

Article 12 Technical Assessment of the MSFD 2012 obligations Belgium

7 February 2014

Final Version



DISCLAIMER:

The opinions expressed in this document are the sole responsibility of the authors and do not necessarily represent the official position of the European Commission.

The main authors of this report are Claire Dupont, Alice Belin, Bastiaan Vermonden and Goncalo Moreira with contributions from Sabine Cochrane, Lindsay Wilson and Chris Emblow (D1, 4, 6), Belinda Kater (D2), Sophie Des Clercs (D3), William Parr (D5), Christophe Le Visage (D7), Norman Green (D8 and 9), Jan Cools (D10) and Frank Thomsen (D11). This report is provided under Contract No 070307/2012/634823/SER/D2 – Task F.

Milieu Ltd. (Belgium), 15 rue Blanche, B-1050, Brussels, tel: 32 2 506 1000; Fax 32 2 514 3603; e-mail: claire.dupont@milieu.be and alice.belin@milieu.be; web address: www.milieu.be

Contents

Section 1. Introduction and cross cutting issues.....	5
Section 2. Summary of the assessment.....	7
Section 3. D1, D4 and D6 (Biodiversity).....	10
I. Good Environmental Status (GES).....	10
II. Initial assessment.....	13
III. Environmental targets.....	15
IV. Consistency.....	18
Section 4. Descriptor 2 (Non-indigenous species).....	19
I. Good Environmental Status (GES).....	19
II. Initial Assessment.....	19
III. Environmental targets.....	20
IV. Consistency.....	20
Section 5. Descriptor 3 (Commercial fish and shellfish).....	22
I. Good Environmental Status (GES).....	22
II. Initial Assessment.....	23
III. Environmental targets.....	23
IV. Consistency.....	24
Section 6. Descriptor 5 (Eutrophication).....	25
I. Good Environmental Status (GES).....	25
II. Initial Assessment.....	25
III. Environmental targets.....	26
IV. Consistency.....	27
Section 7. Descriptor 7 (Hydrographical conditions).....	28
I. Good Environmental Status (GES).....	28
II. Initial Assessment.....	29
III. Environmental targets.....	29
IV. Consistency.....	30
Section 8. Descriptor 8 (Contaminants).....	31
I. Good Environmental Status (GES).....	31
II. Initial assessment.....	31
III. Environmental targets.....	33
IV. Consistency.....	34
Section 9. Descriptor 9 (Contaminants in Fish and Seafood).....	35
I. Good Environmental Status (GES).....	35
II. Initial assessment.....	35
III. Environmental targets.....	36
IV. Consistency.....	36
Section 10. Descriptor 10 (Marine Litter).....	38
I. Good Environmental Status (GES).....	38
II. Initial Assessment.....	38
III. Environmental targets.....	39
IV. Consistency.....	40
Section 11. Descriptor 11 (Introduction of energy).....	41
I. Good Environmental Status (GES).....	41
II. Initial Assessment.....	41
III. Environmental targets.....	42
IV. Consistency.....	42
Section 12. General Conclusions.....	43

Section 1. Introduction and cross cutting issues

Overall Approach

Belgium has uploaded its reporting sheets for Article 8, 9 and 10 on 14 May 2013¹, with ESA and a first version of Article 8 on 18 April 2013. The paper version was uploaded on 16 August 2012 in French and Dutch. The paper report includes three distinctive parts respectively on GES and environmental targets, on initial assessment and on ESA.

Belgium has set GES for at descriptor and criteria level in both the paper report (*Definition of GES and environmental targets for Belgian marine waters*) and the reporting sheets. GES is not specifically set at indicator level (except for D3) however the further specification of certain criteria can cover the relevant Commission Decision indicators. The definition at descriptor level reproduces *verbatim* the definition of Annex I of the MSFD. However, for its definition at criteria level, Belgium has chosen to combine different elements which relate to several criteria and/or indicators. In fact, in its paper report, Belgium does not use the term criterion and what is called criterion in the reporting sheet would be better called condition (i.e. GES for Descriptor X is achieved if). This approach makes it sometimes difficult to assess whether Belgium has covered all criteria and/or indicators of the Commission Decision in its GES definition. However, it clearly refers to the Commission Decision criteria and indicators when setting its targets and associated indicators.

The definitions of GES and of targets and indicators come with limited accompanying text.

Belgium acknowledges that it has defined GES qualitatively but that it has defined more specific and measurable targets and associated indicators.

In the introduction to its initial assessment, Belgium acknowledges that the report does not provide an assessment (called a judgement in the present report) of the current status of the elements reported in relation to the good environmental status.

Scope of the marine waters

Belgium is part of the North East Atlantic. The outer limit of the coverage is defined by the international boundaries of the Belgian Continental Shelf (also the boundary of the Exclusive Economic Zone (EEZ)). Belgium underlined that the Belgian waters cover only a small part of the North Sea (0.5%), bordering the waters of three neighbouring countries, and, consequently, the need for a strong cooperation with these countries to reach environmental objectives.

Assessment areas and aggregation scales

The GES and environmental targets are defined for Belgium for the whole of the Belgian part of the North Sea with the exception of Descriptor 3 which should be implemented at the regional scale according to Belgium. No specific distinction is made between assessment areas; the Belgian part of the North Sea is described as a whole.

Regional cooperation

Belgium is party to OSPAR. Efforts for regional coordination within OSPAR and informally through bilateral contacts with relevant countries are extensively described. In addition, Belgium specifies in the introduction to its initial assessment report that OSPAR 2010 Quality Status Report forms the reference to the report. With regard to coordination within OSPAR, Belgium notes that while there has been a high level of information sharing and coordination for the IA and GES, information sharing on the development of coordinated environmental targets and indicators was moderate. In terms of coordination problems, Belgium underlines that the timeline and ambitious requirements of the MSFD prevented coordination in relation to GES definition and the setting of environmental targets, and

¹ The version of 14 May was taken into account as it only included technical corrections of the version of 30 April, the deadline set by the Commission for uploading reporting sheets.

describe the additional actions identified within OSPAR to improve coordination for all GES descriptors, with a focus on Descriptor 7. More details are provided in the following sections for each descriptor.

Socio-economic analysis

Belgium has used the water account approach for its economic and social analysis of the marine uses and a thematic approach for the cost of degradation. With regard to ESA, The methodology has been described as a stepwise approach. The identification of the relevant economic activities / sectors has been based on ARCADIS (2010) report. A more detailed description is given per sector. For some sectors (e.g. fisheries, aggregate extraction, dredging, etc.) clear references of back ground documents are given within the descriptive text. The background documents were not submitted by the MS. For other sectors (e.g. wind energy, coastal defence, shipping) no references to background documents were given within the text or at least for certain sections of the description.

The cost of degradation is based on an analysis of the current costs, expenses and benefits related to the degradation of the marine environment. This includes accounting costs which refer to current expenditures on measures for environmental protection and prevention; abatement costs and transaction costs, as well as opportunity costs that relate to the loss of benefits for activities that suffer from environmental degradation. Belgium had the intention to integrate four cost categories to calculate its cost of degradation: 1. Prevention costs 2. Mitigation costs 3. Governance costs 4. Opportunity costs. However, in practice (based on the results of an expert workshop) this was not feasible. In the ESA national report the actual costs of the measures have therefore been identified, leading to the actual environmental status. In order to estimate the total cost of marine degradation additional 'restoration costs' need to be further taken into account as well, so the Good Environmental Status can be achieved (currently not done). In addition, costs for some sectors are incomplete and not transparent.

Data and knowledge gaps

In its initial assessment, Belgium provides very little detail about knowledge gaps (in both the reporting sheets and the paper report) and even less so about future plans to address these gaps. In the introduction to its report on GES and targets, Belgium acknowledges that the definition of GES and the setting of targets for this first reporting cycle have relied mainly on existing assessments and methodologies and that gaps identified during this first reporting cycle will be addressed in the next reporting cycles, for example through the development of new methodologies.

Section 2. Summary of the assessment

The table presents a summary of the assessment, using the following keys:

Keys	Meaning
+++	Good practice (can be attributed to one individual criterion)
++	Adequate
+	Partially adequate
-	Inadequate
0	Not reported

	GES		Initial assessment		Targets	
	Assessment	Criteria	Assessment	Criteria	Assessment	Criteria
D1	+	<ul style="list-style-type: none"> - Coverage of all criteria of the Commission Decision for D1 and coverage of all ecosystem components equally - Lack of detail at criteria level, use of general terms - Achievement of existing legislation/ agreements as basis for GES - Use of 2012 initial assessment (degraded state) as baseline with no ambition to improve quality towards a reference state 	+	Pressures: <ul style="list-style-type: none"> - Covers only some types of physical loss and physical pressure - Impacts are addressed and there is an attempt to quantify them - No conclusive judgements have been provided 	++	<ul style="list-style-type: none"> - The targets and indicators defined for biodiversity cover all three Descriptors (1, 4 and 6) - Most of them are SMART as they include specific threshold values - They cover the main biodiversity components except non-commercial fish - They are ambitious and would allow to reach GES if achieved - Lack of pressure targets
			+	Features: <ul style="list-style-type: none"> - covers most habitat types and the main relevant species groups - limited description of pressures - judgements are only provided in some cases 		
D2	+	<ul style="list-style-type: none"> - GES only at descriptor level and for one criterion - Definition at descriptor level is very close to the Annex I definition - At the level of criterion 2.1, the definition remains general & some species are excluded - Baseline is the current status 	+	<ul style="list-style-type: none"> - Adequate assessment of abundance, spatial distribution, vectors and pathways - Level of pressure and impacts on features are not provided - No judgement of pressure or trend is provided - No plans to fill data/knowledge gaps 	-	<ul style="list-style-type: none"> - Only one target which relates to new introduction but not preventing the further spreading of existing NIS - The target is not SMART - It does not cover all the main sources of introduction - No associated indicator - Certain species excluded as for GES
D3	+	<ul style="list-style-type: none"> - GES states that all stocks should be within safe biological limits - GES does not apply Fmsy for all stocks (although it does apply to all stocks for which this reference point is known) - Criterion 3.3 is not applied 	+	<ul style="list-style-type: none"> - Provides an overview for the amount of stocks with a SSB that are within and outside safe biological limits - Most of the assessment general and insufficiently quantified including that for fleets 	-	<ul style="list-style-type: none"> - Targets do not require all stocks to be within safe biological limits - Targets are not always consistent as a set (targets are set in relation to the GES definition) - Not all targets are Smart

	GES		Initial assessment		Targets	
	Assessment	Criteria	Assessment	Criteria	Assessment	Criteria
D4	+	<ul style="list-style-type: none"> - GES is defined at criteria level, covering all three criteria of the Commission Decision - Baseline used is 2012 initial assessment with no ambition to improve towards a reference state - General definitions, lack of specificity 		See D1.	+	<ul style="list-style-type: none"> - Most of them are SMART as they include specific threshold values - The targets do not cover the concept of productivity - The targets do not cover the large fish indicator
D5	+	<ul style="list-style-type: none"> - GES is defined only at descriptor level but it is not a copy of the MSFD - Not clear if indirect effects of eutrophication are covered - Good link with the WFD and OSPAR thresholds 	+	<ul style="list-style-type: none"> - Covers loads of the relevant nutrients but only limited information on concentrations - Organic matter is not covered - Limited information on impacts - Judgement on current status per reference to the WFD and OSPAR (in line with Belgian GES) 	+	<ul style="list-style-type: none"> - Consistent set of targets - Targets are specific, measurable, but it is not clear if they are achievable and realistic - Relatively ambitious and targeted to reduce impacts (but do not cover indirect effects) - Targets do not cover macrophytobenthos
D6	+	<ul style="list-style-type: none"> - GES defined at criteria level, for the two criteria of the Commission Decision - General lack of specificity and measurability of the definitions (e.g. no mention of specific substrate type) - Reference to EU and regional standards 		See D1.		See D1.
D7	+	<ul style="list-style-type: none"> - GES is defined at a general level - The two criteria included do not entirely match those from the 2010 Commission Decision - Initial assessment is used as a baseline but there is no assessment of current status 	+	<ul style="list-style-type: none"> - Main pressures and changes are covered but the assessment of impacts is more limited - No conclusive judgement on the current status of pressure or impacts - No explicit reference to the WFD - Assessment based on the OSPAR QSR 2010 	++	<ul style="list-style-type: none"> - Targets are SMART and include thresholds - Well-focused to the reduction of impacts - cover both criteria of the 2010 Commission Decision - Direct reference to the existing regulatory regimes
D8	+	<ul style="list-style-type: none"> - GES defined at criteria level but does not cover criterion 8.2 fully as it does not fully cover acute pollution events - Use of EQS and EAC but lack of specification on the hierarchy between the two approaches - Effects of contaminants covered through OSPAR EcoQOs 	+	<ul style="list-style-type: none"> - Quantitative assessment made for current levels of concentrations and how they compare with relevant reference levels (EQS/EAC) - Lack of quantification of input loads from various sources - No information provided on impacts on ecosystem components - Short assessments for radionuclides and acute pollution 	++	<ul style="list-style-type: none"> - All targets but one are SMART - Target on acute pollution is the common OSPAR target - They cover both criteria of the Commission Decision in detail - Only state targets, no pressure targets - Their achievement would ensure achievement of GES
D9	+	<ul style="list-style-type: none"> - GES defined at descriptor and criterion level but only partial coverage of criterion 9.1 (no mention of frequency of regulatory levels being exceeded) - Relevant reference to Regulation 1881/2006 - Lack of details regarding substances and species covered - Inclusion of Shellfish Water Directive in the scope of GES definition (+++) 	-	<ul style="list-style-type: none"> - Very limited assessment and inconsistent/contradictory between reporting sheet and paper report - Assessment of microbial pathogens only in reference to Bathing Waters Directive and not Shellfish Directive 	+	<ul style="list-style-type: none"> - One target defined which corresponds to the GES definition - SMART target through reference to Regulation 1881/2006 and Directive 2006/113/EC - No target on frequency of regulatory levels being exceeded

