



JRC TECHNICAL REPORTS

JRC's reference lists of MSFD species and habitats

*MSFD reporting for
Descriptors 1 and 6*

Palialexis A., A. C. Cardoso, F. Somma

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Foreword/Abstract

JRC produced reference lists of species and habitats for the Marine Strategy Framework Directive (MSFD), following the recommendations listed in the COM DEC 2017/848/EU and shared them with the marine biodiversity experts proposed by the EU Member States, for their evaluation. This task is part of the mandate to JRC ([GES 18-2017-03](#)) to facilitate Member States data entry, as part of the MSFD reporting obligations, in the EEA reporting web-forms, while increasing consistency and harmonization across Member States. The scope of this technical report is: i) to describe the methodology applied for the synthesis of the reference lists; ii) to provide directions to the experts to evaluate and update them; iii) to provide Member States with the possibility to consult the reference lists (embedded in this document) for any future MSFD related task.

Authors

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1. Introduction

1.1 Background

The Joint Research Centre (JRC) is preparing reference lists of marine species and habitats with relevance to the European Marine Strategy Framework Directive (MSFD). The lists are meant to facilitate data entry in the European Environment Agency (EEA) reporting system, while increasing consistency and harmonization across EU Member States (MS) reporting. The lists have been further detailed in consultation with marine biodiversity experts proposed by the MS and are currently available for the test-phase of EEA reporting system, and later as drop-down lists in the EEA web forms, for reporting under MSFD Articles 8, 9 and 10 (due in 2018).

The compiled lists will also support the regional and sub-regional processes of selection of relevant species and habitats to be used for the determination of Good Environment Status (GES) for Descriptors 1 and 6 ('biodiversity' and 'sea floor integrity', respectively) as required by the recently adopted [COM DEC 2017/848/EU](#).

1.2 Purpose and scope

COM DEC 2017/848/EU defines **species groups** (Table 1) and **habitat types** (Table 2) as the units for GES assessment. **Selected representative sets** of species and habitats could be aggregated up to the indicated broader levels (respectively, species groups and habitat types), according to methodologies and rules outlined in the [MSFD Article 8 draft guidance document](#), currently being tested by MS and Regional Sea Conventions (RCS). COM DEC 2017/848/EU includes also general rules for **selecting species and habitats** for the species groups and broad habitat types, respectively (L125/72). Among other, states that "*wherever possible, the assessments under Directive 92/43/EEC (Habitats Directive), Directive 2009/147/EC (Birds) and Regulation (EU) No 1380/2013 (Common Fisheries Policy) shall be used for the purposes of this Decision*". Thus, *a priori*, **lists of species and habitats** under those policy instruments should be considered for the MSFD biodiversity assessments. The MSFD Article 8 draft guidance document sets a general framework for the selection of elements for the assessment (section 2) and a more specific one for species and habitats (section 4). According to the latter (p. 7 of the guidance):

- *For each criterion selected in step 1, the **elements for assessment should be identified**, i.e. the features and pressures under Article 8 and the corresponding characteristics of GES under Article 9(1) (e.g. substances, species, habitats). For some criteria the **Commission Decision specifies the elements** to be used, but in a number of cases there is need for further definition of these elements by the Member States.*
- *Where the Commission Decision refers to lists of **elements established by existing EU legislation**, these elements are set as the EU minimum requirement for assessment at the prescribed scale.*
 - *Note: An element can be excluded from the assessment through deselection from the existing list, based on the procedures of the EU legislation under which the list has been established.*
- *Where elements are not determined by existing EU legislation or where regional coordination goes beyond existing EU legislation, the **regionally-agreed elements** should be applied for assessment.*
 - *Note: A regionally agreed element can be excluded from the assessment through deselection from the existing list, based on the agreements under which the list has been established.*
- *Member States may choose to select **additional elements for assessment which are specific for assessing GES** in their national waters.*

Following COM DEC 2017/848/EU, the MSFD Article 8 draft guidance document, and the interactions with MS, and in view of ensuring the coherence of approaches at EU level, **JRC has generated draft lists of species and habitats** under each species group and

broad habitat type, to be further refined/integrated/evaluated by MSs and RSCs. This work aims to:

- further integrate the list of species per group and habitats per broad habitat type created in the context of the review of the now-repealed COM DEC 2010/477/EU, by integrating all information from relevant legal documents and agreements;
- harmonise and coordinate assessments for species and habitats with wide distribution or of Union-concern in neighbouring countries;
- develop recommendations for an adequate set of species that should be assessed per species-group, from a list of all relevant species, based on the concepts of a risk-based approach and representativeness of ecosystems and habitats in the application of selection rules;
- improve harmonization, consistency and comparability of GES assessments across MSs.

The resulting lists will **facilitate the 2018 reporting for MSFD Articles 8, 9 and 10**, through the EEA's web forms.

1.3 General approach

The general process for generating the lists of species and habitats can be summarised as follows:

1. align the biodiversity components and species groups agreed during the review of the now-repealed COM DEC 2010/477/EU (Palialexis et al. 2015) with the new COM DEC 2017/848/EU (Tables 1 and 2), considering also the methodological standards and the selection criteria for species and habitats;
2. integrate with: i) species and habitats coming from lists of the RSCs (recently published "roof reports", other official documents); ii) integrate with species and habitats existing in lists of other sources and policies (e.g. assessments under Directives 92/43/EEC and 2009/147/EC), and iii) integrate with available information in the 2012 MS reports under MSFD Articles 8, 9 and 10, as well as the 2014 reports under Art. 11 (EEA EIONET database);
3. analyse and allocate resulting lists of species and habitats to the MSFD regions/ sub-regions, and to species groups and broad habitat types;
4. highlight those species and habitats proposed to compose the pool of species and habitats from where the MS will draw on for their MSFD D1 assessment for species groups and D1/6 assessments for broad habitat types.

The aim is not to generate exhaustive lists of species and habitats by summing up all available information, but to assess which information and species/habitats assessments can aid in fulfilling the MSFD requirements.

