 | D8C3 Significant acute pollution events |
| Criterion | D8C4 | D8C4 Adverse effect of significant acute pollution events |
| Criterion | D9C1 | D9C1 Contaminants in seafood |
| Criterion | D10C1 | D10C1 Litter (excluding micro-litter) |
| Criterion | D10C2 | D10C2 Micro-litter |
| Criterion | D10C3 | D10C3 Litter ingested |
| Criterion | D10C4 | D10C4 Adverse effects of litter |
| Criterion | D11C1 | D11C1 Anthropogenic impulsive sound |
| Criterion | D11C2 | D11C2 Anthropogenic continuous low-frequency sound |
| Indicator (old) | 1.1.3 | 1.1.3 Area covered by the species (for sessile/benthic species) |
| Indicator (old) | 1.3.2 | 1.3.2 Population genetic structure |
| Criterion (old) | 1.4 | 1.4 Habitat distribution |
| Indicator (old) | 1.4.1 | 1.4.1 Distributional range |
| Indicator (old) | 1.4.2 | 1.4.2 Distributional pattern |
| Indicator (old) | 1.5.2 | 1.5.2 Habitat volume |
| Indicator (old) | 3.3.2 | 3.3.2 Mean maximum length across all species found in research vessel surveys |
| Indicator (old) | 5.1.2 | 5.1.2 Nutrient ratios (silica, nitrogen and phosphorus) |
| Criterion (old) | 5.2 | 5.2 Direct effects of nutrient enrichment |
| Criterion (old) | 5.3 | 5.3 Indirect effects of nutrient enrichment |
| Indicator (old) | 9.1.2 | 9.1.2 Frequency of regulatory levels being exceeded |
|  | NotRelevant | GES component not relevant |

## IntegrationRule\_Enum

| **Type** | **Code** | **Label** | **Description** |
| --- | --- | --- | --- |
| Conditional Rule (CR) methods | OOAO | One-out-all-out (OOAO) | All variables have to achieve good status. |
| OOAO\_HIE | Hierarchical application of OOAO | ‘High-level integration’ assessment results for three groups: biological indicators, hazardous substances, indicators and supporting indicators, each applying OOAO. |
| 2OAO | Two-out all-out | If two variables do not meet the required standard, good status is not achieved. |
| THRES | Threshold methods | A specific proportion of the variables have to achieve good status. |
| TREE | Decision tree approach | Uses specific decision rules to integrate elements into a quality assessment. |
| Averaging Approach (AA) methods | NHIE\_NWEI | Non-hierarchical, non-weighted averaging | Combination of variables/indicators into a flat structure with no intermediate aggregation. Weightings are equal for all indicators and is atypical approach used when there is not enough information on the influence of individual indicators. This method is the most basic of quantitative aggregations, and is more common for indicator production. Averaging can be arithmetic or geometric. |
| NHIE\_WEI | Non-hierarchical, weighted averaging | Combination of variables/indicators into a flat structure with no intermediate aggregation. Weightings are variable between indicators and can be allocated according to multivariate analysis, expert judgement or based on theoretical assumptions regarding value. |
| HIE\_NWEI | Hierarchical, non-weighted averaging | The use of hierarchical approaches to structure indicator inclusion and group is very common. The added structure provides the ability to output intermediate CIs that aid in the interpretation of the overall CI/AI. The nesting of associated indicators into clusters greatly improves the clarity of the aggregation process. Weightings are equal for each indicator and typical of when there is not enough information on the influence of individual indicators. |
| HIE\_WEI | Hierarchical, weighted averaging | Hierarchical layers and clustering of input indicators is used to structure and order the aggregation. Weightings are variable between indicators and can be allocated according to multivariate analysis, expert judgement or based on theoretical assumptions regarding value. Weights can be applied to either individual indicators or to clustered indicators. |
| Non-Averaging Approach (NAA) | MULTIMETRIC | Multi-metric indices | Often hierarchically-structured and have inputs clustered by metric. Weights can be variable or equal. Calculation is undertaken with complex approaches such as summation, multiplication or bespoke formulae operations. |
| MULTIVARIATE | Multivariate analyses | Use predefined statistical procedures. Commonly applied methods include Factor Analysis, Discriminate analysis and Principal Components Analysis |
| Other | SPATIAL | Spatial analysis | Spatial analysis where layers are combined using different functions to produce an integrated output. |
| OTH | Other | Other integration methods. |

These methods are described in: Barnard, S. & Strong, J., (2014), Reviewing, refining and identifying optimum aggregation methods for undertaking marine biodiversity status assessments, JNCC Report 536, ISSN 0963 8901 (URL: <http://jncc.defra.gov.uk/pdf/Report_536_Print.pdf>).

