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ANNEX 1

ANNEX

to the

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**

ANNEX**to the****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****ANNEX****Criteria and methodological standards for good environmental status of marine waters, relevant to the qualitative descriptors in Annex I to Directive 2008/56/EC, and to the indicative lists set out in Annex III to that Directive, and specifications and standardised methods for monitoring and assessment**

This Annex is structured in two parts:

- under Part I are laid down the criteria and methodological standards for determination of good environmental status under Article 9(3) of Directive 2008/56/EC, and specifications and standardised methods for monitoring and assessment under Article 11(4) of that Directive, to be used by Member States in relation to the assessment of predominant pressures and impacts under Article 8(1)(b) of Directive 2008/56/EC,
- under Part II are laid down criteria and methodological standards for determination of good environmental status under Article 9(3) of Directive 2008/56/EC, and specifications and standardised methods for monitoring and assessment, to be used by Member States in relation to the assessment of environmental status under Article 8(1)(a) of Directive 2008/56/EC.

PART I – CRITERIA, METHODOLOGICAL STANDARDS, SPECIFICATIONS AND STANDARDISED METHODS FOR THE MONITORING AND ASSESSMENT OF PREDOMINANT PRESSURES AND IMPACTS UNDER POINT (B) OF ARTICLE 8(1) OF DIRECTIVE 2008/56/EC

Part I considers the descriptors¹ linked to the relevant anthropogenic pressures: biological pressures (Descriptors 2 and 3), physical pressures (Descriptors 6 and 7) and substances, litter and energy (Descriptors 5, 8, 9, 10 and 11), as listed in Annex III to Directive 2008/56/EC.

¹ When this Decision refers to a 'descriptor', this refers to the relevant qualitative descriptors for determining good environmental status, as indicated under the numbered points in Annex I to Directive 2008/56/EC.

Descriptor 2 – Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems

Relevant pressure: Input or spread of non-indigenous species

Criteria, including criteria elements, and methodological standards

Criteria elements	Criteria	Methodological standards
<p>Newly-introduced non-indigenous species.</p>	<p>D2C1 – Primary: The number of non-indigenous species which are newly introduced via human activity into the wild, per assessment period (6 years), measured from the reference year as reported for the initial assessment under Article 8(1) of Directive 2008/56/EC, is minimised and where possible reduced to zero.</p> <p>Member States shall establish the threshold value for the number of new introductions of non-indigenous species, through regional or subregional cooperation.</p>	<p><i>Scale of assessment:</i> Subdivisions of the region or subregion, divided where needed by national boundaries.</p> <p><i>Use of criteria:</i> The extent to which good environmental status has been achieved shall be expressed for each area assessed as follows:</p> <ul style="list-style-type: none"> - the number of non-indigenous species newly introduced via human activity, in the 6-year assessment period and a list of those species.
<p>Established non-indigenous species, particularly invasive non-indigenous species, which include relevant species on the list of invasive alien species of Union concern adopted in accordance with Article 4(1) of Regulation (EU) No 1143/2014 and species which are relevant for use under criterion D2C3.</p> <p>Member States shall establish that list through regional or subregional cooperation.</p>	<p>D2C2 – Secondary: Abundance and spatial distribution of established non-indigenous species, particularly of invasive species, contributing significantly to adverse effects on particular species groups or broad habitat types.</p>	<p><i>Scale of assessment:</i> As used for assessment of the corresponding species groups or broad habitat types under Descriptors 1 and 6.</p> <p><i>Use of criteria:</i> Criterion D2C2 (quantification of non-indigenous species) shall be expressed per species assessed and shall contribute to the assessment of criterion D2C3 (adverse effects of non-indigenous species). Criterion D2C3 shall provide the proportion per species</p>

Criteria elements	Criteria	Methodological standards
<p>Species groups and broad habitat types that are at risk from non-indigenous species, selected from those used for Descriptors 1 and 6.</p> <p>Member States shall establish that list through regional or subregional cooperation.</p>	<p>D2C3 – Secondary:</p> <p>Proportion of the species group or spatial extent of the broad habitat type which is adversely altered due to non-indigenous species, particularly invasive non-indigenous species.</p> <p>Member States shall establish the threshold values for the adverse alteration to species groups and broad habitat types due to non-indigenous species, through regional or subregional cooperation.</p>	<p>group and extent per broad habitat type assessed which is adversely altered, and thus contribute to their assessments under Descriptors 1 and 6.</p>

Specifications and standardised methods for monitoring and assessment

1. 'Newly-introduced' non-indigenous species shall be understood as those which were not known to be present in the area in the previous assessment period.
2. 'Established' non-indigenous species shall be understood as those which were known to be present in the area in the previous assessment period.
3. For D2C1: where it is not clear whether the new arrival of non-indigenous species is due to human activity or natural dispersal from neighbouring areas, the introduction shall be counted under D2C1.
4. For D2C2: when species occurrence and abundance is seasonally variable (e.g. plankton), monitoring shall be undertaken at appropriate times of year.
5. Monitoring programmes shall be linked to those for Descriptors 1, 4, 5 and 6, where possible, as they typically use the same sampling methods and it is more practical to monitor non-indigenous species as part of broader biodiversity monitoring, except where sampling needs to focus on main vectors and risk areas for new introductions.

Units of measurement for the criteria:

- D2C1: the number of species per assessment area which have been newly introduced in the assessment period (6 years),
- D2C2: abundance (number of individuals, biomass in tonnes (t) or extent in square kilometres (km²)) per non-indigenous species,
- D2C3: the proportion of the species group (ratio of indigenous species to non-indigenous species, as number of species and/or their abundance within the group) or the spatial extent of the broad habitat type (in square kilometres (km²)) which is adversely altered.

Descriptor 3 – Populations of all commercially-exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock

Relevant pressure: Extraction of, or mortality/injury to, wild species, including target and non-target species

Criteria, including criteria elements, and methodological standards

Criteria elements	Criteria	Methodological standards
<p>Commercially-exploited fish and shellfish.</p> <p>Member States shall establish through regional or subregional cooperation a list of commercially-exploited fish and shellfish, according to the criteria laid down under 'specifications'.</p>	<p>D3C1 – Primary:</p> <p>The <i>Fishing mortality</i> rate of populations of commercially-exploited species is at or below levels which can produce the maximum sustainable yield (MSY). Appropriate scientific bodies shall be consulted in accordance with Article 26 of Regulation (EU) No 1380/2013.</p> <p>D3C2² – Primary:</p> <p>The <i>Spawning Stock Biomass</i> of populations of commercially-exploited species are above biomass levels capable of producing maximum sustainable yield. Appropriate scientific bodies shall be consulted in accordance with Article 26 of Regulation (EU) No 1380/2013.</p> <p>D3C3^{2,3} – Primary:</p> <p>The age and size distribution of individuals in the populations of commercially-exploited species is indicative of a healthy population. This shall include a high proportion of old/large</p>	<p><i>Scale of assessment:</i></p> <p>Populations of each species are assessed at ecologically-relevant scales within each region or subregion, as established by appropriate scientific bodies as referred to in Article 26 of Regulation (EU) No 1380/2013, based on specified aggregations of International Council for the Exploration of the Sea (ICES) areas, General Fisheries Commission for the Mediterranean (GFCM) geographical sub-areas and Food and Agriculture Organisation (FAO) fishing areas for the Macaronesian biogeographic region.</p> <p><i>Use of criteria:</i></p> <p>The extent to which good environmental status has been achieved shall be expressed for each area assessed as follows:</p> <p>(a) the populations assessed, the values achieved for each criterion and whether the levels for D3C1 and D3C2 and the threshold values for D3C3 have been</p>

² D3C2 and D3C3 are state-based criteria for commercially-exploited fish and shellfish but are shown under Part I for clarity reasons.

³ D3C3 may not be available for use for the 2018 review of the initial assessment and determination of good environmental status under Article 17(2)(a) of Directive 2008/56/EC.

Criteria elements	Criteria	Methodological standards
	<p>individuals and limited adverse effects of exploitation on genetic diversity.</p> <p>Member States shall establish threshold values through regional or subregional cooperation for each population of species in accordance with scientific advice obtained pursuant to Article 26 of Regulation (EU) No 1380/2013.</p>	<p>achieved, and the overall status of the population on the basis of criteria integration rules agreed at Union level;</p> <p>(b) the populations of commercially-exploited species in the assessment area which were not assessed.</p> <p>The outcomes of these population assessments shall also contribute to the assessments under Descriptors 1 and 6, if the species are relevant for assessment of particular species groups and benthic habitat types.</p>

Extraction of, or mortality/injury to, non-commercially-exploited species (incidental by-catches) as a result of fishing activities, is addressed under criterion DIC1.