2. Compilation of the species' lists

This section presents the methods and sources for the compilation of the reference lists of species, according to the directions given in the COM DEC 2017/848/EU. Each paragraph corresponds to each one of the ecosystem components listed in table 1 of the COM DEC 2017/848/EU.

2.1 Marine Mammals

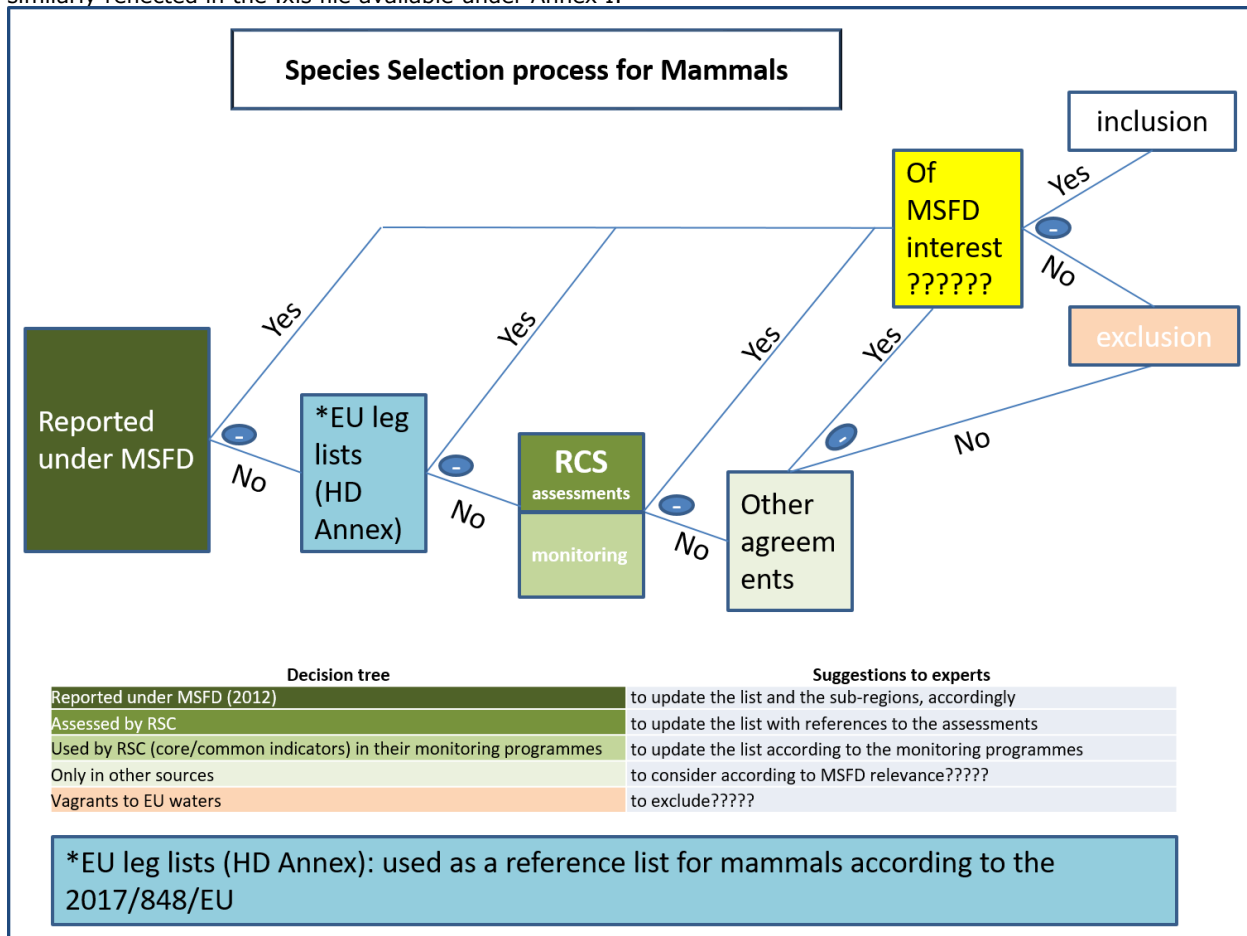
The draft list for mammals (Annex I) was compiled according to the following hierarchical steps (see also Figure 1):

1. MSs MSFD electronic reporting under Art. 8, 9 and 10 (2012) and Art. 11 (2014);
2. lists from Annex II and Annex IV of the Habitat Directive (in line with COM DEC 2017/848/EU requirements for marine mammals);
3. species included in the RSCs' indicator assessments or in official RSCs lists, in particular:
 - a. HELCOM: First Version of State of the Baltic Sea 2017; HELCOM RED LIST of Baltic Sea Species;
 - b. OSPAR: OSPAR Intermediate Assessment 2017; OSPAR list of species;
 - c. UNEP MAP: List of Endangered or Threatened Species; IMAP; Integrated initial assessment 2012; Protocol concerning specially protected areas and biological diversity in the Mediterranean (L 322, 14 December 1999);
 - d. BSC: Black Sea State of Environment 2008;

special attention was given to primarily include species that were assessed by the RSCs; where no assessment was available, the species included in the RSC's monitoring programmes or in official RSC's lists were considered;

4. as a final step, the resulting list of species was cross-checked with other sources namely: IUCN list of mammals for the EU seas, ACCOBAMS list of mammals (Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area), Bonn convention (Convention on the Conservation of Migratory Species of Wild Animals) and CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora).

Figure 1. Decision tree describing the steps for the compilation of the mammals list. The box colours are similarly reflected in the .xls file available under Annex I.



2.2 Compilation of the reptiles' list

The European waters include a few, well-studied reptile species, all reported under MSFD by several Member States.