The table was adapted from an earlier catalogue of aggregation approaches developed in: Prins, T., van der Meulen, M., Boon, A., Simboura, N., Tsangaris, C., Borja, A. & Menchaca, I. (2013) Coherent geographic scales and aggregation rules in assessment and monitoring of Good Environmental Status – analysis and conceptual phase. Report number 1207879-000. Deltares; Delft, NL. 61pp ([Coherent geographic scales and aggregation rules- guidance report Final 31 October 2014.pdf](https://circabc.europa.eu/d/a/workspace/SpacesStore/3fdcc394-1b7d-4fcc-9e9d-16634debce88/Coherent%20geographic%20scales%20and%20aggregation%20rules-%20guidance%20report%20Final%2031%20October%202014.pdf))

## MarineLitterCategories\_Enum

|  |  |  |
| --- | --- | --- |
| **TYPE** | **Code** | **Label** |
| MACROLITTER | ARTPOLY | Artificial polymer materials |
| RUBBER | Rubber |
| TEXTILE | Cloth/textile |
| PAPER | Paper/cardboard |
| WOOD | Processed/worked wood |
| METAL | Metal |
| GLASS | Glass/ceramics |
| CHEM | Chemicals |
| FOOD | Food waste |
| UNDEF | Undefined |
| MICROLITTER | ARTPOLY | Artificial polymer materials |
| OTHER | Other materials |

## Parameters\_Enum

Non-exhaustive list of parameters:

