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Review of marine biodiversity assessment obligations in the UK. Part I: A summary of the marine biodiversity assessment obligations stipulated within national and international legislative and policy instruments

Hinchen, H.

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For further information please contact:

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough PE1 1JY
http://jncc.defra.gov.uk

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The purpose of the study

In the context of nature conservation, there are multiple requirements for UK marine biodiversity assessment and reporting at varying geographic scales and covering different aspects of biodiversity. There are also various assessment and reporting requirements which must be met by developers and industry sectors for proposed plans or projects in the marine environment. These requirements include those under the Environmental Liability Directive (ELD[1]), Strategic Environmental Assessment (SEA[2]) Directive, Environmental Impact Assessments (EIAs[3]) and Appropriate Assessments (AAs[4]). However, this review considers only the nature conservation requirements for marine biodiversity assessment and reporting.

Currently, there is a large burden (both in terms of time, cost and data collation) associated with carrying out status assessments of marine biodiversity. This has been experienced recently when undertaking assessments such as the UK's Charting Progress 2 and the OSPAR Quality Status Report 2010. One of the consequences of such a labour-intensive approach to assessment and reporting is the need to scale up staff and financial resources in certain years, leading to peaks and troughs in resource requirements. Instead, assessment and reporting should aim for a continuous cycle which fully builds on lessons learnt from previous reporting cycles, and uses non-assessment periods to improve the evidence base and assessment methodologies. This would reduce the time required and potentially the cost during assessment periods. In order to improve the assessment process, better inform management, and create a more even and efficient use of resources, it is first necessary to identify and fully understand all the obligations which are driving the need for assessment. Subsequently, it is necessary to analyse if and how their requirements for assessment can be better aligned.

The present paper is Part I in a series of three that investigates and analyses several national and international legislative and policy instruments, including obligations to assess biodiversity in both Marine Protected Areas (MPAs) and the wider marine environment. The scope of this series does not extend to carrying out a detailed review and analysis of *monitoring* requirements for each instrument.

Part I reviews and summarises the *assessment* requirements of each instrument against a standard framework and acts as a reference document for JNCC, and more widely, to aid the understanding of the overall requirements for marine biodiversity assessment and reporting. It also begins to build a detailed understanding of the assessment obligations in each of the legislative and policy instruments and the relationships between them. The collation of information in Part I facilitates the identification of areas of similarity and conflict between different obligations in Part II. Recommendations are subsequently made for streamlining and harmonisation, where possible, in Part III.

[1] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:143:0056:0075:EN:PDF
[2] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2001:197:0030:0037:EN:PDF
[3] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:026:0001:0021:EN:PDF
[4] http://www.legislation.gov.uk/uksi/2010/490/contents/made

Contents

1 Legislative and policy instruments under examination

The assessment obligations in the following legislative and policy instruments are considered (weblinks to legislation can be found in footnotes; references are provided at the end of the paper along with an acronym list):

- **European legislation:**
  - Marine Strategy Framework Directive (MSFD)[5];
  - Habitats Directive[6];
  - Birds Directive[7];
  - Water Framework Directive (WFD)[8];

- **International conventions (multi-lateral environmental agreements):**
  - Convention on Biological Diversity (CBD);
  - Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention);
  - Convention on Migratory Species (CMS);
  - United Nations Convention on the Law of the Sea (UNCLOS);

- **UK legislation (where obligations exist in addition to European and international instruments):**
  - Marine and Coastal Access Act;
  - Marine (Scotland) Act;
  - Wildlife and Countryside Act;
  - Conservation of Seals Act;

- **Policies/policy instruments (UK and EU):**
  - High-level marine objectives;
  - Government's vision for Healthy and Biologically Diverse Seas;
  - Marine Policy Statement; and
  - European Biodiversity Strategy.

Descriptions of the different types of national and international legislative and non-legislative obligations are provided in Annex A.

[5] Transposed into UK law through the Marine Strategy Regulations 2010.
[6] Transposed into UK law through the Conservation of Habitats and Species Regulations 2010 and Offshore Marine Conservation (Natural Habitats & c.) Regulations 2007 (as amended).
[7] Transposed into UK law through the Wildlife & Countryside Act 1981 (as amended), the Conservation (Natural Habitats, & c.) Regulations 2010 (as amended); the Wildlife (Northern Ireland) Order 1985; the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985; the Conservation (Natural Habitats, &c.) (Northern Ireland) Regulations 1995 (as amended) the Offshore Marine Conservation (Natural Habitats & c.) Regulations 2007 as well as other legislation related to the uses of land and sea.
[8] Transposed into UK law through the following regulations: The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (Statutory Instrument 2003 No. 3242) for England and Wales; the Water Environment and Water Services (Scotland) Act 2003 (WEWS Act) and The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003 (Statutory Rule 2003 No. 544) for Northern Ireland.

2 Review and summary of assessment obligations

The following section addresses each instrument in turn and investigates the important aspects of the assessment obligations against a standard framework (see Table 1 below).

Table 1. A description of the standard framework for reviewing each instrument; including a description of each aspect considered, and an indication of the level of detail included for that aspect.

Aspect considered	Description	Level of detail included
High-level aspirations	Overarching aim of the instrument, what it is seeking to achieve for the marine environment and by when, if applicable	Reference to particular articles/sections and text to cover main aims and timescale for achievement
Assessment requirement (reporting)	The formal requirement, as stipulated within the instrument, which identifies the specific assessment obligations	Reference to particular articles/sections and text stipulating the obligations for assessment and what exactly is formally required, if anything.
Geographic scope	Total area to which the instrument applies e.g. UK waters, all EU waters	Description of the territories included and maps, where suitable
Reporting scale	Spatial scale at which reporting is undertaken, e.g. Member State scale, site scale	Brief description of what spatial scale reporting is carried out at
Biological scope (species and habitats)	Which species and habitats are covered by the instrument, e.g. all marine biodiversity, specifically listed species	Reference to text and lists of habitats/species covered where suitable
Reporting cycle frequency	How frequently do reports need to be submitted e.g. annually, 6 yearly	Brief description of the frequency with reference to relevant text. Year of next report, if known.
Baselines used	The state/condition against which subsequent states/conditions are compared and against which targets are set, e.g. former natural conditions, state in 1980	Reference to text if baselines are stipulated. Brief description of how baselines should be determined and what the value is, where possible
Assessment Status classes	Classes/categories of overall assessment results e.g. favourable, unfavourable, good, moderate, poor	Description of the number of classes used and the origin e.g. guidance document, stipulated within the instrument
Assessment Criteria	High-level characteristics of biodiversity used to assess the status of habitats and species e.g. range, area, condition, population size	List of the criteria (where known) and the origin e.g. guidance, stipulated within the instrument (where possible)
Criterion (high-level) targets	Any qualitative or quantitative targets associated with the High-level criteria of assessment e.g. maintain extent	Description of the targets (where given) and the origin
Assessment Indicators (attributes)	Any indicators or attributes which are used to assess the status of habitats and species e.g. EcoQOs	Description or list of indicators where possible, or links/references to the source of the indicators where there are many, where they are site/region specific or still under development etc.
Indicator targets/thresholds	Any targets or thresholds associated with the indicators identified e.g. bycatch not to exceed 1.7% of population estimate	Description of targets where possible or links/references to the sources of targets where there are many, where they are site/region specific or still under development etc.

Aspect considered	Description	Level of detail included
Aggregation rules (where relevant)	Any rules which exist to standardise the bringing together of data at different spatial scales or across different ecosystem components or aspects of the assessment e.g. aggregating assessment results from site unit to whole feature scale	A description of the rules used, where possible. Or reference to the fact that rules are employed (or will be in future) that are, as yet, unknown
Overall assessment approach	The method used to assign a final assessment status class by combining criteria or indicator assessments e.g. one-out-all-out (if one indicator/criterion fails the target, all fail), a weighted approach	Description of the method, where it is known, and the origin

2.1 European Legislation

2.1.1 Marine Strategy Framework Directive (2008/56/EC)

i High-level aspirations (including timeline for achievement)

Article 1 (1) 'This Directive establishes a framework within which Member States shall take the necessary measures to achieve or maintain Good Environmental Status in the marine environment by the year 2020 at the latest.'

Article 3 (5a) 'good environmental status means… the structure, functions and processes of the constituent marine ecosystems, together with the associated physiographic, geographic, geological and climatic factors, allow those ecosystems to function fully and to maintain their resilience to human-induced environmental change. Marine species and habitats are protected, human-induced decline of biodiversity is prevented and diverse biological components function in balance.' Article 3 (5b) 'hydro-morphological, physical and chemical properties of the ecosystems, including those properties which result from human activities in the area concerned, support the ecosystems as described above. Anthropogenic inputs of substances and energy, including noise, into the marine environment do not cause pollution effects.'

Annex I to the Directive lists eleven qualitative descriptors for determining good environmental status, including four 'biodiversity descriptors' (i.e. numbers 1, 2, 4 and 6).

Descriptor 1: Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.

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

Descriptor 4: All elements of the marine food web, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.

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

ii Assessment requirement

Article 8(1) of the Directive states that 'In respect of each marine region or subregion, Member States shall make an initial assessment of their marine waters ...'

Article 17 states that:

(1) 'Member States shall ensure that, in respect of each marine region or subregion concerned, marine strategies are kept up to date'.
(2) '...Member States shall review...the following elements of their marine strategies every six years after their initial establishment:

a) the initial assessment and the determination of GES [Good Environmental Status]...
b) the environmental targets established ...
c) the monitoring programmes established ...
d) the programmes of measures established ...'

iii Geographic scope

The scope comprises EU Member State waters from baseline (transitional waters excluded) out to Exclusive Economic Zones (EEZs) and including extended continental shelf, where claimed, and coastal waters (as defined under WFD, see Figure 1). MSFD applies to several marine regions which also encompass some non-EU waters.