The compilation of the marine reptile list of species was made according to the following steps:

1. MSs MSFD electronic reporting under Art. 8, 9 and 10 (2012) and Art. 11 (2014);
2. reptiles listed in Annex II and Annex IV of the Habitat Directive (in line with COM DEC 2017/848/EU requirements for marine species);
3. species included in the RSCs' indicator assessments or in official RSCs' lists. In particular:
 - a. HELCOM: First Version of State of the Baltic Sea 2017; HELCOM RED LIST of Baltic Sea Species (note: no marine reptile species recorded for the Baltic);
 - b. OSPAR: OSPAR Intermediate Assessment 2017; OSPAR list of species;
 - c. UNEP MAP: List of Endangered or Threatened Species; IMA; Integrated initial assessment 2012; Protocol concerning specially protected areas and biological diversity in the Mediterranean (L 322, 14 December 1999);
 - d. BSC: Black Sea State of Environment 2008.

special attention was given to primarily include species that were assessed by the RSCs; where no assessments were available, the species included in the RSC's monitoring programmes or in official RSC's lists were considered;

4. as a final step, the resulting list of species was cross-checked with other sources of reptile species, namely: the IUCN list of reptiles for the EU seas, Bonn convention (Convention on the Conservation of Migratory Species of Wild Animals) and CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora).

2.3 Compilation of the birds' list

The birds' draft list was compiled according to the following steps:

1. MSs MSFD electronic reporting under Art. 8, 9 & 10 (2012) and Art. 11 (2014);
2. lists from Annex I, II and III of the Birds Directive (2009/147/EC) (in line with COM DEC 2017/848/EU requirements for birds' species);
3. species included in the RSCs' indicator assessments or in official RSCs lists; In particular:
 - a. HELCOM: First Version of State of the Baltic Sea 2017; HELCOM RED LIST of Baltic Sea Species;
 - b. OSPAR: OSPAR Intermediate Assessment 2017; OSPAR list of species;
 - c. UNEP MAP: List of Endangered or Threatened Species; IMAP; Integrated initial assessment 2012; Protocol concerning specially protected areas and biological diversity in the Mediterranean (**L 322, 14 December 1999**);
 - d. BSC: Black Sea State of Environment 2008, BS Biodiversity Protocol Annex II;

special attention was given to primarily include species that were assessed by the RSCs; where no assessments were available, the species included in the RSC's monitoring programmes or official RSC's lists were considered;

4. as a final step, the resulting list of species was cross-checked with other sources of bird species, namely: the IUCN list of birds for the EU seas, Bonn convention (Convention on the Conservation of Migratory Species of Wild Animals) and CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora).

2.4 Compilation of the fish list

The fish draft list was compiled according to the following steps:

1. MSs MSFD electronic reporting under Art. 8, 9 & 10 (2012) and Art. 11 (2014);
2. The multiannual Union programme (2016/1251/EU) for the collection, management and use of data in the fisheries and aquaculture sectors having regard to Council Regulation (EC) No 199/2008 for the Data Collection Framework of the Common Fisheries Policy. In particular, the compilation of the list was based on:
 - a. Table 1A of the COM DEC 2016/1251/EU regarding the stocks in union waters and those in Azores, Madeira and Canary Islands (columns X to AC, in the spreadsheet);
 - b. Table 1D of the COM DEC 2016/1251/EU regarding species to be monitored under protection programmes in the Union or under international obligations;

- c. Lists from Appendix VII of the COM DEC 2010/93/EU regarding the Council Regulation (EC) No 199/2008 (CFP93 in column V);
 - d. Annex III of the COM DEC 2006/1967/EC for the Mediterranean species with Minimum Landing Size (EC MED in column V), and
 - e. The list of stocks assessed in 2017, as reported by the STECF (2017) for the European Waters (MSFD sub-region where the stock belongs in column W).
3. species included in the RSCs' indicator assessments or in official RSCs lists, in particular:
- a. HELCOM: HELCOM RED LIST of Baltic Sea Species (HELCOM RED in column R);
 - b. OSPAR: MSFD Advice Manual and Background Document on Biodiversity (OSPAR LIST in column S); OSPAR's list of Threatened and/or Declining Species & Habitats (OSPAR red in column S);
 - c. UNEP MAP: List of Endangered or Threatened Species (UNEP list in column T); Protocol concerning specially protected areas and biological diversity in the Mediterranean (L 322, 14 December 1999) (L332 in column T);
 - d. BSC: Black Sea State of Environment 2008 (BS SoE in column U), BS Biodiversity Protocol Annex II & IV (BS prot in column U);
- special care was given to primarily include species that were assessed by the RSCs; where no assessments were available, the species included in the RSC's monitoring programmes or official RSC's lists were considered;
- 4. lists from Annex II and Annex IV of the Habitat Directive;
 - 5. as a final step, the resulting list of species was cross-checked with other sources of fish species, namely:
 - a. The IUCN list of *Actinopterygii* and *Chondrichthyes* for the EU seas (column AF to AJ);
 - b. The priority species of the GFCM (General Fisheries Commission for the Mediterranean) by sub-region (column AD);
 - c. Table 1C of the 2016/1251/EU regarding Stocks in marine regions under regional fisheries management organizations (RFMOS) and Sustainable Fishing Partnership Agreements (SFPAS, columns AK to AN).