| **CODE** | **Parameter label** | **Applicable elements** | **Applicable unit** | **Applicable criteria** | **Applicable metric** | **Observations** |
| --- | --- | --- | --- | --- | --- | --- |
| ABU | Abundance (number of individuals) | Species | {individuals} | D1C2 | count |  |
| NIS | {individuals} | D2C2 | count | all NIS |
| Commercial fish & shellfish | {individuals} | D3C2 | count |  |
| Trophic guild | {individuals} | D4C2 | count |  |
| Species (opportunistic macroalgae) | {individuals} | D5C6 | count | adverse effects of nutrient enrichment |
| Species | EQR | D5C6; D5C7; D5C8 | ratio |  |
| AGE-D | Age distribution | Species | % | D1C3 | percentage |  |
| AMO-B | Amount in biota (ingested) | Marine litter | items/kg | D10C3 | count | per species mass |
| Marine litter | items/cm | D10C3 | count | per species length |
| AMO-SB | Amount on seabed | Macrolitter | items/km2 | D10C1 | count |  |
| Microlitter | items/kg dw | D10C2 | count |  |
| AMO-C | Amount on coastline | Macrolitter | items/100m | D10C1 | count | per 100 m for the coastline |
| Microlitter | items/kg dw | D10C2 | count |  |
| AMO-WS | Amount on water surface | Macrolitter | items/km2 | D10C1 | count |  |
| Microlitter | items/m2 | D10C2 | count |  |
| BIOM | Biomass | Species | T | D1C2 | sum |  |
| NIS | T | D2C2 | sum |  |
| Trophic guild | T | D4C2 | sum |  |
| CONC-B | Concentration in biota (total) | Contaminants | ug/kg ww; mg/kg ww; pg/g ww | D8C1; D9C1 | maximum level | Including foodstuff |
| CONC-B-FA | Concentration in biota - fat | Contaminants | ug/kg ww; mg/kg ww; pg/g ww | D8C1; D9C1 | maximum level | Including foodstuff |
| CONC-B-LI | Concentration in biota - liver | Contaminants | ug/kg ww; mg/kg ww; pg/g ww | D8C1; D9C1 | maximum level | Including foodstuff |
| CONC-B-MU | Concentration in biota - muscle | Contaminants | ug/kg ww; mg/kg ww; pg/g ww | D8C1; D9C1 | maximum level | Including foodstuff |
| CONC-B-OT | Concentration in biota - other | Contaminants | ug/kg ww; mg/kg ww; pg/g ww | D8C1; D9C1 | maximum level | Including foodstuff |
| CONC-S | Concentration in sediment (total) | Contaminants | ug/kg dw | D8C1 | undefined |  |
| CONC-S-20 | Concentration in sediment (fraction below 20 µm) | Contaminants | ug/kg dw | D8C1 | undefined |  |
| CONC-S-63 | Concentration in sediment (fraction below 63 µm) | Contaminants | ug/kg dw | D8C1 | undefined |  |
| CONC-S-2000 | Concentration in sediment (fraction below 2000 µm) | Contaminants | ug/kg dw | D8C1 | undefined |  |
| CONC-S-OT | Concentration in sediment - other | Contaminants | ug/kg dw | D8C1 | undefined |  |
| CONC-W | Concentration in water | Nutrients | umol/L | D5C1 | undefined |  |
| Chlorophyll a | ug/L | D5C2 | undefined | metric used under the WFD: p90 is used in at least 2 GIGs (MED and NEA) |
| Dissolved oxygen | mg/L | D5C5 | undefined |  |
| Contaminants | ug/L | D8C1 | undefined |  |
| DIST-P | Distribution (pattern) | Species | no unit | D1C4 | adimensional |  |
| DIST-S | Distribution (spatial) | Species | no unit | D1C4 | geographical area |  |
| DIST-R | Distribution (range) | Species (range) | % | D1C4 | percentage |  |
| DUR | Duration | Anthropogenic impulsive sound in water | D | D11C1 | count (quarterly OR monthly) | impulsive sound |
| Bloom events | D/y | D5C3 | count |  |
| Acute pollution events | D/y | D8C3 | count |  |
| EXT | Extent | Habitats (for species) | km2 | D1C5 | sum |  |
| Habitats | km2 | D1C6 | sum | adverse effects |
| Habitats area | % | D1C6; D6C4; D6C5 | percentage | adverse effects |
| NIS | km2 | D2C2 | sum |  |
| NIS | km2 | D2C3 | sum | adverse effects |
| Bloom events | km2 | D5C3 | sum |  |
| Species (opportunistic macroalgae, macrophyte and macrofaunal communities) | km2 | D5C6; D5C7; D5C8 | sum | adverse effects |
| Area physically lost, disturbed or hydrographically altered | km2 | D6C1; D6C2; D7C1 | sum |  |
| Habitat types | km2 | D6C3; D6C4; D6C5; D8C2; D8C4 | sum | per broad habitat type affected |
| Acute pollution events | km2 | D8C3 | sum |  |
| FEC | Fecundity (breeding rate) | Colonies failing per year | % | D1C3 | percentage |  |
| FRE | Frequency | Bloom events | {events}/y | D5C3 | count |  |
| HAB-CON | Habitat condition | Habitats | EQR | D1C5; D1C6; D6C5; D7C2 | value (0-1) |  |
| INC | Incidence | NIS | no unit | D2C3 | ratio | adverse effects within the species group |
| Species | {individuals} | D8C2; D8C4 | count | per species affected |
| Species | {individuals} | D10C4 | count | per species affected (lethal; sublethal) |
| SIZE-LEN | Size (length) | Species | Cm | D1C3 | body size |  |
| Stocks | Cm | D3C3 | p95 of fish-length distribution (LFI) |  |
| Commercial stocks | Cm | D3C3 | size at first sexual maturation |  |
| LEV-N | Level of sound | Anthropogenic impulsive sound in water | dB re 1 μPa2 | D11C1 | Average per quarter or month |  |
| MASS | Mass | Marine litter | G | D10C3 | sum | ingested by marine animals |
| Microlitter | g/m2 | D10C2 | sum | for surface layer of the water column |
| Marine litter | g/cm | D10C3 | sum | per species length |
| Microlitter | g/kg dw | D10C2 | sum | for the coastline and for seabed |
| Marine litter | g/kg | D10C3 | sum | per species mass |
| DIST-DEPTH | Maximum depth | Macrophyte communities | M | D5C7 | Maximum value |  |
| MOR/F | Mortality rate | Species | no unit | D1C1 | ratio |  |
| Mortality rate from fishing (F) | Commercial stocks | no unit | D3C1 | ratio |  |
| THICK-BLU | Blubber thickness | Mammals | mm | D1C3 | average | Indicator of the nutritional status |
| OTH | Other |  |  |  |  |  |
| PRE | Presence | NIS | {species} | D2C1 | count | newly introduced/6 years |
| PROD | Productivity | Trophic guild | g/m2d | D4C4 | sum |  |
| ABU-REL | Relative abundance within community | NIS | % | D2C3 | percentage | adverse effects |
| Species (macrophyte and macrofaunal communities) | EQR | D5C7; D5C8 | value (0-1) | adverse effects |
| Trophic guilds | EQR | D4C2 | value (0-1) |  |
| SEX-D | Sex distribution | Species | no unit | D1C3 | ratio |  |
| SIZE-D | Size distribution | Commercial stocks | % | D3C3 | percentage of fish larger than mean size of first maturation |  |
| Species | EQR | D1C6 | value (0-1) |  |
| SPL | Underwater sound level | Anthropogenic sound in water | dB re 1 μPa per unit area | D11C2 | annual average | continuous low-frequency sound |
| SPP-C | Species composition | Species (macrophyte and macrofaunal communities) | EQR | D5C7; D5C8 | value (0-1) |  |
| BIOM-SSB | Biomass of Spawning Stock (SSB) | Commercial stocks | T | D3C2 | sum | Combined weight of all individuals in a fish stock that are capable of reproducing |
| SUR | Survival rate | Species | no unit | D1C3 | ratio |  |
| TRA | Transparency of water | Photic limit | M | D5C4 | count |  |