Physical disturbance to the seabed, including effects on benthic communities, as a result of fishing activities, are addressed by the criteria under Descriptor 6 (particularly criteria D6C2 and D6C3) and are to be fed into the assessments of benthic habitat types under Descriptors 1 and 6.

Specifications and standardised methods for monitoring and assessment

1. A list of commercially-exploited species for application of the criteria in each assessment area shall be established by Member States through regional or subregional cooperation and updated for each 6-year assessment period, taking into account Council Regulation (EC) No 199/2008⁴ and the following:
 - (a) all stocks that are managed under Regulation (EU) No 1380/2013;
 - (b) the species for which fishing opportunities (total allowable catches and quotas) are set by Council under Article 43(3) of the Treaty on the Functioning of the European Union;

⁴ Council Regulation (EC) No 199/2008 of 25 February 2008 concerning the establishment of a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy (OJ L 60, 5.3.2008, p. 1).

- (c) the species for which minimum conservation reference sizes are set under Regulation (EC) No 1967/2006;
- (d) the species under multiannual plans according to Article 9 of Regulation (EU) No 1380/2013;
- (e) the species under national management plans according to Article 19 of Regulation (EC) No 1967/2006;
- (f) any important species on a regional or national scale for small-scale/local coastal fisheries.

For the purposes of this Decision, commercially-exploited species which are non-indigenous in each assessment area shall be excluded from the list and thus not contribute to achievement of good environmental status for Descriptor 3.

2. Regulation (EC) No 199/2008 establishes rules on the collection and management, in the framework of multi-annual programmes, of biological, technical, environmental and socio-economic data concerning the fisheries sector which shall be used for monitoring under Descriptor 3.
3. The term 'populations' shall be understood as the term 'stocks' within the meaning of Regulation (EU) No 1380/2013.
4. For D3C1 and D3C2, the following shall apply:
 - (a) for stocks managed under a multiannual plan according to Article 9 of Regulation (EU) No 1380/2013, in situations of mixed fisheries, the target fishing mortality and the biomass levels capable of producing maximum sustainable yield shall be in accordance with the relevant multiannual plan;
 - (b) for the Mediterranean Sea and Black Sea regions, appropriate proxies may be used.
5. The following methods for assessment shall be used:
 - (a) For D3C1: if quantitative assessments yielding values for *Fishing mortality* are not available due to inadequacies in the available data, other variables such as the ratio between catch and biomass index ('catch/biomass ratio') may be used as an alternative method. In such cases, an appropriate method for trend analysis shall be adopted (e.g. the current value can be compared against the long-term historical average);

- (b) For D3C2: the threshold value used shall be in accordance with Article 2(2) of Regulation (EU) No 1380/2013. If quantitative assessments yielding values for *Spawning Stock Biomass* are not available due to inadequacies in the available data, biomass-related indices such as catch per unit effort or survey abundance indices may be used as an alternative method. In such cases, an appropriate method for trend analysis shall be adopted (e.g. the current value can be compared against the long-term historical average);
- (c) D3C3 shall reflect that healthy populations of species are characterised by a high proportion of old, large individuals. The relevant properties are the following:
- (i) size distribution of individuals in the population, expressed as:
 - the proportion of fish larger than mean size of first sexual maturation, or
 - the 95th percentile of the fish-length distribution of each population, as observed in research vessel or other surveys;
 - (ii) genetic effects of exploitation of the species, such as size at first sexual maturation, where appropriate and feasible.
- Other expressions of the relevant properties may be used following further scientific and technical development of this criterion.

Units of measurement for the criteria:

- D3C1: annualised fishing mortality rate,
- D3C2: biomass in tonnes (t) or number of individuals per species, except where other indices are used under point 5(b),
- D3C3: under point 5(c): for (i), first indent: proportion (percentage) or numbers, for (i), second indent: length in centimetres (cm), and for (ii): length in centimetres (cm).

Descriptor 5 – Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters

Relevant pressures: Input of nutrients; Input of organic matter

Criteria, including criteria elements, and methodological standards

Criteria elements	Criteria	Methodological standards
<p>Nutrients in the water column: Dissolved Inorganic Nitrogen (DIN), Total Nitrogen (TN), Dissolved Inorganic Phosphorus (DIP), Total Phosphorus (TP).</p> <p>Within coastal waters, as used under Directive 2000/60/EC.</p> <p>Beyond coastal waters, Member States may decide at regional or subregional level to not use one or several of these nutrient elements.</p>	<p>D5C1 – Primary: Nutrient concentrations are not at levels that indicate adverse eutrophication effects. The threshold values are as follows: (a) in coastal waters, the values set in accordance with Directive 2000/60/EC; (b) beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC. Member States shall establish those values through regional or subregional cooperation</p>	<p><i>Scale of assessment:</i></p> <ul style="list-style-type: none"> – within coastal waters, as used under Directive 2000/60/EC, – beyond coastal waters, subdivisions of the region or subregion, divided where needed by national boundaries. <p><i>Use of criteria:</i> The extent to which good environmental status has been achieved shall be expressed for each area assessed as follows:</p> <ul style="list-style-type: none"> (a) the values achieved for each criterion used, and an estimate of the extent of the assessment area over which the threshold values set have been achieved; (b) in coastal waters, the criteria shall be used in
<p>Chlorophyll a in the water column</p>	<p>D5C2 – Primary: Chlorophyll a concentrations are not at levels that indicate adverse effects of nutrient enrichment. The threshold values are as follows: (a) in coastal waters, the values set in accordance with</p>	<p>(a) the values achieved for each criterion used, and an estimate of the extent of the assessment area over which the threshold values set have been achieved;</p> <p>(b) in coastal waters, the criteria shall be used in</p>

Criteria elements	Criteria	Methodological standards
	<p>Directive 2000/60/EC;</p> <p>(b) beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC. Member States shall establish those values through regional or subregional cooperation.</p>	<p>accordance with the requirements of Directive 2000/60/EC to conclude on whether the water body is subject to eutrophication⁵;</p> <p>(c) beyond coastal waters, an estimate of the extent of the area (as a proportion (percentage)) that is not subject to eutrophication (as indicated by the results of all criteria used, integrated in a manner agreed where possible at Union level, but at least at regional or subregional level).</p>
<p>Harmful algal blooms (e.g. cyanobacteria) in the water column</p>	<p>D5C3 – Secondary:</p> <p>The number, spatial extent and duration of harmful algal bloom events are not at levels that indicate adverse effects of nutrient enrichment.</p> <p>Member States shall establish threshold values for these levels through regional or subregional cooperation.</p>	<p>Beyond coastal waters, the use of the secondary criteria shall be agreed at regional or subregional level.</p>
<p>Photic limit (transparency) of the water column</p>	<p>D5C4 – Secondary:</p> <p>The photic limit (transparency) of the water column is not reduced, due to increases in suspended algae, to a level that indicates adverse effects of nutrient enrichment.</p> <p>The threshold values are as follows:</p> <p>(a) in coastal waters, the values set in accordance with Directive 2000/60/EC;</p> <p>(b) beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC. Member States shall establish those values through regional or subregional cooperation.</p>	<p>The outcomes of the assessments shall also contribute to assessments for pelagic habitats under Descriptor 1 as follows:</p> <ul style="list-style-type: none"> - the distribution and an estimate of the extent of the area (as a proportion (percentage)) that is subject to eutrophication in the water column (as indicated by whether the threshold values for criteria D5C2, D5C3 and D5C4, when used, have been achieved); <p>The outcomes of the assessments shall also contribute to assessments for benthic habitats under Descriptors 1 and 6 as follows:</p> <ul style="list-style-type: none"> - the distribution and an estimate of the extent of the area (as a proportion (percentage)) that is subject to
<p>Dissolved oxygen in the bottom of the water column</p>	<p>D5C5 – Primary (may be substituted by D5C8):</p>	

⁵ Guidance documents published in the context of the Common Implementation Strategy for Directive 2000/60/EC may be relevant in this assessment (e.g. "N° 13 - Overall Approach to the Classification of Ecological Status and Ecological Potential" and "N° 23 - Eutrophication Assessment in the Context of European Water Policies")

Criteria elements	Criteria	Methodological standards
	<p>The concentration of dissolved oxygen is not reduced, due to nutrient enrichment, to levels that indicate adverse effects on benthic habitats (including on associated biota and mobile species) or other eutrophication effects.</p> <p>The threshold values are as follows:</p> <p>(a) in coastal waters, the values set in accordance with Directive 2000/60/EC;</p> <p>(b) beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC.</p> <p>Member States shall establish those values through regional or subregional cooperation.</p>	<p>eutrophication on the seabed (as indicated by whether the threshold values for criteria D5C4, D5C5, D5C6, D5C7 and D5C8, when used, have been achieved).</p>
Opportunistic macroalgae of benthic habitats	<p>D5C6 – Secondary:</p> <p>The abundance of opportunistic macroalgae is not at levels that indicate adverse effects of nutrient enrichment.</p> <p>The threshold values are as follows:</p> <p>(a) in coastal waters, the values set in accordance with Directive 2000/60/EC;</p> <p>(b) should this criterion be relevant for waters beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC. Member States shall establish those values through regional or subregional cooperation.</p>	
Macrophyte communities (perennial seaweeds and seagrasses such as fucoids, eelgrass and Neptune grass) of benthic habitats	<p>D5C7 – Secondary:</p> <p>The species composition and relative abundance or depth distribution of macrophyte communities achieve values that indicate there is no adverse effect due to nutrient enrichment including via a decrease in water transparency, as follows:</p>	