	GES		Initial assessment		Targets	
	Assessment	Criteria	Assessment	Criteria	Assessment	Criteria
D10	-	<ul style="list-style-type: none"> - GES definition at descriptor level is mere reproduction of Annex I MSFD - Definition at criteria level following the Commission Decision - Unclear whether GES refers to new and/or existing waste - No threshold value set 	++	<ul style="list-style-type: none"> - Adequate qualitative and quantitative assessment - All relevant sources covered - Reference to OSPAR studies - Lack of assessment of impacts 	+	<ul style="list-style-type: none"> - Potentially measurable targets - Lack of threshold values but baseline defined - Targets only address impacts and not pressures
D11	+	<ul style="list-style-type: none"> - GES definition at descriptor level is based on Annex I MSFD - GES also defined at criteria level but different criteria used - No justification for not using the Commission Decision criteria - No distinction between impulsive and continuous sound 	-	<ul style="list-style-type: none"> - Limited data on underwater noise in Belgian waters - Some sources identified as main pressures but limited information provided - No distinction made of impulsive and continuous sounds - No reference to OSPAR 	+	<ul style="list-style-type: none"> - SMART targets since they integrate threshold values - Second target can be measured only if systematic monitoring is implemented - No target on sources of underwater noise

Section 3. D1, D4 and D6 (Biodiversity)

I. Good Environmental Status (GES)

1.1 Descriptor 1

Definition of GES (reporting sheet and paper report):

D1. Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.

Criteria 1.1 Species distribution

Good conditions according to the Water Framework Directive (i.e. good ecological status), Habitats and Birds Directives (i.e. favourable conservation status) and OSPAR (i.e. ecological quality objectives) are attained. Rare and threatened habitat types and species, included in existing legislation and conventions, are protected to the level envisaged by that legislation or convention. 2) The habitat types and constituting species' populations extent, distribution and condition minimally reflect the conditions described in the Initial Assessment of Belgian waters (2012). 3) Diversity within the different ecosystem components (i.e. plankton, benthos, fish, seabirds and marine mammals) is maintained.

Criteria 1.2 Population size

Good conditions according to the Water Framework Directive (i.e. good ecological status), Habitats and Birds Directives (i.e. favourable conservation status) and OSPAR (i.e. ecological quality objectives) are attained. Rare and threatened habitat types and species, included in existing legislation and conventions, are protected to the level envisaged by that legislation or convention. 2) The habitat types and constituting species' populations extent, distribution and condition minimally reflect the conditions described in the Initial Assessment of Belgian waters (2012). 3) The habitat types are structurally and functionally diverse and productive. 4) Diversity within the different ecosystem components (i.e. plankton, benthos, fish, seabirds and marine mammals) is maintained.

Criteria 1.3 Population condition

1) Good conditions according to the Water Framework Directive (i.e. good ecological status), Habitats and Birds Directives (i.e. favourable conservation status) and OSPAR (i.e. ecological quality objectives) are attained. Rare and threatened habitat types and species, included in existing legislation and conventions, are protected to the level envisaged by that legislation or convention. 2) The habitat types and constituting species' populations extent, distribution and condition minimally reflect the conditions described in the Initial Assessment of Belgian waters (2012). 3) Diversity within the different ecosystem components (i.e. plankton, benthos, fish, seabirds and marine mammals) is maintained.

Criteria 1.4 Habitat distribution

1) Good conditions according to the Water Framework Directive (i.e. good ecological status), Habitats and Birds Directives (i.e. favourable conservation status) and OSPAR (i.e. ecological quality objectives) are attained. Rare and threatened habitat types and species, included in existing legislation and conventions, are protected to the level envisaged by that legislation or convention. 2) The habitat types and constituting species' populations extent, distribution and condition minimally reflect the conditions described in the Initial Assessment of Belgian waters (2012).

Criteria 1.5 Habitat extent

1) Good conditions according to the Water Framework Directive (i.e. good ecological status), Habitats and Birds Directives (i.e. favourable conservation status) and OSPAR (i.e. ecological quality objectives) are attained. Rare and threatened habitat types and species, included in existing legislation and conventions, are protected to the level envisaged by that legislation or convention. 2) The habitat types and constituting species' populations extent, distribution and condition minimally reflect the conditions described in the Initial Assessment of Belgian waters (2012).

Criteria 1.6 Habitat condition

1) Good conditions according to the Water Framework Directive (i.e. good ecological status), Habitats and Birds Directives (i.e. favourable conservation status) and OSPAR (i.e. ecological quality objectives) are attained. Rare and threatened habitat types and species, included in existing legislation and conventions, are protected to the level envisaged by that legislation or convention. 2) Viable species populations are maintained

for the key long-lived, slowly reproducing species, as well as for the top predator species in all habitat types. 3) The habitat types and constituting species' populations extent, distribution and condition minimally reflect the conditions described in the Initial Assessment of Belgian waters (2012).

Criteria 1.7 Ecosystem structure

Diversity within the different ecosystem components (i.e. plankton, benthos, fish, seabirds and marine mammals) is maintained.

Belgium has set GES for Descriptor 1 at descriptor and criteria level in both the paper report (*Definition of GES and environmental targets for Belgian marine waters*) and the reporting sheet. GES is not set at indicator level. The definition at descriptor level reproduces *verbatim* the definition of Annex I of the MSFD. Belgium has chosen to combine for each criterion different elements which relate to several criteria.

At the criteria level, reference is made to the Habitats and Birds Directive, OSPAR and the WFD (for indicators 1.1 to 1.6) in terms of 'attaining' the good conditions these instruments set i.e. the WFD GEcS, the Habitats and Birds Directives favourable conservation status and OSPAR EcoQOs constitute the baseline for GES. The same element also refers to rare and threatened species and habitat types covered in existing legislation and conventions which should be protected at the level envisaged by that legislation or conventions. The reporting sheet and paper report do not specify which are these legal acts and conventions. GES is defined in principle in the same way for all species, functional groups and habitat types.

While the use of these other 'standards' is considered as appropriate and relevant for GES definition, it is not clear how they are being applied in the context of the Belgian marine waters. More importantly, one of the elements of GES definition (also applicable to criteria 1.1 to 1.6) establishes that the conditions described in the Initial Assessment is the minimum GES for the extent, distribution and condition of habitat types and constituting species populations. Criterion 1.7 also refers to the Initial Assessment for the maintenance of the different ecosystem components. A degraded state is used as a baseline without any ambition to improve quality towards a reference state (reference conditions). Ecosystem structure is not addressed in much detail. Some functional groups are referred to (key long-lived, slowly reproducing species, top predator species) but not at a detailed level.

The definition of GES does not include any quantitative thresholds and the references to WFD and OSPAR standards are too vague to constitute measurable threshold values.

Conclusion on adequacy: the definition of GES for Descriptor 1 is assessed *partially adequate*. GES has been defined for all criteria of the Commission Decision. However, there is a lack of detail at the criteria level with very general terms and phrases used which require further definition and detail in terms of how the relevant policies/directives are applied within the context of Belgian waters. The GES definition itself is clear, particularly in relation to each criteria and the corresponding relevant reference (i.e. Directive or convention) but would benefit from more specifics. In addition, a degraded state is used as a baseline.

1.2 Descriptor 4

Definition of GES (reporting sheet and paper report):

D4. All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity

Criteria 4.1 Productivity (production per unit biomass) of key species or trophic groups

The habitat types are structurally and functionally diverse and productive.

Criteria 4.2 Proportion of selected species at the top of food webs
 Viable species populations are maintained for the key long-lived, slowly reproducing species, as well as for the top predator species in all habitat types.

Criteria 4.3 Abundance/distribution of key trophic groups/species
 Viable species populations are maintained for the key long-lived, slowly reproducing species, as well as for the top predator species in all habitat types.

Belgium has set GES for Descriptor 4 at descriptor and criteria level in both the paper report (*Definition of GES and environmental targets for Belgian marine waters*) and the reporting sheet. GES is not set at indicator level. The definition at descriptor level reproduces *verbatim* the definition of Annex I of the MSFD. The lack of indicator detail means that only relatively general descriptions apply.

According to the reporting sheet, all birds, fish, NIS and mammals are covered. However the definitions are very general. The baseline is limited to the 2012 Initial Assessment.

In relation to other Member States the spatial scale of Belgium waters is relatively limited and therefore it is considered as acceptable that GES apply to the whole marine waters, as long as the habitat types (e.g. water column, sea bed, etc.) within are treated separately where necessary.

Conclusion on adequacy: the definition of GES for Descriptor 4 is assessed as *partially adequate*. Reference is made to the structure of the food web but details are lacking/ insufficient. This may partially be due to Belgium's approach of assessing D1, D4 & D6 together. A series of general statements are made referring to population maintenance and habitat diversity, but the definition does not specify what are the key species and top predator species. Limited or no details are given with regards to threshold levels or existing standards and baseline references should be expanded on.

1.3 Descriptor 6

Definition of GES (reporting sheet and paper report):

D6. 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.

Criteria 6.1 Physical damage, having regard to substrate characteristics
 Physical disturbance of the seafloor is minimised to a sustainable level, taking account of the relative sensitivity of habitat types.

Criteria 6.2 Condition of benthic community
 Good conditions according to the Water Framework Directive (i.e. good ecological status), Habitats and Birds Directives (i.e. favourable conservation status) and OSPAR (i.e. ecological quality objectives) are attained. Rare and threatened habitat types and species, included in existing legislation and conventions, are protected to the level envisaged by that legislation or convention.

Similarly to D1 and 4, GES for Descriptor 4 is set at descriptor and criteria level, and not at indicator level. The definition at descriptor level reproduces *verbatim* the definition of Annex I of the MSFD. The lack of indicator detail means that only relatively general descriptions apply.

The baseline reference for D6 and criterion 6.1 is limited to the initial assessment and there is no threshold value for criterion 6.1. The definition for criterion 6.1 is rather vague and unspecific. The references for criterion 6.2 are the Habitats and Birds Directives, the WFD and OSPAR in terms of 'attaining' the good conditions they define, which is slightly more specific and measurable.

The definitions/establishment of baseline conditions based on these agreements are appropriate and relevant for GES definition but they could be clearer, i.e. how are they being applied in the context of Belgian waters.

Belgium does not refer to any specific substrate types or to any specific elements/components of the benthic community and seems to cover only listed/protected habitat and species under criterion 6.2.