## ThresholdSources\_Enum

| **Code** | **Label** |
| --- | --- |
| BathingWater | Bathing Water Directive (76/160/EEC) |
| Birds | Birds Directive (2009/147/EC) |
| DrinkingWater | Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC) |
| EIA Directive | Environmental Impact Assessment Directive (85/337/EEC) |
| Foodstuffs | Regulation on contaminants in foodstuffs (EC 1881/2006) |
| Habitats | Habitats Directive (92/43/EEC) |
| IPPC | Integrated Pollution Prevention Control Directive (96/61/EC) |
| Seveso | Major Accidents (Seveso) Directive (96/82/EC) |
| Nitrates | Nitrates Directive (91/676/EEC) |
| PPPP | **Placing of plant protection products on the market (Regulation EC/1107/2007)** |
| SSD | Sewage Sludge Directive (86/278/EEC) |
| UWWTD | Urban Waste Water Treatment Directive (91/271/EEC) |
| WaterFD | Water Framework Directive (2000/60/EC) |
| PSD | Priority substances Directive (2013/39/EU) |
| FD | Floods Directive (2007/60/EC) |
| IAER | Prevention and management of the introduction and spread of invasive alien species (Regulation 1143/2014) |
| WasteFD | Waste Framework Directive (2008/98/EC) |
| NEC | Directive on National Emission Ceilings for certain pollutants (2001/81/EC) |
| REACH | Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (EC 1907/2006) |
| CFP | Common Fisheries Policy |
| CFP-DC-MAP | Common Fisheries Policy - Data Collection Framework (DC-MAP) |
| EUBiodivStrategy | EU Biodiversity Strategy |
| CBD | Convention on Biological Diversity |
| CMS | Convention on Migratory Species |
| LTRAP | UNECE Convention on long-range transboundary air pollution |
| HELCOM | Helsinki Convention |
| OSPAR | OSPAR Convention |
| BarCon | Barcelona Convention UNEP/MAP |
| BSC | Black Sea Convention (Bucharest Convention) |
| TWSC | Trilateral Wadden Sea Cooperation |
| GFCM | General Fisheries Commission for the Mediterranean |
| ICCAT | International Commission for the Conservation of Atlantic Tunas |
| NEAFC | North East Atlantic Fisheries Commission |
| IMO | International Maritime Organisation (MARPOL, Ballast Water Convention, Antifouling Convention) |
| MS(sub)region | MS within (sub)region |
| National | National |
| DirectionalTrends | Directional trends |
| PressureProxy | Pressure-based proxy |
| Other | Other (specify) |
| Not applicable | Not applicable |

## Units\_Enum

| **Code** | **Label** |
| --- | --- |
| % | percentage |
| Bq/kg ww | Becquerels per kilogram of wet weight |
| cm | centimetre |
| CPUE | Catch-Per-Unit-Effort |
| D | days |
| dB | decibel |
| dB re 1 μPa2 | Decibels reference 1 microPascal squared second |
| {events}/y | (number of) events per year |
| g/cm | gram per centimetre |
| g/kg | gram per kilogram |
| g/kg dw | gram per kilogram of dry weight |
| g/m2 | gram per square metre |
| g/m2d | gram per square metre per day |
| {individuals} | (number of) individuals |
| items/cm | number of items per centimetre |
| items/kg | number of items per kilogram |
| items/kg dw | number of items per kilogram of dry weight |
| items/km2 | number of items per square kilometre |
| items/m | number of items per meter |
| items/m2 | number of items per square metre |
| km2 | square kilometre |
| m | metre |
| mm | millimetre |
| mg/kg | milligram per kilogram |
| mg/kg ww | milligram per kilogram of wet weight |
| mg/L | milligram per litre |
| pg/g ww | picogram per gram of wet weight |
| {ratio} | ratio |
| {species} | (number of) species |
| T | tonne |
| ug/kg dw | microgram per kilogram of dry weight |
| ug/kg ww | microgram per kilogram of wet weight |
| ug/L | microgram per litre |
| umol/L | micromole per litre |
| Other | other |

