

Article 12 Technical Assessment of the MSFD 2012 obligations France

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Final version



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Section 1. Introduction and cross cutting issues

Overall approach

France has uploaded its paper report in 26 December 2013 and the reporting sheets in April 2013.

GES is established by a legal act, the Order of the Minister of Ecology, Sustainable Development and Energy of 17 December 2012 relating to the definition of the good environmental status of marine waters¹. The Order has been adopted pursuant to the relevant articles of the Environmental Code, which transposes the MSFD.

The initial assessment has been carried out for each of the four sub-marine regions in accordance with the criteria and methods set in the Order of the Minister of Ecology, Sustainable Development and Energy of 17 December 2012². The criteria and methods principally detail the requirements of the Directive. Similarly, the environmental targets are set on the basis of the criteria established by an Order of the same Minister³.

It should be noted that the Order states that can be considered as associated indicators, amongst others, those indicators mentioned in the Commission Decision. This is not correct as the Commission indicators are linked to the definition of GES and not to the environmental targets. Apart from that, the Order is quite comprehensive and sets general requirements which are in line and specify the MSFD.

The environmental targets are set for each of the four sub-marine regions by inter-prefectoral order. In 2012, France has chosen to set only general targets which can be further developed into specific targets that is targets specific to a particular component of the ecosystem or pressure. These targets will be then complemented by operational targets in 2015 aiming at directing actions and the definition of measures to reach them. The definition of operational targets and measures will be subject to an economic and social assessment involving a cost-benefit analysis. This analysis will take into account the cost of use and degradation of the marine environment.

While environmental targets and associated indicators are considered in the next sections in relation to the descriptor to which they relate, it should be noted that for the Bay of Biscay and the Celtic Seas, the following transversal targets have been established:

- ensure the link land-sea to guarantee the natural balance of the marine environment
- raise awareness, train and inform players, users and the public
- allow by maintaining or reaching GES the sustainable development of the human activities which depend upon the marine environment.
- Restore deteriorated ecosystems

Similarly, for the Western Mediterranean sea sub-region, 41 transversal targets have been set up, ranging from research activities to the reinforcement of legal and international cooperation tools and information and training related targets. No transversal targets have been identified in the North Sea.

Consistency of the approach

There is a difference in the approach to the setting of targets in, on one hand, the North Atlantic sub-regions and, on the other hand, the Mediterranean. In general the targets defined for the Mediterranean subregion are much more pressure-specific and measurable than for the Atlantic subregions.

¹ JORF n°0304 of 30 December 2012, p.21138

² JORF n°0304 of 30 December 2012, p.21154.

³ Ministerial Order of 18 December 2012 relating to criteria and methods to be used for developing the environmental targets and associated indicators of the action plan for the marine environment, JORF n°0304 of 30 December 2012, p.21156.

Scope of marine waters

France is part of two marine regions, the North East Atlantic Ocean and the Mediterranean Sea. It is part of four marine sub-regions: the Celtic Seas, the Greater North Sea, the Bay of Biscay and Iberian Coast, and the Western Mediterranean Sea. In the Celtic Sea and in the Channel-North Sea sub-regions, as the UK has used a boundary still under study, the boundaries used by both countries are not similar. A later discussion is planned in order to ensure coherence in the boundary between both countries and, if needed, to modify the OSPAR boundary. In the Mediterranean, the French sub-region is integrated in the marine waters of the sub-region 'Western Mediterranean' as defined in relation to the ecosystem approach within the framework of the Barcelona Convention. France noted that, during bilateral exchanges, it appeared that this boundary partially overlaps with the Spanish one.

Assessment areas and aggregation scales

The assessment area is the sub-region as a whole. At this stage, no more specific assessment areas have been defined. Data on more limited areas or assessment of more limited areas are used for evaluation at the scale of the marine sub-region. The aggregation rules at the level of the descriptor will be specified, if necessary, following complementary studies, in the framework of the updating of the definition of GES for the next cycle, that is 2018, as provided for by Article 4 of the Ministerial Order on GES, there is no further indication in terms of concrete actions and responsibilities. The same rule applies for the initial assessment and targets.

Regional cooperation

France is party to the Barcelona Convention and OSPAR. Efforts for regional coordination within the MSFD CIS, regional conventions and informally through bilateral contacts are extensively described. More details are provided in the following sections for each descriptor.

Socio-economic analysis

France has used the water account approach for its economic and social analysis of the marine uses and a cost-based approach for the cost of degradation. The methodology used is described comprehensively. However, France has left for later some of the cost analysis which would be done when developing operational targets.

France indicated that the analysis of the cost of degradation is based on the accounting cost borne by the society and linked to the degradation of the marine environment. This approach consists in evaluating the costs associated to the monitoring, avoidance and remediation of degradation, taking into account GES. The analysis of costs linked to the current management system should be complemented by an estimate of the residual impacts in order to measure its efficiency. The analysis is organised around 10 main degradation themes and is based on a typology of costs. The different costs cannot be aggregated as they are of different nature (annual accounting expenses, loss of benefits both commercial and non-commercial).

Data and knowledge gaps

One recurrent issue concerns data and knowledge gaps. For most of them, France states that due consideration will be given to these knowledge gaps in the framework of the revisions of the different elements for the next cycle, that is 2018, as provided for by Article 4 of the Ministerial Order on GES, there is no further indication in terms of concrete actions and responsibilities.

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
North East Atlantic						
D1	+	<ul style="list-style-type: none"> - Adequate coverage of Decision criteria and indicators - Covers all biodiversity components - Reference to predominant habitats and functional groups - Purely qualitative descriptions - No threshold standards, no use of EcoQOs 	<div>+</div> <ul style="list-style-type: none"> - Pressures: - Covers most types of physical loss and physical damage - No quantification of levels of and impacts from pressure of physical loss/damage - Qualitative judgement but no explanation on how it was made 	<div>-</div> <ul style="list-style-type: none"> - Biological features: - Covers main species/functional groups but not all relevant habitat types - No conclusive judgement on status of habitats/ species/ functional groups, only for endangered or threatened species - Reference to the Habitats Directive and the relevant international agreements 	-	<ul style="list-style-type: none"> - Set out objectives of GES, rather than constituting actual targets - Not SMART (lack of threshold values and baselines) - Do not directly address pressures or impacts
D2	-	<ul style="list-style-type: none"> - At descriptor and indicator level, mere reproduction of MSFD and Commission Decision definitions - No baseline, no threshold value (what is considered a minimum) 	++ ⁴	<ul style="list-style-type: none"> - List of NIS provided - Information provided on level of pressure - Pathways of NIS introductions identified - Limited information on impacts - No judgement on the current status in relation to GES - Knowledge gaps identified but plans to address them non-committal and without specifications 	-	<ul style="list-style-type: none"> - Relate to a reduction in the identified pressure/impacts - Lack of specification (no threshold values, baselines, trend goals, etc.) - Cannot help towards achievement of GES
D3	-	- Adequate coverage of Decision criteria and	++	- Sufficient information on level of and impacts from	-	- Do not address specific stocks

⁴ The initial assessment for the Celtic Sea is considered adequate since it is reported that there is no NIS in the subregion.

	GES		Initial assessment		Targets	
	Assessment	Criteria	Assessment	Criteria	Assessment	Criteria
		indicators (including secondary indicators) and adequate use of EU standards (Fmsy and MSY-Btrigger) - Use of thresholds as targets rather than limits (not in line with discussions in MSFD CIS)		pressure - Stocks assessed in relation to MSY and PA reference points - Fleets and fleet developments assessed - Judgements made on level of pressure (Not in relation to GES) - Acknowledgment of knowledge and data gaps		- Do not contain thresholds or baselines - Do not match the ambitions of the MSFD
D4	++	- Adequate coverage of Decision criteria and indicators - General lack of quantification - Recycling process of organic matter(+++)		See D1.	-	- Set out objectives of GES, rather than constituting actual targets - Not SMART (lack of threshold values and baselines) - Do not directly address pressures or impacts
D5	+	- Detailed definition of GES and in line with minimum requirements - Lack of specification on approach to be used to set threshold values in offshore areas (WFD/OSPAR) - Open door (GES can be reached with nutrients at high level)	+	- Sufficient information reported on levels of pressure and input loads but lack of quantification - Limited assessment of impacts - No judgement in relation to MSFD GES but link to WFD GES - Acknowledgment of knowledge gaps	-	- Consistent set of targets - Mirror the Commission Decision criteria and indicators - Low level of ambition - Fail to distinguish between individual impacts. - Not geared towards reducing levels of pressure/impacts
D6	+	- Partial coverage of criterion 6.2 - Attempt to quantify criterion 6.1 but no actual values provided - Mention of biogenic substrates and associated species - Lack of reference to WFD indicators		See D1.	-	- Ambitious but not sufficiently developed - Not SMART (lack of threshold values and baselines) - Do not directly address pressures or impacts - Lack of targets covering criterion 6.2 - Concept of sustainability in Target D6.1 to be introduced in GES definition
D7	++	- Adequate coverage of Decision criteria and indicators - Aligned with OSPAR approach - No mention of WFD objectives for coastal areas - No quantitative definition of "significant impacts"	++	- Refers to work done for OSPAR and WFD - Good description of potential pressures and impacts - Link with other descriptors addressed, - Qualitative judgement made in relation to GES - Gaps in knowledge identified and plans to address these gaps described	-	- Not SMART - Not clear if they are sufficient to maintain GES - Lack of targets addressing zones identified as under pressure in IA
D8	++	- Adequate coverage of Decision criteria and indicators - Adequate coverage of substances - Use of EQS complemented with OSPAR standards	+	- Quantitative description of levels of contaminations but no judgement in relation to GES - Limited assessment on impacts from contamination but no judgement in relation to GES - Comprehensive assessment for radionuclides	-	- Lack of specifics (threshold values, reference points, baselines) - Cannot assess whether they will help achieve GES - Poor link between issues identified in the IA and the targets set
D9	++	- Adequate coverage of Decision criterion and indicators	+	- Gaps in the analysis of impacts - No quantitative information	+	- Targets are measurable because include reference to standards

	GES		Initial assessment		Targets	
	Assessment	Criteria	Assessment	Criteria	Assessment	Criteria
		<ul style="list-style-type: none">- Use of relevant EU standards- Lack of thresholds for criterion 9.1- Inclusion of microbial pathogens in definition of GES (+++)		<ul style="list-style-type: none">- Judgement made in relation to GES- Integration of the analysis of contamination by microbial pathogens in line with definition of GES		<ul style="list-style-type: none">- Subsidiary targets focused on controlling human activities but lack of specifics (threshold values, baselines)- Do not cover all aspects of GES definition
D10	++	<ul style="list-style-type: none">- Adequate coverage of Decision criteria and indicators- Use of relevant RSC standards- Lack of quantification (but in line with state of knowledge)	++	<ul style="list-style-type: none">- Substantial knowledge base reported (level of and impacts from pressure)- Refers to relevant RSC standards- No judgement but expected in light of current knowledge	+	<ul style="list-style-type: none">- All aspects covered- relatively high level of ambition- Insufficient details (threshold values, baselines) and lack of measurability
D11	++	<ul style="list-style-type: none">- Adequate coverage of Decision criteria and indicators- Use of relevant approaches- Lack of quantification (but in line with current state of knowledge)	++	<ul style="list-style-type: none">- Relevant information reported considering current state of knowledge- No spatial assessment and no judgement in relation to GES (but expected in light of current knowledge)	+	<ul style="list-style-type: none">- In line with the Commission Decision indicators- Not measurable (lack of threshold values and baseline)- Lack of details regarding specific elements (e.g. the species)
Mediterranean						
D1	+	<ul style="list-style-type: none">- Adequate coverage of Decision criteria and indicators- Covers all biodiversity components- Reference to predominant habitats and functional groups- Purely qualitative descriptions- No threshold standards	+	<p>Pressures:</p> <ul style="list-style-type: none">- Covers most types of physical loss and physical damage- No quantification of levels of and impacts from pressure of physical loss/damage- Qualitative judgement but no explanation on how it was made	+	<ul style="list-style-type: none">- Targets cover all three biodiversity descriptors- Specific and pressure-oriented targets and associated indicators- Potentially measurable but lack of threshold values and baseline
			+	<p>Biological features:</p> <ul style="list-style-type: none">- Covers main species/functional groups but not all relevant habitat types- No conclusive judgement on status of habitats/ species/ functional groups, only for endangered or threatened species- Reference to the Habitats Directive and the relevant international agreements		
D2	-	<ul style="list-style-type: none">- Inadequate coverage of Decision indicators (no justification)- No baseline, no threshold value (what is considered a minimum)- No specifics on types of NIS, vectors and paths of spreading.	+	<ul style="list-style-type: none">- List of NIS provided- Information provided on level of pressure- Pathways of NIS introductions identified- Limited information on impacts- No judgement on the current status in relation to GES- Knowledge gaps identified but plans to address them non-committal and without specifications	-	<ul style="list-style-type: none">- More detailed than for NEA and related to identified pressures/impacts- Lack of specification (threshold values, baselines, trend goals)- Cannot help towards achievement of GES
D3	-	<ul style="list-style-type: none">- Adequate coverage of Decision criteria and indicators (including secondary indicators) and adequate use of EU standards (Fmsy and MSY-Btrigger)	++	<ul style="list-style-type: none">- Sufficient information on level of and impacts from pressure- Lack of judgement in relation to GES- Lack of plans to address knowledge gaps	-	<ul style="list-style-type: none">- Vague and lack measurable thresholds- Do not explicitly state an intention to reduce fishing effort towards Fmsy

	GES		Initial assessment		Targets	
	Assessment	Criteria	Assessment	Criteria	Assessment	Criteria
		- Use of thresholds as targets rather than limits (not in line with discussions in MSFD CIS)				
D4	++	- Adequate coverage of Decision criteria and indicators - General lack of quantification - Inclusion of recycling process of organic matter (+++)		See D1.		See D1.
D5	+	- Detailed definition of GES and in line with minimum requirements - Lack of specification on approach to be used to set threshold values in offshore areas (WFD/OSPAR) - Open door (GES can be reached with nutrients at high level)	+	- Sufficient information reported on levels of pressure and input loads but lack of quantification - Limited assessment of impacts - No judgement in relation to MSFD GES but link to WFD GES - Acknowledgment of knowledge gaps but no clear plans to address them	0	
D6	+	- Partial coverage of criterion 6.2 - Attempt to quantify criterion 6.1 but no actual values provided - Mention of biogenic substrates and associated species - Lack of reference to WFD indicators		See D1.		See D1.
D7	++	- Adequate coverage of Decision criteria and indicators - Aligned with OSPAR approach - No mention of WFD objectives for coastal areas - No quantitative definition of "significant impacts"	++	- Refers to work done for OSPAR and WFD - Good description of potential pressures and impacts - Link with other descriptors addressed, - Qualitative judgement made in relation to GES - Gaps in knowledge identified and plans to address these gaps described	0	
D8	++	- Adequate coverage of Decision criteria and indicators - Adequate coverage of substances - Use of EQS - Use of OSPAR standards appropriate since no standards exist in the Mediterranean region	+	- Quantitative description of levels of contaminations but no judgement in relation to GES - Limited assessment on impacts from contamination but no judgement in relation to GES - Adequate assessment for radionuclides	+	- Potentially measurable targets and indicators - Reference to cooperation with neighbouring countries - Lack of specifics (threshold values, reference points, baselines) - lack of consistency with nationally-defined GES definition
D9	++	- Adequate coverage of Decision criterion and indicators - Use of relevant EU standards - Lack of thresholds for criterion 9.1 - Inclusion of microbial pathogens in definition of GES (+++)	+	- Gaps in the analysis of impacts - No quantitative information - Judgement made in relation to GES - Integration of the analysis of contamination by microbial pathogens in line with definition of GES	0	
D10	++	- Adequate coverage of Decision criteria and	++	- Substantial knowledge base reported (level of and	+	- More specific targets and indicators than for

	GES		Initial assessment		Targets	
	Assessment	Criteria	Assessment	Criteria	Assessment	Criteria
		indicators - Use of relevant RSC standards - Lack of quantification (but in line with state of knowledge)		impacts from pressure) - No reference to RSC approach but expected considering lack of such policy - No judgement but expected in light of current knowledge		NEA - Measurable indicators but lack of threshold values and baselines
D11	++	- Adequate coverage of Decision criteria and indicators - Use of relevant approaches - Lack of quantification (but in line with current state of knowledge)	++	- Relevant information reported considering current state of knowledge - No spatial assessment and no judgement in relation to GES (but expected in light of current knowledge)	+	- More specific targets and indicators than for NEA - Measurable indicators but lack of threshold values and baselines

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. Good environmental status is achieved when the following conditions are met:

- The diversity of species and habitats, structures and ecological functions, such as connectivity, material flow or habitats of species are preserved and compliant with existing natural environmental conditions ;
- Human activities and pressures are induced at a level consistent with the ability of ecological resilience of the ecosystem.

The notion of “existing natural environmental conditions” includes the natural variability of populations and communities, as well as the variability due to climate change.

This includes in particular and cumulatively that the good environmental status is achieved when:

- Diversity at all organisational levels of the fauna and flora (populations, functional groups, communities and habitats) does not decrease significantly in terms of composition (number and nature of taxa, functional groups or elementary habitats) and proportion (abundance / relative extents), according to the existing natural environmental conditions;
- The spatial distribution of populations and habitats naturally occurring are adapted to the existing natural environmental conditions. The spatial and functional connectivity is preserved, especially for habitats of species (all geographical areas necessary to accomplish the natural life cycle of a species);
- The number, demographic characteristics (fertility, mortality) and the health status of populations naturally occurring allow their maintenance and long-term survival, according to the existing natural environmental conditions;
- The quality of main habitats, described by biotic parameters (such as species composition and abundance of the biological community naturally associated) and abiotic parameters (structural and environmental conditions) is at a sufficient level to ensure the integrity of ecological functions naturally associated.

At the level of species:

Criteria 1.1: The good environmental status is achieved when the spatial distributions of naturally occurring populations are adapted to existing natural environmental conditions. Functional and spatial connectivity is preserved, in particular for habitats of species.

Indicator 1.1.1 Range of species

The natural range of a species is described by the spatial limits within which it is naturally present (excluding erratic occurrences). This area is not static and can vary over time. The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order.

Indicator 1.1.2: Distribution pattern in said area

The distribution pattern corresponds to all the different areas occupied by a species, within the range. It may be more or less discontinuous and reflect different forms of use of the area by a species, by independent (sub-) populations or by specific uses of certain sectors related to the life cycle of the species (habitats of species). The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order.

Criteria 1.2 and 1.3: Good environmental status is achieved when the number, the demographic characteristics (fertility, mortality) and the health status of populations naturally occurring allow their maintenance and their long-term survival, according to the existing natural environmental conditions.

Indicator 1.2.1: Abundance and / or biomass

This indicator is a quantitative parameter for estimating the size of a population in its natural range, at a variable spatial scale depending on the species considered (case by case). The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order.

Indicator 1.3.1: Demographic characteristics of the population

Parameters exemplified in the aforementioned Decision 2010/477/EU (height / age, fertility or mortality rates) are essential to assess the population dynamics and evolution of likely trends. The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order.

Indicator 1.3.2: Genetic structure of populations

The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order.

At the level of habitats:

Criteria 1.4 and 1.5: Good environmental status is achieved when the spatial distributions of habitats naturally occurring are adapted to the existing natural environmental conditions and when the spatial and functional connectivity is preserved, especially for habitats of species.

Indicator 1.4.1: Range of habitats

The natural range of habitat can be considered as the envelope of surfaces that are actually occupied. This area is not static and can vary at more or less long term, but mainly in response to climate change. The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order. This indicator is not relevant for benthic habitats. Its relevance for elementary pelagic habitats will be specified after further studies, as provided in Article 4 of this Order.

Indicator 1.4.2: Distribution pattern of habitats

This indicator may correspond to, depending on the scale:

- *The distribution patterns, across a range;*
- *The rate of fragmentation (depending on surface and perimeter parameters), at the level of an elementary habitat. Fragmentation includes any artificial phenomenon of fragmentation of space, which may or might prevent one or more living species to move as they should and could in the absence of this fragmentation factor.*

The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order.

Indicator 1.5.1: Habitat area

This quantitative indicator is the area covered by a habitat, which spatial resolution must be implicitly finer than the range. This surface is not static and can change over time, in more or less short term, particularly in relation to natural and anthropogenic disturbances. The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order. It is relevant to benthic habitats. Relevance to pelagic habitats will be specified after further studies, as provided in Article 4 of this Order.

1.5.2 Indicator: Volume of habitats

It is relevant to characterise the extent of pelagic (depth), loose benthic (sediment thickness) or rocky / biogenic (structural complexity: blocks, cracks, etc.) habitats. This indicator corresponds to quantitative parameters, with variable spatial scale, depending on the habitat considered. The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order.

Criterion 1.6: The good environmental status is achieved when the quality of elementary habitats, described by biotic parameters (such as species composition and abundance of the biological community naturally associated) and abiotic parameters (structural and environmental conditions), is at a level sufficient to ensure the integrity of ecological functions naturally associated.