2.5 Compilation of the cephalopods' list

The cephalopods' draft list was compiled according to the following steps:

- 1. MSs MSFD electronic reporting under Art. 8, 9 & 10 (2012) and Art. 11 (2014);
- 2. The multiannual Union programme (COM DEC 2016/1251/EU) for the collection, management and use of data in the fisheries and aquaculture sectors having regard to Council Regulation (EC) No 199/2008 for the Data Collection Framework of the Common Fisheries Policy. In particular, the compilation of the list was based on:
 - a. Table 1A of the COM DEC 2016/1251/EU regarding the stocks in union waters and those in Azores, Madeira and Canary Islands (columns W to AB, in the spreadsheet);
 - b. Table 1D of the COM DEC 2016/1251/EU regarding species to be monitored under protection programmes in the Union or under international obligations;

- c. Lists from Appendix VII of the COM DEC 2010/93/EU regarding the Council Regulation (EC) No 199/2008 (CFP93 in column V);
 - d. Annex III of the COM DEC 2006/1967/EC for the Mediterranean species with Minimum Landing Size;
3. species included in the RSCs' indicator assessments or in official RSCs lists; In particular:
 - a. HELCOM: First Version of State of the Baltic Sea 2017; HELCOM RED LIST of Baltic Sea; HOLAS II assessments;
 - b. OSPAR: OSPAR Intermediate Assessment 2017; OSPAR list of species;
 - c. UNEP MAP: List of Endangered or Threatened Species; IMAP; Integrated initial assessment 2012; Protocol concerning specially protected areas and biological diversity in the Mediterranean (L 322, 14 December 1999);
 - d. BSC: Black Sea State of Environment 2008, BS Biodiversity Protocol Annex II & IV.
4. lists from Annex II and Annex IV of the Habitat Directive;
5. as a final step, the resulting list of species was cross-checked with other sources of fish species, namely:
 - a. The IUCN list of Cephalopods for the EU seas;
 - b. Table 1C of the 2016/1251/EU regarding Stocks in marine regions under regional fisheries management organizations (RFMOS) and Sustainable Fishing Partnership Agreements (SFPAS).

3. Compilation of the Habitats' lists

Table 2 of the COM DEC 2017/848/EU lists the broad benthic habitat types to be assessed under the MSFD, and equates these to one or more habitat types of the European Nature Information System (EUNIS) habitat classification. The relevant EUNIS habitat codes, from Evans et al. (2016), are level 2 units of a revised marine section of the EUNIS habitats classification. Completion of this EUNIS marine revision, due to be released in 2018, will mean that all marine habitats at lower levels 3-6 can be assigned to one of the MSFD broad benthic habitat types.

Moreover, the COM DEC 2017/848/EU indicates that Member States may select additional habitat types, such as those listed in other EU legislation (e.g. Habitats Directive) or international agreements (e.g. Regional Sea Conventions). These additional types are selected for contributing in the assessment of a broad habitat type or for being assessed in their own right. Exercises like the crosswalks between European marine habitat typologies (Evans et al, 2014), enable an alignment in the sources of habitats mapping and assessments and could facilitate their consideration in the MSFD broad habitats assessment. Currently, the review of the marine EUNIS habitat classification is not yet complete and it does not allow for a high-level alignment of the habitats types across the main sources of habitat classifications, which are listed in the accompanied excel file.

Building on the experience of the MSFD 2012 reporting, where the Member States' reports on habitats could be grouped into certain, well-defined categories, we will follow a similar approach for the preparation of the lists for the 2018 reporting. In 2012 Member States reported under the following categories:

1. MSFD predominant habitat types, as listed in the COM SWD SEC 1255 (2011);
2. Nationally-defined habitat types, following EUNIS habitat classification (up to version 2011-11) or national typologies;
3. Habitats Directive Annex I;
4. RSCs list of habitats;

Categories 3 and 4 were also referred as "special habitat types" in the 2012 MSFD reporting. We present the habitats lists separately, where each spreadsheet includes one of the sources mentioned above. This is a live document, and the lists will continue to be updated and consolidated; e.g., a crosswalk exercise between these habitat lists and the level 2 EUNIS habitats can be anticipated after the completion of the EUNIS revision.

The excel file includes individual worksheets for each of the following habitat categories:

1. Table 2 of the COM DEC 2017/848/EU;
2. EUNIS marine habitats (version: EUNIS habitat classification 2007-Revised descriptions 2012¹) protected by legal instruments at European level and particularly included in the EU Habitats Directive Annex I (from EEA: eunis.eea.europa.eu);
3. The HD marine habitat types and their potential application in MSFD; Columns D to AG: Member States reporting obligations for HD Art. 17 (reference list of January 2017), per region.
4. HELCOM Red List of Baltic Sea biotopes and habitats (HELCOM 2013a); Annex II of the same document provides a complete list of all considered Biotopes, Habitats and Biotope Complexes;
5. Habitats components included in OSPAR's list of threatened and/or declined species and habitats (OSPAR 2008);

¹ <https://www.eea.europa.eu/data-and-maps/data/eunis-habitat-classification/habitats/eunis-habitats-complete-with-descriptions.xls/view>

6. UNEP/MAP (2002) handbook for interpreting types of marine habitat for the selection of sites to be included in the national inventories of natural sites of conservation interest.

More Mediterranean broad habitats and habitat types are included in Annex I (reference list of species and habitats) of the UNEP/MAP 2017 and assessments in the UNEP/MAP 2012 and 2012a.

The State of the Environment of the Black Sea (BSC 2008) includes only limited information and assessments of habitats in the region, mostly through indicator assessments (e.g. chlorophyll concentration as an indication of pelagic habitats). OSPAR, in their Intermediate Assessment of 2017 for habitats, and HELCOM, in their State of the Baltic Sea report (June 2017), followed a similar approach, assessing their habitats' indicators.

The Interpretation manual of European union habitats EUR 28 (EC, 2013) provides detailed description about the HD habitats including the marine ones, as listed in the third sheet of the excel file.

4. Conclusions

With this exercise, JRC provides lists of species and habitats in the European waters (Annex I) to improve the coherence and consistency of the MSFD reporting. These lists are the reference points for the EU Member States experts to consult and propose the species and habitats to be included in the web-forms that will facilitate the 2018 MSFD reporting foreseen under the provisions of Art. 17. JRC generated the lists following the directions of the COM DEC 2017/848/EU by considering relevant lists in other EU or international pieces of legislations and agreements, emphasizing the work done in the Regional Sea Conventions. Annex II details the structure and content of the lists to ease their assimilation and Annex III presents the directions shared to the EU MS experts on how to use, evaluate and refine the reference lists towards the synthesis of the compiled lists for the EEA's web-forms for the 2018 MSFD reporting.