## ElementCodeSource

| **Code** | **Link** | **Conditional** |
| --- | --- | --- |
| WoRMS | <http://www.marinespecies.org/> | Species (D1) |
| CoL | <http://www.catalogueoflife.org/> | Species (D1) |
| Algaebase | http://www.algaebase.org | Species (D1) |
| HabitatsDirective: species | <http://dd.eionet.europa.eu/vocabulary/biodiversity/n2000species/view> | Species (D1) |
| BirdsDirective | <http://dd.eionet.europa.eu/vocabulary/biodiversity/n2000birds/view> | Species (D1) |
| FAO | http://www.fao.org/fishery/collection/asfis/en | Species (D3) |
| ICES-Stock | http://vocab.ices.dk/?ref=357 | Species (D3) |
| BHT | http://dd.eionet.europa.eu/vocabulary/msfd/broadHabitatTypes/view | Habitats (D1-D6) |
| EUNIS | <http://dd.eionet.europa.eu/vocabulary/biodiversity/eunishabitats/view> | Habitats (D1-D6) |
| HabitatsDirective: habitats | <http://dd.eionet.europa.eu/vocabulary/biodiversity/n2000habitats/view> | Habitats (D1-D6) |
| HELCOMHabitats | <http://maps.helcom.fi/website/HUB/HUB.html> | Habitats (D1-D6) |
| OSPARHabitats | http://www.ospar.org/documents?d=32794 | Habitats (D1-D6) |
| WISE | <http://dd.eionet.europa.eu/vocabulary/wise/ObservedProperty/view> | Eutrophication (D5) and contaminants (D8-D9) |
| WISE-B | <http://dd.eionet.europa.eu/vocabulary/wise/WFDQualityElement/> | Eutrophication (D5)(EQRs) |
| BODC-SDN | http://seadatanet.maris2.nl/v\_bodc\_vocab\_v2/vocab\_relations.asp?lib=P02 | Contaminants (D8-D9) |
| ICES-Param | http://vocab.ices.dk/?ref=37 | Contaminants (D8-D9) |
| Other | Link to other vocabulary or code lists that may be relevant |  |

## NACECodes\_Enum (indicative)

| **Sector** | **Code** | **Label** |
| --- | --- | --- |
| Fisheries and aquaculture | 0311 | Marine fishing |
| 0321 | Marine aquaculture |
| 1020 | Processing and preserving of fish, crustaceans and molluscs |
| Shipping (or maritime transport) | 5010 | Sea and coastal passenger water transport |
| 5020 | Sea and coastal freight water transport |
| Ports | 3011 | Building of ships and floating structures |
| 3012 | Building of pleasure and sporting boats |
| 3315 | Repair and maintenance of ships and boats |
| 4671 | Wholesale of solid, liquid and gaseous fuels and related products |
| 4672 | Wholesale of metals and metal ores |
| 4673 | Wholesale of wood, construction materials and sanitary equipment |
| 4674 | Wholesale of hardware, plumbing and heating equipment and supplies |
| 4675 | Wholesale of chemical products |
| 4676 | Wholesale of other intermediate products |
| 4677 | Wholesale of waste and scrap |
| 4211 | Construction of roads and motorways |
| 4212 | Construction of railways and underground railways |
| 4213 | Construction of bridges and tunnels |
| 4221 | Construction of utility projects for fluids |
| 4222 | Construction of utility projects for electricity and telecommunications |
| 4291 | Construction of water projects |
| 4299 | Construction of other civil engineering projects n.e.c. |
| 5222 | Service activities incidental to water transportation |
| Oil and Gas | 0610 | Extraction of crude petroleum |
| 0620 | Extraction of natural gas |
| 0910 | Support activities for petroleum and natural gas extraction |
| Marine mining (sand and gravel, rock) | 0811 | Quarrying of ornamental and building stone, limestone, gypsum, chalk and slate |
| 0812 | Operation of gravel and sand pits; mining of clays and kaolin |
| 0899 | Other mining and quarrying n.e.c. |
| Extraction of non-living resources - Other | 0893 | Extraction of salt |
| Tourism and recreation incl. yachting | 5510 | Hotels and similar accommodation |
| Off-shore Wind Energy | 0000 | Exploitation of offshore wind energy for producing electricity |

# ANNEX V: Common indicator structure

## Common Indicator: XML elements annotated

Table 12 XML elements of the Common Indicator Structure (MSFD Guidance Document 13)