1.6.1 Indicator: Status of species and typical communities

The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order.

Indicator 1.6.2: Relative abundance and / or biomass

This indicator corresponds to quantitative parameters, which relevance is linked to the development of indicator 1.6.1 and other descriptors (including descriptors 2 non-indigenous species and 4 food webs). The parameters associated with this indicator will be specified in the following complementary studies, as provided in Article 4 of this Order.

1.6.3 Indicator: Hydrological and chemical physical conditions

This quality indicator is relevant for all habitats (benthic and pelagic). The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order.

At the level of ecosystems:

Criteria 1.7: The good environment status is achieved when the diversity of species and habitats, structures and ecological functions, such as connectivity, material flow or species habitats, are preserved and comply with the existing natural environmental conditions. There is no significant decrease in diversity at all organisational levels of organisation of the living (populations, functional groups, communities and habitats), in terms of composition (number and type of taxa, functional groups or elementary habitats) and proportion (abundance / relative extent).

Associated indicators will be specified after further studies, as provided in Article 4 of this Order, particularly in light of developments in species and habitats.

France has defined the good environmental status for Descriptor 1 at descriptor, criteria and indicator level. In the reporting sheet, GES is defined only at the descriptor and criteria levels in the priority fields; the indicators specified in Annex 2 of the Ministerial Order have been reported in the field “Assessment Method”.

The GES definition for D1 applies to all French marine subregions. The GES definition is not a simple reformulation of the Annex 1 of the Directive. Due attention has been paid to each criterion and all but two of the associated indicators (1.1.3 and 1.7.1) are included in the GES definition. The definition of GES does not include direct reference to existing European or regional standards. However, the additional text in the Order cross-links the criteria and indicators to relevant EU and international agreements (including the Habitats Directive).

In the reporting sheets, the GES definition for the various criteria is linked to either “all functional groups” or “all seabed and water column habitats”. This is in line with the objective of the D1 as defined in the Directive, which aims to address all biodiversity elements. In the paper report, France provides the list of predominant habitats and functional groups covered by the French definition for D1. These lists include all of those listed in the classification referenced in EC 2012⁵. For predominant habitats, France defines two additional “zones” that should be considered, compatible with the Habitats Directive and OSPAR classifications (land and transitional zones).

In addition to covering all predominant habitats and functional groups, France provides the criteria defined for the selection of habitats and species to be covered by D1. France mentions that selecting a specific list of habitats and species will facilitate the assessment of environmental and anthropogenic pressures and assessment of status as well as facilitate comparison with neighbouring countries. It mentions that the lists should evolve in time in order to select the local or international elements that are the most relevant.

For the selection of specific species and habitats, France uses the criteria defined by the OSPAR Texel-Faial approach as well as the listed habitats and species as per the Habitats and Birds Directives, the OSPAR and Barcelona Conventions and national SSSI (sites of special scientific interest) (the Bonn Convention and the ASCOBANS and ACCOBAMS agreements are also mentioned in the accompanying document). The criteria also include habitats and species with a particular sensitivity to anthropogenic pressures, habitats with a key functional role and key species from a functional point of view, common species and habitats, rare or declining species or habitats. France mentions that the habitats and species which will be covered by D1 will be specified, on the basis of these criteria, following further studies (as per Article 4 of the Order). The selection is used as a basis to assess all functional groups and predominant habitats.

⁵ European Commission. 2012. Guidance for 2012 reporting under the Marine Strategy Framework Directive, using the MSFD database tool. Version 1.0. DG Environment, Brussels. pp164.

The general principles of Favourable Conservation Status (of Habitats Directive) and Good Ecological Status (as in the WFD) are reflected in the definition of GES, although there is no direct reference to either. Only in the accompanying text is the Habitats Directive referred to and the WFD is not mentioned at all. There is a good reference to habitat connectivity in the GES definition and the text does build on indicator 1.7.1, even though it is not further defined. A clear reference is made to “existing natural environmental conditions”, related to natural biological variation as well as climate change, as the baseline for the definition of GES. This is in line with the text of Descriptor 1 in Annex I of the Directive, which mentions “prevailing physiographic, geographic and climate conditions”. The definition of GES therefore recognises that there is natural/climatic variation and ecosystem dynamics, and so does not seek a rigid state for particular biodiversity components.

The definitions at descriptor and criteria levels are clear that there should not be further deterioration in biodiversity by stating that biodiversity or specific features of biodiversity should be ‘preserved’, should ‘not decrease significantly’ or should be ‘maintained’. Acceptable deviation from reference conditions is partly addressed in that human activities and pressures should be at a level consistent with the ability of the ecosystem to be ecologically resilient. However, the concept of ecological resilience of the ecosystem is vague and it is unclear how it can be measured. There is sufficient understanding that it is ecosystem sustainability which is the aim, not continual increase in biodiversity.

Threshold values are not directly mentioned. The reliance on “further studies” to determine the levels and the timeframes of the “parameters” associated with each indicators, as per Article 4 of the Ministerial Order, is not entirely clear. Article 4 of the Ministerial Order mentions that the definition of GES shall be updated every six years from the date of its adoption. This seems to indicate that the threshold values and baselines associated to each indicator (parameters) will only be integrated into the definition of GES in 2018 (if they have been defined by then).

Conclusion on adequacy: The definition of GES for D1 by France is considered *partially adequate*. There is an adequate coverage of the criteria and indicators. The GES definition addresses all biodiversity components in the same way and reference is made to the relevant predominant habitats and functional groups addressed by GES. However the descriptions are all purely qualitative (no quantification), and there is no sense of an aim to identify specific standards which need to be enforced. For some of the indicators, relevant EcoQOs could have been used (OSPAR has set leading examples; some of these may also be applicable at least to some sub-regions of this MS). The GES definition is not sufficiently specific to judge when GES has been achieved, unless more specific details are included in the targets (e.g. what is meant with ensuring the integrity of the ecological functions of habitats).

1.2 Descriptor 4

GES definition (reporting sheet and paper report):

D4. Good environmental status is achieved when the following conditions are cumulatively met, taking into account that the major functional and structural changes are not triggered by regional anthropogenic pressures only, but also by other factors such as changing climate variability or natural populations:

- The proportion of various key components (functional groups, species, habitats) of food webs are kept at levels which allow for the long-term sustainability of the overall structure of food webs;
- The overall abundance dynamic of these groups, analysed through long enough time scales, ensures the proper functioning of the system, which also involves maintaining the fertility and the genetic diversity of populations;
- The main trophic links, which the overall dynamic of the system is based on, are maintained in order to ensure proper efficiency in the energy transfer from low to high trophic levels;
- Recycling processes of organic matter provided by the microbial loop and decomposers persist under conditions which do not jeopardize their functional role in the system.

Criterion 4.1. Good environmental status is achieved when maintaining the productivity of prey species induces

a correct transfer of low to high trophic levels and structural and functional maintenance of key elements of higher trophic levels, taking into account the fact that lower productivity can also be caused by other non-trophic factors.

Indicator 4.1.1: Performance of key predator species

The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order.

Criterion 4.2. Good environmental status is achieved when keeping the proportion of species at the top of the food chain induces that the level of direct pressure on the high trophic levels remains acceptable.

Indicator 4.2.1: Large fish (by weight)

The indicator is calculated as the share of biomass (in percentage) of fish larger than the relevant threshold for the species corresponding to a significant change in its diet. Species to consider are the species sampled in scientific missions. Thresholds corresponding to size will be specified by marine sub-regions, after further studies, as provided in Article 4 of this Order.

Criterion 4.3: Good environmental status is achieved when keeping the abundance and distribution of key groups provides primarily structural stability of the system. Indirectly, maintaining abundance also depends on the flow in relation to these groups.

Indicator 4.3.1: Trends in abundance or biomass of species / groups selected as important in functional terms

The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order.

As for D1, GES is defined at descriptor, criteria and indicator level. There is a good coverage of all criteria and indicators as defined in the Commission Decision but none of the supplementary indicators defined in the Decision are used. France justifies this because the development of these indicators can only be ongoing because it will require further research to understand exactly how food webs respond to each of the pressures and what are the emergent properties resulting from the impact of these pressures. The definition of GES at descriptor level is not a simple reformulation of Annex 1 of the Directive and there is an expanded definition of each of the Commission Decision criteria.

The accompanying document cites the Habitats and Birds Directives, OSPAR's EcoQOs (but these are not explicitly included in the GES definitions), the Barcelona Convention, ACCOBAMS and ASCOBANS. In terms of the biological elements covered by the definition of D4, France mentions the three biological groups that are covered by D4: plankton (bacterioplankton, phytoplankton and zooplankton), mobile species (small pelagic and demersal fish, cephalopods, top predators and elasmobranchs) and benthos (zoobenthos and phytobenthos). In addition, as for D1, France provides a detailed account in its accompanying document of the criteria that will be used for the selection of the species to be considered (including top predators). In the Ministerial Order, no detail is provided on the species covered by the definition other than those "sampled in scientific missions". Links to other relevant descriptors are made in the accompanying document.

The text of the definition of D4 is qualitative. Relevant thresholds are to be specified at a later date (as for D1). More information is provided on the Large Fish Indicator (4.2.1), referring to OSPAR's EcoQO, but France specifies that for the moment this indicator is relevant only for demersal fish and thresholds are set only for the North Sea subregion. It should be noted that France has included a condition related to recycling processes of organic matter for the achievement of GES. This is line with the special focus given by France to contamination by microbial pathogens and should be noted as a good practice as this aspect is neglected in most monitoring and assessment programmes. It is equally relevant to D1.7 as to D4.

Conclusion on adequacy: Taking into account that D4 requires unfamiliar assessment approaches, the GES definition for D4 by France is considered to be *adequate*. There is an adequate coverage of all criteria and indicators of the Commission Decision. There is no direct reference to RSC approaches in

the definitions themselves but in the accompanying text. There is in general a lack of quantification of the definitions. Finally, it is understood that indicators for D4 are underdeveloped, but it should be possible to pinpoint some of the key predator-prey relationships within the region/sub-region. There is no clear plan as to how and when additional research would be carried out to further develop these indicators. However, the inclusion of an indicator on the recycling processes of organic matter is considered a good practice.

1.3 Descriptor 6

GES definition (reporting sheet and paper report):

Good environmental status is achieved when the following conditions are cumulatively met:

- The levels of the influence and intensity of physical pressures on the bottom do not exceed the levels presented in Annex 2 of this Order;
- Physical pressures on the bottom do not cause significant impacts on species richness, abundance and biomass of the engineer species (*i.e. facilitator species – see definition below*), which are biodiversity carriers, identified by descriptors 1 (biodiversity) and 4 (marine food web) ;
- Physical pressures on the bottom do not cause significant impact on the benthic community.

Criterion 6.1: Physical damage, given the characteristics of the substrate

Indicator 6.1.1 Type, abundance, biomass and extent of relevant biogenic substrate

The indicator consists of the percentage of area occupied by biogenic substrates acted upon by the human pressure such as physical damage or loss, based on the total area occupied by such habitats. The biogenic substrates concerned are carrying or constituted of engineer species. An engineer species is one which, by its natural activity, changes the environment in which it lives and creates a new, specific, environment.

Indicator 6.1.2 Extent of the seabed significantly affected by human activities for different types of substrates

This indicator consists of the area of the seabed under the influence of anthropogenic pressure such as physical loss or damage, taking into account the cumulative or adverse effects of different sources of pressure if necessary. This area is related to the areas of the ecosystem components considered and the total area of the marine subregion, by weighting, where appropriate, depending on the intensity and frequency of application of pressure sources, of the hydrodynamic context at the place and time of their application and of the biological importance (biodiversity and functioning) of impacted habitats. The sources of pressure involved, the induced pressures and calculation of influence surfaces of the pressures are shown in the table below. [table provided for the assessment]

Criterion 6.2: State of the benthic community

The indicators associated with Criterion 6.2 will be specified after further studies, as provided in Article 4 of this Order.

France has defined GES for both criteria (although without expanding on the Commission Decision's wording) and for two indicators. Indicators 6.1.1 and 6.1.2 have been elaborated but none of the indicators for criterion 6.2 have been used. For indicators 6.2.1 through to 6.2.4, France states that they will be developed through further studies. The timeframe provided for the further development of these indicators is the same as for D1 and D4, as per Article 4 of the Ministerial Order. In addition, further information is provided in the accompanying document on the activities planned in the short term (2012-2013) for the further elaboration of the indicators of criterion 6.2.

The definition of GES itself does not refer to relevant RSC approaches or international agreements but the accompanying text does cite that the approach for D6 in France has been developed within the framework of OSPAR (IGS-COBAM and ICG-MSFD).

In the main GES definition, there is mention of the substrate types the GES definition addresses (apart from a general mention of "engineer species") but biogenic substrates are mentioned under criterion 6.1. In the accompanying document France refers to the habitats selected for D1 and D4 as those also

selected for D6, to be considered in combination with the pressure areas for D6. In the reporting sheet however, France mentions that its GES definition covers “All Seabed Habitats”, which is more in line with the objectives of D6.

In the GES definition, France uses general terms such as “significant impact”. However, under Criterion 6.1 a quantitative approach to determine the GES boundaries is proposed (% of area occupied by biogenic substrate acted on by pressure physical damage), but without providing an actual numerical limit value. This is justified in the accompanying document by the state of current knowledge, which does not allow yet for the development of limit values.

The definition at the indicator level does not mention baselines, reference conditions or deviation from some acceptable condition. The main general definition touches on this, stating that the rate and intensity of physical pressures should not exceed “levels presented in Annex 2 of this order” but it is not clear what this refers to as no specific levels for the pressures are presented in Annex 2 of the Order. Finally, it seems that only “physical” pressures are addressed by the GES definition and no mention is made of other types of pressures (e.g. NIS, lack of oxygen from eutrophication, contaminants/oil spills, hydrological changes), which cumulative impacts may affect seafloor habitats.

Conclusion on adequacy: The GES definition for D6 by France is considered *partially adequate*. The definition covers all Commission Decision criteria and indicators for criterion 6.1. An attempt is made to quantify criterion 6.1 by proposing an approach to determine GES boundaries but without providing actual values. Indicators for 6.2 are absent and the criterion is only addressed in vague terms. At this stage, more details would have been expected for criterion 6.2. The condition of the benthic community is one of the most studied and well-documented aspects of biodiversity, across most of Europe. For this criterion, WFD indicators should have been mentioned (at least the methods, if not the interpretation scale). This is relevant especially for indicators 6.2.1 (indicator species) and 6.2.2 (multi-metric indices of benthic community structure). These are internationally used for almost any inspections of municipal effluent, aquaculture etc., and have also been applied at a pan-European scale.

II. Initial assessment

2.1 Pressures (physical loss and physical damage)

2.1.1 North East Atlantic (North Sea, Celtic Seas, Bay of Biscay)

For the North Sea and Bay of Biscay subregions, France considers all relevant types of loss and damage that have occurred and provides a quantified description of the extent of the various activities causing the pressures (or the volume of material for physical damage). The only future trend provided is for marine material extraction, which is predicted to follow an upward trend over the coming ten years. France does not provide a quantified assessment of the level of the pressure caused by these activities but provides a qualitative judgement. For physical loss, France considers the pressure as significant and localised on the littoral or the coasts. It is not clear how it has reached that conclusion. For physical damage, France only mentions that sources of damage are present all over the subregions, with different intensities and frequencies (and fisheries occurring throughout the subregions).

In the reporting sheets, France lists three activities causing physical loss in the North Sea (ports, land claim defence and aquaculture) to which could be added cables/pipelines, dredging and solid waste disposal according to the description made. No activity is reported for the Bay of Biscay but the same as for the North Sea apply to the subregion according to the description of the pressure. For physical damage, no activities is listed in the reporting sheets for either subregions, but according to the descriptions, it is clear that pipelines, dredging, fisheries, extraction of seaweed, mining and tourism (through seagrass beds trampling) are the main activities causing damage in the two subregions.

With regard to the impacts from physical loss on seabed habitats, France provides a description of the activities responsible for these, the extent of these activities and the type of impact caused (e.g. smothering of habitats) as well as the habitats mostly affected (coastal, estuary and intertidal benthic habitats). It also provides a list of predominant habitat types mostly affected by the pressure, according to the predefined classification. Similarly to the level of the pressure, no quantified assessment is made of the impacts on habitats (i.e. extent of habitats impacted); only a qualitative judgement is provided which considers the impacts on mediolittoral biocenoses to be moderate but it is not clear how France reaches this conclusion. For physical damage, France has identified some of the types of impacts that are occurring (e.g. silting, abrasion, trampling) and the features most impacted (e.g. eelgrass, maerl). As for physical loss, it provides the list of the predefined predominant habitat types mostly affected by physical damage. France makes a qualitative judgement on the level of impact on sub- and circalittoral sediments (high), demersal species, exploited species and phyto-benthos (moderate) in the North Sea bathyal and abyssal sediments (moderate) and mediolittoral sediments and infra- and circalittoral hard substrates (low) in the Bay of Biscay. Again, it is not clear how France has reached these various conclusions.

The situation in the Celtic Sea subregion is slightly different from that in the other two subregions as only a limited number of activities occur that are susceptible to cause physical loss or damage. France provides an account of these activities and their extent. It lists land claim defence and cables/pipelines for physical loss but should also include extraction of seaweed and ports according to the description of the pressure. For physical damage, it lists fisheries and extraction of seaweed. Cables/pipelines and research could be added to the list (considering that the Ile d'Ouessant is a focus for marine biodiversity research). France does not make a quantified assessment of the level of impact from physical loss but concludes that the Celtic Sea subregion can be considered free from this pressure. For physical damage, France states that the area is potentially affected by abrasion, but is not conclusive on the current level of the pressure.

Despite the presence (however limited) of physical loss in the subregion, France concludes that no impacts on seabed habitats have occurred. For physical damage, France makes a qualitative judgement on the level of impacts on circalittoral sediments (high) and bathyal and abyssal sediments (moderate). As with the other assessments, it is not clear how France comes to this conclusion.

Conclusion on adequacy: The initial assessment of the pressures of physical loss and physical damage in the Atlantic marine region of France is considered *partially adequate*. Only a limited amount of information is provided and the only quantification is of the extent of the marine activities causing the pressure. The level of, and impacts from, the pressures are not quantified. A qualitative judgement is made but it is not clear how it France reaches these conclusions. In addition, it should be noted that the consistency check with the paper report shows that similar conclusions have not been found.

2.1.2 Mediterranean

For the Mediterranean subregion, France provides a similar assessment as for the North Sea and Bay of Biscay. It considers all relevant types of loss and damage that have occurred and provides a quantified description of the extent of the various activities causing the pressures (or the volume of material for physical damage) and the relevant areas in which the pressures occur. France does not provide a quantified assessment of the level of the pressure caused by these activities but provides a qualitative judgement. For both physical loss and physical damage, France considers the pressures as significant and localised on the littoral or the coast. As for the other subregions, it is not clear how it has reached that conclusion. In the reporting sheets, France does not list the activities causing loss and damage in the Mediterranean but from the description, it can be concluded that ports, land claim defence, pipelines, aquaculture, solid waste disposal, fisheries and offshore structures are the main activities causing physical loss and damage.

With regard to the impacts from physical loss and damage on seabed habitats, France provides a description of the activities responsible for these, the extent of these activities and the habitats mostly

affected. It only provides information on the types of pressures causing the impacts to a limited extent. It also provides a list of predominant habitat types mostly affected by the pressure, according to the predefined classification. Cross reference should be made with the assessment for biological features where specific habitats are listed which are subject to physical loss and damage. No quantified assessment is made of the impacts on habitats (e.g. extent of habitats impacted), only a qualitative judgement is provided. For physical loss France judges the impacts on mediolittoral biocenoses to be high and the impacts on bathyal and abyssal sediment to be significant but it is not clear how France reaches these conclusions or what the difference between high and significant impacts is. For physical damage, France assesses that the level of impact on infra- and circalittoral sediments is high, and significant on infra- and circalittoral hard substrates and bathyal and abyssal sediments. Again, it is not explained how France makes these judgements.

Conclusion on adequacy: The initial assessment of the pressures of physical loss and physical damage in the Mediterranean marine region of France is considered *partially adequate*. Only a limited amount of information is provided and the only quantification is of the extent of the marine activities causing the pressure. The level of, and impacts from, the pressures are not quantified. A qualitative judgement is made but it is not clear how France reaches these conclusions.

2.2 Biological features

2.2.1 North East Atlantic (North Sea, Celtic Seas, Bay of Biscay)

Habitat types

For all habitats, France has acknowledged that it has not made a comprehensive assessment but provides a description, which contains a very rudimentary assessment. For the Atlantic subregions, only some habitat types have been reported and there is no justification why other habitats, which do occur in the sub-regions, are not included. However France does acknowledge that there are gaps in its assessment, which will be addressed in the next reporting cycle. No assessment is made for special habitats in the reporting sheets although they are referenced in the paper report. In the reporting sheets, France has reported on the following predominant habitats: littoral rock and biogenic reef, littoral sediment, shallow sublittoral rock and biogenic reef, shallow sublittoral mixed sediment, shelf sublittoral rock and biogenic reef, shelf sublittoral mixed sediment and marine water: shelf. For seabed habitats, it covers most of the main zones (littoral, shallow, shelf) except the deep sea (bathyal/abyssal) zones, and does not address some sediment types.