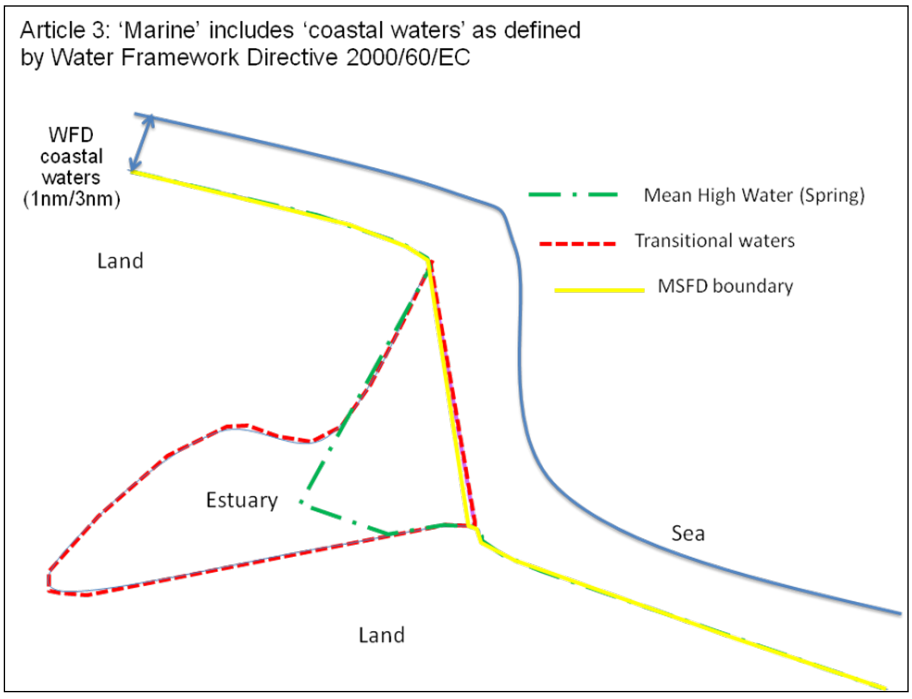

Figure 1. Showing the landward boundary of the MSFD assessment area, including coastal waters under WFD, but excluding transitional waters.

iv Reporting scale

Reporting is carried out at the European marine region scale:

- Baltic Sea;

- North-East Atlantic Ocean;
- Mediterranean Sea;
- Black Sea;

or at the subregion scale (i.e. for the North-East Atlantic marine region, the Greater North Sea; Celtic Seas, Bay of Biscay & Iberian Coast; and Macaronesian biogeographic region). Article 5(2) of the Directive highlights the importance of regional co-operation by Member States in implementing their marine strategies, and Article 6 highlights the role of the regional sea conventions to support this. Member States may, in order to take into account the specificities of a particular area, implement the Directive by reference to sub-divisions within the sub-regions providing they are delimited in a manner compatible with the marine sub-regions (see Figure 2 for draft map of the MSFD subregions).

Figure 2. Draft map of the regional and sub-regional seas of Europe, according to those specified in the MSFD[9]

v Biological scope (species and habitats)

All marine biodiversity is covered under the MSFD. Table 1, Annex III to the Directive gives an indicative list of characteristics to be used for assessment of the marine environment. This list will form the basis of those characteristics and features covered by the 2012 initial assessment (Article 8) and will guide the determination of Good Environmental Status (GES) and subsequent setting of environmental targets for aspects of biodiversity.

[9] March 2012 draft map of the MSFD marine regions and sub-regions. For the North-East Atlantic region, outer boundaries are indicated for the sub-regions listed in the Directive, without addressing the remaining parts of the overall marine region (e.g. waters in the Iceland Sea, Norwegian Sea and Barents Sea). For the purpose of this map, all EEZ boundaries shown are indicative only and are subject to an on-going consultation with Member States. The areas currently shown follow the boundaries of EEZ or other maritime zones where MS exercise sovereign rights or jurisdiction (such as fisheries zones). In addition, in relation to the seabed and subsoil, it will be necessary to consider the full extension of the continental shelf, in cases where a submission has been submitted to the UN Commission on the Limits of the Continental Shelf for the delimitation of the boundaries of the continental shelf (Source for EEZ: http://www.vliz.be/vmdcdata/marbound/download.php).

Table 1, Annex III of the Directive refers to:

- The predominant seabed and water column habitat type(s);
- Special habitat types, especially those recognised or identified under Community legislation (Habitats and Birds Directives) or international conventions as being of special scientific or biodiversity interest;
- Habitats in areas which by virtue of their characteristics, location or strategic importance merit a particular reference;
- Biological communities associated with the predominant seabed and water column habitats, including phytoplankton and zooplankton communities, including the species and seasonal and geographical variability;
- Angiosperms, macroalgae and invertebrate fauna, including species composition, biomass and annual/seasonal variability;
- Structure of fish populations, including the abundance, distribution and age/size structure of the populations;
- Population dynamics, natural and actual range and status of species of marine mammals and reptiles occurring in the marine region or sub-region;
- Population dynamics, natural and actual range and status of species of seabirds occurring in the marine region or sub-region;
- Population dynamics, natural and actual range and status of other species occurring in the marine region or sub-region which are the subject of Community legislation or international agreements; and
- Temporal occurrence, abundance and spatial distribution of non-indigenous, exotic species or, where relevant, genetically distinct forms of native species which are present in the marine region or sub-region.

The list of characteristics given in Table 1, Annex III of the Directive has been further interpreted at the EU level by the European Commission's Joint Research Centre (in collaboration with International Council for the Exploration of the Sea (ICES) during 2010 (Cochrane *et al* 2010) and by the UK's Healthy and Biologically Diverse Seas Evidence Group during 2011 (Moffat *et al* 2011). These guidance and advice documents have resulted in the indicative characteristics outlined within the Directive being developed into lists (see OSPAR 2012, for habitat and species lists for the North-East Atlantic region) of relevant species functional groups, listed species, additional species, predominant habitat types and special habitat types. Furthermore, when developing these lists, OSPAR and the UK agreed that descriptors 1, 4 and 6 should be applied to the following six components of biodiversity: rock and biogenic reef habitats, sediment habitats, pelagic habitats, fish and cephalopods, marine mammals and reptiles, and marine birds, in order to effectively group the work being carried out for the biodiversity descriptors.

vi Reporting cycle frequency

Under Article 8 of the Directive, an initial assessment is required from Member States in July 2012 and thereafter, every six years (as stipulated in Article 17). However, assessments may need to be undertaken to inform management at more frequent intervals.

vii Baselines used (i.e. the value of state against which subsequent values of state are compared – the standard against which environmental targets can be set)

GES Descriptor 1 of the MSFD states that 'the quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions'. This is interpreted by Cochrane *et al* (2010) as the expected state where impacts from human pressures are absent or negligible and allowing for the consequences of climate change. Therefore the ideal baseline against which to set environmental targets for GES would be one of reference conditions i.e. the state at which impacts from anthropogenic pressures are absent or negligible (OSPAR 2011). However, it is also noted (OSPAR 2011) that the identification of reference conditions, especially for mobile species, may not be currently feasible and other baseline approaches may be required.

viii Status classes of assessment

The MSFD currently recognises two quality status classes; Good Environmental Status and below Good Environmental Status.

ix Criteria used for assessment

Each descriptor of GES is further divided into criteria (i.e. particular aspects of the descriptor that require their status to be assessed, through the application of appropriate indicators, to determine whether each aspect meets good environmental status, or otherwise). Descriptors 1, 4 and 6 which relate to biodiversity assessment cover the following criteria (as stipulated in the 2010 Commission Decision on criteria and methodological standards on good environmental status of marine waters – 2010/477/EU[10]):

Descriptor 1 - Biological diversity

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

GES criteria:

1.1.	Species distribution	1.4.	Habitat distribution
1.2.	Species population size	1.5.	Habitat extent structure
1.3.	Species population condition	1.6.	Habitat condition
		1.7.	Ecosystem

Descriptor 2 – Non-indigenous species

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

GES criteria:

2.1. Abundance and state characterisation of non-indigenous species, in particular invasive species
2.2. Environmental impact of invasive non-indigenous species

[10] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:232:0014:0024:EN:PDF

Descriptor 4 - Marine food webs

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

GES criteria:
4.1. Productivity (production per unit biomass) of key species or trophic groups
4.2. Proportion of selected species at the top of food webs
4.3. Abundance/distribution of key trophic groups/species

Descriptor 6 - Sea-floor integrity

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

GES criteria:
6.1. Physical damage, having regard to substrate characteristics
6.2. Condition of the benthic community

x Criterion targets

There is nothing stipulated within the Directive that identifies High-level targets to articulate GES at the criterion level. The Commission Decision of September 2010 (2010/477/EU) does not outline any targets for the criteria that it describes under each descriptor.

Therefore, members of the UK's Healthy and Biologically Diverse Seas Evidence Group (HBDSEG) have been responsible for identifying targets for the biodiversity related criteria of GES across the different components of biodiversity (i.e. sediment habitats, rock & biogenic reef habitats, pelagic habitats, marine mammals & reptiles, marine birds and fish and cephalopods; Moffat *et al* 2011). This scientific advice has been passed to Defra and the Devolved Administrations to consider and has been translated into Government proposals for public consultation (Spring 2012). The agreed, post-consultation UK biodiversity targets and indicators (as stated in the UK Marine Strategy Part One, 2012) are summarised in Table 2. There was a requirement under Article 5 of the Directive for Member States to have established a series of environmental targets (including criterion targets) and indicators by July 15 2012.

Table 2. Biodiversity descriptors and proposed targets at the criterion level across the six biodiversity components (birds, marine mammals, fish, pelagic habitats, rock & biogenic reef habitats, and sediment habitats).