Conclusion on adequacy: The same remarks made in relation to D1 and 4 apply also to the definition of GES for D6, which is assessed as *partially adequate*. The definition covers the two criteria of the Commission Decision but is quite vague and unspecific as far as criterion 6.1 is concerned. Criterion 6.2 is specified through reference to existing standards/legislation. In general though the definition is not specific regarding substrate types and elements of the benthic community covered.

II. Initial assessment

2.1 Pressures (physical loss and physical damage)

The analysis and assessment on the level of pressure, and impact from, physical loss in the light of available knowledge to assess this topic is only partial.

The Belgium report addresses only the impact from port infrastructure and wind farms, and quantitative analysis is very limited and restricted to these two fields. Some information is provided on the geographical area for physical loss but only for the port infrastructure and, in very general terms, the wind farm activity. The report identifies as the main causes of physical destruction of the seabed, the construction of the port of Zeebrugge in the twentieth century, the recent seaward expansion of the port of Ostend and the widening/deepening of existing channels. More recently the construction of offshore wind farms has resulted in physical loss as a result of erosion protection. The current status of physical loss on the environment is not given or the current level of impact or trend, other than by reference to existing directives. The Birds and Habitats Directives, the WFD and the EIA Directive are referred to and a threshold value is given for the level of loss but without further explanation, making the assessment unclear.

With regard to physical damage, a cumulative assessment has been carried out for dredging and dumping activities, but no overall cumulative assessment which would include fisheries activities, extraction activities. For these activities only a description was provided with a limited amount of quantitative data. The main cause of physical damage is identified as the significant increase of the number and scope of hydrographical interventions (sand extraction for coastal defence and commercial purposes, dredging navigation channels, construction of wind farms, laying of cables) during the second half of the 20th century. Bottom trawling also results in physical damage of the seabed. Information is provided on the location and extent of the various pressures. A partial assessment has been carried out for level and impacts of physical damage. Fisheries, aggregate extraction and dredging are discussed with some additional information on scale and geographic location, there is no justification for why only these 3 are discussed. A very general statement is provided on the main causes for physical damage. The MS has made no judgement on the current level of pressure or trend in the pressure, and only partially makes a judgement of the impact on features. Status assessment is based on the Bird and Habitat Directive, WFD and EIA's. Three thresholds are given for the level of damage which is dominated by fishing activities.

The impact of physical loss and damage is addressed with reference to the relevant directives (as listed above) and a series of quantitative threshold values. The majority of the indices used for quantifying impacts are acceptable and well-known approaches (with the exception of BPC², more explanatory details are required), however, more detail is required to put into context their proposed levels, e.g.

² Benthic bioturbation potential

'min. BEQI³ of 0.6', but without indication of the range. It is unclear whether the analysis covers all types of physical loss/damage in the area.

Conclusion on adequacy: the initial assessment carried out by Belgium in relation to the physical loss and physical damage is *partially adequate*. The assessment covers only some types of physical loss and physical damage and the information is mainly qualitative. Impacts are addressed and there is an attempt to quantify them even if more explanatory details should have been provided. No conclusive judgements have been provided.

2.2 Biological features

Habitats

The description of habitats in the reporting sheet is fragmented. In relation to the sea bed there is a lack of input for the littoral (intertidal zone) but some input is provided for shallow (i.e. identification of four subtidal communities which are each linked to a specific habitat) and shelf (i.e. gravel beds) habitat types. In relation to the water column, only a general description is provided with almost no input on coastal or shelf waters and there is no justification provided for why this is the case. Geographical descriptions are basic. In addition to reporting on several predominant habitat types (Shallow sublittoral sand, Shallow sublittoral mud, Shelf sublittoral coarse sediment, Shelf sublittoral mixed sediment, coastal and shelf) marine water Belgium has also reported on four additional habitats: H1110 and H1170 from the Habitats Directive and peatzones and artificial hard substrates, which are listed by Belgium as part of the MSFD classification of predominant habitats although this is not the case.

In the paper report, Belgium uses the habitat types and EUNIS level 3 classifications and it is not always clear on how to translate this into the MSFD classification. It is also difficult to distinguish shallow and shelf. This classification shows less detail than the MSFD one and does not have a one to one relationship to the ecologically-meaningful habitat types but is commonly used by surrounding MS's. In the paper report, Belgium also provides a separate description of seabed and water column habitat types and seabed and water column's biological characteristics, where benthic communities and planktons are described. While benthic communities are reported in the reporting sheet under various predominant habitats, plankton is not at all reported in the reporting sheet.

For each habitat/habitat type reported in the reporting sheet, a limited description has been provided of the habitat distribution (often providing correspondence to the relevant EUNIS classification), extent and condition. For certain habitat types, the information provided is quantitative. Sometimes the same information is reported under different predominant habitat types (e.g. shelf and shallow sand) and it is also mentioned that certain predominant habitats are the same as habitats listed under the Habitats Directive. The correspondence between EUNIS classification, individual habitat types and MSFD predominant habitat types is not clearly presented.

The main pressure and impacts on the habitat types have been provided. No qualitative judgement has been made on the current status of the habitat types in relation to GES apart from the status of artificial hard substrates, which is described in a lot of details but should actually be rather considered as a description than a judgement on status. The same applies to the assessment of status of the H1170 habitat which is actually the description of the habitat distribution. However, a judgement is made on the trend in status for H1170 (declining) and artificial hard substrate (improving).

Species/functional groups

Belgium has reported on three species groups (birds, mammals and fish) and four birds functional groups (offshore benthic, offshore surface, offshore pelagic and offshore scavenger), two mammal functional groups (seals and toothed whales) and one fish functional group (diadromous fish). No

³ Benthos Ecosystem Quality Index

justification is provided in the reporting sheets to explain why certain functional groups are not reported. Belgium does not report on individual species in the reporting sheet but information on individual species are included in the assessment of species groups. In the paper report, in addition to providing relatively detailed descriptions of the three species groups mentioned, Belgium provides a description of the species listed under the Birds and Habitats Directive but no mention is made of RSC lists. In the reporting sheet, there is also a mention that Natura 2000 special habitats will be reported under the Birds and Habitats Directive reporting in 2013. It should be noted that Belgium does not use the functional groups to report in its paper report. The correspondence between the classification used by Belgium and the MSFD classification is not clear.

Little information is provided about the main pressures and human activities causing the pressures on the features reported. While the descriptions in the reporting sheet are rather limited they are a bit more detailed in the paper report, with some quantitative information on group abundance. For mammals and fish, Belgium has assessed the current state in relation to natural conditions (altered). However, there is no clear judgement on the status of birds or mammals in relation to GES, only basic descriptive text. More information is available for fish with a partial judgement on status trends and a qualitative judgement on current status.

Ecosystem

Belgium has not reported at the ecosystem level.

Conclusion on adequacy: overall the initial assessment carried out by Belgium in relation to the biological features is *partially adequate*. The assessment covers most habitat types and the main relevant species groups. However, judgements on the current status of habitats and species groups are only made in some cases and the main pressures on the features are not well described. There is no justification why certain species groups (e.g. cephalopods) or certain functional groups (e.g. pelagic or demersal fish) have not been included in the assessment. A description of the species listed under the Birds and Habitats Directive is provided.

III. Environmental targets

Belgium has set a total of 17 environmental targets, with one associated indicator for each target for biodiversity. D1, D4 and D6 are addressed all together and therefore, the adequacy assessment is also done in a combined fashion.

Environmental targets (reporting sheet and paper report):

D1, criterion 1.2:

Target: Changes in breeding seabird abundance remain within target limits for 75% of the species monitored.
 Associated indicator: Proportion of seabird species of which breeding abundance is within the expected levels as described in the OSPAR EcoQO (species: *Larus argentatus*, *Larus michahellis*, *Larus canus*, *Larus fuscus*, *Ichthyæetus melanocephalus*, *Chroicocephalus ridibundus*, *Sternula albifrons*, *Sterna hirundo*, *Thalasseus sandvicensis*).

D1 and 6, criteria 1.1, 1.2, 1.6, 1.7 and 6.2:

Target: The Ecological Quality Ratio as determined by BEQI (see Annex), indicative for benthic ecosystem structure and quality, has a minimum value of 0,60 in each of the habitat types (Commission Decision 2008/915/EC).
 Associated indicator: Ecological Quality Ratio determined by BEQI.

D1, 4 and 6, criteria 1.1, 1.2, 1.6, 4.3 and 6.2:

Target: Positive trend in median adult density (or frequency of occurrence) of at least one species within the long-lived and/or slowly reproducing and key engineering benthic species groups in both mud to muddy sands and pure fine to coarse sands.
 Associated indicator: Mean adult density (or frequency of occurrence) of the long-lived and/or slowly reproducing (larger bivalves such as *Venerupis senegalensis*, *Mya truncata*, *Lutraria angustior*, *Laevicardium*

crassum, *Glycymeris glycymeris* and *Dosinia exoleta*; other larger organisms such as *Buccinum undatum*, *Aphrodita aculeata*, *Cancer pagurus*, *Echinocardium cordatum* and *Branchiostoma lanceolatum*); and key engineering benthic species groups (larger tube-building polychaetes, such as *Lanice conchilega*, *Owenia fusiformis* and *Pectinaria koreni*; Larger gallery-dwelling organisms, such as *Callianassa spp.*, *Upogebia deltaura* and *Corystes cassivelaunus*)

D1 and 6, criteria 1.1, 1.2, 1.6, 1.7 and 6.2:

Target: Spring median benthic bioturbation potential (BPc) in the *Abra alba* habitat type is higher than 100.

Associated indicator: Median benthic bioturbation potential in the *Abra alba* habitat type.

D1 and 6, criteria 1.2, 1.3 and 6.2:

Target: Positive trend in median colony/body size of the sessile, long-lived and/or larger benthic species *Buccinum undatum*, *Mytilus edulis*, *Flustra foliacea*, *Haliclona oculata* and *Alcyonium digitatum*.

Associated indicator: Median colony/body size of the species *Buccinum undatum*, *Mytilus edulis*, *Flustra foliacea*, *Haliclona oculata* and *Alcyonium digitatum*.

D1, 4 and 6, criteria 1.1, 1.2, 1.6, 4.3 and 6.2:

Target: Positive trend in frequency of occurrence and median adult density of at least half of the key and long-lived species *Ostrea edulis*, *Sabellaria spinulosa*, *Mytilus edulis*, *Buccinum undatum*, *Haliclona oculata*, *Alcyonium digitatum* and *Alcyonidium spp.*

Associated indicator: Frequency of occurrence and median adult density of the species *Ostrea edulis*, *Sabellaria spinulosa*, *Mytilus edulis*, *Buccinum undatum*, *Haliclona oculata*, *Alcyonium digitatum* and *Alcyonidium spp.*

D1, 4 and 6, criteria 1.1, 1.2, 1.6, 4.3 and 6.2:

Target: No loss or positive trend in species richness within all key hard substrate taxa, i.e. *Porifera*, *Cnidaria*, *Bryozoa*, *Polychaeta*, *Malacostraca*, *Maxillopoda*, *Gastropoda*, *Bivalvia*, *Echinodermata* and *Ascidiacea*.

Associated indicator: Species richness within the key hard substrate taxa *Porifera*, *Cnidaria*, *Bryozoa*, *Polychaeta*, *Malacostraca*, *Maxillopoda*, *Gastropoda*, *Bivalvia*, *Echinodermata* and *Ascidiacea*.

D1, 4 and 6, criteria 1.6 and 6.2:

Target: Decreasing relative frequency of occurrence of damaged *Asterias rubens* (2+ cm arm length) and tube clusters of *Pomatoceros triqueter*, indicative for physical disturbance of the bottom (= pressure indicator), as to enhance natural development of the gravel bed ecosystem (= desired state).

Associated indicator: Relative frequency of occurrence of damaged *Asterias rubens* and tube clusters of *Pomatoceros triqueter*.

D1, 4 and 6, criteria 1.5 and 1.4:

Target: Within the test zones in the gravel beds, the ratio of the hard substrate surface area (i.e. surfaces that are colonized by hard substrate epifauna) over soft sediment surface area (i.e. surfaces overtopping hard substrates and preventing hard substrate fauna development) does not show a negative trend.

Associated indicator: Ratio of hard substrate surface area over soft sediment surface area in the test zones in the gravel beds.

D1, criterion 1.2:

Target: The 5 year running mean species density is not below the long-term mean annual population size for 5 consecutive years for minimally half of the non-scavenging seabird species.