France describes the distribution, extent and condition of the habitat types reported in quite some details, including quantitative information (e.g. for the geographical distribution and extent of the habitats) and qualitative trends in the habitats' condition. The main pressures on each habitat type have been identified. The pressures on habitats in the North Sea and Bay of Biscay subregions include introduction of NIS, introduction of hazardous substances, nutrient enrichment, marine litter, physical disturbance, damage and loss and extraction of species. In the Celtic Sea, only the extraction of species (all) is reported as a pressure on habitat types.

The status of each habitat's distribution, extent and condition are not assessed. France justifies this by stating that because of the lack of assessment criteria at the scale of the subregion and because the information collected is fragmented and heterogeneous, it has not been possible to assess the overall status of the habitats. In some cases, France provides a limited assessment of the status of a particular habitat type (e.g. deterioration of coastal limestone habitats in the North Sea region). For shelf waters, France refers to the assessments carried out in the framework of the WFD, although shelf waters would typically occur beyond the scope of the WFD, and provides a qualitative judgement on the status of the waters.

Species/functional groups

France has reported for birds and mammals at the level of the species group. In addition, it has reported on the following functional groups: turtles, demersal, diadromous, pelagic and deep-sea fish. It has not reported on cephalopods species/groups and no justification is provided for this gap, although this is justified by the current state of knowledge. No assessment is made for individual species in the reporting sheets although they are referenced in the paper report and within the descriptions of the species/functional groups.

The main pressures have been reported for each species/functional group. These include for the North Sea and Bay of Biscay introduction of hazardous substances, extraction of species, marine litter, physical loss, underwater noise (mammals in the North Sea) and nutrient enrichment. For the Celtic Sea, only the extraction of species (all) has been reported as a pressure on species/functional groups.

For each of the features reported, France has provided a qualitative description of the group's condition and relative abundance and a qualitative judgement on the overall status of the group. In the description of the relative abundance of the features, qualitative trends are sometimes provided (e.g. populations of migratory species of diadromous fish have decreased because of anthropogenic pressures) and in a few cases a quantification of the populations' abundance is done. In most cases, France provides the lists of the species considered within the species/functional group.

In terms of assessment of status, in general only a qualitative assessment is made for the overall status of the group. France only concludes on the status of a few species but refers to the lack of coherent and aggregated data to justify the lack of judgement on the status of the group as whole at the level of the subregion. To make an assessment of status for certain species, France refers to various international organisations/agreements (including ICES, IUCN, CITES). It also refers to assessments done under the Habitats Directive for certain species (mammal species in the Bay of Biscay and the Celtic Sea and turtles in the Celtic Sea) but it is often concludes that the status of the group is unknown. It also refers to the listed species of OSPAR. Finally, it refers to its own national lists of endangered species. It should be noted that these references are made only for the Bay of Biscay and Celtic Sea subregions. The assessment of biological features in the North Sea does not refer to any regional, EU or international approach.

France notes that the scale of the subregion is not always relevant to make an assessment of the status of populations of marine mammals or for pelagic fish and that a larger assessment area would need to be defined.

Ecosystem

France has not assessed ecosystems.

Conclusion on adequacy: Overall the assessment of biological features by France for the Atlantic marine region is considered *partially adequate*. For habitats, France has not reported on all relevant habitat types. France describes habitat types in quite some details but does not make a judgement on the status of the habitat types it reports. For species/functional groups, France did not report on all expected/relevant groups although it covers the main groups relatively well. France describes the species/functional groups in quite some details but does not make a judgement on the overall status of the groups. It does however provide an assessment of status for specific species recognized as endangered or threatened according to various EU, RSC and international agreements. However, these ad hoc assessments should be consolidated into a more concise judgement of status. France frequently refers to the in-depth analysis made in its initial assessment paper reports. The consistency check shows that similar type of information is reported in the paper report as in the reporting sheets (but more detailed) and no judgement is made of the status of the species/functional groups. The justification provided by France (limited and fragmented data) should have been complemented by details regarding future plans. Only a general sentence on the review of the assessment of the next reporting cycle is provided by France.

2.2.2 Mediterranean

Habitat types

The reporting of habitat types in the Mediterranean is very similar to that for the Atlantic subregions. The main pressures on each habitat type have been identified and include physical loss, marine litter, introduction of NIS, physical disturbance, loss and damage, extraction of species and introduction of hazardous substance. As for the Atlantic subregions, the status of the habitat's distribution, extent and condition are not assessed. France provides the same justification as regard the lack of data as for the Atlantic subregions but no future plans. In several instances, France provides a partial assessment of the status of habitat types. In a few cases, France refers to EU standards to make this judgement (e.g. reference to the assessment undertaken for Article 17 of the Habitats Directive for shallow sublittoral mixed sediment and shelf sublittoral rock and biogenic reef or reference to the WFD for shelf waters) although the predominant habitats selected for the purpose of this initial assessment do not correspond to those under the Habitats Directive or the WFD. In other cases (e.g. shallow sublittoral rock and biogenic reef), France just provides a conclusive statement that status is good or bad in certain areas of the subregions but it is not clear how it reaches this conclusion and it acknowledges that it has not carried out a region-wide assessment. There is no reference to UNEP/MAP.

Species/functional groups

The reporting of species/functional groups for the Mediterranean is similar to that for the Atlantic subregions. The main pressures have been reported for each species/functional group and include introduction of NIS, extraction of species, introduction of hazardous substances, marine litter and physical loss and damage. As for the Atlantic subregions, France never makes an assessment of status for the whole species/functional group but provides several assessments of the status of certain species listed in the EU, regional and international agreements. In addition to those listed for the Atlantic subregions, France refers to the list of protected fish species drawn up by UNEP/MAP.

Ecosystem

France has not assessed ecosystems.

Conclusion on adequacy:

Overall the assessment of biological features by France for the Mediterranean marine region is considered *partially adequate*. For habitats, France has not reported on all relevant habitat types. France describes the habitat types reported in quite some details and provides, for some of them, a qualitative judgement on their status in reference to assessments carried out under other processes such as the Habitats Directive and the WFD. For species/functional groups, France describes the groups reported in quite some details but does not make a judgement on the overall status of the species/functional groups. As for the Atlantic subregions, it does provide a judgement on the status of specific species recognized as endangered or threatened according to various EU, RSC and international agreements. However, these ad hoc judgements should be consolidated into a more concise judgement of status. France frequently refers to the in-depth analysis made in its initial assessment paper reports. The consistency check shows that similar type of information is reported in the paper report as in the reporting sheets (but more detailed) and no judgement is made on the status of the species/functional groups. The justification provided by France (limited and fragmented data) should have been complemented by details regarding future plans. Only a general sentence on the review of the assessment of the next reporting cycle is provided by France.

III. Environmental targets

3.1 North East Atlantic (North Sea, Celtic Seas, Bay of Biscay)

While they differ on certain aspects, the targets defined for the whole of the French Atlantic marine region have been assessed together.

Descriptor 1

Environmental targets (reporting sheet and paper report):

France has defined the same targets and associated indicators for the Bay of Biscay and the Celtic Sea for D1:

D1.1 Maintain or achieve good conservation status of species and habitats of community interest

D1.2 Protect rare or endangered species and habitats

D1.3 Maintain the functional role of habitats and species with a key functional role

D1.4 Permanently preserve common species and habitats at the scale of the marine sub-region (including their functionalities)

The following targets have been defined for the North Sea for D1:

D1.1 Preserve habitats and species with a key functional role in the ecosystem

D1.2 Protect rare or endangered species and habitats

D1.3 Permanently preserve species and habitats of ecological importance in a given area

D1.3.1 Maintain or achieve a good conservation status of species and habitats of community interest

D1.4 Permanently preserve common species and habitats at the scale of the marine sub-region (including their features)

All targets are general statements of GES and are not sufficiently specific. No impacts or pressures have been identified as needing specific action. No baselines, reference points or threshold values are defined, making them not measurable. Although the timescale for achieving the target is defined (2020 for the Bay of Biscay and the Celtic Sea and 2018 for the North Sea – the latter actually corresponding to the date when the targets should be revised rather than the timescale of achievement of the target), without further details as to the process involved, it is difficult to see whether they are achievable. No reference to existing international, national or RSC targets is made in the targets. However, references to the OSPAR lists of species (but not habitats) are made in the paper reports. Although it is understood that some criteria and indicators for D1 are in a state of development, it is not explained why:

- No targets have been set to address the GES definitions at indicator level for D1.1, D1.2 and D1.4 (and D1.3 for the Celtic Sea and the Bay of Biscay).
- No targets have been set to address the GES definitions at criteria level for D1.5, D1.6 and D1.7 (it is however understood that targets for D1.7 may overlap with D4)

In addition, the following information is not found in the targets:

- Which habitats for the relevant part of the sub-region have a key functional role
- A specification of rare or threatened species relevant to the subregions (e.g. taken from national red-lists, habitat mapping and OSPAR 2008)
- Which species and habitats of ecological importance should be permanently preserved and in which areas (MPA's or Marine Nature Reserves) (specific to North Sea)
- Clarification of what “maintain” and “good conservation” mean and relating this to a quantitative description of a target state.
- A list of the habitats of community interest in the subregions
- A list of common habitats and species relevant for the subregions

While there is a clear lack of specific information in the definitions of the targets, more information is provided in the paper report for the North Sea subregion, for instance citing examples of habitats with a key functional role. The targets all aim to achieve some form of desirable state (“good conservation” or “preserved”) but no specific information is given as to how pressures and impacts should be reduced, or even where these should be reduced. Further, no information is given linking pressures and negative impacts on biodiversity (which need reversing).

Conclusion on adequacy: The set of environmental targets and indicators defined for D1 is considered *inadequate*. None of the targets is SMART. All the targets seem to set out objectives of GES, rather than constituting actual targets, with some indication of which aspects of biodiversity should be given

priority for protection. Information listed in the bullet points above should have been provided in order to make for more realistic targets. The targets are not sufficiently ambitious to reduce the pressures or impacts to levels that will achieve GES (if possible by 2020) because they do not directly address pressures and impacts.

Descriptor 4

Environmental targets (reporting sheet and paper report):

France has defined the same targets and associated indicators for the Bay of Biscay and the Celtic Sea for D4:

D4.1 Preserve the structure, functioning of food webs, taking into account their dynamic⁶

Associated indicator: Performance of key predator species

Associated indicator: Trends in species abundance or biomass / important selected functional groups

Associated indicator: Large fish (by weight)

The following targets have been defined for the North Sea for D4:

D4.1 Preserve the structure, functioning of food webs, taking into account their dynamic

D4.1.1 Limit the disruption of primary production

D4.1.2 Maintain key links in the trophic chain: forage species, benthos, filtering species, plankton

D4.1.3 Preserve the top predators in the trophic chain

France has defined one target and three indicators to cover D4 in the Bay of Biscay and Celtic Seas subregions and four targets for the North Sea. The two sets are different. All targets are very general and to a certain extent a reworking of the GES descriptor for D4. They are not specific or measurable because of a lack of threshold values and baselines and do not address specific pressures or impacts. No reference to existing international, EU, national and RSC targets is made in the definitions of the targets or in the accompanying text of the paper reports.

There is very limited mention in the targets of specific measurable components of food webs (only in target D4.1.2 for the North Sea), including specific species/functional groups covered by the targets. Further information is provided in the paper report for the North Sea as to what are the main components of the food web covered by the targets (including concrete examples of these). This is not consistent across all subregions and remains at the example level rather than setting actual indicators.

In the North Sea definitions, there is a lack of specificity as to what is meant by ‘disruption of primary production’ (e.g. meaning over-production in enclosed areas exposed to nutrient enrichment) and which activities might cause this impact.

No key top predators are specifically mentioned, e.g. selected species or groups of fish, mammals, seabirds. There is also no mention of which human activities threaten those. Again, some examples are provided in the North Sea paper report, but it remains at the example level.

Conclusion on adequacy: The set of targets and associated indicators defined by France to cover D4 is considered *inadequate*. As for D1, none of the targets is SMART. All the targets seem to set out objectives of GES, rather than constituting actual targets. Without information as to how these targets will be achieved in practical terms, despite having a timeframe of 2018, it is uncertain that they will be achievable. As for D1, a certain amount of additional information would have been needed in order to set more realistic targets. The targets are not sufficiently ambitious to reduce the pressures or impacts to levels that will achieve GES (if possible by 2020) because they do not directly address pressures and impacts in a specific way. The one target which indirectly relates to impacts (target D4.1.1 in the North Sea) is too vague to be helpful in the quest to achieve GES.

⁶ This is understood to mean “dynamic interactions between organisms and habitats”

Descriptor 6

Environmental targets (reporting sheet and paper report):

France has defined the same targets and associated indicators for the Bay of Biscay and the Celtic Sea for D6:

D6.1 Ensure the sustainability of benthic habitats

D6.1.1 Especially ensure the sustainability of eelgrass, kelp fields, maerl, *Sabellaria alveolata* (hermelles), corals, boulder fields

D6.2 Allow benthic ecosystems to maintain their structure, function and dynamics

D6.2.1 Reduce significant impacts on the seabed affecting the status and functioning of ecosystems

The following targets have been defined for the North Sea for D6:

D6.1 Maintain benthic habitats, especially those with a key functional role in the ecosystem

D6.2 Reduce impacts on the seabed affecting the status and operation of ecosystems

France has defined four targets to cover D6 in the Bay of Biscay and Celtic Seas subregions and only two for the North Sea. The targets are general statements and not specific. They are not measurable and have no thresholds, baselines or reference points defined. No reference to existing international, EU, national and RSC targets is made.

The targets are formulated towards achieving an (undefined) acceptable state and are not specific enough regarding reducing pressures and impacts. Target D6.2.1 (D6.2 in the North Sea) does address impacts but an explanation of the human activities and pressures which cause the impacts is missing (expected are: demersal fisheries, aquaculture, dredging, etc., as appropriate to the MS/SR), as is the plan for mitigation measures. In the paper report for the North Sea, information is provided on the main pressure sources and associated impacts in the subregion and their localisation.

Targets D6.1 for all three subregions address benthic habitats. While in the North Sea, the target aim to “maintain” benthic habitats (with no explanation of what is meant with maintain, but presumably is related to the text of the GES and the natural conditions), the target for the other two subregions include the notion of “sustainability” (and more specific details on what benthic habitats should be covered in particular). Given that human impacts are inevitable, some quantitative statement on acceptable deviation would be required for both these targets.

Conclusion on adequacy: The set of targets and indicators defined by France to cover D6 is considered *inadequate* for all three subregions. The targets may be achievable, but are too general to be realistic and measurable, within the given timeframe of 2020 (2018 for the North Sea). The targets could be considered ambitious, but none is sufficiently developed to understand the level of ambition or to allow them to be implemented in practice, and therefore they are not currently helpful towards achieving GES. In addition, targets covering the definition of GES for criterion 6.2 should be elaborated, because there is a wealth of knowledge on sea-floor pressures, impacts and indicators. Moreover, there are established remedial measures for best environmental practice of the activities which cause impacts (e.g. demersal fisheries). Finally, the concept of sustainability in Target D6.1 should have been introduced in the GES definition rather than in the target.

3.2 Mediterranean

Environmental targets (reporting sheet and paper report):

Habitats

Target A. Maintain or restore biodiversity and ecosystem functioning of coastal bottoms (medio, infra and circalittoral)

Target A.1. Preserve areas of functionality for marine wildlife (spawning, nursery...)

Associated indicator: Indicator of habitat area: *Posidonia* meadow at this stage (to develop incrementally)

depending on the definition of areas of functionality)

Associated indicator: Indicator of habitat volume (to develop)

Associated indicator: Indicator of good state of conservation (to develop)

Associated indicator: Surface of functionality areas benefitting from a protective or management regime (marine protected areas, environmental contracts, etc.)

Target A.2. Strengthen conservation of coral and seagrass areas

Associated indicator: Seagrass area integrated in the perimeter of a marine protected area relative to the total area of these habitats at the scale of the marine sub-region

Associated indicator: Coral area integrated in the perimeter of a marine protected area relative to the total area of these habitats at the scale of the marine sub-region

Associated indicator: Indicator of good conservation status

Target A.3. Remove the residual abrasion of coastal sea bottom by trawling in areas where it is regulated

Associated indicator: Number of fines for trawling in prohibited zone compared to the number of controlled trawlers

Target A.4. Master pressure of marine uses on the environment by developing spatial organisation of uses

Associated indicator: Areas covered by planning documents (maritime aspects of SCOT, orders for water body organizing...)

Target A.5. Limit the artificialisation of the coastal area, from low water to 20 meters deep

Associated indicator: Percentage of artificialised area, by bathymetric floor, from the MEDAM tool

Target A.6. Identify sites of presenting degraded habitats and initiate restoration of half of these sites

Associated indicator: Number of sites where action is taken with respect to the number of degraded site identified in the program of measures of PAMM

Target A.7 Optimize the ecological role of coastal artificial bottoms (dikes, rip-rap...)

Associated indicator: Area and linear planning undergoing an operation to optimize their ecological role prescribed by the program of measures of PAMM

Target B. Maintain a good state of conservation of habitats of deep submarine canyons

Target B.1. Limit degradation by abrasion in test canyon areas from human activities (fishing, submarine cables, etc.)

Associated indicator: Fishing effort on the head of the canyon (number of French and foreign vessels by type of fishing gear used, number of fishing days, power and tonnage of the vessels concerned)

Associated indicator: Authorised areas for other activities generating abrasion (cables, mining materials, etc.) in areas of heads of canyons

Target B.2 Reduce the risk of smothering of habitats of interest or vulnerable marine ecosystems of the heads of canyons by anthropogenic activities generating various deposits or resuspension of sediments

Associated indicator: Authorised areas for activities generating deposits of materials or resuspended sediments (dredging, extraction of materials, etc.) on the heads of canyons

Associated indicator: Volume of materials concerned with these authorisations

Fish

Target C. Preserve fisheries' resources of the Gulf of Lion's shelf and coastal areas

Target C.1. Develop professional fishing practices compatible with the maintenance of living resources in the Gulf of Lion and coastal areas, at sustainable exploitation levels

Associated indicator: Number of fishing vessels engaged in sustainable fishing practices defined in the program of measures PAMM

Target C.2. Organise recreational fishing practices compatible with the maintenance of fish populations of coastal areas

Associated indicator: Number of recreational fishermen engaged in sustainable fishing practices defined in the program of measures PAMM

Associated indicator: Number of associations of recreational fishermen engaged in sustainable fishing practices defined in the program of measures PAMM

Target C.3. Identify and preserve keys habitats of fishery resources, particularly by integrating the protection of spawning areas in the heads of canyons of the Gulf of Lion
Associated indicator: Surface of key areas benefitting from a protective or management regime (marine protected areas, contracts “environment”, etc.)

Marine mammals

Target D. Maintain or restore populations of marine mammals in a good state of conservation

Target D.1 Reduce the risk of vessel collision with marine mammals

Associated indicator: Number of deaths of large cetaceans caused by a collision with respect to the total number of deaths of cetaceans identified

Associated indicator: Number of ships equipped with devices for the prevention of collisions

Target D.2 Limit the acoustic disturbances to marine mammals by anthropogenic activities

Associated indicator: Temporal and spatial distribution of underwater noise

Associated indicator: Trend of the ambient noise level

Associated indicator: Number of deaths of large cetaceans from acoustic disturbance by the total number of deaths of cetaceans identified

Target D.3. Limit other human disturbances (excluding specific objectives D1 and D2)

Associated indicator: Number of vessels engaged in whale watching activities

Associated indicator: Number of vessels engaged in whale watching activity adhering to a good practice scheme (e.g. charter, etc.)

Birds:

Target E. Ensure the hosting potential of the marine environment with regard to birds: feeding, resting, reproduction, travelling

Target E.1. Protect the functional areas for birds (feeding, resting, travelling and reproduction areas, including offshore), possibly with Spain and Italy

Associated indicator: Surface of functional areas for birds protected

Associated indicator: Surface area of species' habitats in a good state of conservation

Target E.2. Reduce the pressure exerted by some terrestrial species on islands and islets used for breeding sites

Associated indicator: Population (number of individuals) of harmful species on islands and islets

Associated indicator: Reproductive rate of the birds species in the area concerned

Target E.3. Limit disturbances, including noise and light in nesting sites

Associated indicator: Surface area of the species habitats in a good state of conservation in relation to noise and light pollution (Natura 2000 indicator)

Target E.4. Control the pressure on the environment and other avian species populations by the Yellow-legged Gull

Associated indicator: Abundance of Yellow-legged Gulls populations in the area of special protection (number of individuals)

The targets defined for the Mediterranean region are organised by biodiversity component and address tangible impacts/pressures and activities. They cover all three biodiversity descriptors together. Indicators are associated to the targets, some of which are quite specific and could be considered operational. However, no baselines, reference points, threshold values or trend goals are defined for the targets and indicators, which makes it impossible to measure progress towards the achievement of the target.