Biodiversity Component	GES Descriptor	Commission Decision Criterion	Target
Birds	1	1.1 Species distribution	At the scale of the MSFD sub-regions distribution of marine birds is not significantly affected by human activities: No major shifts or shrinkage in the population distribution of marine birds in 75% of species monitored
	1	1.2 Population size	At the scale of the MSFD sub-regions abundance of marine birds is not significantly affected by human activities: Changes in abundance of marine birds should be within individual target levels in 75% of species monitored
	1	1.3 Population Condition	At the scale of the MSFD sub-regions marine bird productivity is not significantly affected by human activities: Annual breeding success of black-legged kittiwakes should not be significantly different, statistically, from levels expected under prevailing climatic conditions (i.e. sea surface temperature, and widespread seabird colony breeding failures should occur rarely150 in other species that are sensitive to changes in food availability. At the scale of the MSFD sub-regions, the risks to island seabird colonies from non-native mammals are reduced
	4	4.3 Abundance/ distribution of key trophic groups/species	At the scale of the MSFD sub-regions marine bird productivity is not significantly affected by human activities: Annual breeding success of black-legged kittiwakes should not be significantly different, statistically, from levels expected under prevailing climatic conditions (i.e. sea surface temperature).
	4	4.1 Productivity (production per unit biomass) of key species or trophic groups	At the scale of the MSFD sub-regions abundance of marine birds is not significantly affected by human activities: Changes in abundance of marine birds should be within individual target levels in 75% of species monitored

Biodiversity Component	GES Descriptor	Commission Decision Criterion	Target
Marine Mammals	1	1.1 Species distribution	At the scale of the MSFD sub-regions the distribution of cetaceans is not contracting as result of human activities: in all of the indicators monitored there is no statistically significant contraction in the distribution of marine mammals caused by human activities. At the scale of the MSFD sub-regions the distribution of seals is not contracting as result of human activities: in all of the indicators monitored there is no statistically significant contraction in the distribution of marine mammals caused by human activities
	1	1.2 Population size	At the scale of the MSFD sub-regions abundance of cetaceans is not decreasing as a result of human activity: in all of the indicators monitored, there should be no statistically significant decrease in abundance of marine mammals caused by human activities. At the scale of the MSFD sub-regions abundance of seals is not decreasing as a result of human activity: in all of the indicators monitored, there should be no statistically significant decrease in abundance of marine mammals caused by human activities
	1	1.3 Population condition	At the scale of the MSFD sub-regions cetacean populations are in good condition: mortality of cetaceans due to fishing by-catch is sufficiently low so as not to inhibit population targets being met. At the scale of the MSFD sub-regions seal populations are in good condition: there is no statistically significant decline in seal pup production caused by human activities; and mortality of seals due to fishing by-catch is sufficiently low so as not to inhibit population targets being met
	4	4.3 Abundance/ distribution of key trophic groups/species	At the scale of the MSFD sub-regions] marine mammal productivity is not significantly affected by human activities: There should be no statistically significant decline in seal pup production caused by human activities
	4	4.1 Productivity (production per unit biomass) of key species or trophic groups	At the scale of the MSFD sub-regions abundance of cetaceans is not decreasing as a result of human activity: in all of the indicators monitored, there should be no statistically significant decrease in abundance of marine mammals caused by human activities. At the scale of the MSFD sub-regions abundance of seals is not decreasing as a result of human activity: in all of the indicators monitored, there should be no statistically significant decrease in abundance of marine mammals caused by human activities

Biodiversity Component	GES Descriptor	Commission Decision Criterion	Target
Fish	1	1.1 Species distribution	At the scale of the MSFD sub-regions distribution of sensitive fish species is not significantly impacted by human activities: the geographic and depth distribution of sensitive fish should meet individual indicator targets in a statistically significant proportion of species monitored.
	1	1.2 Species abundance/bio-mass	At the scale of the MSFD sub-regions populations of sensitive fish species are not significantly impacted by human activity: the population abundance density and population biomass density of sensitive fish species should meet individual indicator targets for recovery in a statistically significant proportion of species monitored.
	1	1.3 Species population condition	Target under development.
	1	1.7 Relative proportions of components	The size-composition of fish communities should reflect a healthy status and not be significantly impacted by human activity: More than 30% (by weight) of demersal fish in the Greater North Sea and 40% (by weight) of demersal fish in the Celtic Seas exceed a length of 40cm and 50cm respectively.
	4	4.2 Proportion of selected species at the top of food webs	The size composition of fish communities should not be impacted by human activity such as to indicate any adverse change in trophic function within the community: A specified proportion (by weight) of fish in any defined marine region should exceed a stipulated length threshold.
	4	4.3 Abundance/ distribution of key trophic groups/species	Target under development.

Biodiversity Component	GES Descriptor	Commission Decision Criterion	Target
Pelagic habitats	1	1.4 Habitat distribution	At the scale of the MSFD sub-regions, distribution of plankton community is not significantly adversely influenced by anthropogenic drivers, as assessed by indicators of changes in plankton functional types (life form) indices.
	1	1.6 Habitat condition	At the scale of the MSFD sub-regions, condition of plankton community is not significantly adversely influenced by anthropogenic drivers
	1	1.7 Ecosystem structure	At the scale of the MSFD sub-regions, structure of plankton community is not significantly adversely influenced by anthropogenic drivers, as assessed by indicators of changes in plankton functional types (life form) indices.
	4	4.3 Abundance/ distribution of key trophic groups/species	At the scale of the MSFD sub-regions, abundance/distribution of plankton community is not significantly adversely influenced by anthropogenic drivers, as assessed by indicators of changes in plankton functional types (life form) indices.
	6	6.2 Condition of benthic community	At the scale of the MSFD sub-regions, condition of the meroplanktonic (plankton with benthic life phase) community is not significantly adversely influenced by anthropogenic drivers, as assessed by indicators of changes in plankton functional types (life form) indices.
Rock and biogenic reef habitats	1	1.4 Habitat distribution	At the scale of the MSFD sub-regions rock and biogenic reef habitats are stable or increasing: For all listed (special) and predominant habitat types range and distribution are stable or increasing and not smaller than the baseline value (Favourable Reference Range for Habitats Directive habitats)
	1	1.5 Habitat extent	At the scale of the MSFD sub-regions rock and biogenic reef habitats are stable or increasing: For all listed (special) and predominant habitat types area is stable or increasing and not smaller than the baseline value (Favourable Reference Area for Habitats Directive habitats)
	1	1.6 Habitat condition AND 6.1 Physical damage AND 6.2 Condition of benthic community	At the scale of the MSFD sub-regions of rock and biogenic reef habitats is not significantly affected by human activities: For all listed (special) and predominant habitat types the area of habitat in poor condition (as defined by condition indicators) must not exceed 5% of the baseline value (Favourable Reference Area for Habitats Directive habitats)

Biodiversity Component	GES Descriptor	Commission Decision Criterion	Target
Sediment habitats	1	1.4 Habitat distribution	Predominant habitat types: No target proposed – see target below for Criterion 1.6 Listed (special) habitat types: At the scale of the MSFD sub-regions the range and distribution of listed (special) sediment habitat types is stable or increasing and not smaller than the baseline value (Favourable Reference Range for Habitats Directive habitats)
	1	1.5 Habitat extent	Predominant habitat types: No target proposed – see target below for Criterion 1.6 Listed (special) habitat types: At the scale of the MSFD sub-regions the area of listed (special) sediment habitat types is stable or increasing and not smaller than the baseline value (Favourable Reference Area for Habitats Directive habitats). WFD extent targets for saltmarsh and seagrass should be used within WFD boundaries as appropriate.
	1	1.6 Habitat condition AND 6.1 Physical damage AND 6.2 Condition of benthic community	Predominant habitat types: At the scale of the MSFD sub-regions damaging human impacts on predominant sediment habitats are reduced: The area of habitat which is unsustainably impacted by human activities (as defined by vulnerability criteria) is reduced and the precautionary principle is applied to the most sensitive habitat types and/or those which are most important for ecosystem functioning. Listed (special) habitat types: At the scale of the MSFD sub-regions the area of special (listed) sediment habitat types below GES (i.e. unacceptable impact / unsustainable use) as defined by condition indicators must not exceed 5% of baseline value (favourable reference area for Habitats Directive habitats). WFD targets (km2 thresholds) for area of unacceptable impact for benthic invertebrates, macroalgae, saltmarsh and seagrass should be used within WFD boundaries as appropriate.

Biodiversity Component	GES Descriptor	Commission Decision Criterion	Target
All non-indigenous species	2	2.1 Abundance and state characteristics of non-indigenous species	Reduction in the risk of introduction and spread of non native species through improved management of high risk pathways and vectors. Surveillance indicator looking at the abundance, distribution and number of new introductions of NIS in areas which are at a high risk of new introductions (with a view to being able to develop a baseline for the rate of establishment of new NIS).
	2	2.2 Environmental impact of invasive non-indigenous species	Action plans are developed for key high risk marine non indigenous species by 2020.

xi Indicators (attributes)

Under the MSFD, indicators are defined as specific attributes of each GES criterion that can either be qualitatively described or quantitatively assessed to determine whether each criterion meets GES, or to ascertain how far each criterion departs from GES. Indicators are defined within the Commission Decision (2010/477/EU). In some cases the description within the document describes a single indicator which can be easily and directly monitored, for example Commission indicator 1.5.1 Habitat area. In other cases, the description within the Commission guidance is very broad and in reality encompasses a number of indicators that can be referred to as an 'indicator class' e.g. Commission indicator 1.6.1 Condition of the typical species and communities. In this situation it has been necessary at the UK implementation level to propose supporting indicators that collectively describe the Commission Decision indicator (Figure 3). These proposed supporting indicators have not been listed here because they are not yet formally agreed at a UK level. However, the OSPAR advice manual (2012) contains proposals for an OSPAR common indicator set that is in the process of being agreed to allow regional scale assessments of biodiversity under the MSFD.