Associated indicator: Mean species density of following non-scavenging seabird species: *Podiceps cristatus*, *Gavia spp.*, *Melanitta spp.*, *Sula bassana*, *Hydrocoloeus minutus*, *Sterna hirundo*, *Uria aalge*, *Alca torda*.

D1, criterion 1.2:

Target: The 5 year running mean species density is not above the long-term mean annual population size for 5 consecutive years for minimally two of the scavenging seabird species.

Associated indicator: Mean species density of following scavenging seabird species: *Rissa tridactyla*, *Larus canus*, *Larus argentatus*, *Larus fuscus*, *Larus marinus*.

D1, criterion 1.2:

Target: For each of the scavenging seabirds species (Table 2.B), are the mean densities over 5 consecutive years not below the minimum defined by the Birds Directive favourable conservation status.

Associated indicator: 5 year mean density of following scavenging seabird species: *Rissa tridactyla*, *Larus*

canus, Larus argentatus, Larus fuscus, Larus marinus

D1 and 4, criteria 1.2 and 4.3:

Target: The yearly number of incidentally bycaught harbour porpoises *Phocoena phocoena* is less than 1,7 % of the best estimate of the population size.

Associated indicator: Yearly number of incidentally bycaught harbour porpoises *Phocoena phocoena*.

D1 and 4, criteria 1.2 and 4.3:

Target: Positive trend in the number of individuals of thornback ray *Raja clavata*.

Associated indicator: Number of individuals of thornback ray *Raja clavata*.

D1 and 6, criteria 1.4, 1.5 and 6.1:

Target: The spatial extent and distribution of the EUNIS level 3 habitats (sandy mud to mud, muddy sands to sands and coarse grained sediments), as well as that of gravel beds fluctuate - relative to the reference state as described in Initial Assessment - within a margin limited to the accuracy of the current distribution maps

Associated indicator: Spatial extent and distribution of the EUNIS level 3 habitats and the gravel beds.

D6 and criterion 6.1:

Target: Positive trend in sea floor surface area permanently devoid of bottom-contacting fishing gear disturbance within each of the benthic habitat types (= pressure indicator), as to allow a natural development of the benthic fauna and flora and as to minimise artificial fragmentation of the seafloor (= desired state).

Associated indicator: Percentage of sea floor surface permanently devoid of bottom-contacting fishing gear disturbance within each of the benthic habitat types.

D6 and criterion 6.1:

Target: Positive trend in sea floor surface area disturbed only by alternative, environment-friendly fishing gear which pursues a substantial reduction of bottom disturbance within each of the benthic habitat types (= pressure indicator), as to allow for an improved benthic habitat quality and as to minimise artificial fragmentation of the seafloor (= desired state)

Associated indicator: Percentage of sea floor surface disturbed only by alternative, environmentally-friendly fishing gear within each of the benthic habitat types.

Belgium has set 17 targets each accompanied with an associated indicator to cover the three biodiversity descriptors. The targets set by Belgium cover almost all criteria for D1, 4 and 6 of the Commission Decision. The only criteria not covered are 4.1 (productivity of key species or trophic groups) and 4.2 (proportion of selected species using at the top of the food webs), meaning that the targets cover food webs only partially.

The targets cover seabirds, with specific species mentioned that are included under the scope of the Birds Directive, molluscs, benthic fauna and flora, elasmobranch and mammals. For the last two categories, Belgium has selected one indicator species representative of the group (the *Raja clavata* ray for elasmobranch and the *Phocoena phocoena* harbour porpoise for the mammals). Fish are not covered by the Belgian targets for biodiversity. Commercial stocks are covered by the targets for Descriptor 3 but other non-commercial stocks are therefore not covered. For the habitats, Belgium is using the EUNIS 3 classification rather than the MSFD predominant habitat type classification, covering mud, sand, coarse grained sediment and gravel beds.

Baseline values for environmental targets refer either to OSPAR EcoQO's, a time reference, the WFD. A number of targets are set for the main species groups and habitat types. For a large number, as the baseline is the state in 2012, it is mentioned that the baseline is still to be calculated/determined. On the whole, the targets are SMART and in some cases quite detailed to species level.

Many targets relate to trends but there is no specification of a threshold value or at least a quantitative trend in relation to the baseline (e.g. decrease by X%).

Only a limited number of targets refer to pressures and they are focused on disturbances to seafloor habitats from contact with fishing gear and promotion of alternative, environment-friendly fishing gear

Conclusion on adequacy: On the whole, the set of targets and indicators defined by Belgium to cover descriptors 1 and 6 are considered as *adequate* while the targets for descriptor 4 are considered *partially adequate*. The targets are specific, measurable, realistic and time-bound. In particular, they address the main species groups although only a single species of fish (*raja clavata*) is covered, and some of the main habitat types. In some ways, the targets appear more detailed than the initial assessment. The targets for descriptors 1 and 6 are ambitious and will aid reaching or maintaining GES if achieved in the timescale given. In the case of descriptor 4 the targets do not cover the concept of productivity, set a target for large fish and do not address all the main components of the food web. It should also be noted that the set of targets do not address specifically all relevant pressures, which may be a more pragmatic approach.

IV. Consistency

Belgium has taken an approach to GES definition whereby different elements which relate to several criteria/indicator are combined to define one condition. The accompanying assessment does not follow this same approach and therefore does not include a judgement on the status of the features reported in relation to their GES definition. It is also difficult to assess whether the set of environmental targets and associate indicators defined for Descriptors 1, 4 and 6 collectively address all the main pressures and impacts related to these descriptors as identified by the initial assessment, due to the nature of the targets set. Species related targets do not relate directly back to the pressure. With regard to habitat related targets, only fishing pressure are mentioned.

While the targets are quite specific in addressing population trends and habitat disturbance, given that GES definitions are very broad, it is uncertain whether the targets will be sufficient to achieve GES.

Section 4. Descriptor 2 (Non-indigenous species)

I. Good Environmental Status (GES)

Definition of GES (reporting sheet and paper report):

D2. Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystem.

Criteria 2.1. No significant increase in the relative abundance of non-indigenous species in relation to the 2012 baseline should occur. Species for which there are taxonomic disputes and for which the changes of permanent introduction, including reproduction are negligible are not taken into consideration.

Belgium set GES for Descriptor 2 only at descriptor level and for one criterion out of two, in both the reporting sheets and the paper report. At descriptor level, the definition is very close to the one of the Directive although the wording is slightly different. Both wordings are considered as equivalent.

Criterion 2.2 is not mentioned in the GES definition and there is no justification for this.

Finally, there is a definition at the level of criterion 2.1 which also reflects the indicator 2.1.1. It sets an objective of no 'significant' increase in the 'relative' abundance of NIS. There are no further details as to what is a 'significant' increase', nor what is the 'relative' abundance. Baseline is put down with an initial assessment in 2012. Finally, this GES definition excludes species for which there are taxonomic disputes and for which the changes of permanent introduction, including reproduction are negligible are not taken into consideration

Conclusion on adequacy: the definition of GES for D2 is assessed as *partially adequate*. GES is defined only at descriptor level and for one criterion out of two. Criterion 2.2 is not covered The definition is not sufficiently precise to assess if GES is reached or not. The baseline is rightly set at the current status. However, Belgium adds some exceptions without clear justification and specification. The minimum requirements are not fully reflected. Rather than 'no new introduction', the GES definition focuses on no increase in relative abundance and lack of impacts.

II. Initial Assessment

Belgium reported on 23 species in the reporting sheets. The Belgium list counts more species than the list prepared under the project 'Delivering Alien Invasive Species Inventories for Europe' (DAISIE). However, it is considered as incomplete as about one hundred non-indigenous species have been identified in the Belgian coastal areas that were introduced – either intentionally or accidentally – through human activities.

The ratio between invasive and native species is not indicated and no assessment of the level of pressure on the environment is provided, although some information is presented on abundance, with an increasing trend of the number of newly recognised introductions, with a particularly remarkable rise after 1975, mainly as a result of more studies. Density (ind/m³) provided for sea walnut, American jackknife. The Belgium report also mentions that four NIS currently have a dominant presence in the marine coastal habitats (both hard and soft substrates): the American jackknife, the Japanese oyster, the New Zealand barnacle and the common slipper shell.

Conclusion on adequacy: The assessment is considered to be *partially adequate*. Not all NIS present in Belgian waters are reported upon. The assessment is carried out for several parameters (abundance, spatial distribution, relation to vectors and pathways), and this is done in an adequate way. The

assessment covers all relevant geographical areas. However, some information is still missing like ratios between indigenous and non-indigenous species, levels of pressure on the environment, risk areas, and level of impacts on features. Judgements on level and impact of the pressure and plans to fill knowledge gaps are also missing.

III. Environmental targets

Environmental targets (reporting sheet and paper report):

Target 18 (covers criterion 2.1): Introduction of new human induced non-indigenous species of macrofauna and macroflora (>1 mm) in relation to the 2012 baseline is prevented. Species for which there are taxonomic disputes and for which the changes of permanent introduction, including reproduction are negligible are not taken into consideration.

Associated indicator: The prevention of human induced introduction of non-indigenous species of macrofauna and macroflora.

Belgium has defined one target and one associated indicator to cover Descriptor 2. The target relates only to the introduction of new NIS; while GES definition also relates to no significant increase in relative abundance NIS in relation to 2012 baseline. Therefore, GES and the environmental target are not consistent. The target relates only to macro-fauna and flora. The Belgian paper report mentions that the extension of the target to all ecosystem components will be considered for the next cycles without further clarification.

In general, the target is specific, time-bound (July 2020⁴), but it appears very difficult to measure and not realistic as it would be difficult to measure all NIS in an area, because the chance to find a newly introduced, hardly spread species in the course of a survey is very limited. It is also not realistic because it is not deemed possible to avoid (stop) all new introductions.

In addition, the target is not sufficiently targeted towards reducing levels of a specified pressure or impact, or controlling human activities, which are preventing GES from being achieved, as it is not explicit enough. In particular, it does not cover all the main sources of new introductions.

Belgium also introduces specific limitations. The target applies only to macro-fauna and flora (above 1 mm) and does not cover species for which there are taxonomic disputes and for which the changes of permanent introduction, including reproduction are negligible.

Conclusion on adequacy: The target is assessed as *inadequate* as it is not realistic and measurable and does not cover all the main sources. The target only relates to new introductions and there is no target on preventing the further expansion of existing NIS. Besides, there is no associated indicator. Finally, Belgium has excluded certain species from the target based on size, uncertainty in knowledge and level of pressure.

IV. Consistency

While the assessment has identified particular species and vectors/pathways, the definition of GES and environmental targets remain very general.

Besides, as mentioned above, the target relates only to the introduction of new NIS and not existing NIS; while GES definition also relates to no significant increase in relative abundance NIS in relation to 2012 baseline. Therefore, GES and the environmental target are not consistent.

⁴ The reporting sheet indicates July 2012. However, it is considered as a typographic mistake which should read December 2020.

The set of targets is not considered as sufficient to achieve GES, which is itself defined in a vague way. The targets relate directly to a reduction in the identified pressures/impacts but without any specification. In particular, no threshold has been set.

Section 5. Descriptor 3 (Commercial fish and shellfish)

I. Good Environmental Status (GES)

Definition of GES (reporting sheet and paper report):

D3. 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.

Criteria 3.1: Fishing mortality

- Situation 1 – FMSY known: the level of stock mortality generated by fishing activity (F) is equal to or lower than FMSY
- Situation 2 – FMSY not known, but Fpa known: the level of stock mortality generated by fishing activity (F) is equal to or lower than Fpa
- Situation 3 – FMSY & Fpa not known: a catch/biomass ratio that is consistent with a sustainable exploitation will be used as a proxy reference point
- Situation 4 – biomass not known: trends of survey CPUE (catch per unit of effort) will be evaluated as a proxy for fishery mortality

Criteria 3.2: the spawning stock biomass (SSB) is at a level capable of delivering MSY.