| Common indicator structure | | XML Schema (XSD) | | | |
| --- | --- | --- | --- | --- | --- |
| **ID** | **Category and relevant fields** | **Schema Class** | **Schema Element** | **Property** | **Guidance** |
| **Access and use** | | | | | |
| 1 | Conditions applying to access and use | AccessAndUse | ConditionsApplying | Required | Text, URL |
| **Assessment findings** | | | | | |
| 2 | Key assessment | AssessmentFindings | KeyAssessment | Required | Text |
| 3 | Key messages | AssessmentFindings | KeyMessage | Required | Text, URL |
| 4 | Results and Status | AssessmentFindings | ResultsAndStatus | Required | Text, URL |
| 5 | Trend | AssessmentFindings | Trend | Optional | Text, URL |
| **Assessment methods** | | | | | |
| 6 | Indicator Definition | AssessmentMethods | IndicatorDefinition | Required | Text |
| 7 | Methodology for indicator calculation | AssessmentMethods | IndicatorMethodology | Required | Text, URL |
| 8 | Methodology for monitoring | AssessmentMethods | MonitoringMethodology | Optional | Text, URL |
| 9 | Indicator units | AssessmentMethods | IndicatorUnits | Optional | Text, URL |
| 10 | Concept and target setting method | AssessmentMethods | ConceptAndTarget | Optional | Text, URL |
| **Assessment purpose** | | | | | |
| 11 | Indicator purpose | AssessmentPurpose | IndicatorPurpose | Required | Text, URL |
| 12 | Policy relevance | AssessmentPurpose | PolicyRelevance | Optional | Text, URL |
| 13 | Relevant publications (policy, scientific etc) | AssessmentPurpose | RelevantPublications | Optional, Unbounded | Text, URL |
| 14 | Policy Targets | AssessmentPurpose | PolicyTargets | Optional | Text |
| **Contact and responsibility** | | | | | |
| 15 | Contributing countries | Contact | ContributingCountries | Optional, Unbounded | ISO 3166-1 alpha-2 Country Code |
| 16 | Citation | Contact | Citation | Required | Text, URL |
| 17 | Point of contact | Contact | PointOfContact | Required | Text |
| **Data inputs and outputs** | | | | | |
| 18 | Data sources | DataInputOutput | DataSources | Required | Text, URL, DOI |
| 19 | Assessment dataset | DataInputOutput | AssessmentDataset | Required | URL |
| 20 | Assessment result | DataInputOutput | AssessmentResult | Required | Text, URL |
| 21 | Assessment result- map | DataInputOutput | AssessmentResultMap | Optional | Text, URL |
| **Geographical scope** | | | | | |
| 22 | Assessment/Reporting unit | GeographicalScope | AssessmentReportingUnit | Optional, Unbounded | Text, URL |
| 23 | Countries | GeographicalScope | Countries | Required, Unbounded | ISO 3166-1 alpha-2 Country Code |
| 24 | Other geographical unit | GeographicalScope | OtherGeographicalUnit | Optional | Text |
| 37 | Assessment area (context) |  | AssessmentArea | Optional | Text |
| **Labelling and classification** | | | | | |
| 25 | DPSIR | LabellingClass | DPSIR | Optional | DPSIR Type |
| 26 | MSFD criteria | LabellingClass | MSFDCriteria | Required | Text |
| 27 | Indicator title | LabellingClass | IndicatorTitle | Required | Text |
| 28 | INSPIRE topics | LabellingClass | INSPIRETheme | Required | Inspire Theme |
| **Quality aspects** | | | | | |
| 29 | Data confidence | QualityAspects | DataConfidence | Required | Text |
| 30 | Indicator methodology confidence | QualityAspects | IndicatorConfidence | Optional | Text |
| 31 | GES - confidence | QualityAspects | GESConfidence | Optional | Text |
| **Temporal scope** | | | | | |
| 32 | Temporal Coverage | TemporalScope | TemporalCoverage | Required | Date Range |
| **Version control** | | | | | |
| 33 | Last modified date | VersionControl | LastModifiedDate | Optional | Date |
| 34 | Published date | VersionControl | PublishedDate | Required | Date |
| 35 | Unique reference | VersionControl | UniqueReference | Optional | Text, URL |
| 36 | version linkage | VersionControl | VersionLinkage | Optional | URL |

## Mapping between ‘Indicators’ schema elements and the ‘Common Indicator Structure’ elements

| **MSFD reporting schema: Indicators** | | **Common Indicator Structure: relevant field** | |
| --- | --- | --- | --- |
| **Schema class** | **Schema element** | **Field Label name** | **Schema Element name** |
| MarineUnit | MarineUnit | 22. Assessment/Reporting unit | AssessmentUnit |
| Feature | Feature | 26. MSFD Criteria | MSFDCriteria |
| Feature | GEScomponent | 26. MSFD Criteria | MSFDCriteria |
| IndicatorAssessment | IndicatorCode | Not mapped |  |
| IndicatorAssessment | IndicatorTitle | 27. Indicator title | IndicatorTitle |
| IndicatorAssessment | IndicatorSource | 16. Citation | Citation |
| IndicatorAssessment | URL | 35. Unique reference | UniqueReference |
| Datasets | URL | 19. Assessment dataset | AssessmentDataset |
| Datasets | MD\_URL | 19. Assessment dataset | AssessmentDataset |