Specific targets and associated indicators are provided for birds, mammals and fish. No target is designed for reptiles. Other targets to be developed in view of the next reporting cycle are reported under this exercise as “to be developed”, suggesting that targets for reptiles will not be considered. For most of the “Habitat” targets, it is not specified which habitats the targets will address. The “Fish” targets are actually more relevant for descriptor 3 than for the biodiversity descriptors.

Only one associated indicator makes a direct reference to European standards (Target E.3. indicator “Surface area of the species habitats in a good state of conservation in relation to noise and light pollution (Natura 2000 indicator)”). Other targets related to conservation and habitat and species protection do not refer to any existing international, European or RSC instruments. It is not clear for instance how the “Mammals” targets relate to or complement the ACCOBANS agreement. Targets also refer to marine protected areas, and ‘areas benefitting from a protective or management regime’ but they do not specify where they are located or cross reference them with existing MPAs, MNRs, SACs, SPAs etc. However, the Mediterranean targets refer frequently to existing national instruments or projects (PAMM, SCOT, MEDAM). This suggests a more operational and practical approach to the design of the targets for the Mediterranean, inscribed in existing national frameworks, than for the other subregions.

Despite the relative specificity of the Mediterranean targets and indicators, certain details are missing to make them truly operational and geared towards achieving GES. Several targets refer to biodiversity elements without giving enough details to determine exactly which elements or which locations are concerned by the target (e.g. marine wildlife, canyons, areas of coral and seagrass, some terrestrial species, etc.) This also applies to several pressure targets which lack specificity as to which pressures/impacts or activities (e.g. reduce the risk of smothering habitats by anthropogenic activities, limit other human disturbances). Several targets refer to areas protected by legislation/management regime or regulated without providing details regarding which regime/legislation is concerned.

Conclusion on adequacy: The set of targets and indicators defined by France to cover the biodiversity descriptors in the Mediterranean region is considered *partially adequate*. The targets defined for the Mediterranean region are much more specific and pressure-oriented than those defined for the Atlantic subregions. However, certain key elements are still missing, which prevents them from being SMART. In particular, the lack of threshold values and baselines means that, however specific the targets and associated indicators are, they cannot be considered achievable.

IV. Consistency

Considering that the GES definitions for D1, 4 and 6 are general and address all features, the features assessed in the initial assessment are consistent with the GES definitions for biodiversity. The assessment of pressures, physical loss and damage, is also consistent with the GES definition for D1 and D6. Although there is a lack of consistency in the reporting sheets between what is reported under the physical loss/damage pressures and the inclusion of these pressures as impacting certain habitat types. However, the pressures addressed under the D1 definition are much broader than just physical loss and damage (e.g. fisheries, eutrophication, contaminants, NIS, etc.) These are also covered by the French initial assessment and are assessed in the following sections of the present report.

With regard to the targets for the Atlantic subregions, these are so general that it can be considered that they cover all the features included in the initial assessment but the link between the conclusions from the initial assessment (e.g. on the bad status of a particular element when it has been assessed) and the targets is not made. For the Mediterranean region, the specificity of the targets indicates a closer link between the IA and the targets defined. Although it is not in the scope of this assessment to verify that each target defined for the Mediterranean finds grounds in the full IA for the Mediterranean (paper report), the consistency check carried out indicates that this is the case.

There is also a lack of consistency between the extensive but too general GES definitions and the limited and still too general targets. In particular the targets defined for the Atlantic subregions clearly do not cover all aspects of the GES definitions. On the other hand, considering that the GES definitions for all three descriptors are without GES boundaries and baselines, it could have been expected that the targets defined include these elements, in order to introduce some form of specificity.

Section 4. Descriptor 2 (Non-indigenous species)

I. Good Environmental Status (GES)

GES definition (reporting sheet and paper report):

D2. Good ecological status is achieved when non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.

Good ecological status is reached when:

- the frequency and intensity of new introductions of non-indigenous species through human activities are reduced to a minimum (criterion 2.1 Abundance and state characterisation of NIS, in particular IS).
- the impacts from non-indigenous invasive species are reduced to a minimum (criterion 2.2 Environmental impact of invasive NIS).

Indicator 2.1.1:⁷ trends in abundance, temporal occurrence and spatial distribution in the wild of non-indigenous species, particularly invasive non-indigenous species, notably in risk areas in relation to the main vectors and pathways of spreading of such species.

Indicator 2.2.2:⁸ Impact of non-indigenous invasive species at the level of species, habitats and ecosystems where feasible.

France has set GES for Descriptor 2 at descriptor, criteria and indicator levels in both the paper report (Ministerial Order) and the reporting sheet. The definition at descriptor level reproduces *verbatim* the definition of Annex I of the MSFD. At the criteria level, the French definition is more specific. At indicator level, the definitions reproduce literally the wording of the Commission Decision, but are set only for indicators 2.1.1 and 2.2.2. Indicator 2.2.1 on the ratio between invasive NIS and native species in relation to change in species composition is not included.

The French report further indicates that parameters associated to the indicator, as well as the levels and trends corresponding to GES will be defined for both criteria following complementary research in time for the update of GES definition by 2018. The Ministerial Order (Annex 2) specifies that the relevant assessment unit for criteria 2.1 is individual species, simply stating that these are those species which presence has been identified in marine sub-regions. For criterion 2.2, the relevant assessment unit will be determined on a case-by-case basis depending on the particular NIS and its known or potential impacts. The list of species is to be drawn on the basis of complementary studies.

Conclusion on adequacy: The GES definition for D2 is considered as *inadequate*. At descriptor and indicator level, the French definition merely reproduces the definition set by the Directive and the Commission Decision. There is no baseline. GES is defined in very general terms. The frequency and intensity of new introductions of NIS through human activities should be reduced to a minimum, which is considered as a minimum requirement (which means that NIS can still be introduced), without defining thresholds or reference conditions and baselines.

II. Initial Assessment

For all marine sub-regions, the French report mentions that the collection, the analysis and the assessment of existing and available data have been carried out by an expert organisation in 2010-2011. It notes that no global assessment or judgement has been done at the level of each sub-region to quantify the pressure and the associated impacts. The analysis of the level of impacts on different

⁷ Note that the definitions at indicator level are mentioned in the reporting sheet in the column 'Assessment Method' rather than as part of the definition itself.

⁸ *Ibid.*

component of the ecosystem in each sub-region has been developed through scientific workshops and then finalised with the involvement of all stakeholders.

2.1 North East Atlantic

North Sea

A list of 97 NIS is provided, indicating for all of them whether or not there are invasive species, and for some, the country/area of origin and date first recorded. The two main pathways are aquaculture (29% of NIS introductions) and shipping (13% from ballast waters and 8% from biofouling). An estimation of abundance has been provided only for one species (*crassostrea gigas*) and only for a limited area.

The impacts of the pressure are identified in the seabed and functional groups but not in the water column. The proportion of impacted features is not assessed. No judgement has been done of the level of pressure and the trend in pressure and of the level of impact of NIS. France states that due consideration will be given to these knowledge gaps in the framework of the revisions of the different elements for the next cycle, that is 2018, there is no further indication in terms of concrete actions and responsibilities.

Celtic Seas

A list of 20 NIS is provided, indicating for some of them whether or not there are invasive species, country/area of origin and date first recorded. Most species are potentially present in the sub-region as present in both North and South Brittany. Only for a very limited number, country/area of origin and pathway are indicated.

An assessment of the level of pressure on the environment is carried out but there is no trend of the level of pressure reported. An assessment of the impacts on water column, seabed and functional groups is provided, concluding to no significant impacts. This is justified by the fact that this particular marine sub-region is not concerned by NIS introduction as introduction vectors are quasi inexistent and bathymetric and oceanographic conditions are not favourable to the most commonly transported NIS. The only documented example of NIS introduction through aquaculture is the brown alga *Undaria pinnatifida* and the introduction through maritime transport is not significant in the sub-region.

Bay of Biscay

A list of 129 NIS is provided, indicating for some of them whether or not there are invasive species, country/area of origin and date first recorded. The two main pathways are aquaculture and shipping, although France indicates that 40% of the introduction vectors are unknown or very uncertain.

An assessment of the level of pressure on the environment is carried out but there is no trend of the level of pressure reported and the information is generally limited. Impacted features are not all identified. There are no water column features reported (unknown) but only seabed and functional groups. The proportion of impacted features is not assessed. There is no trend reported on the level of impact. No global assessment or judgement has been done at the level of the sub-region. France states that due consideration will be given to these knowledge gaps in the framework of the revisions of the different elements for the next cycle, that is 2018, there is no further indication in terms of concrete actions and responsibilities.

Conclusion on adequacy: The initial assessment for the pressure “introduction of non-indigenous species” is considered *adequate* for the three NEA subregions. For the Celtic Sea subregion, France states that there are no NIS. However it should be noted that there is no follow-up and control of NIS at the subregional scale. For the other two subregions, the information appears relatively complete in the light of what can be expected for Descriptor 2. France has provided a list of NIS and information on the level of pressure. The main pathways are identified and described. However, there is no judgement of the status in relation to GES and the assessment of impacts is limited. Knowledge gaps

are described but plans for addressing those are vague.

2.2 Mediterranean

A list of 155 NIS is provided, indicating for all of them whether or not there are invasive species, and for some, the country/area of origin and date first recorded. It should be noted that the French RS also indicates that for the whole sub-region. The report notes that the Mediterranean region is particularly impacted by NIS. The main pathways are shipping, aquaculture, recreational shipping, fishing bait, aquarium trade, and the Suez Canal. However, no ranking is provided as the relative significance of each of these vectors depends on the group of species concerned.

An assessment of the level of pressure on the environment is carried out and the level of pressure is considered as increasing with no assessment of future trends. The information is generally limited. Impacted features are not all identified. There are no water column features reported but only seabed and functional groups. The level of impact is only judged for a limited number of features. The proportion of impacted features is not assessed. There is no trend reported on the level of impact and no global assessment or judgement has been done at the level of the sub-region. France states that due consideration will be given to these knowledge gaps in the framework of the revisions of the different elements for the next cycle, that is 2018, there is no further indication in terms of concrete actions and responsibilities.

Conclusion on adequacy: The initial assessment for the pressure “introduction of non-indigenous species” is considered to be *partially adequate* for the Mediterranean region, in view of what can be expected for Descriptor 2. France has provided a list of NIS and information on the level of pressure. The main pathways are identified and described. However, there is no judgement of the status in relation to GES and the assessment of impacts is limited.

III. Environmental targets

3.1 North East Atlantic (North Sea, Celtic Seas, Bay of Biscay)

Environmental targets (reporting sheet and paper report):

Target 2.1. Reduce the risks related to the accidental (unvoluntary) introduction, to the voluntary introduction and to the spread of non-indigenous species.

Target 2.2. Reduce the impacts from non-indigenous invasive species

In all three marine sub-regions, only two general targets have been set without specific target or associated indicator.

The first target is a pressure-target. It is not considered as a SMART target as while it can be considered as specific (reduce risk) and time-bound (December 2020), it is not measurable, achievable and realistic. Combined with the vague definitions of GES, there is no quantification, thresholds, reference conditions and baseline. No specification is given as to how to reduce the risk, to which levels and which sectors or pathways to address.

The same remarks apply to the second target, which is an impact-target. It only requires a general reduction of impacts and does not give any information on how to reduce those and which vectors and pathways to address.

Conclusion on adequacy: This set of two general targets is considered as *inadequate* to achieve GES, which is itself defined in a rather vague way. The targets relate directly to a reduction in the identified pressures/impacts but without any specification.

3.2 Mediterranean

Environmental targets (reporting sheet and paper report):

Target I: Reduce the risk of introduction and dissemination of invasive non-indigenous species.

Target I.1: Define a decision-making and information process on the prevention, monitoring and control against invasive non-indigenous species

Associated indicator: Indicator associated to target 1: Implementation of the process

Target I.2: Reduce the risk of introduction of invasive non-indigenous species related to the import of fauna and flora

Target I.3: Reduce the risk of introduction of invasive non-indigenous species through ballast water of ships

Target I.4: Limit the specific risks related to the transfer of aquaculture species from other sites

Associated indicator: Indicator associated to targets 2, 3 and 4: Number of invasive NIS which have been recorded for the first time

Associated indicator: Indicator associated to targets 2, 3 and 4: Number of ships equipped with a system for the treatment of ballast waters (indicator to be developed)

The targets are considered as not considered as SMART because while they can be considered as specific (reduce particular risk) and time-bound (December 2020), they are not measurable, achievable and realistic. Combined with the vague definitions of GES, there is no quantification, thresholds, reference conditions and baseline. No specification is given as to how to reduce the risk and to which levels.

Regarding the spread of NIS, not all main sources of introductions are covered. Only ballast water, aquaculture and import of fauna and flora are mentioned when other vectors such as fouling, recreational shipping, fishing bait and the Suez Canal are not when they were included in the initial assessment.

Conclusion on adequacy: Similarly to the other three sub-regions, the environmental targets set for the Western Mediterranean are considered as *inadequate* to achieve GES, which is itself defined in a rather vague way. They are more detailed than in the other sub-regions, declining one general target into particular targets, themselves linked to indicators. However, these remain vague, without any threshold values, reference point or baseline.

IV. Consistency

The assessment of the pressure and its impact from NIS is consistent with the French definition of GES. However, while the assessment has identified particular species and vectors/pathways, the definition of GES and environmental targets and associated indicators remain very general.

The set of targets is not considered as sufficient to achieve GES, which is itself defined in a rather vague way. The targets relate directly to a reduction in the identified pressures/impacts but without any specification.

Section 5. Descriptor 3 (Commercial fish and shellfish)

I. Good Environmental Status (GES)

GES definition (reporting sheet and paper report):

D3. The populations of all fish, molluscs and crustaceans used for commercial purposes are within safe biological limits, exhibiting a population distribution by age and size distribution that is indicative of a healthy stock.

Criterion 3.1 (this criterion is estimated for each stock considered): GES is achieved when the following conditions are cumulatively met:

- all assessed stocks must have a fishing mortality lower or equal to the fishing mortality at maximum sustainable yield with a probability of 50%. In the absence of an estimate of the probability of achieving this target, and when the interval around the target value is set, the value of the estimated fishing mortality for this stock must be within this range. The value of F must be less than or equal to F_{PA} which determines the area in which the stocks reproductive capacity is within safe biological limits
- all other stocks have a relationship between catch and biomass index showing a stable or decreasing trend. This criterion is estimated for each stock considered.

The associated indicator can be of two forms, depending on the information available:

Indicator 3.1.1 Fishing mortality

This indicator is calculated for stocks in categories 1 and 2. Fishing mortality (F) gives an estimate of the pressure that fishing subjects a stock to. It is estimated directly when the diagnosis made on the stock uses a quantitative model that is analytical (structured in ages - or size) or global (based on the evolution of the total biomass as a function of the catch). For category 1, the estimate is absolute, for category 2, it is relative.

Indicator 3.1.2 Relationship between catch and biomass index

This indicator is calculated for stocks of category 3. The ratio between catch and biomass index is a proxy for fishing mortality and its evolution can account for the trend in terms of fishing pressure. The biomass index from a scientific campaign (or a combination of campaigns) reflecting the overall stock. In the absence of campaigns, an index resulting from the analysis of business performance could be considered. The international catches will be taken into account when measuring this indicator.

Criterion 3.2 (this criterion is estimated for each stock considered): GES for the marine sub-region is achieved when the following conditions are cumulatively met:

- all assessed stocks must have a level of reproductive biomass at or above the MSY-Btrigger level, below which the stock is considered outside the range of biomass associated with maximum sustainable yield, with a probability of 50%
- all other stocks have an index of spawning biomass indices showing a stable or positive trend. (This criterion is estimated for each stock considered.)

The associated indicator can be of two forms, depending on the information available:

Indicator 3.2.1 Spawning Stock Biomass [SSB]

This indicator is calculated for stocks in category 1. The amount of breeding (by weight) measures the ability of a stock to reproduce. Spawning biomass is estimated directly when the diagnosis made on the stock uses a quantitative model that is analytic (structured in ages - or size) or global (based on the evolution of the total biomass as a function of the catch).

Indicator 3.2.2 Index SSB

This indicator is calculated for stocks in categories 2 and 3. The biomass index for the fraction of the population that has reached sexual maturity from a scientific campaign (or a combination of campaigns) reflecting the overall stock. In the absence of campaigns, an index derived from the analysis of business performance could be considered.

Criterion 3.3 (this criterion is examined for each stock as well as from information collected during research

cruises): GES is achieved when the size and age distribution of stocks is indicative of a healthy stock.

Indicator 3.3.1 Proportion larger than the average size of first sexual maturation fish

The indicator for each stock will be expressed as a percentage calculated on the biomass and will give more weight to older individuals to limit noise exposure caused by variations in recruitment. Based on the data available, the indicator is directly available, or estimated by comparing the structures in size to maturity parameters available for this stock (L50: length at which 50% of individuals are mature).

Indicator 3.3.3 95% percentile of the fish length distribution

This indicator can be calculated for each stock as from the size structure of the population.

France has set GES for Descriptor 3 at descriptor, criteria and indicator levels in both the paper report (Ministerial Order) and the RS. The Descriptor definition for France is the same as that provided in the Commission Decision, for Descriptor 3. In the case of Descriptor 3 this is an acceptable practice. All Descriptor 3 criteria as laid out in the Commission Decision are incorporated and specific indicators have been identified for each. Only indicators 3.3.2 and 3.3.4 seem to be missing. Criterion 3.3 has been copied directly from the Commission Decision without any modifications while criterion 3.1 and 3.2 are specified further.

In the Ministerial Order, France makes clear reference to relevant EU legislation. References to the work of ICES are made in the accompanying document. Details of the stocks covered by the GES definition for each marine subregion are included in the Ministerial Order but there is a lack of multispecies assessment in general.

Criterion 3.1

The French GES definition for indicator 3.1.1 “Fishing mortality” does not follow the guidelines from the Commission Decision that F_{msy} should be set as a limit rather than a target. The use of F_{pa} as a lower limit is also not considered as an acceptable limit for F.⁹ In those cases where there is no analytical assessment yielding values for F, France uses the secondary indicator provided by the Commission Decision (i.e. the catch/biomass ratio). The GES definition for France requires that this indicator remains stable or shows a decreasing trend. This is in line with the current approach, as outlined by the Commission Decision and the 2010 Task Group 3 Report.¹⁰ However, it should be noted that the Task Group 3 Report states that the secondary indicators that are based on the absence of a degradation gradient are the best possible criterion for GES but fail in achieving true GES when the attribute described has already deteriorated to a more or less stable (degraded) state.¹¹

Criterion 3.2

France has set GES at or above MSY-Btrigger for their SSB with a probability of 50%. Setting the SSB at MSY-Btrigger is in line with current Commission guidance. However the GES definition should be set as a limit rather than a target, therefore the statement regarding a 50% probability is not in accordance with current Commission guidance. In the case where analytical assessments yielding values for SSB are not available France uses the secondary indicator (3.2.2) “biomass indices” and requires that for each stock the indicator remains stable or shows a positive trend. This is in line with current Commission guidance.

Criterion 3.3

France has repeated textually the text as provided in the Commission Decision and has not specified it further. Indicators 3.3.1 and 3.3.3 have been developed further but do not contain any specific thresholds. Criterion 3.3 requires further development both by France and within the MSFD process in

⁹ The discussions and agreement on this approach is documented in detail in the minutes from the Workshop of the Working Group GES on D3+, which took place in Paris on 24-25 April 2012.

¹⁰ Piet, G.J., Albella, A.J., et al., Marine Strategy Framework Directive, *Task Group 3 Report, Commercially exploited fish and shellfish*, March 2010

¹¹ Task Group 3 Report, p22

general. France acknowledges the gaps in knowledge in relation to criterion 3.3 and the necessity to keep developing this particular aspect of GES. This is in line with current Commission guidance.

Conclusion on adequacy: The French GES definition for Descriptor 3 is considered *inadequate*. For Criterion 3.1 setting Fishing mortality at Fmsy is in line with the Commission Decision but this needs to be set as a limit rather than a target. The application of the secondary indicator catch/biomass ratio follows current Commission guidance. For Criterion 3.2 the use of MSY-Btrigger is in line with the Commission Decision but this will need to be set as a limit rather than a target. The use of the secondary indicator biomass indices has been adequately applied. In the case of Criterion 3.3 it is acknowledged by the Commission that this criterion requires additional work to become operational and therefore the current French application of this criterion is considered adequate.

II. Initial Assessment

The assessment of the level of and impacts from the pressure caused by the extraction of fish and shellfish (fisheries) has been done at a similar level of detail and using a similar methodology for all four marine subregions. The assessment of adequacy has therefore been done for the four subregions together.

The French assessment of the level of fisheries pressure for both commercial and recreational fishing has been reported in detail (including quantitative information) for all subregions. Reductions in commercial fleet sizes are given as percentage reductions in fleet sizes from those in the late nineties compared to the current fleet sizes for each region except for the Celtic Sea. In addition, France has provided a partial judgement on the level of the pressure from fisheries, which has been done by reference to Fmsy (and therefore to GES) using ICES estimates. However, it has not concluded on the state of the stocks with respect to GES.