Criteria elements	Criteria	Methodological standards
<p>Macrofaunal communities of benthic habitats</p>	<p>(a) in coastal waters, the values set in accordance with Directive 2000/60/EC;</p> <p>(b) should this criterion be relevant for waters beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC. Member States shall establish those values through regional or subregional cooperation.</p> <p>D5C8 – Secondary (except when used as a substitute for D5C5):</p> <p>The species composition and relative abundance of macrofaunal communities, achieve values that indicate that there is no adverse effect due to nutrient and organic enrichment, as follows:</p> <p>(a) in coastal waters, the values for benthic biological quality elements set in accordance with Directive 2000/60/EC;</p> <p>(b) beyond coastal waters, values consistent with those for coastal waters under Directive 2000/60/EC. Member States shall establish those values through regional or subregional cooperation.</p>	

Specifications and standardised methods for monitoring and assessment

1. In coastal waters, the criteria elements shall be selected in accordance with Directive 2000/60/EC.
2. For D5C2 and D5C3, Member States may in addition use phytoplankton species composition and abundance.
3. Information on the pathways (atmospheric, land- or sea-based) for nutrients entering the marine environment shall be collected, where feasible.

4. Monitoring beyond coastal waters may not be necessary due to low risk, such as in cases where the threshold values are achieved in coastal waters, taking into account nutrient input from atmospheric, sea-based including coastal waters, and transboundary sources.
5. Assessments under Directive 2000/60/EC shall be used for the assessments of each criterion in coastal waters.
6. Values set in accordance with Directive 2000/60/EC shall refer either to those set by intercalibration under Commission Decision 2013/480/EU⁶ or to those set in national legislation in accordance with Article 8 and Annex V of Directive 2000/60/EC. These shall be understood as the "Good-Moderate boundary" for Ecological Quality Ratios.
7. Species composition shall be understood to refer to the lowest taxonomic level appropriate for the assessment.

Units of measurement for the criteria:

- D5C1: nutrient concentrations in micromoles per litre ($\mu\text{mol/l}$),
- D5C2: chlorophyll a concentrations (biomass) in micrograms per litre ($\mu\text{g/l}$),
- D5C3: bloom events as number of events, duration in days and spatial extent in square kilometres (km^2) per year,
- D5C4: photic limit as depth in metres (m),
- D5C5: oxygen concentration in the bottom of the water column in milligrams per litre (mg/l),
- D5C6: Ecological Quality Ratio for macroalgal abundance or spatial cover. Extent of adverse effects in square kilometres (km^2) or as a proportion (percentage) of the assessment area,
- D5C7: Ecological Quality Ratio for species composition and relative abundance assessments or for maximum depth of macrophyte growth. Extent of adverse effects in square kilometres (km^2) or as a proportion (percentage) of the assessment area,

⁶ Commission Decision 2013/480/EU of 20 September 2013 establishing, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, the values of the Member State monitoring system classifications as a result of the intercalibration exercise and repealing Decision 2008/915/EC (OJ L 266, 8.10.2013, p. 1).

- D5C8: Ecological Quality Ratio for species composition and relative abundance assessments. Extent of adverse effects in square kilometres (km²) or as a proportion (percentage) of the assessment area.

Where available, Member States shall use the units or ecological quality ratios provided for under Directive 2000/60/EC.

Descriptor 6 – Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.

Relevant pressures: Physical loss (due to permanent change of seabed substrate or morphology and to extraction of seabed substrate); physical disturbance to seabed (temporary or reversible)

Criteria, including criteria elements, and methodological standards

Criteria elements	Criteria	Methodological standards
Physical loss of the seabed (including intertidal areas).	D6C1 – Primary: Spatial extent and distribution of physical loss (permanent change) of the natural seabed.	<i>Scale of assessment:</i> As used for assessment of the benthic broad habitat types under Descriptors 1 and 6.
Physical disturbance to the seabed (including intertidal areas).	D6C2 – Primary: Spatial extent and distribution of physical disturbance pressures on the seabed.	<i>Use of criteria:</i> The outcomes of assessment of criterion D6C1 (the distribution and an estimate of the extent of physical loss) shall be used to assess criteria D6C4 and D7C1.
Benthic broad habitat types or other habitat types, as used under Descriptors 1 and 6.	D6C3 – Primary: Spatial extent of each habitat type which is adversely affected, through change in its biotic and abiotic structure and its functions (e.g. through changes in species composition and their relative abundance, absence of particularly sensitive or fragile species or species providing a key function, size structure of species), by physical disturbance. Member States shall establish threshold values for the adverse effects of physical disturbance, through regional or subregional cooperation.	The outcomes of assessment of criterion D6C2 (the distribution and an estimate of the extent of physical disturbance pressures) shall be used to assess criterion D6C3. The outcomes of assessment of criterion D6C3 (an estimate of the extent of adverse effect by physical disturbance per habitat type in each assessment area) shall contribute to the assessment of criterion D6C5.
Criteria D6C1, D6C2 and D6C3 relate only to the pressures 'physical loss' and 'physical disturbance' and their impacts, whilst criteria D6C4 and D6C5 address the overall assessment of Descriptor 6, together with that for benthic habitats under Descriptor 1. Criteria D6C4 and D6C5 are presented under Part II of this Annex.		

Specifications and standardised methods for monitoring and assessment

1. Regarding methods for monitoring:
 - (a) for D6C1, permanent changes to the seabed from different human activities shall be assessed (including permanent changes to natural seabed substrate or morphology via physical restructuring, infrastructure developments and loss of substrate via extraction of the seabed materials);
 - (b) for D6C2, physical disturbances from different human activities shall be assessed (such as bottom-trawling fishing);
 - (c) for coastal waters, the hydromorphology data and relevant assessments under Directive 2000/60/EC shall be used. Beyond coastal waters, data may be collated from mapping of infrastructure and licensed extraction sites.
2. Regarding methods for assessment, the data shall be aggregated so that:
 - (a) D6C1 is assessed as area lost in relation to total natural extent of all benthic habitats in the assessment area (e.g. by extent of anthropogenic modification);
 - (b) D6C3 is assessed in relation to total natural extent of each benthic habitat type assessed.
3. Physical loss shall be understood as a permanent change to the seabed which has lasted or is expected to last for a period of two reporting cycles (12 years) or more.
4. Physical disturbance shall be understood as a change to the seabed from which it can recover if the activity causing the disturbance pressure ceases.
5. For D6C3 species composition shall be understood to refer to the lowest taxonomic level appropriate for the assessment.

Units of measurement for the criteria:

- D6C1: extent of the assessment area physically lost in square kilometres (km²),

- D6C2: extent of the assessment area physically disturbed in square kilometres (km²),
- D6C3: extent of each habitat type adversely affected in square kilometres (km²) or as a proportion (percentage) of the total natural extent of the habitat in the assessment area.

Descriptor 7 – Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems

Relevant pressures: Physical loss (due to permanent change of seabed substrate or morphology or to extraction of seabed substrate); Changes to hydrological conditions

Criteria, including criteria elements, and methodological standards

Criteria elements	Criteria	Methodological standards
Hydrographical changes to the seabed and water column (including intertidal areas).	<p>D7C1 – Secondary: Spatial extent and distribution of permanent alteration of hydrographical conditions (e.g. changes in wave action, currents, salinity, temperature) to the seabed and water column, associated in particular with physical loss⁷ of the natural seabed.</p>	<p><i>Scale of assessment:</i> As used for assessment of the benthic broad habitat types under Descriptors 1 and 6.</p> <p><i>Use of criteria:</i> The outcomes of assessment of criterion D7C1 (the distribution and an estimate of the extent of hydrographical changes) shall be used to assess criterion D7C2.</p>
Benthic broad habitats types or other habitat types, as used for Descriptors 1 and 6.	<p>D7C2 – Secondary: Spatial extent of each benthic habitat type adversely affected (physical and hydrographical characteristics and associated biological communities) due to permanent alteration of hydrographical conditions. Member States shall establish threshold values for the adverse effects of permanent alterations of hydrographical conditions, through regional or subregional cooperation.</p>	<p>The outcomes of assessment of criterion D7C2 (an estimate of the extent of adverse effect per habitat type in each assessment area) shall contribute to the assessment of criterion D6C5.</p>

⁷ Physical loss shall be understood as under point 3 of the specifications under Descriptor 6.