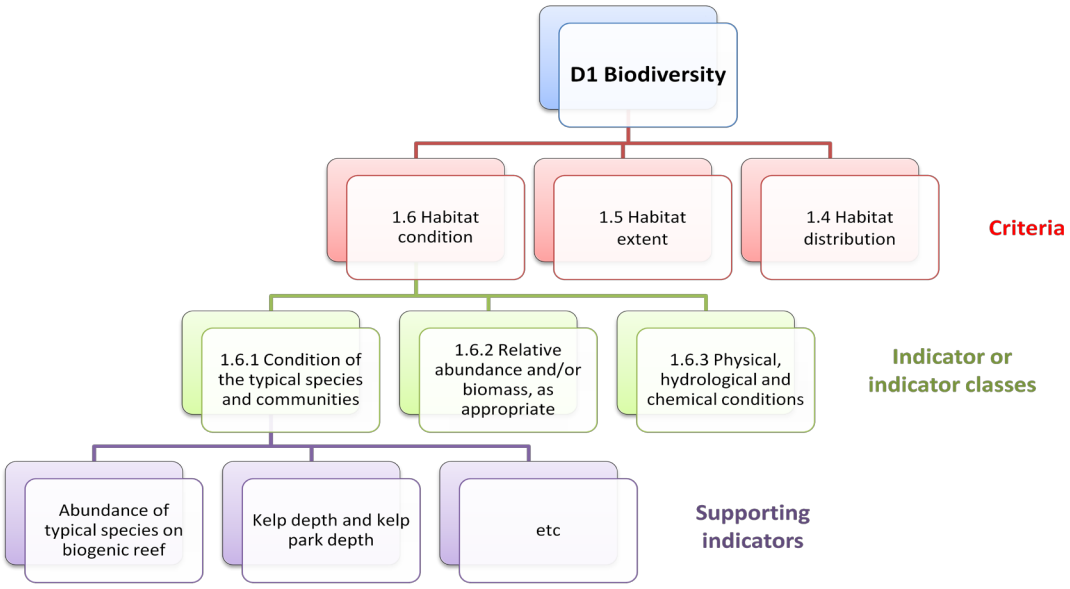

Figure 3. An example of how supporting indicators contribute to the indicators or indicator classes described in the Commission Decision of 1 September 2010 (2010/477/EU see footnote 6, above).

The indicators which are stipulated within the Commission decision document are as follows:

Descriptor 1 - Biological diversity
GES criteria and associated indicators:

1.1. Species distribution
1.1.1 Distributional range
1.1.2 Distributional pattern within the latter, where appropriate
1.1.3 Area covered by the species (for sessile/benthic species)

1.2. Population size
1.2.1 Population abundance and/or biomass, as appropriate

1.3 Population condition
1.3.1 Population demographic characteristics (e.g. body size, sex ratio)
1.3.2 Population genetic structure, where appropriate

1.4. Habitat distribution
1.4.1 Distributional range
1.4.2 Distributional pattern

1.5. Habitat extent
1.5.1 Habitat area
1.5.2 Habitat volume, where relevant

1.6. Habitat condition
1.6.1 Condition of the typical species and communities
1.6.2 Relative abundance and/or biomass, as appropriate
1.6.3 Physical, hydrological and chemical conditions

1.7. Ecosystem structure
1.7.1 Composition and relative proportions of ecosystem components

Descriptor 2 – Non-indigenous species
GES criteria and associated indicators:

2.1. Abundance and state characteristics of non-indigenous species, in particular invasive species
2.1.1 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

2.2. Environmental impact of invasive non-indigenous species
2.2.1 Ratio between invasive non-indigenous species and native species in some well studied taxonomic groups (e.g. fish, macroalgae, molluscs) that may provide a measure of change in species composition (e.g. further to the displacement of native species)
2.2.2 Impacts of non-indigenous invasive species at the level of species, habitats and ecosystem, where feasible

Descriptor 4 - Marine food webs
GES criteria and associated indicators:

4.1. Productivity (production per unit biomass) of key species or trophic groups
4.1.1 Performance of key predator species using their production per unit biomass

4.2. Proportion of selected species at the top of food webs
4.2.1 Large fish (by weight)

4.3. Abundance/distribution of key trophic groups/species
4.3.1 Abundance trends of functionally important selected groups/species

Descriptor 6 - Sea-floor integrity
GES criteria and associated indicators:

6.1. Physical damage, having regard to substrate characteristics
6.1.1 Type, abundance, biomass and areal extent of relevant biogenic substrate
6.1.2 Extent of the seabed significantly affected by human activities for the different substrate types

6.2. Condition of the benthic community
6.2.1 Presence of particularly sensitive and/or tolerant species
6.2.2 Multi-metric indexes assessing benthic community condition and functionality, such as species diversity and richness, proportion of opportunistic to sensitive species
6.2.3 Proportion of biomass or number of individuals in the macrobenthos above some specified length/size
6.2.4 Parameters describing the characteristics (shape, slope and intercept) of the size spectrum of the benthic community

xii Indicator targets/thresholds

The current draft GES targets/thresholds which have been proposed by UK experts for the relevant biodiversity descriptor state and pressure indicators can be found here:

These targets utilise existing mechanisms as much as possible (e.g. targets in place under the Habitats Directive for range and area of habitat) and will need to be further refined in co-operation with other OSPAR Contracting Parties so that GES is consistently determined at the level of the region or sub-region (see OSPAR 2012 for the proposed indicator list for the region). The targets will also need to be set within a firmer context when suitable baselines are identified against which to set the specific thresholds. For species and pelagic habitats, there is generally much more data available on long-term trends, variability and state which allow more ecologically meaningful targets to be set. For benthic habitats, at this stage of MSFD target development and knowledge of the marine ecosystem, many targets are set to merely maintain the current state, avoid any further degradation in habitat condition, or limit the extent of impacts from pressures, for example. Once suitable reference conditions have been identified (using historical data on impacts, where possible) and the MSFD monitoring programme begins (2014) to provide data on the current natural variability of habitats and species and how they are impacted by human pressures, GES targets can be set more accurately.

xiii Aggregation rules (where relevant)

Spatial aggregation rules will be required where assessments have taken place at the sub-division scale within a sub-region or region. These have yet to be developed.

Aggregation across the various indicators within a criterion, and then possibly also across criteria within a descriptor, may be required within each biodiversity component (e.g. for fish). Aggregation across different biodiversity components to provide an assessment of biodiversity as a whole is not recommended by Cochrane *et al* (2010) as it would likely mask significant variation in ecological character. The specific details of how aggregation will be carried out (e.g. weighting of indicators and/or criteria etc.) have not yet been decided. It is expected, however, that the assessments of the pressure descriptors (i.e. 3, 5, 7, 8, 9, 10, 11) will be used as part of an integrated assessment of the biodiversity descriptors (i.e. 1, 2, 4, 6) since the achievement of GES or otherwise under the 'pressure descriptors' will greatly affect the likelihood of achieving GES for each component of biodiversity.

xiv Overall assessment approach

The overall assessment approach under the MSFD is yet to be defined, although a proposal has been presented to OSPAR's Intersessional Correspondence Group on the Coordination of Biodiversity Assessment and Monitoring (ICG-COBAM) for consideration (ICG-COBAM 2010 [ICG-COBAM (4) 10/6/3-E]). It is suggested that a 'one-out, all-out' approach may not be suitable for assessing GES under the MSFD at the sub-region (or regional) scale as this dictates that if a single criterion fails, the habitat or species would be deemed to be below GES. This does not take into account the fact that specific criteria will be more important in assessing different species and habitats. There is also a significant risk that by 2020 many biodiversity components will be below GES (despite programmes of measures) initially because the ecosystem may take a number of years to recover from human disturbance. Thus, a 'one-out, all-out' approach would not be particularly useful for informing management measures or prioritising monitoring effort.

2.1.2 Habitats Directive (92/43/EEC)

i High-level aspirations (including timeline for achievement)

Article 2 (1) 'The aim of this Directive shall be to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies'.
Article 2 (2) 'Measures taken pursuant to this Directive shall be designed to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest'.

Article 3 (1) 'A coherent European ecological network of special areas of conservation shall be set up under the title Natura 2000. This network, composed of sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, shall enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range'.

Article 12 (1) 'Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV (a) in their natural range...'
Article 12 (4) 'Member States shall establish a system to monitor the incidental capture and killing of the animal species listed in Annex IV (a). In the light of the information gathered, Member States shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned'.

Article 14 (1) 'If, in the light of the surveillance provided for in Article 11, Member States deem it necessary, they shall take measures to ensure that the taking in the wild of specimens of species of wild fauna and flora listed in Annex V as well as their exploitation is compatible with their being maintained at a favourable conservation status'.

Conservation Status (CS) for habitats in Article 1(e) of the Directive is defined as 'the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the territory referred to in Article 2'. For species CS is defined in Article 1(i) as 'the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2'.

There is no time specified by which Member States have to have achieved the required environmental quality standard of Favourable Conservation Status (FCS).

ii Assessment requirement

Article 17 of the Directive states that 'Every six years from the date of expiry of the period laid down in Article 23, Member States shall draw up a report on the implementation of the measures taken under this Directive. This report shall include in particular information concerning the conservation measures referred to in Article 6 (1) as well as evaluation of the impact of those measures on the conservation status of the natural habitat types of Annex I and the species in Annex II and the main results of the surveillance referred to in Article 11...'

iii Geographic scope

The geographic scope is the European territory of the Member States to which the Directive applies. For marine waters this means EU Member States' waters from baseline out to Exclusive Economic Zones (EEZs) and including extended continental shelf, where claimed, and transitional waters (as defined under WFD).

iv Reporting scale

The Conservation Status of each habitat and species listed on Annex I or II of the Directive must be reported at the scale of the entire feature within a national biogeographic area, and not just for that part of the feature which is contained within SACs (although for some habitats and species, the entire resource will be protected within SACs).

Reporting on the implementation of measures taken under the Directive (including the impact on the conservation status of habitats and species) is carried out at the Member State scale (Article 17). Five marine biogeographic regions are also used by the EC (see Figure 4) to assess the status of habitats and species and the adequacy of protected areas under the Directive. These reporting regions are Atlantic, Macronesian, Mediterranean, Black Sea and Baltic Sea. The EC compiles Member States reports to produce aggregated results at the biogeographic level and also allows transboundary reports where appropriate (e.g. for wide-ranging species such as cetaceans).