The assessment of impacts provides a general overview of the various impacts by fisheries but lacks quantitative assessments and references to historic baselines. In particular France states that the impact of trawling has not been quantified across the four subregions. In all four subregions, impacts of fisheries on the seabed, fish, marine mammals and turtles have been estimated as moderate although not in relation to GES.

France has also provided a partial judgement on the impacts of fisheries on fish and shellfish by providing information on the spawning stock biomass (SSB) of relevant stocks for the marine subregions (providing the list of these stocks), referring to ICES estimates. Again, France has not concluded on whether the level of impacts on fish and shellfish is at or below GES.

Conclusion on adequacy: The French initial assessment for descriptor 3 is considered *adequate*. The French assessment has assessed fishing fleets and the level of fishing pressure including that of recreational fisheries. Relevant stocks have been assessed in relation to relevant MSY and PA reference points. Furthermore the impacts of fisheries on the functional groups. Judgements on the level of pressure are made but not in relation to GES.

III. Environmental targets

3.1 North East Atlantic (North Sea, Celtic Sea, Bay of Biscay)

Environmental targets (reporting sheet and paper report):

Target 3.1. Maintain or achieve good status of exploited stocks
Target 3.1.1 Maintain stocks in good condition

Target 3.1.2 Improve the state of stocks in poor condition for achieving good status
 Target 3.1.3 Promote the recovery of stocks of the species in very bad condition for achieving good status

The French targets are not described in detail. The timescale for achievement is given as 2020 but gives no indication whether the objectives of the MSFD will be met. In particular targets 3.1.2 and 3.1.3 to improve the states of the stocks or promoting their recovery towards achieving good status do not specify if these stocks will actually achieve GES by 2020 which is the aim of the MSFD.

Conclusions: the set of targets defined by France to cover D3 in the North East Atlantic marine region is considered *inadequate*. None of the targets address specific stocks, fisheries or contain thresholds that would make the targets actionable and measurable and neither do they match the ambitions of the MSFD (it is not specified for instance that “good condition” is the same as GES).

3.2 Mediterranean

Environmental targets (reporting sheet and paper report):

Target C. Preserve fisheries' resources of the Gulf of Lion's shelf and coastal areas

Target C.1. Develop commercial fishing practices compatible with the maintenance of living resources in the Gulf of Lion and coastal areas, at sustainable exploitation levels

Associated indicator: Number of fishing vessels engaged in sustainable fishing practices defined in the program of measures PAMM (Plan d'Action pour le Milieu Marin (Action Plan for Marine Environment))

Target C.2. Organise recreational fishing practices compatible with the maintenance of fish populations of coastal areas

Associated indicator: Number of recreational fishermen engaged in sustainable fishing practices defined in the program of measures PAMM

Associated indicator: Number of associations of recreational fishermen engaged in sustainable fishing practices defined in the program of measures PAMM

Target C.3. Identify and preserve keys habitats of fishery resources, particularly by integrating the protection of spawning areas in the heads of canyons of the Gulf of Lion

Associated indicator: Surface of key areas benefitting from a protective or management regime (marine protected areas, contracts “environment”, etc.)

France has defined three targets and associated indicators dealing with commercial fish and shellfish in the Mediterranean. Targets C., C.1, and C.2 are general and it is not clear how these will contribute to reducing fishing effort towards Fmsy or restoring the SSB of overfished stocks. Instead the targets state that the intention is to maintain the living resources or fish populations.

The initial assessment however states that several stocks have a fishing mortality exceeding Fmsy and none of the assessed stocks have a SSBY higher than MSY. Furthermore the ICES MSFD D3 REPORT 2012 assessment of the Mediterranean recommends that the fishing mortality for various stocks needs to be reduced. The targets as specified by France therefore do not address the issues raised by the initial assessment or ICES.

Conclusions: The set of targets and indicators for the Mediterranean is considered *inadequate*. The targets are vague and lack measurable objectives/thresholds. Furthermore the targets do not explicitly state an intention to reduce fishing effort towards Fmsy and are therefore not in accordance with the objectives of the MSFD.

IV. Consistency

The GES definition for D3 for France still requires some modifications to be in line with the decisions made regarding Descriptor 3 in the context of the MSFD CIS process. However, the GES definition does apply the primary and secondary indicators as provided in the Commission Decision with the exception of indicator 3.3.2. The GES definition is the same for all of the French subregions and therefore consistent across regions.

With regard to the initial assessment, France does refer to fishing mortality and SSBs for several stocks but does not assess the level of the extraction pressure in relation to the GES definition. The initial assessment has been done in a consistent manner for each marine subregion. The targets as provided by France remain vague and unspecific and do not address the issues identified in the initial assessment. They also do not use the GES indicators and thresholds. The targets for the Atlantic and the Mediterranean are different but suffer from similar issues.

Section 6. Descriptor 5 (Eutrophication)

I. Good Environmental Status (GES)

GES definition (reporting sheet and paper report):

D5. Good ecological status is achieved when the biological community is balanced and retains all the necessary functions in the absence of adverse disturbances associated to eutrophication (e.g. excessive phytoplankton development, low oxygen concentrations, etc.) or when there is no impact related to the excessive water enrichment by nutrients on the sustainable use of ecosystem goods and services.

Good ecological status is reached:

- When nutrient levels are not high (criterion 5.1) and that there is no direct (criterion 5.2) or indirect (criterion 5.3) impacts related to excessive water enrichment by nutrients; or
- When there is no direct (criterion 5.2) or indirect (criterion 5.3) impacts related to excessive water enrichment by nutrients, despite nutrient with a high level (criterion 5.1).

Indicator 5.1.1 Concentration of nutrients in the water column.

The indicator consists of the winter concentration of nitrogen and dissolved inorganic phosphorus in the water column, measured according to relevant parameters related to the element of physico-chemical "nutrients" described in the decree of 25 January 2010 referred to above.

Indicator 5.1.2 Rate of nutrients (silicate, nitrogen and phosphorus).

The parameters associated with this indicator will be specified in the following complementary studies, as provided in Article 4 of this Order.

Indicator 5.2.1 Concentration of chlorophyll in the water column.

The indicator consists of chlorophyll-a in the water column, measured according to relevant parameters related to the biological quality of the element "phytoplankton" described in the decree of 25 January 2010 referred to above.

Indicator 5.2.2 Water transparency in relation to an increase in the amount of algae in suspension.

The parameters associated with this indicator will be specified in the following complementary studies, as provided in Article 4 of this Order.

Indicator 5.2.3 Abundance of opportunistic macroalgae.

The indicator consists of an abundance of opportunistic macroalgae, evaluated according to relevant parameters related to the biological quality element "macroalgae" described in the decree of 25 January 2010 referred to above.

Indicator 5.2.4 Changes in the species composition of the flora, such as diatoms / flagellates rate, change from benthic to pelagic species and the flowering of species causing nuisance or toxic algal blooms (eg. cyanobacteria) caused by human activities

The parameters associated with this indicator will be specified in the following complementary studies, as provided in Article 4 of this Order.

Indicator 5.3.1 Abundance of perennial seaweeds and seagrasses (eg. Furoid, seagrass Posidonia and) affected by the decrease in water transparency.

The indicator consists of the abundance of macroalgae and seagrasses, evaluated according to relevant parameters related to the biological quality elements "macroalgae" and "angiosperms" described in the decree of 25 January 2010 referred to above.

Indicator 5.3.2 Dissolved Oxygen, that is to say, changes due to an increase in the decomposition of organic matter and size of the area.

The indicator consists of the dissolved oxygen concentration, measured according to relevant parameters related to the element of physico-chemical "oxygen" as described in the decree of 25 January 2010 referred to above.

France has set GES for Descriptor 5 at descriptor, criteria and indicator levels in both the paper report (Ministerial Order) and the RS.

All Descriptor 5 criteria laid out in the Commission Decision are incorporated and specific indicators identified. GES (MSFD) is at least comparable to GES (WFD) normative definitions of ecological status for coastal waters. The indicators selected appear to offer full compliance with Descriptor 5 and its associated criteria and indicators. The GES definition is matched to the appropriate WFD normative definitions of ecological status classifications for coastal marine waters and thus GES (MSFD) should equate to at least GES (WFD). Furthermore, the accompanying text to the Ministerial Report states that “GES... is based on the use of the WFD methodology... [with]... an extension of this approach seaward”, and provides some details on how the WFD methodology will be adapted to the offshore areas.

However, while references are provided in the Ministerial Order to access details about threshold values and EQR baselines, the information is not included in the GES definition directly. In the accompanying document, it is indicated that the threshold values associated to the indicators are those of the WFD for coastal waters and that for offshore waters, they still need to be defined. It appears that while OSPAR-derived thresholds are not yet used in offshore areas (although they might be in the future), OSPAR’s Common Procedure, meetings of HASEC and the ICG draft advice document on GES D5 seem to provide the basis for the French approach to MSFD eutrophication assessment and management. The approach offers flexibility in its application, depending on data availability and reference conditions.

In terms of adequacy, the definition of GES is a reformulation of the MSFD, but with one important exception: GES can be achieved if nutrient levels are high, providing direct or indirect impacts are limited. The terms ‘high level’ and ‘limited impacts’ are not clearly defined, although they are directly linked to the definitions at indicator levels (indicator 1 for the nutrient levels and 2 and 3 for the impacts). As mentioned before, there are no clear threshold values for some of these indicators and their establishment is linked to future studies with no specific responsibilities assigned or timeline (except the overall timeline of 2018 for the review of the marine strategy).

Conclusion on adequacy: the GES definition for Descriptor 5 by France is considered *partially adequate*. France went to a lot of details for its definition of GES and seems to be in line with the minimum requirements, although the lack of specification regarding the threshold values to be used in offshore areas is an important gap. It is difficult to fully assess the adequacy of the GES definition, so long as it not clear which approach (WFD, OSPAR or a mix) will be chosen by France for the definition of threshold values. Adopting WFD thresholds and applying them to offshore waters may result in a less ambitious interpretation of the MSFD than that envisaged by OSPAR. In addition, France has left an open door which could prevent reaching GES.

II. Initial Assessment

2.1 North East Atlantic (North Sea, Celtic Sea, Bay of Biscay)

Data with regard to level of nutrient, phosphorous and organic matter concentrations in the environment is very limited and qualitative at best (Celtic Seas) and even inexistent for the North Sea and Bay of Biscay. No justification is provided by France for this gap. There is more information on inputs, most of it having been collated for WFD purposes, in a very localised fashion. All relevant nutrients and organic matter are included in the assessment. Some of the data (for the Bay of Biscay) dates back to 2004, which means that the conclusions are quite dated. Some river flows are measured, and others are modelled, adding further uncertainty.

Information on marine activities causing the pressure is sparse, qualitative and based on 2004 inventory prepared for the WFD. For the Celtic Seas, the IA highlights that the Island of Ouessant is

the only human inhabited area of the subregion and is a minor source of nutrient/organic inputs when compared to inputs from adjacent marine areas.

The assessment does not cover all impacts (e.g. abundance of perennial phytobenthos or water transparency are not covered), is localized and does not include a quantitative analysis. The IA identifies several areas as either being sensitive or subject to eutrophication. Other impacts such as phytoplankton blooms are covered in WFD assessments and/or in a very localised fashion. In the Bay of Biscay, benthic invertebrate community status is sensibly used as an indicator of benthic impact, in addition to which dissolved oxygen status is also measured. The proportion of the areas and biological features impacted has not been assessed. This is explained by a lack of data but no plan is proposed to address the issue.

Judgements in relation to the definition of GES for the MSFD have not been made on the level and impacts from eutrophication, nor on trends. The RS contains only a descriptive part on the level of impacts (status) without making a conclusive judgement on how it relates to GES (good, not good) and how it evolves (improving, declining, stable). However, in the North Sea and the Celtic Seas, France makes a positive assessment of the level of the impacts of nutrient enrichment on the water column in relation to the Good Ecological Status of the WFD. In general, in the Celtic Seas, France notes that eutrophication is not a major problem.

Conclusion on adequacy: The analysis and assessment by France of the level of, and impact from, eutrophication is considered as *partially adequate* in the light of available knowledge/ level of information/ established methods. Important data gaps are acknowledged by France but no clear plan is proposed to address those. The assessment does not cover all impacts and lacks quantification. In addition, there is no link between the assessment data and MSFD GES but the link is made with the WFD.

2.2 Mediterranean

Limited, qualitative, information is reported on the level of nitrogen and phosphorous concentrations in the environment. No information is reported for the level of concentrations of organic matter generated by phytoplankton productivity within the sea (probably considered not to be relevant). While total N and total P would be the preferred nutrient species (parameters) for load estimation, this information is not present for all sources (pressures). It is not clear whether organic loads from rivers have been determined or whether organic loads include those from coastal discharges, and organic loads are determined based on BOD measurements. The potential oxygen-consuming capacity of pressures would be doubled (approximately) if based on COD measurements.

Information on marine activities causing the pressure is sparse, qualitative and based on 2004 inventory prepared for the WFD. Major sources of nutrients are covered, but a number of alternative sources, which may provide a substantial contribution to localised eutrophication impacts, such as aquaculture are not included. It is not known whether maritime transport emissions are included in the modelled nitrogen deposition rates.

A more detailed assessment is done for the impacts on water column and seabed habitats, which includes all relevant coastal water bodies. The situation with regard to further offshore waters is unclear. Water transparency is not included in the assessment but other parameters (chlorophyll a, oxygen and phytoplankton blooms) are included.

Conclusive judgements have not been made on the level of and impacts from eutrophication, nor on trends. The RS contains only a descriptive part on the status of pressure/impacts without making a conclusive judgement on how the status relates to GES and its trends. However, France makes a positive assessment of the level of the impacts of nutrient enrichment on the water column in six areas in relation to the Good Ecological Status of the WFD.

Conclusion on adequacy: The analysis and assessment by France of the level of, and impact from, eutrophication is considered as *partially adequate* in the light of available knowledge/ level of information/ established methods. While France recognises gaps in knowledge, there is no clear future plan to address those. In addition, there is no link between the assessment data and GES.

III. Environmental targets

3.1 North Sea and Bay of Biscay

Environmental targets (reporting sheet and paper report):

Target 5.1. Preserve areas with little or no impact from eutrophication.
 Target 5.2. Significantly reduce excess inputs of nutrients in the marine environment
 Target 5.2.1 Further reduce point and diffuse sources of pollution (agricultural, municipalities, industrials) in order to take into account the objectives set for the receiving environment
 Target 5.2.2 Strengthen the reduction of diffuse pollution from agricultural sources and limit their transfer to the aquatic environment
 Target 5.2.3 To reduce atmospheric nitrogen inputs from agricultural, urban, industrial, and maritime and land transport.
 Target 5.2.4 Strengthen the reduction of eutrophication pressures in impacted areas (in order to contribute to achieving the objectives of OSPAR).¹²

All of these targets are unspecific with regard to impacts, focusing instead on pressure reduction. None of them have threshold values or baselines defined. However, all are measurable. None of the targets appear to be time-bound, except for the general deadline of 2020. The final target (5.2.4) does not specify that the OSPAR objectives should be met, only that there should be a ‘move’ towards reaching them.

The targets mention different types of pressures, but do not set an overall quantitative threshold for them (with exception of one target, which mentions contribution to the OSPAR objectives but does not state them), nor quantitative targets for individual pressures.

While the targets cover all areas within the Bay of Biscay and North Sea subregions, regardless of whether they are quasi-pristine or impacted by eutrophication, target 5.2.4 should ensure that those areas which are most heavily impacted should receive the greatest attention in a future programme of measures.

3.2 Celtic Seas

Environmental targets (reporting sheet and paper report):

D5.1 Preserve areas little or not affected by eutrophication
 Associated indicators: concentration of nutrients in the water column
 Associated indicators: levels of nutrients (silicate, nitrogen and phosphorus)
 Associated indicators: concentration of chlorophyll in the water column
 Associated indicators: water clarity in relation to an increase in the amount of algae in suspension
 Associated indicators: abundance of opportunistic macroalgae
 Associated indicators: changes in the species composition of the flora, such as diatoms / flagellates rate, change from benthic to pelagic species and the flowering of species causing nuisance or toxic algal blooms (eg. cyanobacteria) caused by human activities
 Associated indicators: abundance of algae and perennial beds (eg. fucoids, eelgrass and seagrass), affected by the decrease in water transparency
 Associated indicators: dissolved oxygen, that is to say, changes due to an increase in the decomposition of organic matter and size of the affected area

¹² It should be mentioned that this target is not included in the reporting sheet for the Bay of Biscay but is included in the paper report.

A single over-arching target is provided for Descriptor 5. It clearly relates to the initial assessment, which concludes that in the subregion Celtic Seas eutrophication is only a minor problem and that no ecological impact has been observed. Eight indicators have been defined, which correspond to the eight GES indicators included in the GES definition.

The indicators are specific and measurable, however no threshold values or baselines have been set. The indicators are specific with regard to impacts, but vague with regard to contributing pressures.

Since land-derived loads of nutrients and organic matter are considered negligible in the Celtic Seas, it seems that the target should also tackle transboundary sources in order to achieve GES. However, these are effectively outside the remit of the Directive. The question therefore arises whether nutrient/organic loading in one MS which has a low/acceptable impact in the sovereign waters of that State but contributes to the failure to achieve GES in an adjacent MS's marine waters, should be targeted within the contributing country's programme of measures.

Conclusion on adequacy: The targets defined for the Atlantic region are considered *inadequate*. The set of targets is fully consistent and mirror the criteria and indicators laid down in the Commission Decision. However, the level of ambition of the targets set by France for the North East Atlantic region is low. Since any reduction of loads, no matter how small, would be an achievement of targets 5.2.1 to 5.2.4 (North Sea/Bay of Biscay), they are of course achievable and realistic. The targets and indicators for the Celtic Sea can be considered as realistic if the current assessment of trophic status (i.e. that eutrophication is not a problem in the Celtic Seas) is correct. All of the targets fail to distinguish between individual impacts. Therefore they are not sufficiently targeted towards reducing the levels of the specified pressure or its impacts, or controlling human activities, which are preventing GES from being achieved.

3.3 Mediterranean

None of the targets reported by France for the Mediterranean region are directly related to D5 and therefore no assessment of adequacy has been done. This might be because the IA has not identified eutrophication as a problem for the Mediterranean but targets could be defined to ensure that GES is maintained by 2020. France does not provide any justification for the lack of targets related to Descriptor 5.

In order to be as comprehensive as possible, it could be said that targets F3, F4 and F5 defined for D8 will also contribute to the achievement of GES:

F3. Improve reliability of waste water systems of coastal towns and municipalities

Associated indicators: Indicator of reliability of sanitation systems (collection rate, transfer rate, depollution rate)

Associated indicators: Compliance rate of sanitation systems

F4. Eliminate direct discharges, or offshore discharges, from areas of ship repair and maintenance by establishing a treatment, including appropriate connection to the sanitation network

Associated indicators: Number of direct discharges eliminated / number of direct discharges identified

F5. Reduce input of major rivers and coastal streams followed within the framework of Medpol

Associated indicators: Number of specific plans for reducing inputs from coastal water bodies

These targets are all pressure-specific and potentially measurable. Achievement of GES would depend upon increased pressure-specificity of these targets (i.e. a planned programme with highly specific individual targets for individual sources of pollution).

IV. Consistency

The assessments of the pressure and its impacts in the different subregions of France are not fully consistent with the MS definition of GES. Eight indicators are included in the GES definition to monitor various pressures but not all pressures (loads) have been considered in the IA and there are gaps with regard to impacts covered, estimated transboundary inputs from adjacent marine areas and primary-productivity-derived organic loads within the marine sub-regions themselves. It is clear that much of the information provided is from assessments made prior to the development of GES thresholds for the 8 indicators provided, so its utility for assessing GES achievement is limited.

The set of environmental targets and associated indicators set for the North Sea and Bay of Biscay cover most of the different pressures and impacts related to D5 because they are so vaguely defined and lack any orientation towards individual sources of nutrients or organic matter. However, no target is provided for nutrient or dissolved oxygen levels in the sea, or chlorophyll levels and its contribution to reduced water transparency, but reference is made to the achievement of OSPAR objectives. Any reference to individual impacts/indicators is avoided, except to refer to eutrophication itself as an impact. For the Mediterranean, there is a need to define specific targets for D5 to better cover eutrophication-relevant pressures and increase their specificity with regard to individual sources of nutrients and organic matter.

It is not possible to know whether the targets will lead to a reduction in the identified pressures/impacts considering the lack of quantification. It is clear that the targets provide no greater impetus to reducing eutrophication pressures and impacts than pre-existing objectives/targets. As a conclusion, it is unlikely that the targets defined are sufficient to achieve GES considering the lack of numerical values. The targets offer no more protection against marine eutrophication than the current OSPAR objectives.