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COMMISSION DECISION 2006/1967/EC concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, Annex III.

COMMISSION IMPLEMENTING DECISION (EU) 2016/1251 adopting a multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors for the period 2017-2019

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List of abbreviations and definitions

BD	Birds Directive
CFP	Common Fisheries Policy
EEA	European Environment Agency
EU	European Union
EUNIS	European Nature Information System
HD	Habitat Directive
IUCN	International Union for the Conservation of Nature
JRC	Joint research Centre
MS	Member States
MSFD	Marine Strategy Framework Directive
RSC	Regional Sea Conventions

List of figures

Figure 1. Decision tree describing the steps for the compilation of the mammals list. The box colours are similarly reflected in the .xls file. The experts are invited to consult on the final inclusion of species in the list (yellow box/column) and to identify potential missing entries per species group..... 5

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Annexes

Annex I. JRC's reference lists of species and habitats

The following embedded xls files include the references lists for species and habitats. The "species_list.xlsx" consists of five spreadsheets: mammals, reptiles, birds, fish and cephalopods, respectively, each corresponding to the ecosystem components in Table 1 of COM DEC 2017/848/EU. The "habitats_list.xlsx" file consists of seven spreadsheet: 1. MSFD_broad_habitats, 2. HD_EUNIS_class, 3. HD_habitats, 4. HELCOM_BSEP138, 5. OSPAR, 6. UNEPMAP, 7. MSFD interest. EU Member States can refer to the lists for any MSFD related task and specifically, for cross checking lists of species that are included or assessed under other pieces of European or international legislation or within the Regional Sea Conventions.



species_list.xlsx



habitats_list.xlsx

Annex II. Description of the spreadsheet for each ecosystem component

Annex II lists the descriptions of the mammals, reptiles, birds, cephalopods and fish spreadsheets in the "species_list.xlsx" (Annex I), to facilitate the reading and understanding of the lists.

1. Description of the marine mammals' spreadsheet

Column C: allocate species to the predefined groups (Small toothed cetaceans, Deep-diving toothed cetaceans, Baleen whales and Seals, Table 1 in COM DEC 2017/848/EU).

Columns D to F: species name, Author and common name.

Column G: to be filled-in (yes or no) according to the relevance of each species with the MSFD implementation. This entry will be unique for each Member State and the relevance will be binding for the sub-regions indicated in columns H to Q.

Column H to Q: MSFD marine sub-regions showing which MS reported species per MSFD sub-region. These species have been reported (assessed or just mentioned) under Art. 8, 9, 10 (Initial Assessment, GES determination and targets, respectively) and 11 (monitoring programmes). This information was only available for the MS reported using the web-forms. The resulting table should reflect the spatial distribution of the species.

Column R: lists RSCs having included the species in their lists.

Column S to V: clarifies whether the species have actually been assessed by RSCs and indicates the relevant source.

Column W: Habitat Directives Annexes that include each species.

Column X: RSCs' monitoring programmes.

Columns Y to AB: other sources of marine mammals' reference lists or assessments.

We added the horizontal bold frame in line 5 to exemplify the direct visual evaluation and ranking of each species according to its contribution to different level of assessment (MSFD: light red; RSCs: purple; HD: light blue and other sources: pink).

2. Description of the marine reptiles' spreadsheet

Columns D to F: species name, Author and common name.

Column G: to be filled-in (yes or no) according to the relevance of each species with the MSFD implementation. This entry will be unique for each Member State and the relevance will be binding for the sub-regions indicated in columns H to Q.

Column H to Q: MSFD marine sub-regions showing which MS reported species per MSFD sub-region. These species have been reported (assessed or even mentioned) for Art. 8, 9, 10 (Initial Assessment, GES determination and targets, respectively) and 11 (monitoring programmes). This information was only available for the MS reported using the web-forms. The final table should reflect the spatial distribution of the species.

Column R: lists RSCs having included the species in their lists.

Column S to V: clarifies whether the species have actually been assessed by RSCs and indicates the relevant source.

Column W: Habitats Directive Annexes that include each species.

Column X: RSCs' monitoring programmes.

Columns Y to AA: other sources of species' assessments.

3. Description of birds' spreadsheet

Column C: allocate species to the predefined categories (Grazing birds, Wading birds, Surface-feeding birds, Pelagic-feeding birds, Benthic-feeding birds) in line with of the COM DEC 2017/848/EU Table 1 structure.

Columns D to F: species name, Author and common name.

Column G: to be filled-in (yes/no) based on the relevance of each species with the MSFD implementation. This entry will be unique for each Member State and the relevance will be binding for the sub-regions indicated in columns H to Q.

Column H to Q: MSFD marine sub-regions showing which MS reported species per MSFD sub-region. These species have been reported (assessed or even mentioned) for Art. 8, 9, 10 (Initial Assessment, GES determination and targets, respectively) and 11 (monitoring programmes). This information was only available for the MS reported using the web-forms. The final table should reflect the spatial distribution of the species.

Column R: lists RSCs having included the species in their lists.

Column S to V: clarifies whether the species have actually been assessed by RSCs and indicates the relevant source.

Column W: Birds Directive's Annexes that include each species.

Column X: RSCs' monitoring programmes.

Columns Y to AE: other sources of species' assessments.

Column AF: species included in community indicators assessment.

Column AG: species included in species indicator assessment.

We added the horizontal bold frame in line 5 to exemplify the direct visual evaluation and ranking of each species according to its contribution to different level of assessment (MSFD: light red; RSCs: purple; BD: light blue and other sources).

4. Description of fish' spreadsheet

Column A: Common code for fish (D)

Column B: ecosystem element - fish

Column C: species group (Coastal fish, Pelagic shelf fish, Demersal shelf fish, Deep-sea fish) in line with of the COM DEC 2017/848/EU Table 1 structure.

Columns D to F: species names, authors and common names, linked to species group.