- Spawning stock biomass: the spawning stock biomass (SSB) is at a level capable of delivering MSY.
- Situation 1 - BMSY known: the level of spawning stock biomass (SSB) is equal to or higher than BMSY
- Situation 2 – BMSY not known, but Bpa known: the level of spawning stock biomass (SSB) is equal to or higher than Bpa
- Situation 3 – BMSY & Bpa not known: trends of survey abundance will be evaluated as a proxy of stock biomass

Belgium has defined GES for Descriptor 3 at descriptor, criteria and indicator levels. Criteria 3.1 and 3.2 have been used in the Belgian GES definition while criterion 3.3 has not been applied. For criterion 3.1 there are four, and for criterion 3.2 three, situations to determine whether GES is achieved which are based on the data available for the stock. Reference points such as Fmsy and SSBmsy will rely on ICES advice.

For criteria 3.1 the first two situations as described for the Belgian GES definition apply the Commission Decision primary indicator 3.1.1 fishing mortality (F). The Commission Decision however states that fishing mortality should be at or below Fmsy for all stocks while the Belgian GES allows for exploitation at Fpa under the conditions of situation 2, this is not consistent with the Commission Decision and the outcomes of the working groups.

Situation 3 of criterion 3.1 has used the secondary indicator as provided by the commission decision and states that the ratio is consistent with a sustainable exploitation based on a proxy reference point. It is however not indicated what is meant with sustainable whether the reference point will be a proxy of MSY which would be in line with the commission decision or whether it means that the indicator does not have a degradation gradient which is in line with the MSFD Task Group 3 Report (March 2010).

In the case of situation 4 the trends of survey CPUE will be evaluated, however no reference point or trend that could be used to assess GES is specified.

For criteria 3.2 situation 1 and 2 use the primary indicator 3.2.1 from the Commission Decision spawning stock biomass (SSB). In those situations where the SSBmsy is known GES is achieved when SSB is at SSBmsy which is in line with the Commission decision. During the working group meetings it has however been decided that in order to achieve GES the limit for SSB can also be set at SSBpa

which Belgium applies in situation 2 where SSB_{msy} is not known. For situation 3 instead of using the secondary indicator 3.2.2 biomass indices instead Belgium will rely on trends of survey abundances. It is however difficult to discern whether proxy reference points for this indicator will be set and if yes whether they will be set at MSY or PA.

Conclusion on adequacy: the GES definition of Belgium for descriptor 3 is assessed as *partially adequate*. Not all of the different situations defined for criterion 3.1 are in accordance with the requirements of the Commission Decision or the outcomes of the working group meetings that require that all stocks are exploited at or below F_{msy}. Not all the limit reference points are clearly defined. For Criterion 3.3 while it is acknowledged in the Commission Decision that this criterion requires additional work to become operational it should still be applied in the national GES definitions.

II. Initial Assessment

The Belgian initial assessment has reported on the impacts on fish stocks and ecosystem components and provided some information on the fishing fleet and level of fishing activity. The information is mainly of a qualitative nature and lacks details such as fleet sizes amount of seabed disturbed and number of functional groups affected by fisheries.

In the reporting sheets Belgium does provide information regarding the status of Fish stocks in Belgium waters. 5 out of 26 fish stocks were assessed to meet the EcoQO criteria for spawning stock biomass, 8 fish stocks were outside safe biological limits and for 11 fish stocks no reference points could be set. No trends for the pressure from fisheries or for fish stocks as a group were provided.

Conclusion on adequacy: the initial assessment of Belgium for the pressure of fisheries is assessed as *partially adequate*. In the reporting sheets an overview for the amount of stocks within safe biological limits is provided. For most aspects however the assessment lacks adequate quantitative information and remains very general.

III. Environmental targets

Environmental targets (reporting sheet and paper report):

Environmental target 19: All commercial fish stocks managed through the CFP are being managed in a way that minimally meets the maximum sustainable yield. This assessment should be performed on the basis of regional fish stocks, and not on a national level.

Associated indicator: Number of commercial fish stocks fished at FMSY.

Environmental target 20: All commercial fish and shellfish stocks are within safe biological limits, with an age (when available) or size (if ages not available) distribution indicative for a healthy stock, and the stocks should be exploited on a stable, long term, with full reproductive capacity.

Associated indicator: Relative number of commercial fish and shellfish stocks within safe biological limits.

Environmental target 21: Shellfish stocks are being managed sustainably.

Associated indicator: Shellfish stocks management/ fisheries mortality.

Environmental target 22: All commercial fish and shellfish stocks have complete reproductive capacity.

Associated indicator: Reproductive capacity of fish and shellfish stocks, threshold B_{msy}

Environmental target 23: Fishing mortality values and spawning stock biomasses are within safe biological limits (F below or equal to reference points for fishery mortality; SSB above or equal to reference points for spawning stock biomass) or show positive or stable trends in survey abundance and negative or stable trends in survey CPUE.

Associated indicator: Fishing mortality, threshold F_{pa}

Associated indicator: Fishing mortality, threshold B_{pa}

Environmental target 24: Stocks that are not within safe biological limits yet should at least show trends of movement in the direction of the reference points.

Associated indicator: Standing stock biomass, threshold B reference point

Associated indicator: Fishing mortality, F reference point

Environmental target 25: When data on a stock are even insufficient to evaluate trends in survey CPUE and abundance, these stocks will be placed in the category of 'data deficient stocks' and discussions will be initiated regarding alternative evaluation methods. This category will be revised after every 6 years.

Belgium has defined seven targets and seven associated indicators to address Descriptor 3. The targets are specified towards achieving the GES defined by Belgium and should be achieved by 2020. The targets are not sufficiently ambitious to achieve the objectives of the MSFD.

For target 23, the fishing mortality for all stocks should be at or below F_{msy} not F_{pa} by 2020. For target 24 the target should be for all stocks to be at or above SSB_{pa} and not only a movement into a positive direction. Target 26 is not SMART as it is not clear what type of revision will take place after six years or what the outcome of the discussion are supposed to be. Target 24 is in conflict with targets 20 and 22, as it states that stocks outside of safe biological limits should show a positive trend while targets 20 and 22 require that all stocks are within safe biological limits.

Conclusion on adequacy: the set of environmental targets and associated indicators defined by Belgium for descriptor 3 is assessed as *inadequate*. The targets are not consistent as a set. In particular target 24 is not sufficiently ambitious to achieve the objectives of the MSFD which requires that all stocks are within safe biological limits. Target 25 is not SMART.

IV. Consistency

The GES addresses the issues identified in the initial assessment and specifically the lack of quantified stock assessments which are needed for the determination of reference points such as F_{msy} and B_{pa} . Belgium relies on ICES estimates of MSY and PA points. The targets generally match with the GES definition but target 24 is in conflict with the other targets as well as the objectives of the MSFD that all stocks are at least at SSB_{pa} by 2020. With the exception of target 24 the targets are generally sufficient to achieve GES although they are state targets not pressure targets.

Section 6. Descriptor 5 (Eutrophication)

I. Good Environmental Status (GES)

Definition of GES (reporting sheet and paper report):

D5. Human-induced eutrophication is minimized, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters.

GES for eutrophication would be achieved if: firstly the criteria for a Good Ecological Status defined in the framework of the Water Framework Directive are achieved. If the first target is reached, the criteria defined in the OSPAR Common Procedure need to be achieved.

Belgium has defined GES for Descriptor 5 only at descriptor level. The definition in the paper report is the same as in the reporting sheet but it includes in addition the definition of Annex I of the MSFD. Even though it is only defined at descriptor level, two conditions are set in order to achieve GES: WFD good ecological status is achieved and thresholds established under the OSPAR Common Procedure are complied with.

No further explanation of those conditions is provided and thus one can assume that for WFD purposes, D5 GES is defined in terms of phytoplankton and phytobenthos community status, perhaps with supporting physico-chemical quality elements, and for the OSPAR Common Procedure, marine waters are defined as being eutrophication non-problematic areas, for which only preliminary information is required under the screening procedure (e.g. excluding organic loads and nutrient concentrations in offshore waters). No attempt is made to match the monitoring requirements of these conditions to those of the criteria provided in the Commission Decision, and thus it is not known whether, for example, macrophytobenthos or phytoplankton community status is a suitable indicator of trophic status, or whether some form of disaggregation of WFD monitoring data should be provided for MSFD status assessments.

The MSFD GES D5 definition is matched to WFD GES thresholds – as already mentioned above the proposed definition of GES is a combination of the national WFD approach and the international OSPAR Common Procedure. However, a more detailed description of national monitoring requirements and status assessments under the WFD and the OSPAR Common Procedure is required, matching the criteria used to those in the Commission Decision.

Conclusion on adequacy: the GES definition of Belgium for D5 is assessed as *partially adequate*. The definition of GES is not a copy or reformulation of the MSFD, but does not meet the minimum requirements (it is not clear whether indirect effect criteria are considered and included either under OSPAR or WFD monitoring programmes). GES is the same as WFD normative definitions of good ecological status, but specific thresholds are presented under Article 10, not 9 as they should be. Based on the above, it would be difficult to determine when GES had been achieved.

II. Initial Assessment

The assessment covers all relevant nutrients – nitrogen and phosphorus – in terms of loads, but does not appear to cover organic loads, although a decreasing trend of the input of organic matter through riverine input (Scheldt) in the coastal waters is referred to. Decreasing trends for nutrient loads are reported, but not as percentage decreases, which is the metric required for a ‘referenced’ assessment. Very little information appears to be provided on nutrient concentrations or chlorophyll/Phaeocystis levels; rather, a repeat of threshold levels is given. In addition, no information is given on the concentrations of organic matter.

No information is provided on the extent of coverage of offshore waters. Under the WFD it is assumed that all coastal water bodies are included, but no information on the density of coverage is provided. Agriculture, forestry and industry are mentioned as the main causes of eutrophication in the reporting sheets.

No information is provided on macrophytobenthos (although impacts on shallow mud and sand features are referred to in the reporting sheets), water transparency or dissolved oxygen status, yet coastal waters are defined as an OSPAR eutrophication problematic area, and as being of only moderate status under the WFD, so information must be available. Since the definition of GES refers directly to the WFD good ecological status and the OSPAR Common Procedure, it can be said that Belgium made the status assessment per reference to GES definition.

Conclusion on adequacy: the initial assessment of Belgium for eutrophication is assessed as *partially adequate*. It refers to the loads of all relevant nutrients (even if very little information is given on the current concentrations). However, neither the load or organic matter or the concentrations of the nutrients and organic matter are mentioned. The status is assessed per reference to the WFD and OSPAR Common procedure which is in line with Belgium GES definition for D5.

III. Environmental targets

Environmental targets (reporting sheets and paper report):

Target 26: The 90 percentile of chlorophyll a concentration (in the growing season and over 6 years) is less than 15 µg/l.

Associated indicator: 90 percentile of chlorophyll a concentration in the growing season.

Target 27: If previous target is reached, less than 17 % of monthly samples contain more than 1000.000 Phaeocystis cells/l. (Commission Decision 2008/915/EC)

Associated indicator: Concentration of Phaeocystis cells/l

Target 28: Complementary target: winter DIN concentrations are less than 12 µmoles/l (offshore) or 15 µmoles/l (coastal) and winter DIP concentrations are less than 0,8 µmoles/l. (OSPAR COMP)

Associated indicator: Winter DIN (offshore and coastal) and winter DIP concentrations

Belgium has defined three targets and associated indicators to address Descriptor 5, which are the same in the reporting sheet and the paper report.

The three targets for chlorophyll, Phaeocystis cell density and nutrient levels cover Commission criteria 5.1 (nutrient levels) and 5.2 (direct effects), but exclude indirect effects (criterion 5.3). Nutrient ratios appear to be regarded as not appropriate and there are no baseline/threshold conditions for water transparency. Phaeocystis enumeration could be regarded as a threshold for species shifts in floristic composition, but there are no baselines/thresholds for macrophytobenthos (criteria 5.2.3 and 5.3.1). No justification is provided for not including all criteria (5.1, 5.2 and 5.3) or indicators (5.1.1, 5.1.2, etc.).

The targets are all measureable and sufficiently specific, allowing progress towards the targets to be assessed. However, no timescale is provided for achieving the targets and there is not sufficient information in the initial assessment to provide an educated insight as to whether they are achievable and realistic by 2020.

The targets addressed all relevant impacts. However, they make no reference to macrophytobenthos and fail to tackle individual pressures. The targets may not be ambitious enough to achieve GES by 2020. Finally, the set of targets is consistent and there are no conflicting targets.