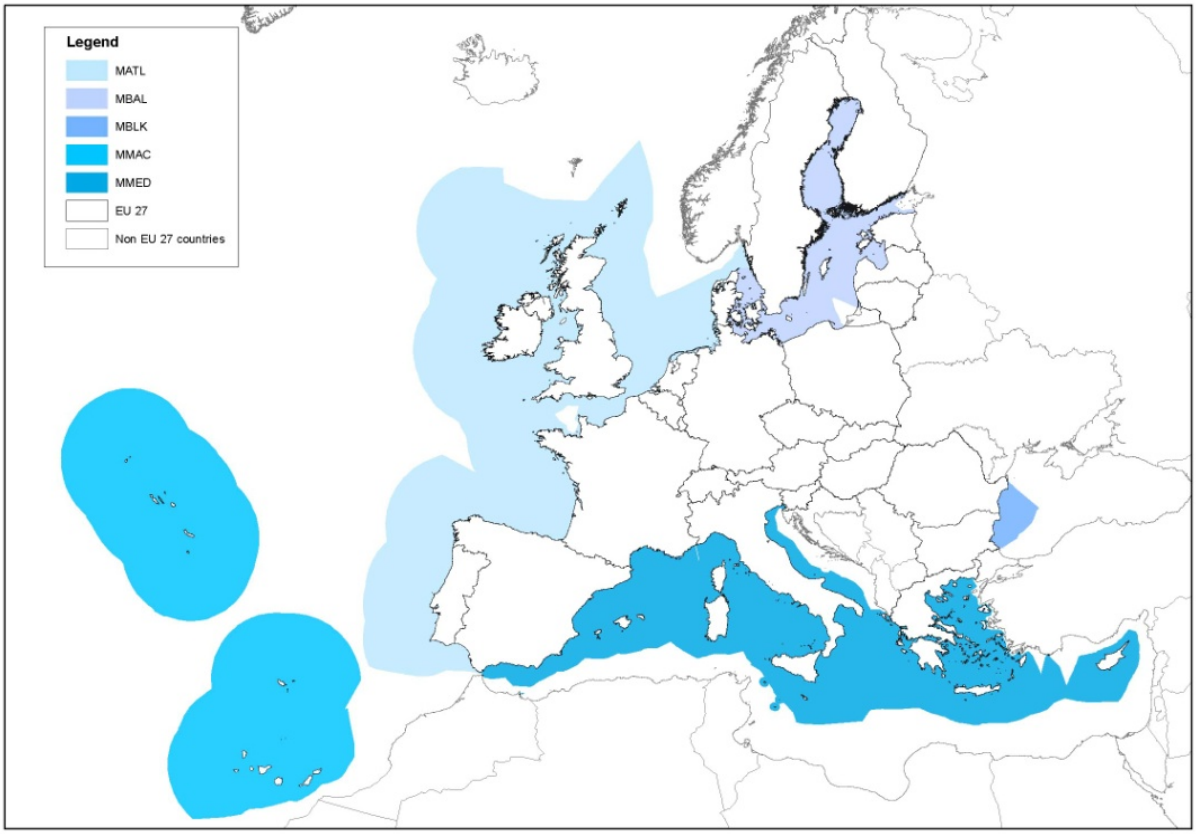

Figure 4. Indicative map of the five biogeographic regional seas of Europe for Habitats Directive Article 17 reporting. For the North-East Atlantic region, outer boundaries follow the EEZs (and can be expanded to include extended Continental Shelf areas where relevant); (Source: DIKE 2011/2/6 – European Commission, 2011).

v Biological scope (species and habitats)

The Habitats Directive covers the natural habitat types and species of community interest listed on Annexes I and II (requiring the designation of SACs); species requiring strict protection listed on Annex IV; and species requiring management measures listed on Annex V. There are 13 habitats and 35 species present in the UK (regularly or as vagrants) that are listed on the Annexes to the Directive which occur totally or partially in the marine environment.

Table 3. The habitats and species listed on the Annexes of the Habitats Directive which occur partially or totally in the marine environment and for which a UK FCS assessment is required. Those which occur in the marine environment but will be reported on in their terrestrial region have been identified with *.

Habitats listed on Annex I	Species listed on Annex II	Species listed on Annex IV	Species listed on Annex V
Sandbanks which are slightly covered by seawater all the time	Bottlenose dolphin (*Tursiops truncatus*) – also Annex IV	Common dolphin (*Delphinus delphis*)	Maerl (*Lithothamnium coralloides*)
Estuaries	Harbour porpoise (*Phocoena phocoena*) – also Annex IV	Killer whale (*Orcinus orca*)	Maerl (*Phymatholithon calcareum*)
Mudflats and sandflats not covered by seawater at low tide	Grey seal (*Halichoerus grypus*) – also Annex V	Long-finned pilot whale (*Globicephala melas*)	
Large shallow inlets and bays	Common seal (*Phoca vitulina*) – also Annex V	Risso's dolphin (*Grampus griseus*)	
Reefs	Sea lamprey (*Petromyzon marinus*)*	Atlantic white-sided dolphin (*Lagenorhynchus acutus*)	
Submarine structures made by leaking gases	Allis shad (*Alosa alosa*) – also Annex V*	White-beaked dolphin (*Lagenorhynchus albirostris*)	
Submerged or partially submerged sea caves	Twaite shad (*Alosa fallax*) – also Annex V*	Minke whale (*Balaenoptera acutorostrata*)	
Annual vegetation of drift lines*	Otter (*Lutra lutra* *	Fin whale (*Balaenoptera physalus*)	
Salicornia and other annuals colonising mud and sand*		Sperm whale (*Physeter macrocephalus*	
Spartina swards (*Spartinion maritimae* *		Sei whale (*Balaenoptera borealis*)	
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)*		Blue whale (*Balaenoptera musculus*)	
Mediterranean and thermo-Atlantic halophilious scrubs (*Sarcocornetea fruticosi*)*		Humpback whale *(Megaptera novaeangliae)*	
Coastal lagoons*		Bottlenose whale *(Hyperoodon ampullatus)*	
		Sowerby's beaked whale *(Mesoplodon bidens)*	
		Striped dolphin *(Stenella coeruleoalba)*	
		North Atlantic right whale (*Eubalaena glacialis*) UK vagrant	
		Pygmy sperm whale (*Kogia breviceps*) UK vagrant	
		Blainville's beaked whale (*Mesoplodon densirostris*) UK vagrant	

Habitats listed on Annex I	Species listed on Annex II	Species listed on Annex IV	Species listed on Annex V
		Gervais' beaked whale (*Mesoplodon europaeus*) UK vagrant True's beaked whale (*Mesoplodon mirus*) UK vagrant Cuvier's beaked whale (*Ziphius cavirostris*) UK vagrant Narwhal (*Monodon monocerus*) UK vagrant Beluga whale (*Delphinapterus leucas*) UK vagrant False killer whale (*Pseudorca crassidens*) UK vagrant Leatherback turtle (*Dermochelys coriacea*)	

vi Reporting cycle frequency

Member States are required to report on implementation of the measures taken under the Directive (Article 17) and should include in particular information concerning the conservation measures referred to in Article 6 (1) as well as evaluation of the impact of those measures on the conservation status of the natural habitat types of Annex I and the species in Annex II and the main results of the surveillance referred to in Article 11.

The Directive was adopted in 1992, with the first report required for the period 1994-2000, which focused on work to select Special Areas of Conservation (SACs). The second report for 2001-2006 focused on a first assessment of conservation status. The third report for 2007-20012 provided a second assessment of the conservation status of relevant habitats and species. The reporting format set by the European Commission requires a separate analysis for each species and each habitat in each biogeographic region which that country covers.

The Commission is required to prepare and publish a composite report not later than two years after the relevant reporting period, based on the Member State reports. The composite report should include an appropriate evaluation of the progress achieved and, in particular, of the contribution of Natura 2000 to the achievement of the objectives set out in Article 3.

Reports from Member States are required every six years (beginning two years after Member States have been notified of the Directive – Article 17). The next reporting round will be in 2019.

vii Baselines used (i.e. the value of [conservation] state against which subsequent values of state are compared, that is the standard against which environmental targets can be set)

There is no formal baseline identified within the text of the Directive. However, prior to the first reporting on Conservation Status for the period 2001-2006, the Habitats Committee agreed European Commission guidance that introduced the concept of setting thresholds or 'favourable reference values' for certain parameters to make it easier to define Favourable Conservation Status (FCS). The parameters covered are range and area for habitats, and range and population size for species. The European Commission guidance 'Assessment and reporting under Article 17 of the Habitats Directive – Explanatory Notes and Guidelines for the period 2007-2012 Final Version' (July 2011) describes these 'favourable reference values'.

Favourable reference range is defined as the *'*range within which all significant ecological variations of the habitat/species are included for a given biogeographical region and which is sufficiently large to allow the long term survival of the habitat/species; favourable reference value must be at least the range (in size and configuration) when the Directive came into force [1994 in the UK]; if the range was insufficient to support a favourable status the reference for favourable range should take account of that and should be larger (in such a case information on historical distribution may be found useful when defining the favourable reference range); best expert judgement [see JNCC Report 490 for a discussion of 'expert judgement'[11]] may be used to define it in absence of other data.*'*

Favourable reference population is defined as the 'population in a given biogeographical region considered the minimum necessary to ensure the long-term viability of the species; favourable reference value must be at least the size of the population when the Directive came into force [1994 in the UK]; information on historical distribution/population may be found useful when defining the favourable reference population; best expert judgement may be used to define it in absence of other data.'