Column G: to be filled-in using the drop-down list (yes or no) based on the relevance of each species with the MSFD implementation. This entry will be unique for each Member State and the relevance will be binding for the sub-regions indicated in columns H to Q.

Column H to Q: MSFD marine sub-regions showing which MS reported species per MSFD sub-region. MS reported these species (assessed or even mentioned) for Art. 8, 9, 10 (Initial Assessment, GES determination and targets, respectively) and 11 (monitoring programmes). This information was only available for the MS reported using the web-forms and, therefore, it is not complete. The final table should reflect the spatial distribution of the species. Please refer to **Table 1** (see below) or the legend in **line 345** of the spreadsheet, which explains the MSFD sub-region and the acronyms in columns H2:Q2, in case the comments in those cells are not adequate.

Column R to U: species included in RSCs indicator assessments or official lists (red lists, endangered species, monitoring lists).

Column V: Species included in the Data Collection Framework of the Common Fishery Policy according to COM DEC 2010/93/EU and COM DEC 2006/1967/EC for the Mediterranean species.

Column W: Available stock assessments in 2017 according to STECF (2017).

Columns X to AC: Species included in the Data Collection Framework of the Common Fishery Policy according to the COM DEC 2016/1251/EU, assigned to the relevant MSFD sub-regions. The headers are in-line with the areas listed in 2016/1251/EU. ²

Column AD: GFCM priority species.

Columns AE: Species in the Habitats Directive’s Annexes.

Column AF to AJ: species included in the IUCN Red Lists and their assessments.

Column AK to AN: species included in Table 1C of the 2016/1251/EU regarding Stocks in marine regions under regional fisheries management organizations (RFMOS) and Sustainable Fishing Partnership Agreements (SFPAS).

AK: IATTC (Inter-American Tropical Tuna Commission)

AL: ICCAT (The International Commission for the Conservation of Atlantic Tunas)

AM: NAFO (North Atlantic Fisheries Organisation)

AN: FAO marine area 34 – Fisheries Committee for the Eastern Central Atlantic (CECAF)

Columns AO: To mark species included in community indicators assessment (e.g. HELCOM’s Abundance of key coastal fish species, OSPAR’s Large Fish Index).

Column AG: species included in species indicator assessment (e.g. under IUCN, or species with assessed stocks under the CFP).

We added a horizontal bold frame in lines 23, 25 and 27 to exemplify the direct visual evaluation and ranking of each species according to its contribution to different level of assessment (MSFD-light red; RSCs-purple; DCF of CFP-light blue and so on). **A guiding label with the ranking of the categories for species inclusion in the final national list, which are in line with the COM DEC 2017/848/EU and the availability of assessments, are in Table 2 and in line 336 of the spreadsheet.**

Table 1: MSFD sub-region and the acronyms in columns H2:Q2 of the spreadsheet

Baltic	BAL	Baltic sea
NE Atlantic	ANS	Greater North Sea incl. Kattegat and the English Channel
	ACS	Celtic Sea
	ABI	Bay of Biscay and the Iberian Coast
	AMA	Macaronesia
	MWE	Western Mediterranean Sea

² In the COM DEC 2016/1251/EU Skagerrak and Kattegat are grouped together covering both ANS and BAL sub-regions.

Mediterranean	MIC	Ionian Sea and the Central Mediterranean Sea
	MAD	Adriatic Sea
	MAL	Aegean Sea and Levantine Sea
Black Sea	BLK	Black Sea

Table 2: Ranking of the categories for species inclusion in the final national list, which are in line with the COM DEC 2017/848/EU and the availability of assessments. Colours correspond to the colours applied in the spreadsheet.

Categories	Suggestions for Action
Reported under MSFD Assessed for CFP in 2017	to update the list and the sub-regions, accordingly to consider for MSFD
Assessed by or included in RSC lists	to update the list with references to the assessments
Included in CFP	to consider for inclusion according to MSFD relevance?
Listed in/assessed by other sources	to consider for inclusion according to MSFD relevance?
Vagrants to EU or regional or national marine waters	to exclude

5. Description of cephalopods' spreadsheet

Column A: Common code for Cephalopods (E)

Column B: Ecosystem component

Column C: species group (Coastal/shelf cephalopods, Deep-sea cephalopods) in line with of the COM DEC 2017/848/EU Table 1 structure.

Columns D to F: species names, authors and common names, linked to species group.

Column G: to be filled in using the drop-down list (yes or no) based on the relevance of each species with the MSFD implementation. This entry will be unique for each Member State and the relevance will be binding for the sub-regions indicated in columns H to Q.

Column H to Q: MSFD marine sub-regions showing which MS reported species per MSFD sub-region. MS reported these species (assessed or even mentioned) for Art. 8, 9, 10 (Initial Assessment, GES determination and targets, respectively) and 11 (monitoring programmes). This information was only available for the MS reported using the web-forms and, therefore, it is not complete. The final table should reflect the spatial

distribution of the species. Please refer to **Table 1** (see above) or the legend in **line 19** of the spreadsheet, which explains the MSFD sub-region and the acronyms in columns H2:Q2, in case the comments in those cells are not adequate.

Column R to U: species included in RSCs indicator assessments or official lists (red lists, endangered species, monitoring lists).

Column V: Species included in the Data Collection Framework of the Common Fishery Policy according to COM DEC 2010/93/EU and COM DEC 2006/1967/EC for the Mediterranean species.

Columns W to AB: Species included in the Data Collection Framework of the Common Fishery Policy according to the COM DEC 2016/1251/EU, assigned to the relevant MSFD sub-regions. The headers are in line with the areas listed in 2016/1251/EU³.

Column AC to AG: species included in the IUCN Red Lists and their assessments.