Specifications and standardised methods for monitoring and assessment

1. Regarding methods for monitoring and assessment:
 - (a) Monitoring shall focus on changes associated with infrastructure developments, either on the coast or offshore.
 - (b) Environmental impact assessment hydrodynamic models, where required, which are validated with ground-truth measurements, or other suitable sources of information, shall be used to assess the extent of effects from each infrastructure development.
 - (c) For coastal waters, the hydromorphology data and relevant assessments under Directive 2000/60/EC shall be used.
 2. Regarding methods for assessment, the data shall be aggregated so that:
 - (a) D7C1 is assessed in relation to total natural extent of all habitats in the assessment area;
 - (b) D7C2 is assessed in relation to total natural extent of each benthic habitat type assessed.
- Units of measurement for the criteria:
- D7C1: extent of the assessment area hydrographically altered in square kilometres (km²),
 - D7C2: extent of each habitat type adversely affected in square kilometres (km²) or as a proportion (percentage) of the total natural extent of the habitat in the assessment area.

Descriptor 8 – Concentrations of contaminants are at levels not giving rise to pollution effects

Relevant pressures: Input of other substances (e.g. synthetic substances, non-synthetic substances, radionuclides)

Criteria, including criteria elements, and methodological standards

Criteria elements	Criteria	Methodological standards
<p>(1) Within coastal and territorial waters:</p> <p>(a) Contaminants selected in accordance with Directive 2000/60/EC:</p> <p>(i) contaminants for which an environmental quality standard is laid down in Part A of Annex I to Directive 2008/105/EC;</p> <p>(ii) River Basin Specific Pollutants under Annex VIII to Directive 2000/60/EC, in coastal waters;</p> <p>(b) additional contaminants, if relevant, such as from offshore sources, which are not already identified under point (a) and which may give rise to pollution effects in the region or subregion. Member States shall establish that list of contaminants through regional</p>	<p>D8C1 – Primary:</p> <p>Within coastal and territorial waters, the concentrations of contaminants do not exceed the following threshold values:</p> <p>(a) for contaminants set out under point (1)(a) of criteria elements, the values set in accordance with Directive 2000/60/EC;</p> <p>(b) when contaminants under point (a) are measured in a matrix for which no value is set under Directive 2000/60/EC, the concentration of those contaminants in that matrix established by Member States through regional or subregional cooperation;</p> <p>(c) for additional contaminants selected under point (1)(b) of criteria elements, the concentrations for a specified matrix (water, sediment or biota) which may give rise to pollution effects. Member States shall establish these concentrations through regional or subregional cooperation, considering their application within and beyond coastal and territorial waters.</p> <p>Beyond territorial waters, the concentrations of contaminants do not exceed the following threshold values:</p> <p>(a) for contaminants selected under point (2)(a) of criteria</p>	<p><i>Scale of assessment:</i></p> <ul style="list-style-type: none"> – within coastal and territorial waters, as used under Directive 2000/60/EC; – beyond territorial waters, subdivisions of the region or subregion, divided where needed by national boundaries. <p><i>Use of criteria:</i></p> <p>The extent to which good environmental status has been achieved shall be expressed for each area assessed as follows:</p> <p>(a) for each contaminant under criterion D8C1, its concentration, the matrix used (water, sediment, biota), whether the threshold values set have been achieved, and the proportion of contaminants assessed which have achieved the threshold values, including indicating separately substances behaving like ubiquitous persistent, bioaccumulative and toxic substances (uPBTs), as referred to in Article 8a(1)(a) of Directive 2008/105/EC;</p> <p>(b) for each species assessed under criterion D8C2, an</p>

Criteria elements	Criteria	Methodological standards
<p>or subregional cooperation.</p> <p>(2) Beyond territorial waters:</p> <p>(a) the contaminants considered under point (1), where these still may give rise to pollution effects;</p> <p>(b) additional contaminants, if relevant, which are not already identified under point (2)(a) and which may give rise to pollution effects in the region or subregion. Member States shall establish that list of contaminants through regional or subregional cooperation.</p>	<p>elements, the values as applicable within coastal and territorial waters;</p> <p>(b) for contaminants selected under point (2)(b) of criteria elements, the concentrations for a specified matrix (water, sediment or biota) which may give rise to pollution effects. Member States shall establish these concentrations through regional or subregional cooperation.</p>	<p>estimate of the abundance of its population in the assessment area that is adversely affected;</p> <p>(c) for each habitat assessed under criterion D8C2, an estimate of the extent in the assessment area that is adversely affected.</p> <p>The use of criterion D8C2 in the overall assessment of good environmental status for Descriptor 8 shall be agreed at regional or subregional level.</p> <p>The outcomes of the assessment of criterion D8C2 shall contribute to assessments under Descriptors 1 and 6, where appropriate.</p>
<p>Species and habitats which are at risk from contaminants.</p> <p>Member States shall establish that list of species, and relevant tissues to be assessed, and habitats, through regional or subregional cooperation.</p>	<p>D8C2 – Secondary:</p> <p>The health of species and the condition of habitats (such as their species composition and relative abundance at locations of chronic pollution) are not adversely affected due to contaminants including cumulative and synergetic effects.</p> <p>Member States shall establish those adverse effects and their threshold values through regional or subregional cooperation.</p>	
<p>Significant acute pollution events involving polluting substances, as defined in Article 2(2) of Directive</p>	<p>D8C3 – Primary:</p> <p>The spatial extent and duration of significant acute pollution events are minimised.</p>	<p><i>Scale of assessment:</i></p> <p>Regional or subregional level, divided where needed by national boundaries.</p>

Criteria elements	Criteria	Methodological standards
<p>2005/35/EC of the European Parliament and of the Council⁸, including crude oil and similar compounds.</p>		<p><i>Use of criteria:</i></p> <p>The extent to which good environmental status has been achieved shall be expressed for each area assessed as follows:</p> <ul style="list-style-type: none"> – an estimate of the total spatial extent of significant acute pollution events and their distribution and total duration for each year. <p>This criterion shall be used to trigger assessment of criterion D8C4.</p>
<p>Species of the species groups, as listed under Table 1 of Part II, and benthic broad habitat types, as listed under Table 2 of Part II.</p>	<p>D8C4 – Secondary (to be used when a significant acute pollution event has occurred):</p> <p>The adverse effects of significant acute pollution events on the health of species and on the condition of habitats (such as their species composition and relative abundance) are minimised and, where possible, eliminated.</p>	<p><i>Scale of assessment:</i></p> <p>As used for assessment of the species groups or benthic broad habitat types under Descriptors 1 and 6.</p> <p><i>Use of criteria:</i></p> <p>The outcomes of assessment of criterion D8C4 shall contribute, where the cumulative spatial and temporal effects are significant, to the assessments under Descriptors 1 and 6 by providing:</p> <ul style="list-style-type: none"> (a) an estimate of the abundance of each species that is adversely affected; (b) an estimate of the extent of each broad habitat type that is adversely affected. <p>The use of criterion D8C4 in the overall assessment of good environmental status for Descriptor 8 shall be</p>

⁸ Directive 2005/35/EC of the European Parliament and of the Council of 7 September 2005 on ship-source pollution and on the introduction of penalties, including criminal penalties, for pollution offences (OJ L 255, 30.9.2005, p. 11).

Criteria elements	Criteria	Methodological standards
		agreed at regional or subregional level.

Specifications and standardised methods for monitoring and assessment

1. For criteria elements under D8C1, the selection under points (1)(b) and (2)(b) of additional contaminants that may give rise to pollution effects shall be based on a risk assessment. For these contaminants, the matrix and threshold values used for the assessment shall be representative of the most sensitive species and exposure pathway, including hazards to human health via exposure through the food chain.
2. For the purposes of this Decision:
 - (a) Criterion D8C1: for the assessment of contaminants in coastal and territorial waters, Member States shall monitor the contaminants in accordance with the requirements of Directive 2000/60/EC and the assessments under that Directive shall be used where available. Information on the pathways (atmospheric, land- or sea-based) for contaminants entering the marine environment shall be collected, where feasible.
 - (b) Criteria D8C2 and D8C4: biomarkers or population demographic characteristics (e.g. fecundity rates, survival rates, mortality rates, and reproductive capacity) may be relevant to assess the health effects.
 - (c) Criteria D8C3 and D8C4: for the purposes of this Decision, monitoring is established as needed once the acute pollution event has occurred, rather than being part of a regular monitoring programme under Article 11 of Directive 2008/56/EC.
 - (d) Criterion D8C3: Member States shall identify the source of significant acute pollution events, where possible. They may use the European Maritime Safety Agency satellite-based surveillance for this purpose.
3. Contaminants shall be understood to refer to single substances or to groups of substances. For consistency in reporting, the grouping of substances shall be agreed at Union level.
4. Species composition shall be understood to refer to the lowest taxonomic level appropriate for the assessment.