Section 7. Descriptor 7 (Hydrographical conditions)

I. Good Environmental Status (GES)

GES definition (reporting sheet and paper report):

D7. Good environmental status is achieved when the nature and extent of permanent alterations related to hydrographical conditions (including in particular among other elements, turbidity, sediment, currents, waves, bathymetry, salinity, temperature) resulting from human activities (individually and cumulatively), excluding cyclical climate and long-term changes in the marine environment, have no significant long-term impacts on biological components considered by the descriptor 1 (biodiversity) 4 (foodwebs) and 6 (seabed integrity).

Criterion 7.1: Spatial characterization of permanent changes

- Indicator 7.1.1: Extent of area affected by the permanent changes

The indicator consists of the area (km²) where significant alterations take place or are expected at the regional scale. This value can be derived from models or semi-quantitative estimates, based on the list of sources of pressure affecting permanent hydrographical conditions, which will be specified after further studies, as provided in Article 4 of this Order.

- Indicator 7.2.1 Spatial extent of the habitats affected by the permanent alteration

The indicator consists of the area of habitats and proportion of total habitat affected significantly by the permanent alteration.

- Indicator 7.2.2 Changes in habitat, in particular the functions provided, due to altered hydrographical conditions

The parameters associated with this indicator will be specified after further studies, as provided in Article 4 of this Order.

GES for Descriptor 7 is defined in the reporting sheets only at descriptor and indicator levels, which is explained by the fact that France integrates the criteria defined in the Commission Decision in its general definition at descriptor level. In Annex 2 of the Ministerial Order, the GES definition is specified for Criterion 7.1 and indicators 7.1.1, 7.2.1 and 7.2.2. The absence of direct reference to Criterion 7.2 in the Ministerial Order is strange and not explained, however, it can be considered that Criterion 7.2 is covered considering the use of the two subsequent indicators.

The definition of GES is not a simple reformulation of the Directive and it covers the whole scope of D7, being set for both criteria, using the indicators of the Commission Decision. France provides a table, accompanying indicator 7.1.1, which identifies the sources of pressure affecting certain hydrographical conditions. This gives an indication of the parameters to be monitored (albeit without any specific, numerical, details). Clear links are made with other MSFD descriptors (in particular D1, D4 and D6). Finally, the definition is fully aligned with the relevant OSPAR approach as described in the accompanying document and it is consistent with the initial assessment. In the accompanying text, France notes in its accompanying document that D7 should not be assessed with reference to a past status but rather with reference to the current environmental status. This is in line with the Commission approach. Finally, in the accompanying document France refers to the EIA and SEA procedures as tools to monitor hydrographical change, in line with the Commission Decision.

No information is provided on consistency with the WFD hydro-morphologic objectives (for coastal waters) and no indication is given of the threshold values to be used to monitor progress towards achieving or maintaining GES. In addition, France does not provide a definition of generic terms such as “significant” or “permanent” and acknowledges that it will have to be specified at a later stage. In the absence of numerical values, the indicators do not provide further indication of when GES can be considered achieved. France provides some information on the future plans to address these gaps.

Most of the gaps can be related to the low level of work done so far on this rather new descriptor, and to the complex relations between this descriptor and other ones.

Conclusion on adequacy: The definition of GES is considered *adequate* in light of current state of knowledge on this rather new topic. The GES definition does cover all the criteria and indicators as in the Commission Decision, it is aligned with the OSPAR and Commission approach and consistent with the initial assessment. However, it does not mention the WFD hydro-morphological objectives for coastal areas, where most pressures/impacts relevant for this descriptor are likely to occur and does not provide a definition of “significant impacts” nor a quantitative threshold values (e.g. of the area affected by change) to monitor achievement of (or maintenance at) GES.

II. Initial assessment

In the reporting sheets, France reports on the level of pressure from changes in thermal, salinity and current regimes for all four subregions. For all parameters, France reports that the pressure is either localised (e.g. changes in thermal regime from power plants in the North Sea) or inexistent (given the current state of knowledge). France also reports a lack of evidence of any impacts on ecosystem components in the four subregions. France reports a lack of studies and long-term reliable monitoring data to justify the gaps in its assessment (e.g. many impacts still not described). In the reporting sheet, France does not provide any information on plans to address these gaps but it does in the paper reports. This justification is consistent with OSPAR assessment of knowledge gaps (an extensive inventory of existing data and knowledge has been done). For the Mediterranean, France has not referred to the State of the Mediterranean Marine and Coastal Environment, which can be explained by the fact that the document was published in 2013.

All causes are studied and relevant changes are addressed. France has made a judgement on the level of pressure (low) and of impact (no evidence of impacts) however the relationship between the pressure, the change and the impacts is not clearly described. Despite this, the MS has provided a very serious study based on extensive analysis of existing work and knowledge. Most of gaps can be related to the low level of work done so far on this rather new descriptor, and to the complex relations between this descriptor and other ones.

Conclusion on adequacy: The initial assessment can be considered *adequate* in the light of available knowledge. It takes into account the work done by OSPAR and for the WFD and gives a good description of the potential pressures and impacts related to Descriptor 7. The link with other descriptors is addressed, the situation for this descriptor in relation to GES is assessed (e.g. some areas – Bay of Seine – are under pressure), gaps in knowledge (pressure/impact relation, turbidity, etc.) are identified and plans to address these gaps are described (with an overall timeline of 2018).

III. Environmental targets

3.1 North East Atlantic (North Sea, Celtic Seas)

Environmental targets (reporting sheet and paper report):

France has defined the same two targets for the three subregions of the North East Atlantic Coast and one additional target for the Bay of Biscay:

D7.1 Preserve areas with little or no impact by a permanent change of hydrographic processes, including those hosting habitats with a key functional role in the ecosystem

D7.2 Limit risks related to pressures affecting habitats and their functions

In addition, the following target has been set of the Bay of Biscay:

D7.3 Promote upstream-downstream common cause within basins in order to secure inflows of freshwater to coastal area

The targets proposed are very general and consequently not specific and measurable. They are time-bound (2020), realistic (because very general) and probably achievable considering that no specific threshold is set. No indicator is associated to the targets. The first target is related to an expected final result (GES), rather than to the way to achieve this result (target) (“preservation of functionalities” can be considered a mere rewording of GES definition, as GES is achieved if functionalities are preserved). It is not clear why a third target has been added only to the Bay of Biscay in comparison to the other subregions (basin management would also be relevant for the North Sea, Celtic Sea and Mediterranean subregions). No explanation is provided in the paper reports.

Conclusion on adequacy: The targets defined by France for D7 are considered to be *inadequate*. The initial assessment has concluded that the level of, and impacts from, pressures caused by human activities on hydrological processes are low or non-existent, which implies that France is already at GES. If that is the case, France still needs to set SMART targets in order to maintain GES until 2020 and ensure that current and future activities do not cause a degradation in the current status. The targets set by France for the Atlantic subregions are not SMART and not focused on controlling current or future pressures and impacts. As defined, it is not certain whether the environmental targets/indicators are sufficient to maintain GES. In addition, France has determined in its initial assessment that while the level of pressure can be considered low at the scale of the subregions and region, it can be more intense in certain zones. However, no targets have defined to address these local pressures.

3.2 Mediterranean

France has not defined specific targets for D7 but in the reporting sheet, France indicates that targets A and B are relevant for D7:

Target A. Maintain or restore biodiversity and ecosystem functioning of coastal seabeds (medio, infra and circalittoral)

Target B. Maintain a good status of conservation of habitats of deep submarine canyons

No justification is provided in the paper report for not providing specific targets for D7. The transversal targets A and B are very general, not focused on specific pressures or impacts and are not measurable. The initial assessment and definition of GES have shown that in the Western Mediterranean, human activities (trawling, beach nourishing, artificialisation of coastline) cause strong pressure on turbidity, leading to changes, which can be permanent. No target has been defined to address this issue.

IV. Consistency

France’s assessment of parameters, pressures (nature, level), impacts (impacted components, level of impact) and relations pressures/impacts is consistent with the definition of GES (level of change, environment components to be considered for GES).

Considering that France did not produce a consistent set of environmental targets and indicators, they do not cover all the different pressures and impacts identified in the initial assessment and would not guarantee to maintain the current level of pressure and impacts, even less lead to a reduction in the identified pressures/impacts.

Section 8. Descriptor 8 (Contaminants)

I. Good Environmental Status (GES)

GES definition (reporting sheets and paper report):

D8. The good environmental status is achieved when the following conditions are cumulatively met:

- The concentrations of contaminants, for which a threshold is available (environmental quality standard, as defined by Decree of 25 January 2010 related to the methods and evaluation criteria of the ecological and chemical state of waters and the ecological potential of surface waters or by environmental evaluation criteria defined by the OSPAR Convention), do not exceed these thresholds;
- The concentrations in biota do not increase over time;
- The concentrations in top predators do not increase over time;
- The considered effects of contaminants are assessed as insignificant.

Criterion 8.1: Concentration of contaminants

- Indicator 8.1.1: Concentration of contaminants mentioned above, measured in the appropriate matrix (e.g. biota, sediment and water) as a method of ensuring comparability with the assessments under Directive 2000/60/EC

The indicator is the level of the substances listed above in the relevant matrix identified above.

Criterion 8.2: Effects of contaminants

- Indicator 8.2.1: Level of pollution effects on ecosystem components concerned.

The indicator consists first, in offshore waters, of the chronic and long-term biological effects and secondly, in the coastal zone, of the biological effects for which a causal relationship is established, and it is possible to trace the cause (chemical pressure). The indicators of the effects of pollution on the ecosystem components concerned are:

(Type of biological effect / effect name)

1. *General stress index in mussels and fish / lysosomal membrane stability*
2. *Genotoxicity in mussels and fish / Induction of micronuclei and DNA damage (test comet)*
3. *Embryotoxicity in oyster and fish reproductive toxicity / Anomalies of oyster larvae and gonads of fish*
4. *Imposex gastropods / Index VDS (Vas Deferens Sequence)*
5. *Fish diseases / index liver diseases and pathologies external*

These indices are associated with physiological interpretation parameters (for fish: gonadosomatic and hepatosomatic index and mussels: condition, weight and height index).

- Indicator 8.2.2: Occurrence, origin and extent of acute pollution episodes and their impact.

The indicator consists of the frequency, the identification of the origin (ship or fixed installation) and extent (km²) of acute pollution caused by substances affecting the physical environment: oil, coal, minerals, vegetable oils and grain farming. The effects of discharge into the marine environment are of two types: oiling (surface) and asphyxia (bottom). The incidence of acute pollution is measured for hydrocarbons in the marine subregion Channel-North Sea, by the frequency of discovery of oiled guillemots. Additional indicators related to the impact will be added after further study, and provided for in accordance with Article 4 of this Order.

France has set GES for Descriptor 8 at descriptor level in both the RS and the paper report. In the RS, France justifies the lack of reporting at the level of criteria by stating that the GES is defined in a global way at the level of the descriptor. However, the definition provided does cover the two criteria “concentration of contaminants” and “effects of contaminants”. France has further specified the GES definition at the indicator level in both the RS and the Ministerial Order.

In the accompanying document to the Ministerial Order, France provides the list of the 85 substances that have been taken into account to define GES. The criteria for the selection of the substances to be measured to determine GES are explained in detail. The list of substances includes:

1. WFD Priority substances

2. OSPAR priority substances
3. PBT substances;
4. Anti-fouling substances introduced directly into the marine environment,
5. Emerging substances: perfluorinated compounds, pharmaceuticals and nanomaterials.

Two additional criteria are applied to select the substances to be measured to determine GES:

- Existence of recognised environmental concentrations thresholds;
- Existence of a technical guide analysis.

The approach adopted by France for the selection of the contaminants to be measured takes account of the requirements under EU legislation (WFD and EQSD) and under regional conventions (in particular OSPAR but also to a certain extent the Barcelona Convention) and supplements them with additional criteria (e.g. including substances historically followed by the French monitoring networks). The list provided in the Order is comprehensive and covers all priority hazardous substances as defined in EU legislation, regional agreements and additional substances historically monitored in France. It also includes a few substances, known to be of concern in several places in Europe, selected solely for the purpose of the MSFD on the basis of the selection criteria laid out above (BDE 209 (retardant), Methyl_Hg, Hexabromocyclododecane (HBCD): α -HBCD, β -HBCD, γ -HBCD, Tetrabromobisphenol-A (TBBPA-A)).¹³ It is not specified which threshold values will be used to measure the concentrations of these substances. Finally, the list in the Order includes any substance accidentally introduced, which has physical effects on biota or biocenosis.

The GES definition covers the two criteria set in the Commission Decision on the concentration of contaminants and the effects of contaminants. In addition, the indicators to the French definition for D8, as set in Annex 2 of the Order, cover the three indicators laid out in the Commission Decision.

Concentration of contaminants

The French definition for criterion 8.1 and indicator 8.1.1 sets threshold values for GES to the level of EU standards (EQS) or regional agreements (BAC or EAC) when the EQS don't exist for certain substances. There is uncertainty as to which standards (EQS or EAC) will be used for the three substances for which an EQS has been set in biota (mercury, HCB and HCBd) as France has not defined a priority order between the EQS and the EAC. It is also unclear what thresholds will be used for those substances selected solely for the purpose of the MSFD and for which no EQS or EAC have been defined.

One of the indicators of the general GES definition is the concentration of contaminants at top predator level. However France does not specify in the Order or in the accompanying document which predators this might be and which approach would be used to measure the achievement of GES.

Finally, it should be noted that France has chosen to use the OSPAR criteria also in their Mediterranean waters. This is explained by the fact that no common standards/levels have been defined in the Mediterranean region.

Effects of contaminants

The definition of GES for the effects of contaminants covers the two indicators included in the Commission Decision. France has made an additional effort in defining a list of specific biological effects to be measured, including Imposex, which is the only mandatory effect adopted by OSPAR. As far as the other effects are concerned, thresholds do exist for some of them but there is no international consensus on these. With regard to the effects caused by acute pollution events, while it is clear that France gives a lot of importance to acute pollution, it has not defined a threshold value to measure the "significance" of the effects from acute pollution.

¹³ Information collected in the accompanying document to the French Order in which the list of substances is provided in detail.

Conclusion on adequacy: The GES definition for D8 is considered *adequate*. France adequately defines GES for the two criteria and the indicators of the Commission Decision. France provides a comprehensive list of substances covered by the definition. It uses a pragmatic approach using the minimum requirements (EQS) and complementing with the relevant RSC standards but does not provide a priority order between the two approaches for conflicting cases. 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 that the EAC provide an equivalent protection to that theoretically provided by the EQSD. France uses OSPAR's standards for the Mediterranean but considering that MEDPOL has no criteria of their own, the application of the OSPAR criteria is a reasonable start. However, some assumptions need to be made if the monitored species in the Mediterranean are different from those for which the OSPAR criteria apply.

II. Initial assessment

2.1 North East Atlantic (North Sea, Celtic Seas, Bay of Biscay)

In all three marine subregions of the North East Atlantic coast of France, the French authorities have reported information on the contamination from synthetic and non-synthetic hazardous substances, radionuclides (except for the Celtic Seas) and acute pollution events. The justification for not reporting on radionuclides in the Celtic Seas, i.e. that the Celtic Seas subregion is far away from sources of contamination by radionuclides and that the environmental concentrations of radionuclides and the impact on man and biota can be considered negligible.

Synthetic and non-synthetic substances

The level of details of the information reported for the North Sea and Bay of Biscay subregions is similar for synthetic and non-synthetic substances. The contamination levels have been measured in water, biota and sediment for several years through monitoring networks set up in compliance with international and EU legislation. This indicates that the assessment done for the purpose of Art8 MSFD has been using information collected under other processes.

France is able to provide information (most of the time quantified) on the level of contamination from land-based, sea-based and air-based sources. It does not provide information on the main activities responsible for contamination. The synthetic substances assessed include atrazine and lindane for land-based sources, TBT for sea-based sources and PCBs for air-based sources. For non-synthetic substances, cadmium, mercury, zinc, copper and lead are included in the assessment by France.

France provides limited information on impacts on functional groups (looking only at the impacts of TBT on imposex) and no information regarding impacts on seabed habitats. In any case, France has only made a judgement on the level of impacts on functional groups and fish and seafood (moderate impact in both regions on marine mammals, birds, demersal and pelagic fish and cephalopods and phytoplankton). Although it did not report any information on impacts on seabed habitats, France made a judgement of moderate impacts on sublittoral rock and sediment habitats in the Bay of Biscay. This seems to indicate that more information has been reported in the paper report than in the RS. It did not make any judgement on the level of concentrations. Despite the fact that there is no information of thresholds and standards used to make the assessment, the reference to international and EU standards seems to indicate compliance with WFD and OSPAR assessment methodologies.

In the Celtic Seas, the assessment of the level of contamination is very limited. It is made on the basis of punctual studies, which conclude that only rare contamination occurs on the coast, rather than long-term monitoring as is the case in the other regions. Almost no quantitative information is provided and very little on the impacts of contamination on ecosystem components. France notes that interactions do take place between hazardous substances and ecosystem components but does not specify which interactions and the level and effects of these interactions.

Radionuclides

The assessment of the level of and impacts from contamination by hazardous substances in the North Sea and Bay of Biscay has been completed on the basis of the work done in OSPAR. In order to make a judgement on the current level of the pressure in the subregions, France has used the OSPAR objective, aiming to “reduce by 2020 the input, emissions and losses of radioactive substances up to levels in which the additional concentrations are close to zero”, and the OSPAR measures of indicator substances in sea water, algae, molluscs and fish. The results used are relatively dated (2006) and for a number of substances are not significant enough to draw up conclusions on the level of the contamination in the environment. France mentions the low level and decreasing trend of the input from the AREVA site in La Hague but does not provide quantified values.

The judgement on the level of impacts on functional groups has been done using the methodology developed by the FP7 ERICA project on the assessment of risks and the threshold value of 10 µGy/h, corresponding to lowest level at which impacts can take place on ecosystem components, according to current scientific knowledge. No assessment has been made of impacts on seabed habitats and fish and seafood.

Acute pollution events

The assessment of contamination by acute pollution events has been made in all three subregions on the basis of the number of POLREP (Pollution Reports) prepared for the CEDRE (Centre for Documentation, Research and Experimentation on Accidental Water Pollution). As for the other types of contamination, the Celtic Seas is the subregion least affected by acute pollution. France provides detailed information on the number of incidents, the trends over the past 40 years and the substances discharged in the marine waters. It also provides some information on the impacts on ecosystem components, with quantification of the information only when it comes to the impacts on seabirds (which is in line with the indicator included in the GES definition “number of oiled guillemots”).

No actual judgement is made in relation to GES. This is explained by the fact that no threshold value is provided in the GES, which makes it difficult to assess whether current status is good or not.

Conclusion on adequacy: The initial assessment made by France in relation to contamination by hazardous substances in the Atlantic marine region is considered *partially adequate*. The assessment is done using information collected under other processes (France refers to EU and regional standards). While this can be seen as lacking in ambition, it seems to indicate that France has used the methodologies developed under these agreements (including therefore thresholds and baselines but this is not explicitly stated), which can therefore be deemed adequate. France provides a quantitative description of the levels of contaminations but does not make any judgement in relation to GES. The information reported on the impacts from contamination is limited and no judgement is made. The approach chosen for the assessment of radionuclides in the North East Atlantic (using OSPAR results) should allow for easy comparison with neighbouring countries even though the results are quite dated. Finally, the justification provided for not reporting on radionuclides in the Celtic Seas is considered only partially adequate since no information is provided on the monitoring confirming these findings.

2.2 Mediterranean

The information provided for the assessment of contamination in the Mediterranean is very similar to that of the Atlantic region, with more information provided for the level of the pressure from synthetic substances in functional groups and still no information on the main activities causing the pressure. The judgements made on the level of, and impact from, contamination by hazardous substances are the same for the Mediterranean as for the other subregions. A reference is also made to compliance to international and EU legislation but with no further details. With regard to contamination from radionuclides, the assessment is not based on any European or regional work (as this is inexistent for the Mediterranean) but focuses on a few relevant substances (carbon 60, 137Cs, 7Be and 210Po), which seems adequate. No judgement is made on the impacts from contamination by radionuclides on ecosystem components.

Conclusion on adequacy: The initial assessment made by France in relation to contamination by hazardous substances in the Mediterranean subregion is considered *partially adequate* for same reasons as outlined above for the Atlantic subregions.

III. Environmental targets

3.1 North East Atlantic (North Sea, Celtic Seas, Bay of Biscay)

Environmental targets (reporting sheet and paper report):

France has defined the same targets for the subregions Celtic Seas and Bay of Biscay. They will therefore be assessed together.

D8.1. Reducing or eliminating the input of chemical contaminants in the marine environment, whether chronic or accidental.

D8.1.1. Reducing the inputs of contaminants at the source.

D8.1.2. Limiting the transfer of contaminants to and within the marine environment.

France has set one overall target and two subsidiary targets for D8 for the Celtic Seas and Bay of Biscay. No detail is provided on the substances used by the targets, the threshold values and the baselines to be used to measure progress. It can be extrapolated that the substances concerned are the same as those covered in the GES definition however it is not explicitly mentioned by France. The setting of target D8.1.2 seems to indicate that France wants more control of the distribution pathways of hazardous substances but it lacks specifics (e.g. how to control biomagnification). The generic targets defined can only be measured in terms of change or rate but the “by how much” element is lacking.