Conclusion on adequacy: the set of environmental targets and associated indicators defined by Belgium for D5 is assessed as *partially adequate*. They are relatively ambitious and targeted to reduced levels of impact in order to achieve GES but it is not clear if that will happen by 2020. They make no reference to macrophytobenthos and fail to tackle individual pressures but the reduction of impacts entails a reduction in pressures.

IV. Consistency

The pressures and impacts are consistent with Belgium's definition of GES, but it is not clear over the extent to which the impacts on WFD coastal water phytobenthos status are included as an impact in the initial assessment. Neither is it stated whether dissolved oxygen status and thresholds are included in either WFD or OSPAR assessment methodologies. Impacts on dissolved oxygen levels are not included as an impact in the initial assessment.

The set of environmental targets and associated indicators defined for Descriptor 5 does not cover all impacts related to Descriptor 5 identified in the initial assessment. Impacts on shallow sand and mud communities are mentioned in the initial assessment but the targets make no reference to macrophytobenthos.

The environmental targets established by Belgium should lead to a reduction in the identified impacts, since the targets appear to provide a boundary for GES (which is currently still not achieved). The reduction of impacts will require a reduction in pressures. However, the targets and indicators tackle a limited number of impacts and it is not specified what other impacts would need to be considered to achieve full compliance with either WFD or OSPAR objectives, the achievement of which is required for the GES.

Section 7. Descriptor 7 (Hydrographical conditions)

I. Good Environmental Status (GES)

Definition of GES (reporting sheet and paper report):

D7. Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems.

GES for hydrographical conditions would be achieved if:

- The nature and scale of any long-term changes to the prevailing hydrographical conditions from anthropogenic activities (individual and cumulative) in the marine environment do not lead to significant negative impacts at a species, population or ecosystem level.
- This at least implies that the changes in flow patterns resulting from concerned human activities are in such a way that erosion and sedimentation remain balanced.

In the paper report, Belgium has defined GES for Descriptor 7 at descriptor level but with the addition two conditions to achieve GES, which incorporate the two criteria laid out for Descriptor 7 in the Commission Decision. In the reporting sheet, Belgium reports these two conditions as 7.1 and 7.2 but they actually do not match the Decision's criteria.

Indeed, 7.2 in the reporting sheet (or the second condition in the paper report) relates to flow patterns resulting from human activities. The addition of this condition should be assessed in conjunction with the assessment made by Belgium of morphological changes in its IA paper report, which looks mainly at changed erosion-sedimentation patterns due to disturbance of the hydrodynamics. However, the IA does not specify how these changes impact ecosystem components and therefore how including this condition in the GES definition will help the achievement of the overall GES objective to not adversely affect marine ecosystems. More explanation would be needed as to why this specific aspects has been addressed in the initial assessment (and therefore is addressed in the GES definition) and not others (e.g. better control of sand extraction). Also, this condition lacks information about spatial and temporal scale.

In the reporting sheets the initial assessment carried out during 2012 is referred to as the baseline for the measurement of progress towards GES. The features and pressures addressed by GES are also listed. However, no threshold value is provided and no link is made to WFD normative definitions of ecological status classifications for coastal waters or to other existing regulatory regimes to be complied with (e.g. EIA, SEA, Habitats and Birds Directives). No specific detail is given about the interpretation of the main parameters ("significant", "long term", "scale", "balanced").

Conclusion on adequacy: the GES definition of Belgium for D7 is assessed as *partially adequate*. GES has been defined; it is not a simple reformulation of the MSFD. However, taking into account the lack of specific information it is considered that the definition of GES is actually only at descriptor level and not really at criteria level. The addition of the second condition/criterion on flow patterns would require more specification to be considered a good practice. On the other hand, the definition is set only at a very general level. The use of the initial assessment as the baseline for measurement of progress towards GES would be in line with the Commission approach if Belgium had made a judgement on the current status in relation to hydrographical conditions (i.e. current status is acceptable). Without such judgement, it cannot be assessed whether the use of current status as a baseline is adequate or not.

II. Initial Assessment

An initial assessment of the level of pressure of permanent hydrographical alterations has been carried out by Belgium, which refers to the difficulty in distinguishing between natural and anthropogenic causes and linking them to the corresponding impacts, as well as to the need to set quantified criteria in the future. There is not, however, a clear plan to address the gaps identified.

The main water column and seabed habitats affected are listed, along with the main causes of the permanent hydrographical alterations: land claim defence, sand and gravel mining and dredging. In addition, a few specific projects are mentioned such as the Zeebrugge port expansion and the deepening of the sea lanes towards the ports of Ostend, Zeebrugge and the Scheldt estuary. However, there is no mention to the proportion of the environment and habitats affected. A judgement on the current level and impacts of the pressure has not been made. Belgium refers to the assessment made under the Birds and Habitats Directive and in Environmental Impact Assessments but does not report any results from these assessments for the purpose of the Article 8 assessment. The assessment is merely qualitative.

In the reporting sheet, there is no specific mention of the issue of erosion and sedimentation. It is however specifically mentioned in the paper report, when morphological changes in particular are assessed. Negative quantitative trends are actually provided for erosion and sedimentation rates, which explain why the issue has been addressed by the GES definition. However, no information is provided on the impacts of these changes on ecosystem components.

The assessment for most hydrographical changes is based on the OSPAR QSR 2010.

Conclusion on adequacy: the initial assessment of Belgium for hydrographical conditions is assessed as *partially adequate*. The main pressures and changes have been assessed, but there is only a partial assessment of the impacts. There is no judgement of the level of impact as well as no explicit reference to WFD assessment for heavily modified water bodies, and generally to the impacts on marine environment of some land-based pressures.

III. Environmental targets

Environmental targets (reporting sheets and paper report):

Target 29: An impact demands consideration if one of the following conditions – related to the bottom stress on a 14 days spring tide/neap tide cycle as computed by validated mathematical models – is met: (i) there is an increase of more than 10% of the mean bottom shear stress (ii) the variation of the ratio between the duration of the bottom shear stress and the duration of the erosion is outside the “- 5%, + 5%” range

Associated indicator: Change in bottom stress on a 14 days spring tide/neap tide cycle computed by validated mathematical models.

Target 30: This consideration demanding impact (see target 29) remains within a distance equal to the root square of the surface occupied by this activity and taken from its inherent external limit.

Associated indicator: The surface impacted by the activity and the surface occupied by the activity.

Target 31: All developments must comply with the existing regulatory regime (e.g. EIA, SEA, and Habitats Directives) and regulatory assessments must be undertaken in such a way that takes into consideration any potential impacts arising from permanent changes in hydrographical conditions, including cumulative effects, at the most appropriate spatial scales following the guidance prepared to this end.

Belgium has defined three targets and associated indicators to address Descriptor 7. The targets are the same both in the reporting sheets and in the paper report; the associated indicators are only mentioned

in the reporting sheets. All three targets are considered to be specific, measurable, achievable and realistic.

The targets are sufficiently targeted to the anthropogenic pressures addressed by Descriptor D7 and they take into account the cumulative impacts addressed by Descriptors D1, D4 and D6. In the reporting sheets, threshold values are specified along with baselines to monitor progress. The timescale for achievement of all targets is the generic timescale of December 2020. It is considered that these targets can allow maintaining the changes in limited ranges (space and time).

All targets relate to limitation of impacts and consistently address complementary ways of limiting impacts. There are direct references to EU framework (EIA, SEA, and Habitats Directives) and target 31 is the recommended “operational” target defined by OSPAR, which means that there should be a high level of coherence with neighbouring countries using the same target.

Conclusion on adequacy: the set of environmental targets and associated indicators defined by Belgium for D7 is assessed as *adequate*. The targets are specific and well-focused to limitation of pressures/impacts/changes. They cover the various Decision criteria and indicators and provide relevant threshold values. Target 29 however is considered to be more of a measure than an actual target as it requires an impact assessment to be done if a number of conditions are met.

IV. Consistency

The assessment of the pressure and its impacts is consistent with the MS definition of GES, including the assessment of erosion and sedimentation only provided for in the paper report.

In its Article 8 assessment, Belgium reports threshold values for GES that it does not report under Article 9. For Commission criterion 7.1, the threshold value reported relates to bottom stress on a 14 days spring tide/neap tide cycle. For Commission criterion 7.2, the threshold value used is compliance with the existing regulatory regime (e.g. EIA, SEA, Habitats and Birds Directives) and regulatory assessments to avoid impact. Belgium has used these standards for the setting of environmental targets rather than for the definition of GES and therefore is not consistent with the information reported under Article 8.

The set of environmental targets addresses all the pressures identified in the initial assessment and it is considered that they can lead to a reduction of the relevant pressures and impacts. However, these targets will not be sufficient to achieve or maintain GES in relation to Descriptor 7 since it is not clear what “consideration” entails and that “considering” the impacts outside the recommended range for shear stress and distance will actually lead to prohibiting activities with such impacts.

Section 8. Descriptor 8 (Contaminants)

I. Good Environmental Status (GES)

Definition of GES (reporting sheet and paper report):

D8. Concentrations of contaminants are at levels not giving rise to pollution effects.

D8.1. Environmental concentrations of contaminants (in water, sediment and biota) are within agreed levels (EQS from WFD, EAC developed in OSPAR).

D8.2. The effects of contaminants on selected biological processes and taxonomic groups are within agreed levels (relevant OSPAR EcoQO).

Belgium has set GES for Descriptor 8 at descriptor and criteria levels in both the reporting sheets and the paper report.

The definition at descriptor level is a simple copy of the Directive. However, the definitions of the two criteria of the Commission Decision on concentration and effects of contaminants are specified further with the introduction of relevant risk-based standards. For concentrations, Belgium refers to the WFD EQS for measurements in water and supplements these with OSPAR Environmental Assessment Criteria (EAC) for sediment and biota measurements. Belgium does not explain which of these two approaches will be used for the three substances (Hg, HCB, HCBd) for which an EQS has been defined for measurements in biota and does not provide a hierarchy between the two approaches.

For the effects of contaminants, Belgium refers to “selected biological process and taxonomic groups” and to the “relevant” OSPAR EcoQOs, but does not specify further what these are. However, it can be inferred that relevant OSPAR EcoQOs refer to the impact of oil on guillemots and of TBT on dog whelks and other sea snails.

The accompanying text in the paper report provides a definition of what is meant by contaminants and pollution effects, in lines with WFD, OSPAR and HELCOM definitions, but it does not specify further which contaminants are addressed by the GES definition. Without further specification of the substances concerned, the Belgian definition as it is entails that GES is achieved when all contaminants, for which EQS and/or EAC have been developed, have concentrations within these limits.

Conclusion on adequacy: The Belgian approach is considered *partially adequate*. GES is defined at criteria level and refers to the relevant EU and RSC standards. It covers almost all indicators specified in the Commission Decision. Acute pollution events are partly covered through the EcoQO on oiled guillemots but only from an impact point of view. The occurrence, origin and extent of acute pollution episodes (indicator 8.2.2) are not covered by the Belgian definition of GES. The Belgian approach meets the minimum requirements but lacks ambition as it does not specify additional substances or pollution effects to be monitored than those required by WFD and OSPAR. Finally, it should be noted that while OSPAR’s EAC are risk-based (similarly to the EU EQS) and more tailored to marine water assessments than the EQS, the EU requires (also in the new proposal on hazardous substances) that the standards used by the Member States provide an equivalent protection to that provided by the EQSD.

II. Initial assessment

Synthetic and non-synthetic substances

The assessment carried out by Belgium of synthetic and non-synthetic substances in the reporting sheet is relatively detailed. Belgium details the various sources of land-based and sea-based contamination. It does not quantify the input loads from land-based sources. No information is

provided on input from air-based sources. The justification for this is quite limited as Belgium only states that the main source of contamination is from rivers (and in particular the Scheldt river responsible for 80 to 99% of input of synthetic substances and heavy metals).

In the reporting sheet, some qualitative trends are provided (e.g. decreasing trend for lindane) but only for a limited number of substances. In the paper report, graphs have been included that show the trends for five substances (Cd, Pb, Hg, lindane and PCBs) from 1990 to 2010. Qualitative trends are also provided with regard to the level of contamination in functional groups, on the basis of OSPAR and WFD monitoring programmes but the assessment remains limited.