Units of measurement for the criteria:

- D8C1: concentrations of contaminants in micrograms per litre ($\mu\text{g/l}$) for water, in micrograms per kilogram ($\mu\text{g/kg}$) of dry weight for sediment and in micrograms per kilogram ($\mu\text{g/kg}$) of wet weight for biota,
- D8C2: abundance (number of individuals or other suitable units as agreed at regional or subregional level) per species affected; extent in square kilometres (km^2) per broad habitat type affected,
- D8C3: duration in days and spatial extent in square kilometres (km^2) of significant acute pollution events per year,
- D8C4: abundance (number of individuals or other suitable units as agreed at regional or subregional level) per species affected; extent in square kilometres (km^2) per broad habitat type affected.

Descriptor 9 – Contaminants in fish and other seafood for human consumption do not exceed levels established by Union legislation or other relevant standards

Relevant pressure: Input of hazardous substances

Criteria, including criteria elements, and methodological standards

Criteria elements	Criteria	Methodological standards
<p>Contaminants listed in Regulation (EC) No 1881/2006.</p> <p>For the purposes of this Decision, Member States may decide not to consider contaminants from Regulation (EC) No 1881/2006 where justified on the basis of a risk assessment.</p> <p>Member States may assess additional contaminants that are not included in Regulation (EC) No 1881/2006.</p> <p>Member States shall establish a list of those additional contaminants through regional or subregional cooperation.</p> <p>Member States shall establish the list of species and relevant tissues to be assessed, according to the conditions laid down under 'specifications'. They</p>	<p>D9C1 – Primary:</p> <p>The level of contaminants in edible tissues (muscle, liver, roe, flesh or other soft parts, as appropriate) of seafood (including fish, crustaceans, molluscs, echinoderms, seaweed and other marine plants) caught or harvested in the wild (excluding fin-fish from mariculture) does not exceed:</p> <p>(a) for contaminants listed in Regulation (EC) No 1881/2006, the maximum levels laid down in that Regulation, which are the threshold values for the purposes of this Decision;</p> <p>(b) for additional contaminants, not listed in Regulation (EC) No 1881/2006, threshold values, which Member States shall establish through regional or subregional cooperation.</p>	<p><i>Scale of assessment:</i></p> <p>The catch or production area in accordance with Article 38 of Regulation (EU) No 1379/2013 of the European Parliament and of the Council⁹.</p> <p><i>Use of criteria:</i></p> <p>The extent to which good environmental status has been achieved shall be expressed for each area assessed as follows:</p> <ul style="list-style-type: none"> – for each contaminant, its concentration in seafood, the matrix used (species and tissue), whether the threshold values set have been achieved, and the proportion of contaminants assessed which have achieved their threshold values.

⁹ Regulation (EU) No 1379/2013 of the European Parliament and of the Council of 11 December 2013 on the common organisation of the markets in fishery and aquaculture products, amending Council Regulations (EC) No 1184/2006 and (EC) No 1224/2009 and repealing Council Regulation (EC) No 104/2000 (OJ L 354, 28.12.2013, p. 1).

Criteria elements	Criteria	Methodological standards
may cooperate at regional or subregional level to establish that list of species and relevant tissues.		

Specifications and standardised methods for monitoring and assessment

1. When Member States establish the list of species to be used under D9C1, the species shall:
 - (a) be relevant to the marine region or subregion concerned;
 - (b) fall under the scope of Regulation (EC) No 1881/2006;
 - (c) be suitable for the contaminant being assessed;
 - (d) be among the most consumed in the Member State or the most caught or harvested for consumption.
2. Exceedance of the standard set for a contaminant shall lead to subsequent monitoring to determine the persistence of the contamination in the area and species sampled. Monitoring shall continue until there is sufficient evidence that there is no risk of failure.
3. For the purposes of this Decision, the sampling for the assessment of the maximum levels of contaminants shall be performed in accordance with Article 11 of Regulation (EC) No 882/2004 of the European Parliament and of the Council¹⁰ and with Commission Regulation (EU) No 589/2014¹¹ and Commission Regulation (EC) No 333/2007¹².

¹⁰ Regulation (EC) No 882/2004 of the European Parliament and of the Council of 29 April 2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules (OJ L 165, 30.4.2004, p. 1).

¹¹ Commission Regulation (EU) No 589/2014 of 2 June 2014 laying down methods of sampling and analysis for the control of levels of dioxins, dioxin-like PCBs and non-dioxin-like PCBs in certain foodstuffs and repealing Regulation (EU) No 252/2012 (OJ L 164, 3.6.2014, p. 18).

¹² Commission Regulation (EC) No 333/2007 of 28 March 2007 laying down the methods of sampling and analysis for the official control of the levels of lead, cadmium, mercury, inorganic tin, 3-MCPD and benzo(a)pyrene in foodstuffs (OJ L 88, 29.3.2007, p. 29).

4. Within each region or subregion, Member States shall ensure that the temporal and geographical scope of sampling is adequate to provide a representative sample of the specified contaminants in seafood in the marine region or subregion.

Units of measurement for the criteria:

– D9C1: concentrations of contaminants in the units set out in the Annex to Regulation (EC) No 1881/2006.

Descriptor 10 – Properties and quantities of marine litter do not cause harm to the coastal and marine environment

Relevant pressure: Input of litter

Criteria, including criteria elements, and methodological standards

Criteria elements	Criteria	Methodological standards
<p>Litter (excluding micro-litter), classified in the following categories¹³: artificial polymer materials, rubber, cloth/textile, paper/cardboard, processed/worked wood, metal, glass/ceramics, chemicals, undefined, and food waste.</p> <p>Member States may define further sub-categories.</p>	<p>D10C1 – Primary:</p> <p>The composition, amount and spatial distribution of litter on the coastline, in the surface layer of the water column, and on the seabed, are at levels that do not cause harm to the coastal and marine environment.</p> <p>Member States shall establish threshold values for these levels through cooperation at Union level, taking into account regional or subregional specificities.</p>	<p><i>Scale of assessment:</i></p> <p>Subdivisions of the region or subregion, divided where needed by national boundaries.</p> <p><i>Use of criteria:</i></p> <p>The extent to which good environmental status has been achieved shall be expressed for each criterion separately for each area assessed as follows:</p>
<p>Micro-litter (particles < 5 mm), classified in the categories 'artificial polymer materials' and 'other'.</p>	<p>D10C2 – Primary:</p> <p>The composition, amount and spatial distribution of micro-litter on the coastline, in the surface layer of the water column, and in seabed sediment, are at levels that do not cause harm to the coastal and marine environment.</p> <p>Member States shall establish threshold values for these levels through cooperation at Union level, taking into account regional or subregional specificities.</p>	<p>(a) the outcomes for each criterion (amount of litter or micro-litter per category) and its distribution per matrix used under D10C1 and D10C2 and whether the threshold values set have been achieved.</p> <p>(b) the outcomes for D10C3 (amount of litter and micro-litter per category per species) and whether the threshold values set have been achieved.</p> <p>The use of criteria D10C1, D10C2 and D10C3 in the overall assessment of good environmental status for</p>

¹³

These are the "Level 1 – Material" categories from the Master List of categories of litter items from the Joint Research Centre "Guidance on Monitoring of marine litter in European seas" (2013, ISBN 978-92-79-32709-4). The Master List specifies what is covered under each category, for instance "Chemicals" refers to paraffin, wax, oil and tar.