Favourable reference area is defined as the 'total surface area in a given biogeographical region considered the minimum necessary to ensure the long-term viability of the habitat type; this should include necessary areas for restoration or development for those habitat types for which the present coverage is not sufficient to ensure long-term viability; favourable reference value must be at least the surface area when the Directive came into force [1994 in the UK]; information on historical distribution may be found useful when defining the favourable reference area; best expert judgement may be used to define it in absence of other data.'

The main concept underlying these baselines/reference values that are used for the Habitats Directive is viability. If the range, population size or area of the habitat or species was considered 'viable' in the long-term at the date when the Directive came into force (this differs across Member States), then this would be a suitable favourable reference value against which to set a target (although this is a more difficult concept to apply to marine habitats and species). Therefore, the baseline against which current status is assessed is most likely to be (if the feature was considered to be viable) the value of range, area or population size as at 1994 (in the UK). However, historical data can be used to define these favourable reference values where appropriate, for example, if the range, area or population size at 1994 is not considered to be viable. The UK approach for the 2007-20012 reporting round

[11] http://jncc.defra.gov.uk/page-6513

was to use 1994 as a starting point for assessing viability, (i.e. was the range/area/population etc. viable in 1994?) Historical and current data were used to inform the decision (see JNCC 2007, 2013 for the UK Approach to assessing conservation status). There is no formal concept of a favourable reference value for the parameters of 'structure and function' and 'habitat for the species' (European Commission 2011a,b).

viii Status classes of assessment

There is nothing specifically written in the Directive identifying different assessment status classes. The European Commission guidance (2011a,b) states that for reporting under Article 17 three classes of conservation status have been agreed:

Favourable - the situation where the habitat or species can be expected to prosper without any change to existing management or policies;

Unfavourable-Inadequate - the situation where a change in management or policy is required to return the habitat type or species to favourable status but there is no danger of extinction in the foreseeable future; and

Unfavourable-Bad - the situation where habitats or species are in serious danger of becoming extinct (at least regionally).

In the 2007-2012 reporting round it was obligatory to also assess trend in the overall assessment of unfavourable status classes to indicate where positive or negative change was occurring. It was also possible to report an 'Unknown' class when there was insufficient information available to allow an assessment. Assessment classes for FCS differ from the classes which apply to the assessment of favourable condition on individual Natura 2000 sites.

ix Criteria used for assessment

The high-level aspects, or 'criteria' used to produce assessments under the Habitats Directive are known as 'parameters' and are (as given in Article 1 of the Directive) as follows for habitats and species:

Habitats	Species
Range	Range
Area within range	Population (size and condition)
Structures and functions, including typical species	Habitat for the species (area and quality)
Future prospects	Future prospects

x Criterion targets

Article 1 of the Directive states that the 'conservation status of a natural habitat will be taken as *favourable* when':

- Its natural range and area it covers within that range are stable or increasing;
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and

- The conservation status of its typical species is 'favourable' (as defined for species below).

Article 1 of the Directive states that the 'conservation status of a species will be taken as *favourable* when':

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Following the general definitions set out in Article 1 of the Directive and the concepts of Favourable Reference Values adopted in the European Commission guidance, target matrices have been developed for individual parameters and for the overall conservation status assessment (see Tables 4 and 5).

Table 4. Target (general evaluation) Matrix for achieving different classes of conservation status for the parameters (criteria) relating to species assessment. Taken from Annex C of Assessment and reporting under Article 17 of the Habitats Directive: Reporting formats for the period 2007-2012, May 2011.

Parameter	Conservation Status			
	Favourable ('green')	**Unfavourable - Inadequate ('amber')**	**Unfavourable - Bad ('red')**	***Unknown (insufficient information to make an assessment)***
Range[12]	Stable (loss and expansion in balance) or increasing AND not smaller than the 'favourable reference range'	Any other combination	Large decline: Equivalent to a loss of more than 1% per year within period specified by Member States (MS) OR more than 10% below favourable reference range	*No or insufficient reliable information available*
Population	Population(s) not lower than 'favourable reference population' AND reproduction, mortality and age structure not deviating from normal (if data available)	Any other combination	Large decline: Equivalent to a loss of more than 1% per year (indicative value MS may deviate from if duly justified) within period specified by MS AND below 'favourable reference population' OR More than 25% below favourable reference population OR Reproduction, mortality and age structure strongly deviating from normal (if data available)	*No or insufficient reliable information available*
Habitat for the species	Area of habitat is sufficiently large (and stable or increasing) AND habitat quality is suitable for the long term survival of the species	Any other combination	Area of habitat is clearly not sufficiently large to ensure the long term survival of the species OR Habitat quality is bad, clearly not allowing long term survival of the species	*No or insufficient reliable information available*
Future prospects (as regards population, range and habitat availability)	Main pressures and threats to the species not significant; species will remain viable on the long-term	Any other combination	Severe influence of pressures and threats to the species; very bad prospects for its future, long-term viability at risk.	*No or insufficient reliable information available*

[12] Range within the biogeographical region concerned.

Table 5. Target (general evaluation) Matrix for achieving different classes of conservation status for the parameters (criteria) relating to habitats assessment. Taken from Annex E of Assessment and reporting under Article 17 of the Habitats Directive: Reporting formats for the period 2007-2012, May 2011.

Parameter	Conservation Status			
	Favourable ('green')	**Unfavourable - Inadequate ('amber')**	**Unfavourable - Bad ('red')**	***Unknown (insufficient information to make an assessment)***
Range[13]	Stable (loss and expansion in balance) or increasing AND not smaller than the 'favourable reference range'	Any other combination	Large decrease: Equivalent to a loss of more than 1% per year within period specified by MS OR More than 10% below 'favourable reference range'	*No or insufficient reliable information available*
Area covered by habitat type within range[14]	Stable (loss and expansion in balance) or increasing AND not smaller than the 'favourable reference area' AND without significant changes in distribution pattern within range (if data available)	Any other combination	Large decrease in surface area: Equivalent to a loss of more than 1% per year (indicative value MS may deviate from if duly justified) within period specified by MS OR With major losses in distribution pattern within range OR More than 10% below 'favourable reference area'	*No or insufficient reliable information available*
Specific structures and functions (including typical species[15]**)**	Structures and functions (including typical species) in good condition and no significant deteriorations/pressures.	Any other combination	More than 25% of the area is unfavourable as regards its specific structures and functions (including typical species)[16]	*No or insufficient reliable information available*

[13] Range within the biogeographical region concerned.
[14] There may be situations where the habitat area has decreased as a result of management measures to restore another Annex I habitat or habitat of an Annex II species. The habitat could still be considered to be at 'Favourable Conservation Status' but in such cases please give details in the Complementary Information section ("Other relevant information") of Annex D.
[15] See definition of typical species in the guidance document.
[16] E.g. by discontinuation of former management activities, or from pressure bysignificant adverse influences (e.g. critical loads of pollution exceeded).

Parameter	Conservation Status			
	Favourable ('green')	**Unfavourable - Inadequate ('amber')**	**Unfavourable - Bad ('red')**	***Unknown (insufficient information to make an assessment)***
Future prospects (as regards range, area covered and specific structures and functions)	The habitats prospects for its future are excellent/good, no significant impact from threats expected; long-term viability assured.	Any other combination	The habitats prospects are bad, severe impact from threats expected; long-term viability not assured.	*No or insufficient reliable information available*

xi Indicators (attributes)

There are no indicators/attributes identified within the text of the Directive or within European Commission guidance. In order to determine whether the parameters (criteria) for habitats and species have met favourable status, some Member States have developed methods for the evaluation of the conservation status of features at a local site scale, often using an indicator-based assessment (European Commission 2011a,b). This kind of monitoring within protected sites can contribute (through an aggregation process) to the overall assessment of the feature at the biogeographic level (particularly when all/most of the biodiversity resource is within protected sites). In the UK, the approach has been to develop Common Standards Monitoring (CSM) guidance (http://jncc.defra.gov.uk/page-2217) which gives a small number of characteristics (attributes) for each feature which describe its condition (e.g. extent, species composition etc.).

xii Indicator targets/thresholds

There are no indicator-level targets identified within the text of the Directive or by the European Commission. In terms of UK guidance, the CSM guidance documents do contain suggested targets for features within protected sites only.

xiii Aggregation rules (where relevant)

Spatial aggregation rules will be required where condition assessments have been made at subdivided levels, for example a unit within a protected site, or a feature within a site. Final assessments have to be made for each feature at the scale of the Member State's biogeographic region waters (i.e. not simply the status of the feature on protected sites) but no formal aggregation rules or processes exist at present. The aggregation rules which were applied to produce the EU biogeographic region assessments from the Member State information can be found in the European Topic Centre on Biodiversity report on biogeographical assessments[17].

Aggregation across each of the parameters (criteria) of favourable conservation status is undertaken for each feature (i.e. species or habitat) to determine the overall conservation status at the Member State level (see section xiv below).

[17] http://eea.eionet.europa.eu/Public/irc/eionet-circle/habitats-art17report/library?l=/papers_technical/biogeographical_2/_EN_1.0_&a=d

xiv Overall assessment approach

The assessment method for determining conservation status under the Habitats Directive (as defined by the European Commission 2011, Annexes C and E) is a 'one-out, all-out' approach; that is, if one parameter (range, population, habitat for species, or future prospects for species, and range, area, structure and function, or future prospects for habitats) fails to meet favourable status, the species or habitat as a whole is deemed to be in unfavourable conservation status.

	Favourable ('green')	**Unfavourable - Inadequate ('amber')**	**Unfavourable - Bad ('red')**	***Unknown (insufficient information to make an assessment)***
Overall Conservation Status Assessment	All parameters favourable OR three favourable and one unknown	One or more unfavourable-inadequate BUT no unfavourable-bad	One or more unfavourable-bad	Two or more unknown combined with favourable OR all unknown

2.1.3 Birds Directive (2009/147/EC) – amended version of 79/409/EEC

i High-level aspirations (including timeline for achievement)

Article 1 (1) 'This Directive relates to the conservation of all species of naturally occurring birds in the wild state in the European territory of the Member States to which the Treaty applies. It covers the protection, management and control of these species and lays down rules for their exploitation.'