Column AH: species included in Table 1C of the 2016/1251/EU regarding Stocks in marine regions under regional fisheries management organizations (RFMOS) and Sustainable Fishing Partnership Agreements (SFPAS) and particularly, in FAO marine area 34 – Fisheries Committee for the Eastern Central Atlantic (CECAF)

We added a horizontal bold frame in line 9 to exemplify the direct visual evaluation and ranking of each species according to its contribution to different level of assessment (MSFD-light red; RSCs-purple; DCF of CFP-light blue and so on). **A guiding label with the ranking of the categories for species inclusion in the final national list, which are in line with the COM DEC 2017/848/EU and the availability of assessments, are in Table 3 and in line 19 of the spreadsheet.**

Table 3: Ranking of the categories for species inclusion in the final national list, which are in line with the COM DEC 2017/848/EU and the availability of assessments. Colours correspond to the colours applied in the spreadsheet.

Categories	Suggestions for Action
Reported under MSFD	to update the list and the sub-regions, accordingly
Assessed by, or included in, RSC lists	to update the list with references to the regional assessments
Listed in, or assessed by, other sources	to consider for inclusion according to MSFD relevance
Vagrants to EU or regional or national marine waters	to exclude

³ In the COM DEC 2016/1251/EU Skagerrak and Kattegat are grouped together covering both ANS and BAL sub-regions.

Annex III. Guidelines to the experts for the evaluation of the lists

The reference lists in Annex I, were sent to biodiversity experts to evaluate them and to provide feedback for the compilation of the lists for the EEA's web forms, supporting MS in their reporting for the MSFD updates for Art. 17 in 2018. The guidelines sent to experts for each ecosystem component are listed below. The text in the following passages might be repetitive; however, it was intentionally kept as it had been sent to the experts.

1. Guidelines to the experts for the evaluation of the lists of marine mammals

The experts are invited to review the mammals' spreadsheet in the .xls file and:

- follow the structure of the COM DEC 2017/848/EU Table 1 and: i) **allocate new species to the predefined categories** (Small toothed cetaceans, Deep-diving toothed cetaceans, Baleen whales and Seals); ii) split toothed whales into Small toothed cetaceans and Deep-diving toothed cetaceans;
- evaluate the proposed list and **fill-in gaps in terms of species** (add new line), **spatial association** (columns H to Q), **other sources** (columns R to AB and on, if needed);
- evaluate and/or propose the suitability of each entry for the **MSFD application** (Column D);
- justify, according to their expertise, **how many and/or which mammals should be assessed** per species group (column C) and per region or sub-region to achieve a sound assessment for D1.

Special remarks:

The current lists are not meant to exhaustively cover species presence in the relevant marine areas, but to be **adequate for the MSFD purposes** and in-line with the COM DEC 2017/848/EU requirements. The spatial information reported in columns H to Q was extracted from the EEA web-forms of the 2012 and 2014 reporting. Not all MSs reported using the web-forms; thus, the current information is incomplete. Considering the importance of the spatial allocation of species, we **encourage experts to fill-in missing information on species spatial distribution**.

The inclusion of mammals in the list should be based on the **MSFD relevance** and not on technical or practical criteria, like monitoring costs and adequate time series; such criteria are not relevant to the purpose of this exercise. This exercise means to provide **drop-down lists for the EEA's web forms**, and facilitate data entry in the 2018 reporting. Ideally, the **final output would completely cover the species that MSs: i) reported; ii) are obliged to report**, due to obligations derived from other legal instruments; **iii) should report because of their relevance with the MSFD**.

Please use **red font colour to highlight your edits**, and insert comments in the appropriate cells, where appropriate.

2. Guidelines to the experts for the evaluation of the lists of reptiles

The experts are invited to review the reptiles' spreadsheet in the xls file and to:

- evaluate the proposed list and **fill in gaps in terms of spatial association** (columns H to Q) and other **sources** (columns R to AA and on, if needed) and modify the content accordingly;
- evaluate and/or propose the suitability of each entry for the **MSFD application** (Column G);

- justify, according to their expertise, **how many or/and which reptile species should be assessed** in the turtle species group (column C) and per region or sub-region for a sound MSFD assessment for D1.

Special remarks:

The current lists are not meant to exhaustively cover species presences in the relevant marine areas, but to be **adequate for the MSFD purposes** and in line with the COM DEC 2017/848/EU requirements. The spatial information showed in columns H to Q was extracted from the MSFD EEA web-forms of the 2012 and 2014 reporting. Not all Member States reported using the web-forms; thus, the current information is incomplete. Considering the importance of the spatial allocation of species, we **encourage the experts to fill in missing information according to the species spatial distribution**.

The evaluation of reptile species in the list should be based on the **MSFD relevance** and not on technical or practical criteria, like monitoring costs and adequate time series; such criteria are not relevant to the purpose of this exercise, which intends to provide **drop-down lists for the EEA's web forms**, and facilitate data entry in the 2018 reporting. Ideally, the **final output would completely cover the species that MSs (i) reported, (ii) are obliged to report**, due to obligations derived from other legal instruments and (iii) **should report because of their relevance with the MSFD**.

Please use **red font colour to highlight your additions** and provide comments on the xls file, if needed.

3. Guidelines to the experts for the evaluation of the lists of birds

The experts are invited to review the birds' spreadsheet in the xls file and:

- follow the structure of the COM DEC 2017/848/EU Table 1 and **allocate species to the predefined categories** (Grazing birds, Wading birds, Surface-feeding birds, Pelagic-feeding birds, Benthic-feeding birds);
- evaluate the proposed list and **fill in gaps in terms of species** (add new line), **spatial association** (columns H to Q), **other sources** (columns R to AE and on, if needed) and modify the content accordingly;
- evaluate and/or propose the suitability of each entry for the **MSFD application** (Column D)
- fill in columns AF & AG for species considered in **community indicators** (e.g. HELCOM's "Abundance of water-birds in the breeding season" core indicator) or **species individual indicators** (e.g. for the BD), or in both cases;
- justify, according to their expertise, **how many or/and which bird species should be assessed** per species group (column C) and per region or sub-region for a sound MSFD assessment for D1.