Criteria elements	Criteria	Methodological standards
<p>Litter and micro-litter classified in the categories 'artificial polymer materials' and 'other', assessed in any species from the following groups: birds, mammals, reptiles, fish or invertebrates.</p> <p>Member States shall establish that list of species to be assessed through regional or subregional cooperation.</p>	<p>D10C3 – Secondary:</p> <p>The amount of litter and micro-litter ingested by marine animals is at a level that does not adversely affect the health of the species concerned.</p> <p>Member States shall establish threshold values for these levels through regional or subregional cooperation.</p>	<p>Descriptor 10 shall be agreed at Union level.</p> <p>The outcomes of criterion D10C3 shall also contribute to assessments under Descriptor 1, where appropriate.</p>
<p>Species of birds, mammals, reptiles, fish or invertebrates which are at risk from litter.</p> <p>Member States shall establish that list of species to be assessed through regional or subregional cooperation.</p>	<p>D10C4 – Secondary:</p> <p>The number of individuals of each species which are adversely affected due to litter, such as by entanglement, other types of injury or mortality, or health effects.</p> <p>Member States shall establish threshold values for the adverse effects of litter, through regional or subregional cooperation.</p>	<p><i>Scale of assessment:</i></p> <p>As used for assessment of the species group under Descriptor 1.</p> <p><i>Use of criteria:</i></p> <p>The extent to which good environmental status has been achieved shall be expressed for each area assessed as follows:</p> <ul style="list-style-type: none"> – for each species assessed under criterion D10C4, an estimate of the number of individuals in the assessment area that have been adversely affected. <p>The use of criterion D10C4 in the overall assessment of good environmental status for Descriptor 10 shall be agreed at Union level.</p> <p>The outcomes of this criterion shall also contribute to assessments under Descriptor 1, where appropriate.</p>

Specifications and standardised methods for monitoring and assessment

1. For D10C1: litter shall be monitored on the coastline and may additionally be monitored in the surface layer of the water column and on the seabed. Information on the source and pathway of the litter shall be collected, where feasible;

2. For D10C2: micro-litter shall be monitored in the surface layer of the water column and in the seabed sediment and may additionally be monitored on the coastline. Micro-litter shall be monitored in a manner that can be related to point-sources for inputs (such as harbours, marinas, waste-water treatment plants, storm-water effluents), where feasible.
3. For D10C3 and D10C4: the monitoring may be based on incidental occurrences (e.g. strandings of dead animals, entangled animals in breeding colonies, affected individuals per survey).

Units of measurement for the criteria:

- D10C1: amount of litter per category in number of items:
 - per 100 metres (m) on the coastline,
 - per square kilometre (km²) for surface layer of the water column and for seabed,
- D10C2: amount of micro-litter per category in number of items and weight in grams (g):
 - per square metre (m²) for surface layer of the water column,
 - per kilogram (dry weight) (kg) of sediment for the coastline and for seabed,
- D10C3: amount of litter/micro-litter in grams (g) and number of items per individual for each species in relation to size (weight or length, as appropriate) of the individual sampled,
- D10C4: number of individuals affected (lethal; sub-lethal) per species.

Descriptor 11 – Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment

Relevant pressures: Input of anthropogenic sound; Input of other forms of energy

Criteria, including criteria elements, and methodological standards

Criteria elements	Criteria	Methodological standards
<p>Anthropogenic impulsive sound in water.</p>	<p>D11C1 – Primary: The spatial distribution, temporal extent, and levels of anthropogenic impulsive sound sources do not exceed levels that adversely affect populations of marine animals. Member States shall establish threshold values for these levels through cooperation at Union level, taking into account regional or subregional specificities.</p>	<p><i>Scale of assessment:</i> Region, subregion or subdivisions. <i>Use of criteria:</i> The extent to which good environmental status has been achieved shall be expressed for each area assessed as follows: (a) for D11C1, the duration per calendar year of impulsive sound sources, their distribution within the year and spatially within the assessment area, and whether the threshold values set have been achieved;</p>
<p>Anthropogenic continuous low-frequency sound in water.</p>	<p>D11C2 – Primary: The spatial distribution, temporal extent and levels of anthropogenic continuous low-frequency sound do not exceed levels that adversely affect populations of marine animals. Member States shall establish threshold values for these levels through cooperation at Union level, taking into account regional or subregional specificities.</p>	<p>(b) for D11C2, the annual average of the sound level, or other suitable temporal metric agreed at regional or subregional level, per unit area and its spatial distribution within the assessment area, and the extent (% , km²) of the assessment area over which the threshold values set have been achieved. The use of criteria D11C1 and D11C2 in the assessment of good environmental status for Descriptor 11 shall be agreed at Union level. The outcomes of these criteria shall also contribute to</p>

Criteria elements	Criteria	Methodological standards
		assessments under Descriptor 1.

Specifications and standardised methods for monitoring and assessment

1. For D11C1 monitoring:
 - (a) Spatial resolution: geographical locations whose shape and areas are to be determined at regional or subregional level, on the basis of, for instance, activities listed in Annex III to Directive 2008/56/EC.
 - (b) Impulsive sound described as monopole energy source level in units of dB re $1\mu\text{Pa}^2$ s or zero to peak monopole source level in units of dB re $1\mu\text{Pa}$ m, both over the frequency band 10 Hz to 10 kHz. Member States may consider other specific sources with higher frequency bands if longer-range effects are considered relevant.
2. For D11C2 monitoring:

Annual average, or other suitable metric agreed at regional or subregional level, of the squared sound pressure in each of two '1/3-octave bands', one centred at 63 Hz and the other at 125 Hz, expressed as a level in decibels in units of dB re $1\mu\text{Pa}$, at a suitable spatial resolution in relation to the pressure. This may be measured directly, or inferred from a model used to interpolate between, or extrapolated from, measurements. Member States may also decide at regional or subregional level to monitor for additional frequency bands.

Criteria relating to other forms of energy input (including thermal energy, electromagnetic fields and light) and criteria relating to the environmental impacts of noise are still subject to further development.

Units of measurement for the criteria:

- D11C1: Number of days per quarter (or per month if appropriate) with impulsive sound sources; proportion (percentage) of unit areas or extent in square kilometres (km²) of assessment area with impulsive sound sources per year,
- D11C2: Annual average (or other temporal metric) of continuous sound level per unit area; proportion (percentage) or extent in square kilometres (km²) of assessment area with sound levels exceeding threshold values.

PART II – CRITERIA AND METHODOLOGICAL STANDARDS, SPECIFICATIONS AND STANDARDISED METHODS FOR MONITORING AND ASSESSMENT OF ESSENTIAL FEATURES AND CHARACTERISTICS AND CURRENT ENVIRONMENTAL STATUS OF MARINE WATERS UNDER POINT (A) OF ARTICLE 8(1) OF DIRECTIVE 2008/56/EC

Part II considers the descriptors linked to the relevant ecosystem elements: species groups of birds, mammals, reptiles, fish and cephalopods (Descriptor 1), pelagic habitats (Descriptor 1), benthic habitats (Descriptors 1 and 6) and ecosystems, including food webs (Descriptors 1 and 4), as listed in Annex III to Directive 2008/56/EC¹⁴.

Theme: Species groups of birds, mammals, reptiles, fish and cephalopods (relating to Descriptor 1)

Criteria, including criteria elements, and methodological standards

Criteria elements	Criteria	Methodological standards
<p>Species of birds, mammals, reptiles and non-commercially-exploited species of fish and cephalopods, which are at risk from incidental by-catch in the region or subregion.</p> <p>Member States shall establish that list of species through regional or subregional cooperation, pursuant to the obligations laid down in Article 25(5) of Regulation (EU) No 1380/2013 for data collection activities and taking into account the list of</p>	<p>DIC1 – Primary:</p> <p>The mortality rate per species from incidental by-catch is below levels which threaten the species, such that its long-term viability is ensured.</p> <p>Member States shall establish the threshold values for the mortality rate from incidental by-catch per species, through regional or subregional cooperation.</p>	<p><i>Scale of assessment:</i></p> <p>As used for assessment of the corresponding species or species groups under criteria DIC2-DIC5.</p> <p><i>Use of criteria:</i></p> <p>The extent to which good environmental status has been achieved shall be expressed for each area assessed as follows:</p> <ul style="list-style-type: none"> – the mortality rate per species and whether this has achieved the threshold value set. <p>This criterion shall contribute to assessment of the</p>

¹⁴ Regulation (EC) No 199/2008 may be used for the collection of relevant fisheries-related data under Descriptors 1, 4 and 6.