# ANNEX VI: GES assessments to be provided under the ART8\_GES schema, and Features to be associated to the descriptors and criteria reported under Art9\_GES.

| **GES component** | **Feature** | **GES extent unit** | **Pre-defined elements & lists** | **Criteria** |
| --- | --- | --- | --- | --- |
| D1 Biodiversity – [species group] | Each of the relevant species groups | Proportion of species in good status within species group | Species list | D1C1;D1C2;D1C3;D1C4;D1C5 |
| D1 Biodiversity - pelagic habitats | Pelagic broad habitats | Proportion of habitat types in good status | Pelagic broad habitat types | D1C6 |
| D1 Biodiversity - pelagic habitats | Other pelagic habitats | Proportion of habitat types in good status | Habitats from EUNIS and Habitats Directive | D1C6 |
| D2 Non-indigenous species | Newly-introduced non-indigenous species | Number of newly-introduced species | NIS list | D2C1 |
| D2 Non-indigenous species | Established non-indigenous species | Not relevant | NIS list | D2C2 |
| D2 Non-indigenous species | Benthic broad habitats | Not relevant | Benthic broad habitat types | D2C3 |
| D2 Non-indigenous species | Pelagic broad habitats | Not relevant | Pelagic broad habitat types | D2C3 |
| D2 Non-indigenous species | Species groups | Not relevant | Species groups | D2C3 |
| D3 Commercial fish and shellfish | Commercially-exploited fish and shellfish | Proportion of populations in good status | Commercial species list | D3C1;D3C2;D3C3 |
| D4 Food webs/D1 Biodiversity - ecosystems | Coastal ecosystems | Not relevant | Trophic guilds | D4C1;D4C2;D4C3;D4C4 |
| D4 Food webs/D1 Biodiversity - ecosystems | Shelf ecosystems | Not relevant | Trophic guilds | D4C1;D4C2;D4C3;D4C4 |
| D4 Food webs/D1 Biodiversity - ecosystems | Oceanic/deep-sea ecosystems, if relevant | Not relevant | Trophic guilds | D4C1;D4C2;D4C3;D4C4 |
| D5 Eutrophication | Eutrophication | Proportion of area in good status | DIN; TN; DIP; TP | D5C1 |
| Chlorophyll-a | D5C2 |
| Harmful algal bloom species list | D5C3 |
| Photic limit (Transparency) | D5C4 |
| Dissolved oxygen | D5C5 |
| Benthic habitats - opportunistic macroalgae | D5C6 |
| Benthic habitats - macrophyte communities | D5C7 |
| Benthic habitats - macrobenthic communities | D5C8 |
| D6 Sea-floor integrity/D1 Biodiversity - benthic habitats | Physical loss of the seabed | Not relevant |  | D6C1 |
| D6 Sea-floor integrity/D1 Biodiversity - benthic habitats | Physical disturbance to the seabed | Not relevant |  | D6C2 |
| D6 Sea-floor integrity/D1 Biodiversity - benthic habitats | Benthic broad habitats | Proportion of habitat types in good status | Benthic broad habitat types | D6C3;D6C4;D6C5 |
| D6 Sea-floor integrity/D1 Biodiversity - benthic habitats | Other benthic habitats | Proportion of habitat types in good status | Habitats from EUNIS and Habitats Directive | D6C3;D6C4;D6C5 |
| D7 Hydrographical changes | Hydrographical changes | Not relevant |  | D7C1 |
| D7 Hydrographical changes | Benthic broad habitats | Not relevant | Benthic broad habitat types | D7C2 |
| D7 Hydrographical changes | Other benthic habitats | Not relevant | Habitats from EUNIS and Habitats Directive | D7C2 |
| D8 Contaminants | Contaminants - non UPBT substances | Proportion of substances in good status | Contaminants list | D8C1 |
| D8 Contaminants | Contaminants - UPBT substances | Proportion of substances in good status | Contaminants list | D8C1 |
| D8 Contaminants | Acute pollution events | Not relevant |  | D8C3 |
| D8 Contaminants | Benthic broad habitats | Not relevant | Benthic broad habitat types | D8C2;D8C4 |
| D8 Contaminants | Species | Not relevant | Species list | D8C2;D8C4 |
| D9 Contaminants in seafood | Contaminants in seafood | Proportion of substances in good status | Contaminants in Foodstuffs Regulation | D9C1 |
| D10 Marine litter | Litter in the environment | Proportion of litter categories in good status | Marine litter categories | D10C1 |
| D10 Marine litter | Micro-litter in the environment | Proportion of litter categories in good status | Marine litter categories | D10C2 |
| D10 Marine litter | Litter and micro-litter in species | Proportion of litter categories in good status | Species list | D10C3 |
| D10 Marine litter | Species | Not relevant | Species list | D10C4 |
| D11 Energy, including underwater noise | Impulsive sound in water | Proportion of area in good status |  | D11C1 |
| D11 Energy, including underwater noise | Continuous low frequency sound | Proportion of area in good status |  | D11C2 |