Article 2 'Member States shall take the requisite measures to maintain the population of the species referred to in Article 1 at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the population of these species to that level.'

Article 3 (1) 'In the light of the requirements referred to in Article 2, Member States shall take the requisite measures to preserve, maintain or re-establish a sufficient diversity and area of habitats for all the species of birds referred to in Article 1.'

Article 4 (1) 'The species mentioned in Annex I shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution... Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species in the geographical sea and land area where this Directive applies.'

Article 5 '...Member States shall take the requisite measures to establish a general system of protection for all species of birds referred to in Article 1...'

There is no time specified by which Member States have to have achieved a required environmental quality standard.

ii Assessment requirement

Article 12 (1) of the Directive states that 'Member States shall forward to the Commission every three years, starting from 7 April 1981, a report on the implementation of national provisions taken under this Directive'.

iii Geographic scope

This scope is the European territory of the Member States of the European Union.

iv Reporting scale

Reporting on the implementation of national provisions taken under the Directive is carried out at the Member State scale, with a composite EU-scale report produced by the European Commission.

v Biological scope (species and habitats)

The Birds Directive[18] relates to the conservation of all species of naturally occurring birds in the wild state. There is no priority list of bird species as such; however, the Directive has several Annexes that list species falling into certain categories. For example, Annex I lists bird species that require special conservation measures concerning their habitat in order to ensure survival and reproduction in their area of distribution. These species are those which are considered to be in danger of extinction, or are rare or vulnerable. Similar measures apply to migratory species under Article 4.2, which also requires special attention to be given to wetlands. Annex II lists those species which can be hunted under national legislation and Annex III lists those which are allowed to be sold, transported for sale, kept for sale etc., providing they are legally killed/acquired.

vi Reporting cycle frequency

Article 12 of the Directive states that 'Member States shall forward to the Commission every three years, starting from 7 April 1981, a report on the implementation of national provisions taken under this Directive.' The Commission will then prepare a composite report based on this national information. From 2011, a new reporting format[19] and timetable has been agreed which has moved to a six-yearly cycle of reporting on bird species status. The first such report will be published in 2014.

vii Baselines used (i.e. the value of state against which subsequent values of state are compared, that is, the standard against which environmental targets can be set)

It has been agreed that the baseline for use in assessing trends in the Article 12 reports will be *c.*1979 for all Member States (or as near to that date as data is available).

viii Status classes of assessment

There are no formal status classes stipulated within the Birds Directive. Article 2 of the Directive sets an objective for wild bird species, but does not define conservation status:

[18] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:020:0007:0025:EN:PDF
[19] http://bd.eionet.europa.eu/activities/Article_12_Birds_Directive/reference_portal

'Member States shall take the requisite measures to maintain the population of the species referred to in Article 1 at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the population of these species to that level'.

ix Criteria used for assessment

There are no formal assessment criteria established by the Directive. However, the new reporting format agreed for Article 12 requires national reporting of the following 'parameters' for each species:

- Population size;
- Population trend (short-term and long-term);
- Breeding distribution and range size;
- Breeding range trend (short-term and long-term);
- Progress on implementation of action/management plans as relevant;
- Main pressures and threats; and
- SPA coverage and conservation measures taken.

x Criterion targets

None exist beyond the requirements of Article 2 of the Directive.

xi Indicators (attributes)

None exist beyond the requirements of Article 2 of the Directive.

xii Indicator targets/thresholds

None exist beyond the requirements of Article 2 of the Directive.

xiii Aggregation rules (where relevant)

Spatial aggregation rules will be required in order to produce Article 12 reports at an EU scale (at least). However, these rules are not yet defined for the next reporting round in 2013.

xiv Overall assessment approach

The details of the overall assessment approach are not yet defined.

2.1.4 Water Framework Directive (2000/60/EC)

i High-level aspirations (including timeline for achievement)

Article 1 'The purpose of this Directive is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which:

- prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems;
- promotes sustainable water use based on a long-term protection of available water resources;'

Article 4 (1) 'In making operational the programmes of measures specified in the river basin management plans:

(a) for surface waters:

(ii) Member States shall protect, enhance and restore all bodies of surface water...with the aim of achieving good surface water status at the latest 15 years after the date of entry into force of this Directive…

(c) for protected areas:

Member States shall achieve compliance with any standards and objectives at the latest 15 years after the date of entry into force of this Directive…'

Table 1.2. 'Good ecological status: The values of the biological quality elements for the surface water body type show low levels of distortion resulting from human activity, but deviate only slightly from those normally associated with the surface water body type under undisturbed conditions'

Recital 26 'Member States should aim to achieve the objective of at least good water status by defining and implementing the necessary measures within integrated programmes of measures, taking into account existing Community requirements. Where good water status already exists, it should be maintained…'

The aim of the Directive is to achieve Good Surface water Status (including Good Ecological Status) for water bodies by 2015 at the latest.

ii Assessment requirement

Article 13 (1) of the Directive states that 'Member States shall ensure that a river basin management plan is produced for each river basin district lying entirely within their territory'. Article 13 (4) stipulates that 'The river basin management plan shall include the information detailed in Annex VII' to the Directive'.

iii Geographic scope

The Water Framework Directive (WFD) covers all bodies of water (both ground water and surface water) within the European territory of the Member States of the European Union. Transitional waters are included and coastal waters are also included; meaning 'surface water on the landward side of a line, every point of which is at a distance of one nautical mile on the seaward side from the nearest point of the baseline from which the breadth of territorial waters is measured, extending where appropriate up to the outer limit of transitional waters' (Article 2 (7)). In Scotland, coastal waters have been interpreted as extending out to 3nm from the baseline (see Figure 5).

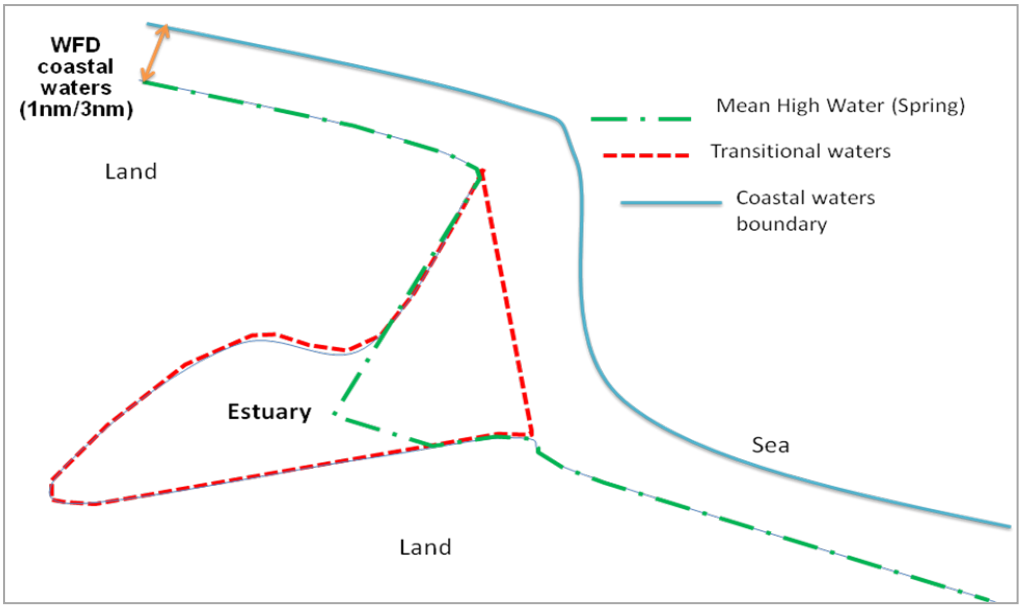

Figure 5. Showing the seaward 1 or 3nm boundary for coastal waters under the WFD and the theoretical extent of transitional waters.

Maps of the coastal and transitional waterbodies for England and Wales can be found here: http://www.environment-agency.gov.uk/research/planning/33348.aspx. For Scottish coastal and transitional water bodies, see the SEPA interactive river basin management plan map: http://gis.sepa.org.uk/rbmp/. For Northern Irish coastal and transitional water bodies, see the NIEA river basin plan interactive map: http://maps.ehsni.gov.uk/wmuviewer/#.

iv Reporting scale

Reporting, consisting of the production of river basin management plans at the scale of each individual water body, is carried out within each Member State.

v Biological scope (species and habitats)

Each water-body type has a specific list of quality elements (biological, hydromorphological, chemical/physicochemical, general and specific pollutants) which must be used for the classification of ecological and chemical status (Annex V) and therefore, for assessment. For transitional and coastal waters the biological quality elements are as follows:

Transitional waters	Coastal waters
Phytoplankton	Phytoplankton
Angiosperms (e.g. saltmarsh)	Angiosperms (e.g. seagrass)
Macroalgae	Macroalgae
Benthic invertebrate fauna	Benthic invertebrate fauna
Fish fauna	

Therefore, the biological scope of the marine element of the WFD is more limited compared to the Habitats Directive or MSFD. In support of these biological elements, both transitional and coastal waters require an assessment of morphological conditions, that is, depth variation, quantity, structure and substrate of the bed and

structure of the intertidal zone. Initial assessments in the UK have focussed on an assessment of physical pressures as a surrogate rather than directly measuring these biological parameters.

vi Reporting cycle frequency

Article 13 (6) of the Directive states that 'River basin management plans shall be published at the latest nine years after the date of entry into force of this Directive' (i.e. in 2009).

Article 13 (7) states that 'River basin management plans shall be reviewed and updated at the latest 15 years after the date of entry into force of this Directive and every six years thereafter'. The next reporting is required in 2015.

vii Baselines used (i.e. the value of state against which subsequent values of state are compared, that is, the standard against which environmental targets can be set)

The baseline used by WFD is reference conditions. Annex II, section 1.3. of the Directive outlines the establishment of type-specific reference conditions for surface water body types. It states that 'type-specific biological reference conditions shall be established, representing the values of the biological quality elements...for that surface water body type at high ecological status...' Type-specific biological reference conditions may be spatially based or based on modelling, historical data, or may be derived using a combination of these methods. Where it is not possible to use these methods, Member States may use expert judgement to establish such conditions.