In addition, the targets defined by France for the Celtic Seas and the Bay of Biscay do not cover all the aspects of D8. France only defined “pressure” targets and has not set any targets targeted at reducing the impacts of contamination on ecosystem components. In addition, France did not define targets related to acute pollution events.

The targets for the North Sea have been defined as follows:

D8.1. Reducing or eliminating the input of chemical contaminants in the marine environment, whether chronic or accidental;

D8.1.1. Limiting or eliminating the direct inputs of contaminants into the sea.

D8.1.2. Reducing the air-based input of contaminants.

D8.1.3. Reducing or eliminating at the source the land-based inputs of contaminants from industrial, urban and agricultural origin.

D8.1.4. Limiting the transfer of contaminants to and within the marine environment.

The targets defined for the North Sea are more numerous than for the other two Atlantic regions and a little more specific in terms of sources of contamination (air-based contamination, contaminants from industrial, urban and agricultural origin). However they are equally deprived of essential elements, such as the substances concerned by the targets, the threshold values and the baselines. The same assumption can be made as for the Celtic Seas and the Bay of Biscay with regard to the substances concerned.

In the paper report, in the accompanying text to the targets, France mentions the instruments in place for the reduction of contamination from hazardous substances (WFD and OSPAR mainly) and links the MSFD targets to the objectives set out in the relevant French river basin management plan (SDAGE). It also describes the various key elements from the initial assessment concerning the human activities that cause the pressure and the impacts from the pressure, which could indicate that the

targets have been set in order to address the issues identified in the initial assessment. However, the links between the initial assessment, the definition of GES and the setting of targets is not made in the definition of the targets themselves or even explained at all in the paper report.

Conclusion on adequacy: The targets set by France for the North East Atlantic region are considered *inadequate*. Although the targets are focused on controlling human activities and reducing pressure, they lack details regarding threshold values and baselines and it is therefore not possible to assess whether they will help to achieve GES. Despite the fact that more information is reported in the paper report for the North Sea subregion than for the other two and the initial assessment is quoted, the link between the issues identified in the initial assessment and the targets set is still not made.

3.2 Mediterranean

Environmental targets (reporting sheet and paper report):

F: Reduce inputs of chemical contaminants from watersheds described in the initial assessment.

F1 Reduce rainwater inputs from coastal towns and municipalities

Associated indicator: Number of rain master plans (schemas directeur pluviaux) implemented

Associated indicator: Extent of species' habitats in a good state of conservation

F2 Reduce rainwater inputs from industrial facilities and ports

Associated indicator: Extent of industrial zones and ports equipped with a system of collection and treatment of rain waters

Associated indicator: Extent of sealed industrial zones and ports equipped with a system of collection and treatment of rain waters

F3 Improve reliability of waste water systems of coastal towns and municipalities

Associated indicator: Indicator of reliability of sanitation systems (collection rate, transfer rate, depollution rate)

Associated indicator: Compliance rate of sanitation systems

F4 Eliminate direct discharges, or offshore discharges, from areas of ship repair and maintenance by establishing a treatment, including appropriate connection to the sanitation network

Associated indicator: Number of direct discharges eliminated / number of direct discharges identified

F5 Reduce input of major rivers and coastal streams followed within the framework of Medpol

Associated indicator: Number of specific plans for reducing inputs from coastal water bodies

H. Reduce discharges of hydrocarbons and other pollutants from ships (illegal and accidental discharges) and their impacts

H1. Optimize the aerial surveillance and satellite detection issues on areas for illegal discharges from ships

Associated indicator: Number of discharges observed

Associated indicator: Number of hours of marine pollution monitoring flights

Associated indicator: Number of discharges with identified perpetrator compared with the number of discharges observed

H2. Strengthen the implementation of collection devices for oil residues and hazardous substances from cargo merchant vessels in ports and develop the associated treatment processes

Associated indicator: Number of collecting devices

Associated indicator: Number of berths linked to the collection devices

Associated indicator: Capacity (volume) of the collection devices set up

H3. Reduce pollution from potentially dangerous wrecks

Associated indicator: Ratio of the number of wrecks going through preventive treatment on the number of wrecks identified as potentially dangerous

H4. Reduce the impacts of marine pollution on the coast strengthening mechanisms of prevention and control

Associated indicator: Number of updated Polmar components from Orsec packages

Associated indicator: Number of communal conservation plans with a Polmar component (infra Polmar)

H5. Strengthen international cooperation in the prevention and fight against marine pollution by continuing the development and harmonization of joint plans (based on existing tools: RAMOGEPOL, Lion Plan)

Associated indicator: Number harmonized Plans

Associated indicator: Number of joint exercises

H6. Harmonize the enforcement of marine pollution between France, Spain and Italy

Associated indicator: Number of cases reached term / number of cases submitted to the flag State of the ship polluter

Associated indicator: Average fines required by each State concerned

France has defined two sets of targets and associated indicators dealing with contamination from hazardous substances in the Mediterranean, one for contamination from synthetic and non-synthetic substances and one for acute pollution events. This last aspect has not been covered in the other subregions. In addition, the Mediterranean targets for acute pollution refer to regional cooperation (in the framework of Medpol) and bilateral cooperation with neighbouring countries (RamogePol with Italy and Lion Plan with Spain).

In general the targets defined for the Mediterranean subregion are much more pressure-specific and measurable than for the other subregions. They cover several important aspects of contamination by hazardous substances, although the targets do not cover contamination by radionuclides (but this is not required by the Directive) and are very limited when it comes to the impacts of contamination on ecosystem components (only one indicator focusing on habitats and it is much too general to be effective).

No reference is made in the Mediterranean targets to the concentrations of contaminants (and therefore to the EQS or to the OSPAR standards) or to the biological effects of these standards. In addition, information is still lacking on two crucial elements: the threshold values and the baselines to be used to measure progress.

Conclusion on adequacy: The set of targets and indicators defined by France to cover D8 in the Mediterranean is considered *partially adequate*. Despite the distinctive efforts made in the Mediterranean to define specific targets and associated indicators, the lack of specifics regarding threshold values and baselines means that it is not possible to assess if the targets will help achieve GES by 2020. In addition, while there is a reference to the initial assessment, there is a clear lack of consistency between the targets set for the Mediterranean and the national definition of GES.

IV. Consistency

The assessments of the pressure and its impacts in the different subregions of France are consistent with the MS definition of GES. In its initial assessment, France provides details of land-, sea- and air-based sources where the hazardous substances of concern are a subset of those addressed under GES.

The set of environmental targets and associated indicators set for the Atlantic subregions cover all pressures and impacts identified in the initial assessment of D8 considering their generic nature but would fail to lead to a reduction in the identified pressures and impacts. Considering that France has not reported on the activities causing the pressure, it is consistent (although inadequate) that they have not defined targets for specific activities. In the case of the Mediterranean, the targets are more specific and would lead to a reduction in the identified pressures and impacts if numerical values (thresholds, baselines) were attached to the indicators developed. As a conclusion, it is unlikely that the targets defined are sufficient to achieve GES.

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

I. Good Environmental Status (GES)

GES definition (reporting sheets and paper report):

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

D9.1. The good environmental status is achieved when:

- Actual levels of contamination of fish and other seafood for human consumption by the chemical contaminants listed in Regulation 1881/2006 and the number of contaminants, for which maximum regulatory levels prescribed in the Regulation have been exceeded, are stable or decreasing;
- The annual frequency of the maximum levels prescribed above being exceeded shall not exceed the threshold set out in Annex 2 to the Order of 17/12/2012 regarding the definition of Good Environmental Status of marine waters.

Indicator 9.1.1: Actual levels of chemical contaminants that have been detected and number of these contaminants for which maximum regulatory levels have been exceeded.

The indicator consists in the one hand of the concentration of chemical contaminants listed above in the matrix identified above and secondly the number of contaminants for which the maximum regulatory have been exceeded.

Indicator 9.1.2: Frequency of regulatory levels being exceeded

The indicator is the annual frequency of regulatory thresholds, from Regulation (EC) No 1881/2006, that have been exceeded in the aforementioned marine sub-region.

D9.2. The good environmental status is achieved when the quality criteria of marine waters and marine products intended for human consumption are respected for microbiological contaminants specified by the existing EU and national regulations.

France has set GES for Descriptor 9 at descriptor, criteria and indicator level in both the RS and the Ministerial Order.

The definition of GES repeats the Directive and uses guidance of the Commission Decision as far as criterion 9.1 is concerned. For the first part of criterion 9.1 (corresponding to indicator 9.1.1), France includes in its GES definition the threshold values in compliance with existing European legislation, in particular Regulation 1881/2006 setting maximum levels for certain contaminants in foodstuffs. Regulation 1881/2006 is used as a reference for:

- The list of contaminants addressed in the definition of GES
- The threshold values (maximum levels) that should not be exceeded

With regard to the second part of Criterion 9.1, on the annual frequency of regulatory levels being exceeded (indicator 9.1.2), no information is provided in the French Order (Annex 1 or Annex 2) on the threshold value used for this indicator. In the accompanying document, France acknowledges that the threshold for the annual frequency still needs to be determined. It justifies this by mentioning that no consensus on this indicator has been reached across Member States and mentions that the methodology for setting this threshold will be developed at a later stage, on the basis of a hygienic approach to take into account the specificity of D9, which targets human health and not impacts on the marine environment.

In addition to defining GES for the criterion (and indicators) specified in the Commission Decision, France has defined GES for an additional criterion (9.2) on microbiological contaminants. The EU legislation referred to in the general GES definition is further specified in Annex 2 of the Order and covers all the relevant standards to be applied in this context, including the “hygiene pack”. While the

general definition itself is not very specific in terms of the products concerned, a definition of seafood addressed by the definition is provided in the Annex 2 of the Order. France justifies the choice of matrices analysed by stating that these are representative of the consumption of the French population and provides details on the methodology used to make that assumption.

The links with D8 are mentioned. However, France clearly states that it has not had the opportunity to make a common analysis in the frame of this reporting cycle. No reference is made to the RSCs in the Order but reference is made to the work undertaken in OSPAR in the accompanying document.

Conclusion on adequacy: The definition of GES for D9 is considered *adequate*. France has defined its GES in compliance with the Directive and the Commission Decision (using the same criterion and indicators and the recommended EU standards). Although it has not yet provided the full information that will be used to measure progress towards achieving GES (i.e. lack of threshold value for indicator 9.1.2), it has defined a potentially measurable GES for the number of contaminants and the frequency of regulatory levels being exceeded. In addition, France goes one step further than the MSFD/Commission Decision defining GES for criterion 9.2 on contamination by microbial pathogens and using relevant European legislation. This can be considered as a good practice.

II. Initial Assessment

In the reporting sheets, the assessment of contamination of fish and seafood is included in the general assessment of contamination by hazardous substances. However, it is important to note that France has also included contamination by microbial pathogens in its assessment of contamination of fish and seafood. This is in line with their definition of GES for criterion 9.2 on microbiological contamination. As for D8, France has not reported in the reporting sheets on the main activities that are responsible for contamination of fish and seafood.

2.1 North East Atlantic (North Sea, Celtic Seas, Bay of Biscay)

For all three subregions, France has reported only a limited amount of information on the impacts of synthetic and non-synthetic contaminants on fish and seafood and none on the impacts of contamination from radionuclides.

For the Celtic Seas, no information has been reported at all on these various impacts and no judgement has been made by France. This is in line with the reporting on D8 for the Celtic Seas which is also very limited, justified by France by an almost inexistent contamination by hazardous substances in the subregion.

In the North Sea, the Bay of Biscay, France has carried out an assessment of impacts only for one synthetic substance (benzo(a)pyrene¹⁴) and three non-synthetic (cadmium, lead, mercury). Assessing the levels and impacts of one individual compound such as benzo(a)pyrene is not representative of other similar compounds (e.g. PAHs, metals, PCBs). Individual compounds can behave very differently depending on the medium, species, ambient physical/chemical conditions, etc. While it is limited, the choice of this substance is however in line with the definition of GES. As for non-synthetic substances, certain substances such as dioxins (PCDD/PCDF) and dioxin-like PCBs for which threshold values are set at EU level, are missing from the assessment.

In its assessment, France has looked whether the levels of contamination have exceeded regulatory levels. In the paper report, France specifies that the regulatory levels are those from Regulation 1886/2008, which is in line with its GES definition. It also further specifies that the data used to make

¹⁴ While the PAH benzo[a]pyrene, like most PAHs, can be found naturally, it can also be synthetically formed, often as a by-product of industrial processes. For the purpose of this assessment, it seems that France has categorized benzo[a]pyrene as a synthetic substance.

this assessment is from 2000 to 2010 for non-synthetic substances and 2000-2007 for benzo(a)pyrene. This means that the conclusions for benzo(a)pyrene are already quite dated, although this can be explained by the efforts needed for the authorities to proceed to a new baseline survey, and no information is provided by France on their plans for future assessment.

In terms of judgement, France provides conclusions on the level of the impacts of synthetic and non-synthetic substances on farmed and fished species (North Sea) and on exploited crustaceans and shellfish (Bay of Biscay). While in the RS, it is not specified how France reached these conclusion (e.g. no indication of threshold values used), the paper report provides a little more details explaining this judgement, which seems to have been made on the basis of localized and punctual analyses. In the Bay of Biscay, France acknowledges that the levels of cadmium have regularly exceeded regulatory levels but no information is provided on how this impacts fish and seafood. More generally, the link between the level of contamination by substances and the impacts on fish and seafood is not clearly made.

Under the initial assessment for D9, France also covered microbial pathogens.

In the marine sub-region Bay of Biscay, France notes that most of the bathing waters are of good quality under Directive 76/160/EC with only 2% of the waters classified as not in conformity. In the Celtic Seas, all bathing waters are of good quality, while in the North Sea, they are of average quality. However, as underlined by the French report, the coming into force of the more stringent standards set by Directive 2006/7/EC may lead to changes in the classification of bathing waters. In shellfish waters, in the Bay of Biscay and the North Sea, the quality is assessed as medium in the majority of the waters with a trend downwards. In the Celtic Seas, pressure trends and impacts are not assessed as there are no shell fish farms in the area. The report underlines a lack of knowledge on the impacts of microbial pathogens on the marine environment. The main cause for pressures is identified as urban activities (wastewater and rainwater). Judgement on the level of pressure and impact is done for bathing waters in relation to Directive 76/160/EC and for shellfish waters in relation to Directive 2006/113/EC and Regulation 854/2004.

Conclusion on adequacy: The initial assessment of contamination of fish and seafood by hazardous substances (and microbial pathogens) in the Atlantic marine region of France is considered *partially adequate*. Although there are gaps in the analysis of the impacts from contamination on fish and seafood and no quantitative information provided, France has made a judgement, presumably on the basis of their GES definition and consequently on the basis of EU standards (even though it has done so only for a few substances).

2.2 Mediterranean

The assessment carried out in the Mediterranean of the contamination of fish and seafood by hazardous substances is similar to that done for the Atlantic region. It is very limited but concludes that the contamination levels (not specified for which substances) are well-below regulatory levels in bivalves and the impacts on exploited fish, cephalopods, crustaceans and shellfish are moderate. Again, little information is provided on what impacts have been analysed (only the impact of TBT on imposex has been analysed, as reported under the D8 section, which is not relevant for D9). No assessment was made of the contamination of radionuclides on fish and seafood.

With regard to microbial pathogens, the main causes for pressures are identified (urban and agricultural activities) and the level of pressure assessed for both bathing and shellfish waters. However, the trend in the pressure is not assessed. The report underlines a lack of knowledge on the impacts of microbial pathogens on the marine environment. Information is provided on other bacteria e.g. salmonella, listeria, viruses but these are local and punctual data which cannot be generalised to the whole sub-region. There is a judgement on the level of impacts, based on Directive 76/160/EC for bathing waters.

Conclusion on adequacy: The initial assessment made by France in relation to contamination of fish and seafood by hazardous substances in the Mediterranean subregion is considered *partially adequate* for same reasons as outlined above for the Atlantic subregions.

III. Environmental targets

3.1 North East Atlantic (North Sea, Celtic Seas, Bay of Biscay)

Environmental targets (reporting sheet and paper report):

France has defined the same targets for the three subregions of the North East Atlantic Coast. They will therefore be assessed together.

D9.1: Improve the microbiological quality of water, to reduce the significant risk of impact on human health from the contamination of seafood by ensuring that regulatory levels prescribed in EU legislation or other relevant standards are not exceeded.

D9.1.1 Reduce punctual inputs

D9.1.2 Reduce diffuse inputs

D9.2 Improve the chemical quality of the water to reduce the significant risk of impact on human health from contaminants in seafood by ensuring that regulatory levels prescribed in EU legislation or other relevant standards are not exceeded.

D9.2.1 Reduce punctual inputs

D9.2.2 Reduce diffuse inputs

France has defined two targets and four subsidiary targets to cover D9 in the Atlantic marine region. It should be noted that in the paper report (and the reporting sheet for the North Sea subregion), the targets do not include the section “by ensuring that regulatory levels prescribed in EU legislation or other relevant standards are not exceeded”. While we note the lack of consistency, the targets have been assessed on the basis of the complete sentence.

The two targets are defined at a high level, using generic terms such as “significant risk” and “reduce”, without specification of what is entailed with these terms (i.e. definition of threshold values or baselines). They are however potentially measurable since they refer to “levels prescribed in the EU legislation”, presumably meaning Regulation 1831/2003 for target D9.2 and Directives 76/106/EC and 2006/113/EC for target D9.1.

While the subsidiary targets are focused on controlling human activities and reducing the pressure from anthropogenic sources, no detail is provided on the threshold values and baselines to be used to monitor progress. In addition, there is no specific target regarding the frequency of regulatory levels being exceeded.

Conclusion on adequacy: The targets set by France for the North East Atlantic region are considered *partially adequate*. The targets are potentially measurable but use generic terms that lack specificity. The subsidiary targets are pressure-based and geared towards reducing inputs from human activities. However they lack the details that would make them measurable and operational (threshold values and baselines). They are not specific enough to assess whether they are sufficiently ambitious to achieve GES by 2020. In addition, it is not clear whether they cover all aspects of the GES definition.

3.2 Mediterranean

Environmental objectives for the Mediterranean region are not defined by descriptors but rather based on identified issues whether in terms of ecological status or pressures. Three sets of 13 objectives are therefore defined:

- Five objectives linked to ecological status (this categorisation is itself subdivided into fauna and flora)
- Four objectives linked to pressures
- Four transversal objectives (i.e. objectives that should impact on both ecological status and pressures)

No objective is directly related to Descriptor 9 and tackling the issue of seafood contamination. Therefore, no assessment of adequacy has been carried out. In order to be comprehensive, it could be said that a few objectives related to Descriptor 8 are relevant to the analysed elements associated with the Descriptor 9 in the IA.

IV. Consistency

The assessments of the pressure and its impacts, including contamination from microbial pathogens, in the different subregions of France are consistent with the MS definition of GES. The threshold values used for the assessment of the current levels of contamination are the same as those used in the GES definition.

The set of environmental targets and associated indicators set for the Atlantic subregions cover the two main types of contamination addressed by D9 (microbiological and chemical contamination). It is not possible to know whether the targets will lead to a reduction in the identified pressures/impacts considering the lack of quantification.

It is also consistent that France has not set targets for the Mediterranean region considering that it has found that levels of contaminants in fish and seafood are “well below” threshold values. However, it would have been adequate to set targets to ensure that good status is maintained until 2020 and that the status is not degraded.

Section 10. Descriptor 10 (Marine Litter)

I. Good Environmental Status (GES)

GES definition (reporting sheet and paper report):

D10. Good environmental status is achieved when marine litter and their decomposition products do not or no longer cause the significant impacts listed below in order of importance :

- 1) waste and their degradation products existing in and entering the sub-marine region are significantly reduced over time and do not pose a significant risk to marine life at the population level, whether it is a risk of direct mortality or risk of indirect impacts such as reduced fertility or mobility, or bioaccumulation in food chains.
- 2) waste and their degradation products existing in and entering the marine sub-region are not an important vector for the introduction of invasive species.
- 3) waste and their degradation products existing in and entering the marine sub-region do not represent a direct or indirect risk to human health.
- 4) waste and their degradation products existing in and entering the waters of the marine sub-region do not result in significant adverse economic consequences for maritime activities, industries and coastal communities.
- 5) waste at sea poses no unacceptable risk to navigation.

Criterion 10.1: Characteristics of litter in the marine and coastal environment

Indicator 10.1.1: Trends in the amount of widespread waste and / or deposited on coastlines, including analysis of the composition, spatial distribution and, if possible, the source of the waste.

The indicator is the amount of waste of a size greater than 2.5 cm on a selection of beaches of the marine sub-region, taking into account the existence of specific natural or anthropogenic inputs, and enabling analysis across the marine sub-region. The origin of the waste will be identified whenever possible.

Indicator 10.1.2: Trends in the amount of waste in the water column (including those that float on the surface) and resting on the seabed, including the analysis of the composition, spatial distribution and, if possible the source of the waste.