Criteria elements	Criteria	Methodological standards
<p>species in Table ID of the Annex to Commission Implementing Decision (EU) 2016/1251¹⁵.</p>		<p>corresponding species under criterion DIC2.</p>
<p>Species groups, as listed under Table 1 and if present in the region or subregion.</p> <p>Member States shall establish a set of species representative of each species group, selected according to the criteria laid down under ‘specifications for the selection of species and habitats’, through regional or subregional cooperation. These shall include the mammals and reptiles listed in Annex II to Directive 92/43/EEC and may include any other species, such as those listed under Union legislation (other Annexes to Directive 92/43/EEC, Directive 2009/147/EC or through Regulation (EU) No 1380/2013) and international agreements such as Regional Sea Conventions.</p>	<p>DIC2 – Primary:</p> <p>The population abundance of the species is not adversely affected due to anthropogenic pressures, such that its long-term viability is ensured.</p> <p>Member States shall establish threshold values for each species through regional or subregional cooperation, taking account of natural variation in population size and the mortality rates derived from DIC1, D8C4 and D10C4 and other relevant pressures. For species covered by Directive 92/43/EEC, these values shall be consistent with the Favourable Reference Population values established by the relevant Member States under Directive 92/43/EEC.</p> <p>DIC3 – Primary for commercially-exploited fish and cephalopods and secondary for other species:</p> <p>The population demographic characteristics (e.g. body size or age class structure, sex ratio, fecundity, and survival rates) of the species are indicative of a healthy population which is not adversely affected due to anthropogenic pressures.</p> <p>Member States shall establish threshold values for specified characteristics of each species through regional or subregional cooperation, taking account of adverse effects on their health derived from D8C2, D8C4 and other relevant pressures.</p>	<p><i>Scale of assessment:</i></p> <p>Ecologically-relevant scales for each species group shall be used, as follows:</p> <ul style="list-style-type: none"> – for deep-diving toothed cetaceans, baleen whales, deep-sea fish: region; – for birds, small toothed cetaceans, pelagic and demersal shelf fish: region or subdivisions for Baltic Sea and Black Sea; subregion for North-East Atlantic Ocean and Mediterranean Sea; – for seals, turtles, cephalopods: region or subdivisions for Baltic Sea; subregion for North-East Atlantic Ocean and Mediterranean Sea; – for coastal fish: subdivision of region or subregion. – for commercially-exploited fish and cephalopods: as used under Descriptor 3. <p><i>Use of criteria:</i></p> <p>The status of each species shall be assessed individually, on the basis of the criteria selected for use, and these shall be used to express the extent to which good environmental status has been achieved for each species group for each area assessed, as follows:</p>

¹⁵

Commission Implementing Decision (EU) 2016/1251 of 12 July 2016 adopting a multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors for the period 2017-2019 (OJ L 207, 1.8.2016, p. 113).

Criteria elements	Criteria	Methodological standards
	<p>D1C4 – Primary for species covered by Annexes II, IV or V to Directive 92/43/EEC and secondary for other species: The species distributional range and, where relevant, pattern is in line with prevailing physiographic, geographic and climatic conditions. Member States shall establish threshold values for each species through regional or subregional cooperation. For species covered by Directive 92/43/EEC, these shall be consistent with the Favourable Reference Range values established by the relevant Member States under Directive 92/43/EEC.</p> <p>D1C5 – Primary for species covered by Annexes II, IV and V to Directive 92/43/EEC and secondary for other species: The habitat for the species has the necessary extent and condition to support the different stages in the life history of the species.</p>	<p>(a) the assessments shall express the value(s) for each criterion used per species and whether these achieve the threshold values set;</p> <p>(b) the overall status of species covered by Directive 92/43/EEC shall be derived using the method provided under that Directive. The overall status for commercially-exploited species shall be as assessed under Descriptor 3. For other species, the overall status shall be derived using a method agreed at Union level, taking into account regional or subregional specificities;</p> <p>(c) the overall status of the species group, using a method agreed at Union level, taking into account regional or subregional specificities.</p>

Criteria elements

Table 1 – Species groups¹⁶

Ecosystem component	Species groups
Birds	Grazing birds
	Wading birds

¹⁶ Relevant fisheries-related data should be used in application of Regulation (EC) No 199/2008.

Ecosystem component	Species groups
	Surface-feeding birds
	Pelagic-feeding birds
	Benthic-feeding birds
	Small toothed cetaceans
Mammals	Deep-diving toothed cetaceans
	Baleen whales
	Seals
Reptiles	Turtles
	Coastal fish
Fish	Pelagic shelf fish
	Demersal shelf fish
	Deep-sea fish
Cephalopods	Coastal/shelf cephalopods
	Deep-sea cephalopods

Specifications and standardised methods for monitoring and assessment relating to theme "Species groups of marine birds, mammals, reptiles, fish and cephalopods"

1. For D1C1, data shall be provided per species per fishing metier for each ICES area or GFCM Geographical Sub-Area or FAO fishing areas for the Macaronesian biogeographic region, to enable its aggregation to the relevant scale for the species concerned, and to identify the particular fisheries and fishing gear most contributing to incidental catches for each species.
2. 'Coastal' shall be understood on the basis of physical, hydrological and ecological parameters and is not limited to coastal water as defined in Article 2(7) of Directive 2000/60/EC.
3. Species may be assessed at population level, where appropriate.

4. Wherever possible, the assessments under Directive 92/43/EEC, Directive 2009/147/EC and Regulation (EU) No 1380/2013 shall be used for the purposes of this Decision:
- for birds, criteria D1C2 and D1C4 equate to the ‘population size’ and ‘breeding distribution map and range size’ criteria of Directive 2009/147/EC;
 - for mammals, reptiles and non-commercial fish, the criteria are equivalent to those used under Directive 92/43/EEC as follows: D1C2 and D1C3 equate to ‘population’, D1C4 equates to ‘range’ and D1C5 equates to ‘habitat for the species’;
 - for commercially-exploited fish and cephalopods, assessments under Descriptor 3 shall be used for Descriptor 1 purposes, using criterion D3C2 for D1C2 and criterion D3C3 for D1C3.
5. Assessments of the adverse effects from pressures under criteria D1C1, D2C3, D3C1, D8C2, D8C4 and D10C4, as well as the assessments of pressures under criteria D9C1, D10C3, D11C1 and D11C2, shall be taken into account in the assessments of species under Descriptor 1.
- Units of measurement for the criteria:
- D1C2: abundance (number of individuals or biomass in tonnes (t)) per species.

Theme: Pelagic habitats (relating to Descriptor 1)

Criteria, including criteria elements, and methodological standards

Criteria elements	Criteria	Methodological standards
Pelagic broad habitat types (variable salinity ¹⁷ , coastal, shelf and oceanic/beyond shelf), if present in the region or subregion, and other habitat types as defined in the second	D1C6 – Primary: The condition of the habitat type, including its biotic and abiotic structure and its functions (e.g. its typical species composition and their relative abundance, absence of particularly sensitive or fragile species or species providing a	<i>Scale of assessment:</i> Subdivision of region or subregion as used for assessments of benthic broad habitat types, reflecting biogeographic differences in species composition of the habitat type. <i>Use of criteria:</i>

¹⁷ Retained for situations where estuarine plumes extend beyond waters designated as Transitional Waters under Directive 2000/60/EC.

Criteria elements	Criteria	Methodological standards
<p>paragraph.</p> <p>Member States may select, through regional or subregional cooperation, additional habitat types according to the criteria laid down under 'specifications for the selection of species and habitats'.</p>	<p>key function, size structure of species), is not adversely affected due to anthropogenic pressures.</p> <p>Member States shall establish threshold values for the condition of each habitat type, ensuring compatibility with related values set under Descriptors 2, 5 and 8, through regional or subregional cooperation.</p>	<p>The extent to which good environmental status has been achieved shall be expressed for each area assessed as:</p> <p>(a) an estimate of the proportion and extent of each habitat type assessed that has achieved the threshold value set;</p> <p>(b) a list of broad habitat types in the assessment area that were not assessed.</p>

Specifications and standardised methods for monitoring and assessment relating to theme "Pelagic habitats"

1. 'Coastal' shall be understood on the basis of physical, hydrological and ecological parameters and is not limited to coastal water as defined in Article 2(7) of Directive 2000/60/EC.
2. Assessments of the adverse effects from pressures, including under D2C3, D5C2, D5C3, D5C4, D7C1, D8C2 and D8C4, shall be taken into account in the assessments of pelagic habitats under Descriptor 1.

Units of measurement for the criteria:

- DIC6: extent of habitat adversely affected in square kilometres (km²) and as a proportion (percentage) of the total extent of the habitat type.

Theme: Benthic habitats (relating to Descriptors 1 and 6)

Criteria, including criteria elements, and methodological standards

Criteria elements	Criteria	Methodological standards
Refer to Part I of this Annex for criteria D6C1, D6C2 and D6C3.		