Special remarks:

The current lists are not meant to cover exhaustively species present on the relevant marine areas, but to be **adequate for the MSFD purposes** and in-line with the COM DEC 2017/848/EU requirements. The spatial information showed in columns H to Q was extracted from the MSFD EEA web-forms of the 2012 and 2014 reporting. Not all MSs reported using the web-forms; thus, the current information is incomplete. Considering the importance of the spatial allocation of species, we **encourage the experts to fill in missing information according to the species spatial distribution**.

The evaluation of bird species in the list should be based on the **MSFD relevance** and not on technical or practical criteria, like monitoring costs and adequate time series; such criteria are not relevant to the purpose of this exercise: this exercise is meant to provide **drop-down lists for the EEA's web forms**, and to facilitate data entry in the 2018 reporting. Ideally, the **final output would completely cover the species that Member**

States (i) reported, (ii) are obliged to report, due to obligations derived from other legal instruments and (iii) **should report because of their relevance with the MSFD**.

Please use **red font colour to highlight your additions** and provide comments on the xls file, if needed.

4. Guidelines to the experts for the evaluation of the lists of fish species

Experts are invited to review the fish spreadsheet in the xls file and:

- evaluate the proposed list and **fill in gaps in terms of species** (add new line), **spatial association** (columns H to Q), **other sources** (columns R to AP, if needed) and modify the content accordingly;
- evaluate and/or propose the suitability of each entry for the **MSFD application** (Column G);
- fill in columns AO & AP for species considered in **community indicators** (e.g. HELCOM's Abundance of key coastal fish species, OSPAR's Large Fish Index) or **species individual indicators** (e.g. under IUCN, or species with assessed stocks under the CFP), or in both cases;
- justify, according to their expertise, **how many or/and which fish species should be assessed** per species group (column C) and per region or sub-region for a sound MSFD assessment for D1;
- follow the structure of the COM DEC 2017/848/EU Table 1 and **allocate species to the predefined groups** (Coastal fish, Pelagic shelf fish, Demersal shelf fish, Deep-sea fish).

Special remarks:

The current lists are not meant to exhaustively cover species presences in the relevant marine areas, but to be **adequate for the MSFD purposes** and in-line with the COM DEC 2017/848/EU requirements. The spatial information showed in columns H to Q was extracted from the MSFD EEA web-forms of the 2012 and 2014 reporting. Not all MSs reported using the web-forms; thus, the current information is incomplete. Considering the importance of the spatial allocation of species, we **encourage the experts to fill in missing information according to the species spatial distribution considering also columns X to AC** derived from the DCF of the CFP. Experts can filter species by region using either the spatial information included in the columns with the sub-regions, or RSCs information to which they are contracting parties.

The evaluation of fish species in the list should be based on the **MSFD relevance** and not on technical or practical criteria, like monitoring costs and adequate time series; such criteria are not relevant to the purpose of this exercise: this exercise is meant to provide **drop-down lists for the EEA's web forms**, and to facilitate data entry in the 2018 reporting. Ideally, the **final output would completely cover the species that Member States (i) reported, (ii) are obliged to report**, due to obligations derived from other legal instruments and (iii) **should report because of their relevance with the MSFD**.

Please use **red font colour to highlight your additions** and provide comments on the xls file, if needed.

5. Guidelines to the experts for the evaluation of the lists of cephalopods

Experts are invited to review the cephalopods' spreadsheet in the xls file and:

- evaluate the proposed list and **fill in gaps in terms of species** (add new line), **spatial association** (columns H to Q), **other sources** (columns R to AH, if needed) and modify the content accordingly;

- evaluate and/or propose the suitability of each entry for the **MSFD application** (Column G);
- justify, according to their expertise, **how many or/and which cephalopods should be assessed** per species group (column C) and per region or sub-region for a sound MSFD assessment for D1;
- follow the structure of the COM DEC 2017/848/EU Table 1 and **allocate species to the predefined categories** (Coastal/shelf cephalopods, Deep-sea cephalopods).

Special remarks:

The current lists are not meant to exhaustively cover species presences in the relevant marine areas, but to be **adequate for the MSFD purposes** and in-line with the COM DEC 2017/848/EU requirements. The spatial information showed in columns H to Q was extracted from the MSFD EEA web-forms of the 2012 and 2014 reporting. Not all MSs reported using the web-forms; thus, the current information is incomplete. Considering the importance of the spatial allocation of species, we **encourage the experts to fill in missing information according to the species spatial distribution, considering also columns W to AB** derived from the DCF of the CFP.

The evaluation of cephalopods in the list should be based on the **MSFD relevance** and not on technical or practical criteria, like monitoring costs and adequate time series; such criteria are not relevant to the purpose of this exercise: this exercise is meant to provide **drop-down lists for the EEA's web forms**, and to facilitate data entry in the 2018 reporting. Ideally, the **final output would completely cover the species that Member States (i) reported, (ii) are obliged to report**, due to obligations derived from other legal instruments and (iii) **should report because of their relevance with the MSFD**.

Please use **red font colour to highlight your additions** and provide comments on the xls file, if needed.

6. Guidelines to the experts for the evaluation of the lists of habitats

The lists of habitats in the spreadsheets will form the lists for EEA's drop-down menus.

We invite the experts to highlight in the .xls file those habitats relevant to marine areas under their responsibility and propose in spreadsheet 7 additional habitats should be included in the MSFD updates for Art.8, 9 and 10. The evaluation of the habitats lists should be based on the **MSFD relevance** and not on technical or practical criteria, like monitoring costs and adequate data-sets; such criteria are not relevant to the purpose of this exercise: this exercise is meant to provide **drop-down lists for the EEA's web forms**, and to facilitate data entry in the 2018 reporting. Ideally, the **final output would completely cover the habitats that Member States (i) reported, (ii) are obliged to report**, due to obligations derived from other legal instruments and (iii) **should report because of their relevance with the MSFD**. We would only accept a **single consolidated input from each MS**.

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