The indicator is the amount of waste in each of the size categories described above present in the water column and resting on the seabed, estimated from systematic monitoring or on opportunity. The origin of the waste will be identified whenever possible.

Indicator 10.1.3: Trends in the amount, distribution and, to the extent possible, the composition of microparticles [including microplastic].

The indicator consists of the quantity of microparticles of a size less than 5mm, and their distribution in the marine subregion. The composition of microparticles will be specified as much as possible.

Criterion 10.2: Impact of waste on marine life

Indicator 10.2.1 Trends in the amount and composition of waste ingested by marine animals [e.g. analysis of stomach contents].

*For marine subregion Channel-North Sea, it is the waste ingested by fulmars (*Fulmarus glacialis*), measured in grams of plastic particles in the stomachs of fulmars washed up on the beaches of the sub-region over a period of at least 5 years. The parameters associated with this indicator for marine subregions Bay of Biscay, Celtic Sea and Western Mediterranean will be defined after further studies, as provided in Article 4 of this Order.*

France has defined GES for Descriptor 10 at descriptor, criteria and indicator levels in both the reporting sheet and the Ministerial Order. All criteria and indicator laid out for Descriptor 10 in the Commission Decision are incorporated.

France has developed the GES concept further for marine litter, especially at descriptor level. The GES definition aims at zero-impact of marine litter on a number of aspects of which the most important are the impact on marine life at the population level and as driver for the introduction of

invasive species. In addition, marine litter should have no adverse consequences for human health and have no adverse economic consequences for maritime activities, industries, coastal communities and navigation. The zero-impact of marine litter can be achieved when waste and their degradation products existing in and entering the sub-marine region are significantly reduced over time. France is not only targeting existing waste in the marine environment, but also targets new waste entering the marine environment. A baseline and threshold values have not yet been set.

For the North-East Atlantic region, France is referring and using data from the relevant OSPAR initiatives and monitoring programmes with respect to marine litter, i.e. the monitoring programmes on beach litter, the Ecological Quality Objective (EcoQO) on plastic particles in Fulmars' (*Fulmarus glacialis*) stomachs and seabed trawling. With the respect to the Mediterranean, reference is not made to UNEP/MAP MED POL. On the other hand, UNEP/MAP MED POL has only recently started to develop a common approach for marine litter. In absence of the Fulmar, the indicators for the impact on marine life still have to be defined.

Conclusion on adequacy: Even though a quantification of the GES definition is still needed, it is considered that the current GES definition, given the available knowledge, is *adequate*. France has defined GES for D10 for all criteria and indicators of the Commission Decision and has even gone one step further. In addition, it is referring to the relevant regional standards.

II. Initial Assessment

2.1 North East Atlantic Ocean (Channel North Sea, Celtic Sea, Bay of Biscay)

France reports a substantial knowledge base with respect to marine litter, especially for the Channel North Sea and the Bay of Biscay. Data availability for the Celtic Seas is less. For the Channel North Sea and the Bay of Biscay, France reports substantive results from beach litter monitoring, waste densities on the seabed by bottom trawling, and the impact of marine life, covering birds (Fulmars), sea turtles, marine mammals. In addition, regional differentiation is made within both sub-regions for waste on shorelines and seabed litter. In the Celtic Sea, data is only available for seabed litter. Statistical data on sea birds is not available. The Ouessant Island is the only land mass in the Celtic Sea subregion, for which data on beach litter is not available. For all three sub-regions, zones of high accumulation of seabed litter are reported. France also reports data gaps on marine litter in the water column and on the impact of marine litter on seabed habitats. Plans to address data gaps are not described and are reported as being 'under discussion'.

In addition to reporting on the state of marine litter, France also reports on the major pressures (sources) of marine litter. For the Channel North Sea and the Bay of Biscay, important sources of marine litter are discharge of waste by rivers, port activities, maritime transport incl. loss of cargo. For the Bay of Biscay, the relationship between the loss of ship cargo and marine litter in the water column and seabed is demonstrated. Fishing activities are reported as a major source of marine litter, but at the same time fishing areas are also reported as being sensitive to marine litter. As a consequence of the limited landmass, the Celtic Seas sub-region is not subject to the pressure of big cities, industrial areas or rivers. However, the impact of fisheries and maritime transport is demonstrated by means of the composition of waste in the high accumulation zone of seabed litter at the Peak of Brittany. Mussel aquaculture is a particular pressure in the Channel North Sea.

In all three sub-regions, France refers to relevant OSPAR initiatives, notably beach litter monitoring, waste densities on the seabed by bottom trawling, fishing for litter and the impact of marine life including OSPAR's EcoQO on the ingestion of plastic by Fulmars, but also by sea turtles and marine mammals.

Conclusion on adequacy: The initial assessment made by France of pollution by marine litter is considered *adequate* for the Atlantic marine region. France reports a substantial knowledge base with

respect to marine litter, both on the level of the pressure and the impacts from the pressure on ecosystem components. It also refers to relevant OSPAR initiatives and standards.

2.2 Mediterranean

For beach litter, France reports the volume of waste collected per day at the beach and the different types of waste collected. In addition, data is reported on floating waste, floating micro-particles and seabed marine litter, including the zones of accumulation. The impact of water on marine organisms is reported for sea-turtles and marine mammals. Statistics on birds have not been provided. The Fulmar is not present in the Mediterranean. Without presenting substantive evidence, a significant impact of marine litter on benthos is expected. Geographical differentiation is given for beach litter, floating litter, micro-plastics and seabed litter. For the impact on marine litter, statistics for the region are given. Data and knowledge gaps are reported on the impact of marine litter on habitats, for both seabed and water column habitat.

Reference to the Regional Sea Convention is not made. Even though there are limited official data on marine litter and UNEP MAP MED/POL also has difficulties in comparing data from different countries, due to lack of standards, France reports a substantial amount of data and has demonstrated good practice for several aspects, including for the monitoring of seabed litter, floating litter and micro-particles.

Conclusion on adequacy: The initial assessment made by France of pollution by marine litter is considered *adequate* for the Mediterranean marine region for the same reasons as those outlined for the Atlantic region above. With regard to reference to relevant RSC standards, the lack of reference to UNEP MAP is justified considering the limited information available from the RSC on this topic.

III. Environmental targets

3.1 North East Atlantic (North Sea, Celtic Sea, Bay of Biscay)

France reports the same three environmental targets for the three North East Atlantic subregions. Three additional subsidiary targets are defined for the Channel North Sea (for Target 10.1) and one additional subsidiary target for the Bay of Biscay and the Celtic Sea (for Target 10.2).

Environmental targets (reporting sheet and paper report):

Target 10.1: Reduce at source the quantity of waste at sea and on the coast
 Target 10.1.1 (*only North Sea*): Reduce the amount of waste transported by rivers
 Target 10.1.2 (*only North Sea*): Reduce the production of waste by uses and activities carried out on the coast
 Target 10.1.3 (*only North Sea*): Reduce the production of waste by uses and activities carried out at sea

 Target 10.2: Significantly reduce the amount of waste in the marine environment
 Target 10.2.1 (*only Celtic Seas and Bay of Biscay*): Especially in areas with heavy accumulations

 Target 10.3: Reduce the impact of waste on species and habitats

A consistent set of three environmental targets is reported by France aiming to reduce the inflows of waste (at source) into the marine environment, remove the waste already residing in the marine environment and reduce the impact of waste on marine life and their habitats.

The targets address state, pressures and impacts. Yet, the targets are insufficiently detailed and are, as reported, not measurable. Associated indicators have not been defined nor are baseline and threshold values. France aims to achieve the targets by 2018 for the Channel North Sea and 2020 for the Bay of Biscay and Celtic Sea, but it is not clear what the motivation is behind the different deadlines.

In addition, the terminology chosen is unclear. Target 10.2 aims to “significantly” reduce the amount of waste while the other targets “just” want to reduce the waste. This seems to be a first indication of the difference in ambition between the targets.

For the Channel North Sea sub-region, Target 10.1 is further subdivided in three subsidiary targets, targeting the inflow of waste by rivers and the waste production and discharge at sea and on the coast. It is not clear why these three pressure targets do not also apply for the other two subregions, as they would have been equally relevant.

For the Celtic Seas and the Bay of Biscay, Target 10.2 is further specified. France will focus especially on areas with heavy accumulations of waste. Evidence for accumulation zones of floating and seabed litter is reported in the initial assessment, which shows the link between the initial assessment and the setting of target.

Conclusion on adequacy: For all three subregions, even though the targets cover all aspects and are ambitious, they are considered *partially adequate*, mainly due to the insufficient detail and lack of measurability. It is recommended to define associated indicators, thereby further clarifying which type of waste pathways and marine components are targeted.

3.2 Mediterranean

For the Mediterranean region, France reports one general target, composed out of four specific targets. To each specific target, 1-2 measurable indicators are associated.

Environmental targets (reporting sheet and paper report):

Target G: Reduce inputs and the presence of waste in marine waters (coastal waste, solid waste, micro particles)

Target G1: Reduce inputs to the sea of waste from coastal cities

Associated indicator: Trends in the quantity (weight, volume) of waste disposed and / or deposited on the coast

Target G2: Strengthen the management and disposal of coastal and marine waste for all coastal cities

Associated indicator: Number of specific management plans for disposal of coastal waste

Associated indicator: Quantity (weight, volume) of treated coastal waste

Target G3: Strengthen the collection of waste recovered in fishing gear, and their disposal on land by specialized companies

Associated indicator: Number of fishing vessels participating in the collection

Associated indicator: Amount of waste collected

Target G4: Promote applied research programs on micro particles

Associated indicator: Number of research programs on the subject

A consistent set of environmental targets is reported by France aiming to reduce the inflows of waste, especially beach and coastal litter in coastal cities (G1, G2) and one the waste recovery of litter by fishing vessels (G3). While target G1 aims to reduce the discharge and deposition of waste by coastal cities, targets G2 and G3 focus on more effective waste management, including collection and waste disposal on land and at sea. Target G4 aims to fill a knowledge gap on micro-particles.

Targets G1-G3 address important pressures that are preventing to achieve GES. In addition, the targets are measurable by means of well-defined associated indicators. Baseline and threshold values still need to be set. Even though the focus of targets and associated indicators is appreciated, it is unclear whether all pressures and impacts are covered. A target on a reduced impact of litter on marine life and/or habitats is missing, despite the importance as part of the GES definition. Yet, it may be expected that the current set of targets will also reduce the impact on marine life and habitat, the latter

is not clear from the French report. Likewise, it is unclear why other important sources of marine litter, beyond the coastal cities and fishing gear are not covered.

Target G4 addresses the knowledge gap on micro-particles. Though easily measurable, the associated indicator is moderately ambitious and the indicator could be more outcome-oriented. Even though the knowledge gap of micro-particles is addressed, it is not clear how other knowledge gaps will be addressed, e.g. on the impact of waste on marine life and habitats.

Conclusion on adequacy: The set of targets and associated indicators for the Mediterranean is considered as *partially adequate* as it is much more specific than that for the North East Atlantic and the indicators are measurable but there is still a lack of baselines and quantitative threshold values.

IV. Consistency

The GES definition is much wider than the Initial Assessment allowed for, despite the substantial data availability. France is considered ambitious and reports an all-inclusive GES definition. Data is mostly available for beach litter, seabed litter and the impact on marine life in both the North-East Atlantic region and the Mediterranean. Zones of accumulation for floating litter and on the seabed have been reported in both marine regions. The envisaged reduced impact on socio-economic sectors and communities, human health and invasive species, as mentioned in the GES definition, has only been covered indirectly by the Initial Assessment and the set of targets.

For the Channel North Sea, through involvement in OSPAR, the Fulmar programme has led to the existence of knowledge and data on the impact of ingested marine litter on Fulmars. For the Mediterranean, Celtic Seas and Bay of Biscay, in absence of the Fulmars, other indicators have to be developed. The reported data from sea turtles and sea mammals in the initial assessment gives an indication of potential indicator organisms. For the Celtic Seas, data availability is limited. While ample reference is given to OSPAR, the Mediterranean regional sea convention is not mentioned.

In both regions, the set of targets addresses important sources of marine litter and has moved beyond the state indicators as described in the Commission Decision. France has defined promising tools that can assist in achieving GES. Yet, a baseline and threshold values still have to be set for GES and targets. While the GES definition is equal and reporting for the initial assessment is similar, the main difference between the reporting of both regions is the level of detail of the targets. On the one hand, targets for the North-East Atlantic Ocean are insufficiently precise, not measurable and lack associated indicators. On the other hand, the targets for the Mediterranean are well-focused and measurable, through well-defined associated indicators. The set of targets and associated indicators is not sufficient to achieve GES, considering the lack of quantification, but France is on its way to make them sufficient.

Section 11. Descriptor 11 (Introduction of energy)

I. Good Environmental Status (GES)

GES definition (reporting sheets and paper report):

D11. Good environmental status is achieved when the following conditions are cumulatively met:

- The detection and communication capabilities of whales are not affected by anthropogenic noise disturbance
- Visits to ecologically functional areas by species sensitive to noise disturbance is preserved
- Direct or indirect incidental mortality due to anthropogenic noise disturbance is marginal.

Criterion 11.1: Temporal and spatial distribution of high-frequency impulsive sounds, low frequency and medium frequency

Indicator 11.1.1 Proportion, distribution on a calendar year, in areas of a given surface, and spatial distribution of days when anthropogenic sound sources exceed levels that can have a significant impact on marine animals, measured as the form of noise exposure levels (in dB re 1µPa².s) or levels of peak acoustic pressure (in dB re 1µPa_{peak}) at one meter on the frequency band 10 Hz to 10 kHz.

The indicator consists of the proportion, distribution on a calendar year, and spatial distribution of days when distribution of noise emitted by pulsed sources in the frequency range 10 Hz to 10 kHz at a level beyond the upper thresholds recognised noise by species, as identified on the basis of statements of work or activity reports.

Criterion 11.2: The continuous low frequency

Indicator 11.2.1 Trends in the ambient noise level in octave bands 63 and 125 Hz (center frequency) [re 1µPa RMS, average noise level in these octave bands over a year], measured by stations observation and / or by means of models, where appropriate.

The trend indicator is the average annual low frequency noise in two bands normalized frequencies (called third octave band 63 and 125 Hertz), expressed in dB, measured on observation stations and / or evaluated using models generated by maritime coastal and deep-sea shipping, nautical activities using noise emitters, e.g. oil and gas exploration, and sea construction sites or works generating noise.

France has defined GES for Descriptor 11 at descriptor level, criteria and indicator levels. Both criteria and indicators laid out for Descriptor 11 in the Commission Decision are incorporated. At descriptor level, France has developed the GES concept for underwater noise further. GES is achieved when the abundance, mortality risk, detection and communication behaviour of sensitive species is not affected by underwater noise. France has identified Cetaceans and Pinnipeds as species sensitive to disturbance by underwater noise. The 'functional ecological zones' will be used as scale of evaluation.

The indicators are precisely cited from the Commission Decision. In addition, for indicator 11.2.1 (continuous low frequency sound), France also includes important sources of underwater noise, namely coastal and deep-sea shipping, nautical activities using noise emitters, e.g. for oil and gas exploration, and sea construction works. Reference to the Regional Sea Conventions is not reported. The baseline, trends and threshold values will be further developed, with an overall deadline of 2018 set globally for the review of the French marine strategy.

Conclusion on adequacy: the GES definition for D11 by France is considered *adequate*, although it is unrealistic to consider that France will be able to assess that it has achieved GES by 2020 under the current provisions, taking into account the limited data availability for underwater noise.

II. Initial Assessment

2.1 North East Atlantic Ocean (Channel North Sea, Celtic Sea, Bay of Biscay)

France reports that the level of impulsive sounds has decreased substantially within the last 20 years in the North East Atlantic Ocean, as direct consequence of the limited success of oil and gas exploration. For the Channel North Sea and the Celtic Seas, continuous sound due to shipping is high with some detailed observations and a reference describing the effect of the economic recession in 2008/2009 on shipping traffic and hence underwater noise. Limited information is reported for the Bay of Biscay.

France reports the most important source of underwater noise, even though aggregate dredging in most cases is not considered as an impulsive sound source. A spatial assessment has not been done. Baseline and thresholds value still have to be set.

Conclusion on adequacy: Given the current state of knowledge, the initial assessment on underwater noise for the Atlantic marine region of France is considered *adequate*. France provides an adequate level of information on the sources of noise, including past and current trends.

2.2 Mediterranean

For the Mediterranean, major sources of underwater noise are reported to be offshore exploration and production (E&P), shipping and port activities. Even though, France reports that E&P activities are increasing, the levels of impulsive sound are regarded as low except in the vicinity of ports. The impact of E&P activities on underwater sound production needs to be further developed. The level of continuous noise (shipping) is stable but relatively high and homogeneously spread. Similarly as in the North East Atlantic Ocean, a spatial assessment has not been done. Baseline and thresholds value still have to be set.

Conclusion on adequacy: Given the current state of knowledge, the initial assessment on underwater noise for the Mediterranean subregion is considered *adequate*. France provides an adequate level of information on the sources of noise, including past and current trends.

III. Environmental targets

3.1 North East Atlantic Ocean (Channel North Sea, Celtic Sea, Bay of Biscay)

Environmental targets (reporting sheet and paper report):

D11.1 Limit pressures that physiologically impact the species as well as their detection capabilities and acoustic communication & protect the functional habitats from noise disturbance that has impacts on species present in these areas

D11.1.1 Limit impulsive emissions to a level not having a significant impact on the species

D11.1.2 Limit continuous emissions to a level not having a significant impact on the species

Only for Bay of Biscay and Celtic Sea:

D11.1.3 Adapt periods, intensities and durations of underwater emissions based on the behavior of these species (breeding, feeding, resting)

France reports three environmental targets on underwater sound for the North Sea, and one additional for the Bay of Biscay and Celtic Sea. Why this additional target has not been set for the North Sea is not clear, especially considering that the information reported in the initial assessment does not pinpoint to a specific problem in the Bay of Biscay and Celtic Sea.

The targets are not measurable and can be considered as a further specification of the GES definition. It is assumed that the statement ‘impact on the species’ refers to the sensitive species as identified in the GES definition, but the latter is not clearly described.

Conclusion on adequacy: The targets are considered to be *partially adequate*. They are in line with the indicators as set forth in the Commission Decision but they need further specification, especially to make them measurable.

3.2 Mediterranean

Environmental targets (reporting sheet and paper report):

Target D. Maintain or restore populations of marine mammals in a good state of conservation

Target D.2 Limit the acoustic disturbances to marine mammals by anthropogenic activities

Associated indicator: Temporal and spatial distribution of underwater noise

Associated indicator: Trend of the ambient noise level

Associated indicator: Number of deaths of large cetaceans from acoustic disturbance by the total number of deaths of cetaceans identified

Target E. Ensure the hosting potentials of the marine environment for birds feeding, resting, reproduction, movements

Target E.3. Limit disturbances, including noise and light in nesting sites

Associated indicator: Surface area of the species habitats in a good state of conservation in relation to noise and light pollution (Natura 2000 indicator)

For the Mediterranean, France reports two targets one subtarget for each target.

The targets are general ‘nature conservation’ targets, not specifically geared towards the reduction of underwater noise and not measurable as such. The subtargets defined however are more specific and could be considered measurable. In addition, there is a reference in the target to existing EU indicators. However, there is a lack of information on the threshold values and baselines to be used to assess progress. In summary, targets are considered partially adequate.

Conclusion on adequacy: The set of targets and indicators covering D10 for the Mediterranean region are considered *partially adequate*. The targets for the Mediterranean appear more specific and measurable than those defined for the Atlantic regions but they will be very difficult to measure in some cases.

IV. Consistency

The GES definition and the assessment of pressures and impact are considered consistent. The state of underwater noise is linked to the activities that are the main source of underwater sound. In general, most information is reported for the Channel North Sea and the Celtic Seas. Less is reported for the Bay of Biscay and the Mediterranean. The environmental targets can be considered as a further specification of the GES definition and needs to be further specified. It is furthermore unclear why different targets are proposed for the North East Atlantic Ocean and the Mediterranean.

Section 12. General Conclusions

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

Positive elements:

- Strong link with the RSC (OSPAR, Barcelona Convention)
- Systematic use of EU requirements and standards
- Robust legal status of GES and methods and criteria for carrying out the initial assessment and setting environmental targets and associated indicators
- Extensive use of existing information/data
- As a rule, information provided on gaps in monitoring and assessment data accompanied by plans to close these gaps
- On the whole, the main problems (pressures and impacts) have been identified
- Inclusion of an indicator on the recycling processes of organic matter in the definition of GES for D4.

Negative elements:

- Overall lack of ambition e.g. France does not go beyond existing standards at EU or RSC level
- Lack of quantification of GES and targets combined with a lack of baseline and reference conditions leading to a general lack of commitment. This lack of specificity means that all pressures and impacts are often not clearly and efficiently covered
- In the North-East Atlantic region, the targets are set at a very general level while in the Mediterranean region, they are often more detailed with associated indicators
- No targets defined for D5, D7 and D9 for the Mediterranean region