Criteria elements	Criteria	Methodological standards
<p>Benthic broad habitat types as listed in Table 2 and if present in the region or subregion, and other habitat types as defined in the second paragraph.</p> <p>Member States may select, through regional or subregional cooperation, additional habitat types, according to the criteria laid down under</p> <p>‘specifications for the selection of species and habitats’, and which may include habitat types listed under Directive 92/43/EEC or international agreements such as Regional Sea Conventions, for the purposes of:</p> <p>(a) assessing each broad habitat type under criterion D6C5;</p> <p>(b) assessing these habitat types.</p> <p>A single set of habitat types shall serve the purpose of assessments of both benthic habitats under Descriptor 1 and sea-floor integrity under Descriptor 6.</p>	<p>D6C4 – Primary:</p> <p>The extent of loss of the habitat type, resulting from anthropogenic pressures, does not exceed a specified proportion of the natural extent of the habitat type in the assessment area.</p> <p>Member States shall establish the maximum allowable extent of habitat loss as a proportion of the total natural extent of the habitat type, through cooperation at Union level, taking into account regional or subregional specificities.</p> <p>D6C5 – Primary:</p> <p>The extent of adverse effects from anthropogenic pressures on the condition of the habitat type, including alteration to its biotic and abiotic structure and its functions (e.g. its typical species composition and their relative abundance, absence of particularly sensitive or fragile species or species providing a key function, size structure of species), does not exceed a specified proportion of the natural extent of the habitat type in the assessment area.</p> <p>Member States shall establish threshold values for adverse effects on the condition of each habitat type, ensuring compatibility with related values set under Descriptors 2, 5, 6, 7 and 8, through cooperation at Union level, taking into account regional or subregional specificities.</p> <p>Member States shall establish the maximum allowable extent of those adverse effects as a proportion of the total natural extent of the habitat type, through cooperation at Union level, taking into account regional or subregional specificities.</p>	<p><i>Scale of assessment:</i></p> <p>Subdivision of region or subregion, reflecting biogeographic differences in species composition of the broad habitat type.</p> <p><i>Use of criteria:</i></p> <p>A single assessment per habitat type, using criteria D6C4 and D6C5, shall serve the purpose of assessments of both benthic habitats under Descriptor 1 and sea-floor integrity under Descriptor 6.</p> <p>The extent to which good environmental status has been achieved shall be expressed for each area assessed as:</p> <p>(a) for D6C4, an estimate of the proportion and extent of loss per habitat type and whether this has achieved the extent value set;</p> <p>(b) for D6C5, an estimate of the proportion and extent of adverse effects, including the proportion lost from point (a), per habitat type and whether this has achieved the extent value set;</p> <p>(c) overall status of the habitat type, using a method agreed at Union level based on points (a) and (b), and a list of broad habitat types in the assessment area that were not assessed.</p>

Criteria elements

Table 2 – Benthic broad habitat types including their associated biological communities (relevant for criteria under Descriptors 1 and 6), which equate to one or more habitat types of the European nature information system (EUNIS) habitat classification¹⁸. Updates to the EUNIS typology shall be reflected in the broad habitat types used for the purposes of Directive 2008/56/EC and of this Decision.

Ecosystem component	Broad habitat types	Relevant EUNIS habitat codes (version 2016)
Benthic habitats	Littoral rock and biogenic reef	MA1, MA2
	Littoral sediment	MA3, MA4, MA5, MA6
	Infralittoral rock and biogenic reef	MB1, MB2
	Infralittoral coarse sediment	MB3
	Infralittoral mixed sediment	MB4
	Infralittoral sand	MB5
	Infralittoral mud	MB6
	Circalittoral rock and biogenic reef	MC1, MC2
	Circalittoral coarse sediment	MC3
	Circalittoral mixed sediment	MC4
	Circalittoral sand	MC5
	Circalittoral mud	MC6
	Offshore circalittoral rock and biogenic reef	MD1, MD2
	Offshore circalittoral coarse sediment	MD3
Offshore circalittoral mixed sediment	MD4	
Offshore circalittoral sand	MD5	

¹⁸ Evans, D. (2016). Revising the marine section of the EUNIS Habitat classification - Report of a workshop held at the European Topic Centre on Biological Diversity, 12 & 13 May 2016. ETC/BD Working Paper N° A/2016.

Ecosystem component	Broad habitat types	Relevant EUNIS habitat codes (version 2016)
	Offshore circalittoral mud	MD6
	Upper bathyal ¹⁹ rock and biogenic reef	ME1, ME2
	Upper bathyal sediment	ME3, ME4, ME5, ME6
	Lower bathyal rock and biogenic reef	MF1, MF2
	Lower bathyal sediment	MF3, MF4, MF5, MF6
	Abyssal	MG1, MG2, MG3, MG4, MG5, MG6

Specifications and standardised methods for monitoring and assessment relating to theme "Benthic habitats"

1. The status of each habitat type shall be assessed using assessments (such as of sub-types of the broad habitat types) under Directive 92/43/EEC and Directive 2000/60/EC, wherever possible.
2. Assessment of criterion D6C4 shall use the assessment made under criterion D6C1.
3. Criteria D6C4 and D6C5 equate to the 'range/area covered by habitat type within range' and 'specific structures and functions' criteria of Directive 92/43/EEC.
4. For D6C5, assessments of the adverse effects from pressures, including under criteria D2C3, D3C1, D3C2, D3C3, D5C4, D5C5, D5C6, D5C7, D5C8, D6C3, D7C2, D8C2 and D8C4, shall be taken into account.
5. For D6C5, species composition shall be understood to refer to the lowest taxonomic level appropriate for the assessment.

Units of measurement for the criteria:

- D6C4: extent of habitat loss in square kilometres (km²) and as a proportion (percentage) of the total extent of the habitat type,

¹⁹ Where not specifically defined in the EUNIS classification, the boundary between the upper bathyal and lower bathyal may be set as a specified depth limit.

- D6C5: extent of habitat adversely affected in square kilometres (km²) and as a proportion (percentage) of the total extent of the habitat type.

Specifications for the selection of species and habitats under Themes "Species groups of marine birds, mammals, reptiles, fish and cephalopods", "Pelagic habitats" and "Benthic habitats"

The selection of species and habitats to be assigned to the species groups and pelagic and benthic broad habitat types shall be based on the following:

1. Scientific criteria (ecological relevance):
 - (a) representative of the ecosystem component (species group or broad habitat type), and of ecosystem functioning (e.g. connectivity between habitats and populations, completeness and integrity of essential habitats), being relevant for assessment of state/impacts, such as having a key functional role within the component (e.g. high or specific biodiversity, productivity, trophic link, specific resource or service) or particular life history traits (age and size at breeding, longevity, migratory traits);
 - (b) relevant for assessment of a key anthropogenic pressure to which the ecosystem component is exposed, being sensitive to the pressure and exposed to it (vulnerable) in the assessment area;
 - (c) present in sufficient numbers or extent in the assessment area to be able to construct a suitable indicator for assessment;
 - (d) the set of species or habitats selected shall cover, as far as possible, the full range of ecological functions of the ecosystem component and the predominant pressures to which the component is subject;
 - (e) if species of species groups are closely associated to a particular broad habitat type they may be included within that habitat type for monitoring and assessment purposes; in such cases, the species shall not be included in the assessment of the species group.
2. Additional practical criteria (which shall not override the scientific criteria):
 - (a) monitoring/technical feasibility;
 - (b) monitoring costs;
 - (c) adequate time series of the data.

The representative set of species and habitats to be assessed are likely to be specific to the region or subregion, although certain species may occur in several regions or subregions.

Theme: Ecosystems, including food webs (relating to Descriptors 1 and 4)

Criteria, including criteria elements, and methodological standards

Criteria elements	Criteria	Methodological standards
<p>Trophic guilds of an ecosystem.</p> <p>Member States shall establish the list of trophic guilds through regional or subregional cooperation.</p>	<p>D4C1 – Primary:</p> <p>The diversity (species composition and their relative abundance) of the trophic guild is not adversely affected due to anthropogenic pressures.</p> <p>Member States shall establish threshold values through regional or subregional cooperation.</p>	<p><i>Scale of assessment:</i></p> <p>Regional level for Baltic Sea and Black Sea; subregional level for North-East Atlantic and Mediterranean Sea.</p> <p>Subdivisions may be used where appropriate.</p> <p><i>Use of criteria:</i></p> <p>Where values do not fall within the threshold values, this may trigger further research and investigation to understand the causes for the failure.</p>
	<p>D4C2 – Primary:</p> <p>The balance of total abundance between the trophic guilds is not adversely affected due to anthropogenic pressures.</p> <p>Member States shall establish threshold values through regional or subregional cooperation.</p>	
	<p>D4C3 – Secondary:</p> <p>The size distribution of individuals across the trophic guild is not adversely affected due to anthropogenic pressures.</p> <p>Member States shall establish threshold values through regional or subregional cooperation.</p>	
	<p>D4C4 – Secondary (to be used in support of criterion D4C2, where necessary):</p> <p>Productivity of the trophic guild is not adversely affected due</p>	

Criteria elements	Criteria	Methodological standards
	to anthropogenic pressures. Member States shall establish threshold values through regional or subregional cooperation.	

Specifications and standardised methods for monitoring and assessment

1. Species composition shall be understood to refer to the lowest taxonomic level appropriate for the assessment.
2. The trophic guilds selected under criteria elements shall take into account the ICES list of trophic guilds²⁰ and shall meet the following conditions:
 - (a) include at least three trophic guilds;
 - (b) two shall be non-fish trophic guilds;
 - (c) at least one shall be a primary producer trophic guild;
 - (d) preferably represent at least the top, middle and bottom of the food chain.

Units of measurement:

- D4C2: total abundance (number of individuals or biomass in tonnes (t)) across all species within the trophic guild.

²⁰ ICES Advice (2015) Book 1, ICES special request advice, published 20 March 2015.