No description is provided of the impacts of contamination from hazardous substances (synthetic and non-synthetic) on ecosystem components. No information is provided on gaps in the assessment and plans to address these.

Belgium makes a quantitative judgement of the current situation in the Belgian marine waters with regard to chemical pollution, in particular looking at the following substances: Pb, Cu, Cd, Zn, Hg, Lindane, PBDEs, DDT, HCB, PAHs, PCBs and TBT. This is done in accordance with the requirements of the WFD and following both WFD and OSPAR's monitoring approaches. Belgium does not make an aggregated judgement on the level of contamination in relation to GES in general. In the paper report however, it provides tables indicating the status in 2010 of the concentrations in sediment of 27 substances against the OSPAR's evaluation criteria (i.e. below or above background concentrations). In terms of conclusion, Belgium states first that for a large number of substances, the concentrations in water are below the threshold values and specifies that for a number of substances (in particular TBT, PAHs and PBDEs), the threshold values in water are systematically exceeded.

Radionuclides

An assessment of contamination by radionuclides has been carried out, mentioning the relevant sources of contamination and referring to OSPAR and WFD assessment frameworks. In the paper report, a number of tables are provided with the kind of radioactive elements monitored and the measured values in various matrices. It is not clear which year these measurements were made. No assessment is made of impacts from contamination by radionuclides on functional groups or seabed habitats. In terms of judgement, there is an inconsistency between the paper report, which indicates that radioactivity is not a problem in the Belgian marine waters, and the reporting sheet, which indicates that WFD and OSPAR targets are not met for certain substances.

Acute pollution events

Belgium provides a short description of the main sources of acute pollution and quantitative trends in the number of oil discharges and oil spills. It refers to the MARPOL Convention to explain the decreasing trends in both parameters monitored. No description is made of the impacts of acute pollution on seabed habitats and functional groups but Belgium specifies that littoral sediment and birds are impacted by this type of pollution. No real judgement is made on the current level of the pressure in relation to GES but Belgium indicates that the situation is improving.

Conclusion on adequacy: the initial assessment of contamination of the Belgian marine waters by hazardous substances, radionuclides and acute pollution events is considered *partially adequate*. Belgium provides quantitative information regarding the current concentration levels of relevant contaminants in the Belgian marine waters and how they compare to relevant assessment criteria (EQS and EAC). But it does not provide any quantification of input loads from various sources into the marine environment nor does it carry out an assessment of the impacts of contamination on ecosystem components.

III. Environmental targets

Environmental targets (reporting sheet and paper report):

Environmental Target 32: Water: concentrations of the WFD substances are equal to or less than their EQS.
Associated Indicator: Concentrations in water of the substances handled in the WFD.

Environmental Target 33: Biota: concentrations of Hg, Hexachlorobenzene and Hexachlorobutadienne are equal to or less than their EQS. (Directive 2008/105/EC)
Associated Indicator: Concentrations in biota of the substances handled in the WFD.

Environmental Target 34: Bird eggs: no difference is measured between Hg concentrations in bird eggs from impacted and non-industrial zones.
Associated Indicator: HG concentration in bird eggs

Environmental Target 35: Bird eggs: concentrations of PCB, DDT, HCB and HCH in bird eggs are equal to or less than their OSPAR threshold values.
Associated Indicator: Concentrations of PCB, DDT, HCB and HCH in bird eggs

Environmental Target 36: Biota and sediments: substances for which OSPAR has defined EAC's, even on a provisional basis, have concentrations that are equal to or less than their EAC's.
Associated Indicator: Concentrations of substances for which OSPAR has defined EAC's

Environmental Target 37: Biota and oil: the average proportion of oiled common guillemots (*Uria aalge*) is below 20 % of the total number found dead or dying on the beaches.
Associated Indicator: The average proportion of oiled common guillemots and the total number of dead or dying guillemots found on the beaches.

Environmental Target 38: Effects: the average level of imposex is consistent with an exposure to TBT concentration less than the EAC.
Associated Indicator: Level of imposex.

Environmental Target 39: Effects: for externally visible fish diseases, the fish disease index is below the environmental assessment criterium (EAC) set in the OSPAR JAMP guideline on Integrated Guidelines for the Integrated Monitoring and Assessment of Contaminants.
Associated Indicator: Fish disease index.

Environmental Target 40: Effects: the level of EROD (Ethoxyresorufin-O-deethylase) induction is below the background assessment level set in the OSPAR JAMP guideline on Integrated Guidelines for the Integrated Monitoring and Assessment of Contaminants.
Associated Indicator: Level of EROD induction.

Environmental Target 41: Acute pollution: risks induced by maritime accidents which may cause a release of more than 1000 tons oil or have a comparable impact are kept at their present level.
Associated Indicator: The risk for maritime incidents which may cause a release of more than 1000 tons oil or have a comparable impact.

Environmental Target 42: Occurrence and extent of significant acute pollution events (e.g. slicks resulting from spills of oil and oil products or spills of chemicals) and their impact on biota affected by this pollution should be minimised.
Associated Indicator: Occurrence and extent of significant acute pollution events and their impact on biota.

Belgium has set 10 targets each associated with one indicator to cover Descriptor 8. The targets cover all aspects of Descriptor 8 (concentration and effects of contaminants and acute pollution event) except radionuclides, which is expected at this stage. Most of the targets and associated indicators are directly measurable and can be considered as SMART. They are quantified, though not directly but through reference to the WFD's EQS or OSPAR's EAC or EcoQOs and they are time-bound. They cover in detail the two criteria of the Commission Decision, concentration and effects of contaminants,

as per the Belgium GES definition. It is interesting to note that target 33 clearly specifies that Hg, HCB and HCBD should be measured against the EQS defined in biota and not against the OSPAR EAC. This would suggest that this rule applies also to the GES definition, although it is not specified in the definition.

Only one target, Target 42, is not specific in that it only indicates that occurrence, extent and impacts of acute pollution events should be minimized without specifying a threshold value or a quantitative trend. No threshold value or baseline is indicated in the reporting sheet. However, it should be recognized that this target is the “operational” target set by OSPAR for acute pollution events so its use should ensure a certain level of coherence across neighbouring countries.

It should be noted that the indicator for oil-smearing beached birds differs from the EcoQO since it refers to a limit value of 20% of the total beached guillemots found dead or dying whereas the OSPAR EcoQO is set at 10%. The Belgian target is therefore less ambitious than the OSPAR one. The target on the levels of mercury in seabird eggs is also ambiguous in its definition in comparison to the OSPAR EcoQO, which refers to non-industrial zones in Norway or Scotland. The way the target is defined by Belgium seems to indicate that comparison should be made between industrial and non-industrial zones in Belgium. But in the reporting sheet, it is specified that the threshold value is the target level set in the OSPAR EcoQO.

Only the two targets on acute pollution address specific pressures and human activities. The other targets and indicators can be considered as state targets/indicators although Belgium reports them as pressure targets/indicators. In any case, they are not geared towards reducing the level of a specific pressure.

Conclusion on adequacy: the set of targets defined by Belgium to cover Descriptor 8 is considered as *adequate*. It is measurable and quantified except for one target on acute pollution. It refers to the relevant EU and RSC standards and is time-bound. They are not very ambitious as they merely comply with existing requirements (or are sometimes even less stringent, e.g. oiled birds target) but as such are realistic and their achievement should lead Belgium towards achieving GES.

IV. Consistency

There is an inconsistency between the initial assessment and the setting of GES in that Belgium has not assessed the impacts from contamination by hazardous substances on ecosystem components when this is part of their GES definition. In addition, an assessment is made of oil spills with reference to MARPOL and OSPAR under Article 8 and environmental targets are set to address acute pollution but this parameter is included in the GES definition only from an impact perspective (OSPAR EcoQO on oiled guillemots).

The set of targets and indicators is consistent with the part of the GES definition referring to concentrations of contaminants. As regards the impacts from contamination, it is less clear whether the targets will allow the achievement of GES considering that GES is vaguely defined when it comes to “selected biological processes and taxonomic groups”.

Section 9. Descriptor 9 (Contaminants in Fish and Seafood)

I. Good Environmental Status (GES)

Definition of GES (reporting sheet and paper report):

D9. Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards.

D9.1. All measured contaminants in fish and shellfish for human consumption have concentrations below regulatory levels (Commission Regulation 1881/2006 and Directive 2006/113/EC).

Belgium has set GES for Descriptor 9 at descriptor and criterion level in both the reporting sheets and the paper report. The definition at the level of the criterion however is different from the criterion defined in the Commission Decision, which refers to the levels, number and frequency of contaminants. The Belgian definition focuses solely on the concentrations of contaminants and the second part of criterion 9.1 on frequency of regulatory levels being exceeded is not covered in the Belgian GES definition.

The GES definition refers to Community legislation and other relevant standards. These other standards are not further specified but Community legislation is, as Belgium refers to Commission Regulation 1881/2006 and Directive 2006/113/EC. There is no direct reference to the specific substances covered by GES but Belgium specifies “all measured contaminants”, therefore it can be inferred that this refers to the contaminants included in the scope of Regulation 1881/2006 and Directive 2006/113/EC. It is also not specified which fish and shellfish species are targeted by the GES definition. The qualification “for human consumption” is not specific enough to know which these entail for Belgium.

There is no mention of OSPAR’s approach with regard to fish disease in the definition of GES, while Belgium uses it in its initial assessment.

Conclusion on adequacy: The definition of GES for Descriptor 9 is considered as *partially adequate*. The GES definition (as stated in the Directive) directly refers to Community legislation and Belgium has specified further the relevant EU legislation (and related substances) covered by its GES. The GES definition is therefore measurable and specific. However, there is a lack of details regarding the fish and seafood targeted by the definition. In addition, it cannot be considered that Belgium has defined its GES at the level of the criterion as only one part of the criterion is covered (levels of contaminants) while the number and frequency of contaminants exceeding regulatory levels are not addressed at all. The inclusion of Directive 2006/113/EC, and therefore of contamination by microbial pathogens, in the scope of the definition is considered a good practice.

II. Initial assessment

Belgium has not carried out an actual assessment of the contamination of fish and seafood by hazardous substances, whether in the reporting sheets or in the paper report. No justification is provided for this gap. In the reporting sheet however, Belgium has made a positive judgement in terms of risks for human health on the current level of impact from contamination on fish and seafood on the basis of OSPAR’s EAC on fish disease and compliance with 2006/113/EC (legal standards are not exceeded). It is not clear why the OSPAR standard is used rather than Regulation 1881/2006. In addition, there is no supporting text explaining this judgement.

In the paper report, the only reference made to the contamination of fish and shellfish for human consumption is the conclusion that flounders meet the health standards required for being sold while

mussels collected on breakwaters for monitoring purposes are not suitable for human consumption. This is therefore not in line with the judgement made in the reporting sheet.

Belgium has reported on microbial pathogens. The assessment covers bathing water, but no shellfish water. This is adequate in view of the absence of significant shellfish farming in Belgium waters. The assessment for bathing water covers the Belgium coast, and therefore the relevant geographical areas. There is a presentation of the level of pressures on bathing water, and a judgement (the beaches meet the Bathing Directive standard).

Conclusion on adequacy: The very limited assessment made by Belgium on contamination of fish and shellfish for human consumption is considered *inadequate*. Belgium has made a judgement in the reporting sheet, which is contradictory to the very limited information reported in the paper report. In addition, the reporting on microbial pathogens in the paper report is focused on bathing waters and not shellfish waters, which is less of interest for D9. This is also contradictory to the judgement made in the reporting sheet in relation to Directive 2006/113/EC (Shellfish water Directive).

III. Environmental targets

Environmental targets (reporting sheet and paper report):

Target 43. All measured contaminants in fish and shellfish for human consumption have concentrations below regulatory levels (Commission Regulation 1881/2006 and Directive 2006/113/EC).

Associated indicator: Contaminants in fish and shellfish taken up under Commission Regulation 1881/2006 and Directive 2006/113/EC

Belgium has defined one target and one associated indicators to cover Descriptor 9. The target defined by Belgium is actually the same as its GES definition. Even if it is a qualitative statement, it is relatively specific and measurable since it refers to EU standards (including the Shellfish Water Directive) and it is time-bound as the date for the achievement of the target is set at December 2020. However, as is the case with the GES definition, the target is not specific when it comes to fish and shellfish species that should be used to monitor progress and does not take into account the recent amendments to Regulation 1881/2006.