1. One Member State (Italy) expressed that it does not form part of the consensus to support this document at the 22nd meeting of the Marine Strategy Coordination Group of 23rd April 2018. The concerns were recorded in the minutes of the meeting. [↑](#footnote-ref-2)
2. <http://ec.europa.eu/environment/legal/reporting/fc_overview_en.htm> [↑](#footnote-ref-3)
3. <https://water.europa.eu/marine> [↑](#footnote-ref-4)
4. <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2014:0097:FIN> [↑](#footnote-ref-5)
5. Commission Decision laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardised methods for monitoring and assessment, and repealing Decision 2010/477/EU. <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1495097018132&uri=CELEX:32017D0848>. [↑](#footnote-ref-6)
6. Commission Directive amending Directive 2008/56/EC of the European Parliament and of the Council as regards the indicative lists of elements to be taken into account for the preparation of marine strategies. <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1495097018132&uri=CELEX:32017L0845>. [↑](#footnote-ref-7)
7. The web-forms are not completely functional when using Internet Explorer. The use of other browsers is recommended. [↑](#footnote-ref-8)
8. <http://cdr.eionet.europa.eu/> [↑](#footnote-ref-9)
9. <http://cdr.eionet.europa.eu/help/msfd> [↑](#footnote-ref-10)
10. <https://circabc.europa.eu/sd/a/0557a440-3dd7-489c-893e-2062fce7ce5d/GD13_CommonStructureForIndicator-basedAssessments_20160407_Final.doc> [↑](#footnote-ref-11)
11. Whenever a Member State follows the ‘ecosystem services’ approach [↑](#footnote-ref-12)
12. <http://stateofthebalticsea.helcom.fi/> [↑](#footnote-ref-13)
13. <https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/> [↑](#footnote-ref-14)
14. <https://www.medqsr.org/> [↑](#footnote-ref-15)
15. As Geographical Information System (GIS) datasets, to allow data to be presented in maps. [↑](#footnote-ref-16)
16. As described in the document *MSFD reporting units* (DIKE\_16-2017-03). [↑](#footnote-ref-17)
17. There are topological problems (mainly overlaps and gaps) in the GIS data on national marine boundaries submitted by Member States in 2012. Whenever such discrepancies are resolved amongst Member States, MS should upload updated national marine boundary data to the CDR. [↑](#footnote-ref-18)
18. <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52016DC0478R(01)&from=EN> [↑](#footnote-ref-19)
19. [2012 MSFD Reporting Guidance](https://circabc.europa.eu/sd/a/439e849f-2710-452d-9c8d-10322a17f141/1206_MSFD%20Reporting%20Guidance_Final.doc) [↑](#footnote-ref-20)
20. A list of Ecosystem services has also been added, for those MS that use an Ecosystem services assessment under MSFD Article 8(1c). [↑](#footnote-ref-21)
21. See list at http://vocab.ices.dk/?ref=357 [↑](#footnote-ref-22)
22. Note that for commercial species assessments, information from the ICES stock assessments will be prefilled for the Atlantic subregions and the Baltic region – see section 5. [↑](#footnote-ref-23)
23. <http://cdr.eionet.europa.eu/help/msfd> [↑](#footnote-ref-24)
24. [GES\_17-2017-02\_Guidance\_MSFDArt8\_Feb2017TestVersion.pdf](https://circabc.europa.eu/d/a/workspace/SpacesStore/cea61b55-06df-4e9e-9830-b0f41ca46fbe/GES_17-2017-02_Guidance_MSFDArt8_Feb2017TestVersion.pdf) [↑](#footnote-ref-26)
25. As reported with 2016 Programmes of Measures. [↑](#footnote-ref-27)
26. MSFD Guidance Document 13 [↑](#footnote-ref-28)
27. <http://standardgraphs.ices.dk/ViewCharts.aspx?key=8114> [↑](#footnote-ref-29)
28. <http://rod.eionet.europa.eu/obligations/759> [↑](#footnote-ref-30)
29. Unit ENV.C.2 "Marine Environment and Water Industry" mail: ENV-MARINE-ENVIRONMENT@ec.europa.eu [↑](#footnote-ref-31)
30. See section 3.1; these should be submitted before the rest of the reports in order to have the MRU codes available to populate the other schemas. [↑](#footnote-ref-32)