The target and associated indicator set by Belgium for D9 do not cover all of the Commission Decision criterion and indicators for D9. The parameters on number of contaminants exceeding regulator levels and frequency of regulatory levels being exceeded are not addressed by the targets. The set of target/indicator proposed by Belgium does not address control of specific human activities and is not geared towards reducing levels of a specified pressure. Although Belgium considers them to be pressure target/indicator, they can also be considered as state target/indicator.

Conclusion on adequacy: the set of target and indicator defined by Belgium to cover Descriptor 9 is considered as *partially adequate*. While the target/indicator defined is relatively specific and potentially measurable, it is an expression of GES (as it is the copy of the GES definition) rather than an actual target geared towards the reduction of a specified pressure or the control of human activities to monitor achievement (or maintenance) of GES. It does not address all aspects of the Commission Decision criterion and indicators and focuses solely on concentrations of contaminants.

IV. Consistency

As the assessment made of the impacts of contaminants on fish and seafood is extremely limited and inconsistent between the paper report and the reporting sheet, it cannot be considered consistent with the definition of GES or the setting of targets. In addition, the judgement made by Belgium regarding

current status is not made using the same standards as prescribed in the GES definition (use of OSPAR's EAC on fish disease rather than Regulation 1881/2006).

The set of target and indicators is consistent with the GES definition considering that it is a copy of the second part of the GES definition. It should be noted that the GES definition includes a reference to other relevant standards that the target does not address. Achievement of the target should mean achievement of GES but the target does not fulfil its role to guide towards the achievement of GES by reducing pressures or controlling human activities.

Section 10. Descriptor 10 (Marine Litter)

I. Good Environmental Status (GES)

Definition of GES (reporting sheet and paper report):

D10. Properties and quantities of marine litter do not cause harm to the coastal and marine environment.

GES for marine litter would be achieved if:

Properties and quantities of marine litter do not cause harm to the coastal and marine environment.

- The amount of litter, and its degradation products, does not cause harm/damage (direct or indirect) to marine life and habitats.
- The amount of litter, including its degradation products,⁵ on coastlines and in the marine environment is decreasing over time and are at levels which do not result in harmful effects to the coastal or marine environment.⁶

Belgium has defined GES for Descriptor 10 at descriptor and criteria level. All criteria laid out for Descriptor 10 in the Commission Decision are incorporated, but not the indicators. The GES definition at descriptor level cites the definition in the Decision. The two criteria, even though the numbering is inverted, reflect closely the criteria set in the Commission Decision.

The criteria aim to reduce the amount of litter and the impact of marine litter on respectively marine life and habitats (10.1) and on the coastal and marine environment (10.2). Yet, it is unclear how Belgium aims to achieve a reduction in the amount of litter and whether they will address new waste entering the marine environment and/or the existing waste in the marine environment.

The main features addressed by GES are listed in the reporting sheets, which also refer to the initial assessment as the baseline for threshold values. However, threshold values have not been set in either the paper report or the reporting sheets. A reference is made to OSPAR common language in the paper report.

Conclusion on adequacy: the GES definition of Belgium for D10 is assessed as *inadequate*. The definition of GES at descriptor level is a mere copy or reformulation of the MSFD; at criteria level it reflects closely the 2010 Commission Decision. However, it is not clear whether GES refers to new and/or existing waste and no threshold values have been set.

II. Initial Assessment

Belgium has carried out an initial assessment on marine litter – both qualitatively and quantitatively. It refers to the level of pressures on the coast, the water column and seabed, providing figures and trends. In relation to impacts, Belgium describes the impact of litter on marine animals, but not in the water column or on the seabed habitats. There is also no mention to micro-particles.

Belgium reports substantial data from the OSPAR initiatives for beach litter monitoring and the OSPAR EcoQO target on the ingestion of plastic by Fulmars. During 2002-2006, in average 1000 items/ km beach were found. The main items found on the beach are fishing nets, plastic packaging, fireworks and cigarette butts. Based on a Dutch study from 2003, the target on litter in fulmar stomachs is exceeded. Belgium reports on collected waste in the *Fishing for Litter* project (until 2011) and *Waste-free Ocean* (from 2011 onwards). It is indicated that the main sources for marine litter are

⁵ Include small plastic particles and micro-plastic particles

⁶ OSPAR common language.

shipping, fisheries, but also tourism and cargo loss. Although there is no assessment of the habitats impacted, these are listed in the reporting sheets.

There is no judgement on the level of pressure and impacts per reference to the definition of GES, however, the impact of litter on marine animals is considered to exceed the OSPAR target levels.

Conclusion on adequacy: the initial assessment of Belgium for marine litter is assessed as *adequate*. Even if the impact of marine litter on the different habitats has not been assessed, it is considered that the information available is well-presented and covers all the relevant pressures.

III. Environmental targets

Environmental targets (reporting sheets and paper report)

Target 44: Negative trend in the annual evolution of the quantities of stranded litter, following the guideline for Monitoring Marine Litter on the Beaches in the OSPAR maritime area (2010).

Associated indicator: Quantities of stranded litter

Target 45: Negative trend in the annual evolution of the quantities of litter collected at sea.

Associated indicator: Quantities of litter collected at sea; OSPAR Recommendation, 2010/19

Target 46: Overall reduction in the total number of visible litter items on coastlines by 2020 (e.g. based on a five year moving average).

Associated indicator: Total number of visible litter items on coastlines.

Target 47: Less than 10 % of the northern fulmars (*Fulmarus glacialis*) contain more than 0.1 g plastic in their stomach

Associated indicator: Number of northern fulmars containing more than 0.1 g plastic in their stomach.

Belgium reported four targets, each associated with one indicator. Targets are identified in accordance to the indicators of the criteria in the Decision.

A consistent and measurable set of targets is presented, addressing, the quantities of stranded litter, quantities of litter collected at sea and the number of visible litter items on coastlines. The targets are based on OSPAR initiatives, namely the beach litter monitoring programme, OSPAR recommendation 2010/19 (collection of beach litter at sea) and the EcoQO target on the ingestion of plastic by Fulmars.

The baseline has been identified by means of data from the IA and OSPAR. Threshold values have not been set, except for the already established Fulmar target. Without a quantitative target, it is difficult to judge on the level of ambition. In addition, targets have not been identified to address pressures (sources) of marine litter, despite the statement on the reduction of the amount of litter in the GES definition.

Conclusion on adequacy: the set of environmental targets and associated indicators defined by Belgium for D10 is assessed as *partially adequate*. The targets are consistent and measurable. However no thresholds are provided and therefore it is difficult to assess the level of ambition. There are also no targets addressing pressures but just impacts.

IV. Consistency

Consistent use and reference is made to OSPAR methodologies and data, in the GES definition, the IA and the targets. The IA and targets consistently focus on beach litter, litter collected at sea and plastics ingested by Fulmars, however, other aspects of the marine and coastal environment are not covered.

The GES definition aims to reduce the amount of litter such that it does not cause damage/harm to marine life and habitats, and the marine and coastal environment. There are no targets that can reduce the amount of litter, except for the implicit clean-up of existing waste linked to beach litter monitoring and collection litter at sea. The main sources of marine litter are reported in the initial assessment, but not further addressed in the GES definition nor in the set of targets.

Section 11. Descriptor 11 (Introduction of energy)

I. Good Environmental Status (GES)

Definition of GES (reporting sheet and paper report):

D11. Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment. GES for underwater noise would be achieved if:

- Impulsive sounds and regional sound budgets do not adversely impact marine organisms.
- Loud, low and mid frequency impulsive sounds and continuous low frequency sounds introduced into the marine environment through human activities do not have adverse effects on marine ecosystems⁷

Belgium has defined GES for Descriptor 11 at descriptor and criteria level. The GES definition at descriptor level is cited from the Directive. The criteria are different than those included in the Decision. In the reporting sheets, criterion 11.2 is not included and instead criterion 11.1 is duplicated.

Since the GES definitions for both criteria level lump impulsive and continuous sound together, it is unclear what the distinction is between both criteria. The criteria aim to achieve levels of sound that do not adversely impact respectively marine organisms (criterion 11.1) and marine ecosystems (criterion 11.2). Hereby, it is assumed that sound budgets refer to continuous, ambient sound rather than to impulsive sounds. Argumentation is not given on why the proposed set of criteria is considered better than the criteria proposed in the Decision.

OSPAR is mentioned, but without clear reference to relevant documents such as e.g. the background document on noise or the JAMP assessment.

Conclusion on adequacy: the GES definition of Belgium for D11 is assessed as *partially adequate*. The definition of GES at descriptor level is based on the definition of Annex I MSFD and it is further specified through the definition at the criteria level. However, there is no explanation to why different criteria have been used and the distinction between impulsive sound and continuous sound is missing.

II. Initial Assessment

Data of underwater noise in the Belgian marine waters and its possible impact on underwater species are limited at present. A distinction is not made between impulsive and continuous sound. Monitoring and further scientific studies in the scope of the Marine Strategy therefore are necessary. Renewable energy and shipping are identified as the largest contributors to the noise pressure. Yet, few details on the magnitude of the pressures are reported. A distinction is not made between the impulsive and continuous sound and there is not any reference to OSPAR.

Conclusion on adequacy: the initial assessment of Belgium for underwater noise is assessed as *inadequate*. There is currently very little information on underwater noise in Belgium, basically only the sources of noise are listed.

⁷ OSPAR Common language

III. Environmental targets

Environmental targets (reporting sheets and paper report):

Target 48: The level of anthropogenic impulsive sound is less than 185 dB re 1 μ Pa (zero-to-peak SPL) at 750m from the source.

Associated indicator: The level of anthropogenic impulsive sound at 750m from the source.

Target 49: No positive trend in the yearly mean ambient noise level within the 1/3 octave bands 63 and 125 Hz.

Associated indicator: The yearly mean ambient noise level within the 1/3 octave bands 63 and 125 Hz.

Belgium reports two targets on underwater sound, each associated with one indicator. Target 48 aims to limit the anthropogenic impulsive sound of individual projects. The target is measurable and the target definition includes a threshold value to be reached at 750m from the source. Some measuring methods are reported. Target 48 reveals a pragmatic approach since it is relevant to assess and limit the impact of anthropogenic impulsive sound. Yet, it is unclear how the threshold value for noise pressure has been defined. In addition, it is unclear whether target 48 can also be used to limit impulsive sound sources on a larger, regional scale. A tool for large-scale marine management of underwater noise is not presented. Target 49 could be measurable, when systematic monitoring system becomes operational. The target aims to keep the ambient sound level below the current sound level.

No targets have been identified to address the sources of underwater sound. With the current set of targets, it is questionable whether GES will be achieved.

Conclusion on adequacy: the set of targets defined by Belgium for underwater noise is assessed as *partially adequate*. Although target 48 is measurable, target 49 can only be measurable if a systematic monitoring system is implemented. It is not clear if GES will be achieved with the current set of targets.

IV. Consistency

In general, the reporting on underwater sound is limited for GES, IA and targets. The GES definition is consistent with the set of targets, and in correspondence with the Decision, but it is specific enough. The targets and the GES definition are not addressing the pressures of underwater noise. The main pressures are reported in the IA but are described in limited detail. It is doubtful whether GES can be achieved. Substantial data and knowledge gaps are reported.

Section 12. General Conclusions

Overall, the Belgian report presents various positive and negative elements as follows.

Positive elements:

- Strong link with the RSC (OSPAR)
- Systematic use of EU requirements and standards
- Coverage of all descriptors for all articles
- GES definition is not a mere reproduction of the Directive's definition and often refer to relevant EU and regional standards and requirements
- Environmental targets and associated indicators are generally specific and quantified
- On the whole, the main pressures have been identified and reported on
- Belgium has made an assessment of the pressure from microbial pathogens and has included compliance to the Shellfish Directive in the definition of GES for Descriptor 9 and in its environmental targets

Negative elements:

- Overall lack of ambition e.g. Belgium does not go beyond existing standards at EU or RSC level and the initial assessment is often used as a baseline for targets and GES
- The information reported for the 2012 initial assessment is overall limited
- No new assessment seems to have been made specifically for the implementation of the MSFD
- There is very little information on knowledge gaps and even less so about future plans to address these gaps