'For spatially based type-specific biological reference conditions, Member States shall develop a reference network for each surface water body type. The network shall contain a sufficient number of sites of high status to provide a sufficient level of confidence about the values for the reference conditions...'.

The normative definition of high ecological status for the biological elements of coastal and transitional waters given in Annex V, Table 1.2. states that 'the values of the biological quality elements for the surface water body reflect those normally associated with the type under undisturbed conditions, and show no, or only very minor, evidence of distortion'.

Therefore, under the WFD, the baseline used against which to set status targets is one of relatively unimpacted reference conditions (i.e. conditions which are not, or are only minimally, anthropogenically impacted). These are specified for each water body/habitat type individually so that targets are set in an ecologically meaningful manner.

viii Status classes of assessment

Annex V, section 1.4.2 of the Directive describes the presentation of monitoring results and classification of ecological status and ecological potential. For surface water bodies the ecological status classes are as follows:

Ecological status classification	Colour code
High	Blue
Good	Green
Moderate	Yellow
Poor	Orange
Bad	Red

For heavily modified and artificial water bodies (physically altered by human activity or created by human activity), only good ecological potential is required. The available classes for this assessment are: Good and above, moderate, poor, and bad.

Water bodies must also be assessed for their chemical status (i.e. whether compliance with all relevant chemical environmental quality standards is being achieved) and hydromorphological status (whether high status conditions are being met). The classifications for chemical and hydromorphological status are as follows:

Chemical status classification	Colour code
Good	Blue
Failing to achieve good	Red

Hydromorphological status classification	Colour code
High	Blue
Not High	

ix Criteria used for assessment

Annex V, sections 1.1.3 and 1.1.4 of the Directive describe the particular quality elements and aspects of these elements which are used for the assessment and classification of ecological status (the quality of the structure and functioning of aquatic ecosystems) in transitional and coastal waters. The ‘criteria’ which are used to assess the quality elements are shown in Table 6.

Table 6. Criteria used to assess different quality elements under the WFD for transitional and coastal waters.

Transitional waters		**Criteria**
Biological elements	Phytoplankton	Composition
		Abundance
		Biomass
	Angiosperms	Composition
		Abundance
	Macroalgae	Composition
		Abundance
	Benthic invertebrate fauna	Composition
		Diversity
		Disturbance sensitive taxa
		Pollution indicative taxa
		Abundance
	Fish fauna	Composition
		Abundance
Hydromorphological elements	Morphological conditions	Depth variation
		Quantity, structure and substrate of bed
	Tidal regime	Freshwater flow
		Wave exposure
Chemical and physico-chemical elements	General	Transparency
		Thermal conditions
		Oxygenation conditions
		Salinity
		Nutrient conditions
	Specific pollutants	Priority substances
		Other substances
Coastal waters		**Criteria**
Biological elements	Phytoplankton	Composition
		Abundance
		Biomass
	Aquatic flora (angiosperms and macroalgae)	Composition
		Abundance
	Benthic invertebrate fauna	Composition
		Abundance
Hydromorphological elements	Morphological conditions	Depth variation
		Quantity, structure and substrate of coastal bed
	Tidal regime	Direction of dominant currents
		Wave exposure
Chemical and physico-chemical elements	General	Transparency
		Thermal conditions
		Oxygenation conditions
		Salinity
		Nutrient conditions
	Specific pollutants	Priority substances
		Other substances

Although these 'criteria' are not specifically referred to as such within the Directive, they can be considered to be broadly equivalent to the assessment criteria identified under other obligations, such as the MSFD.

x Criterion targets

Annex V, table 1.2 of the Directive gives the normative definitions of ecological status classification. These definitions reflect the general targets for the quality elements of transitional and coastal waters (along with rivers and lakes). The following generic targets (Table 7) apply to achieving High, Good and Moderate ecological status for any water body.

Table 7. Generic targets for achieving High, Good and Moderate ecological status for a water body under the WFD.

High status	Good status	Moderate status
There are no, or only very minor, anthropogenic alterations to the values of the physico-chemical and hydromorphological quality elements for the surface water body type from those normally associated with that type under undisturbed conditions. The values of the biological quality elements for the surface water body reflect those normally associated with that type under undisturbed conditions, and show no, or only very minor, evidence of distortion. These are the type-specific conditions and communities.	The values of the biological quality elements for the surface water body type show low levels of distortion resulting from human activity but deviate only slightly from those normally associated with the surface water body type under undisturbed conditions.	The values of the biological quality elements for the surface water body type deviate moderately from those normally associated with the surface water body type under undisturbed conditions. The values show moderate signs of distortion resulting from human activity and are significantly more disturbed than under conditions of good status.

More specifically, Annex V, section 1.2.3 gives the definitions of high, good and moderate ecological status for transitional waters and this is a more-detailed qualitative description of the targets outlined in table 1.2 of Annex V. The biological quality targets for transitional waters are as follows:

Table 8. Biological quality targets for achieving High, Good and Moderate status in transitional waters under the WFD.

Element	High status	Good status	Moderate status
Phytoplankton	The composition and abundance of the phytoplanktonic taxa are consistent with undisturbed conditions. The average phytoplankton biomass is consistent with the type-specific physico-chemical conditions and is not such as to significantly alter the type-specific transparency conditions. Planktonic blooms occur at a frequency and intensity which is consistent with the type specific physico-chemical conditions.	There are slight changes in the composition and abundance of phytoplanktonic taxa. There are slight changes in biomass compared to the type-specific conditions. Such changes do not indicate any accelerated growth of algae resulting in undesirable disturbance to the balance of organisms present in the water body or to the physico-chemical quality of the water. A slight increase in the frequency and intensity of the type specific planktonic blooms may occur.	The composition and abundance of phytoplanktonic taxa differ moderately from type-specific conditions. Biomass is moderately disturbed and may be such as to produce a significant undesirable disturbance in the condition of other biological quality elements. A moderate increase in the frequency and intensity of planktonic blooms may occur. Persistent blooms may occur during summer months.
Macroalgae (aquatic flora)	The composition of macroalgal taxa is consistent with undisturbed conditions. There are no detectable changes in macroalgal cover due to anthropogenic activities.	There are slight changes in the composition and abundance of macroalgal taxa compared to the type-specific communities. Such changes do not indicate any accelerated growth of phytobenthos or higher forms of plant life resulting in undesirable disturbance to the balance of organisms present in the water body or to the physico-chemical quality of the water.	The composition of macroalgal taxa differs moderately from type-specific conditions and is significantly more distorted than at good quality. Moderate changes in the average macroalgal abundance are evident and may be such as to result in an undesirable disturbance to the balance of organisms present in the water body.
Angiosperms (aquatic flora)	The taxonomic composition corresponds totally or nearly totally to undisturbed conditions. There are no detectable changes in angiosperm abundance due to anthropogenic activities.	There are slight changes in the composition of angiosperm taxa compared to the type-specific communities. Angiosperm abundance shows slight signs of disturbance.	The composition of the angiosperm taxa differs moderately from the type-specific communities and is significantly more distorted than at good quality. There are moderate distortions in the abundance of angiosperm taxa.

Element	High status	Good status	Moderate status
Benthic invertebrate fauna	The level of diversity and abundance of invertebrate taxa is within the range normally associated with undisturbed conditions. All the disturbance-sensitive taxa associated with undisturbed conditions are present.	The level of diversity and abundance of invertebrate taxa is slightly outside the range associated with the type-specific conditions. Most of the sensitive taxa of the type-specific communities are present.	The level of diversity and abundance of invertebrate taxa is moderately outside the range associated with the type-specific conditions. Taxa indicative of pollution are present. Many of the sensitive taxa of the type-specific communities are absent.
Fish fauna	Species composition and abundance is consistent with undisturbed conditions.	The abundance of the disturbance-sensitive species shows slight signs of distortion from type-specific conditions attributable to anthropogenic impacts on physicochemical or hydromorphological quality elements.	A moderate proportion of the type-specific disturbance-sensitive species are absent as a result of anthropogenic impacts on physico-chemical or hydromorphological quality elements.

The hydromorphological quality targets for transitional waters are shown in Table 9.

Table 9. Hydromorphological quality targets for transitional waters.

Element	High Status	Good Status	Moderate Status
Tidal regime	The freshwater flow regime corresponds totally or nearly totally to undisturbed conditions.	Conditions consistent with the achievement of the values specified above for the biological quality elements.	Conditions consistent with the achievement of the values specified above for the biological quality elements.
Morphological conditions	Depth variations, substrate conditions, and both the structure and condition of the intertidal zones correspond totally or nearly totally to undisturbed conditions.	Conditions consistent with the achievement of the values specified above for the biological quality elements.	Conditions consistent with the achievement of the values specified above for the biological quality elements.

The physico-chemical quality targets for transitional waters are shown in Table 10.

Table 10. Physico-chemical quality targets for transitional waters.

Element	High Status	Good Status	Moderate Status
General conditions	Physico-chemical elements correspond totally or nearly totally to undisturbed conditions. Nutrient concentrations remain within the range normally associated with undisturbed conditions. Temperature, oxygen balance and transparency do not show signs of anthropogenic disturbance and remain within the range normally associated with undisturbed conditions.	Temperature, oxygenation conditions and transparency do not reach levels outside the ranges established so as to ensure the functioning of the ecosystem and the achievement of the values specified above for the biological quality elements. Nutrient concentrations do not exceed the levels established so as to ensure the functioning of the ecosystem and the achievement of the values specified above for the biological quality elements.	Conditions consistent with the achievement of the values specified above for the biological quality elements.
Specified synthetic pollutants	Concentrations close to zero and at least below the limits of detection of the most advanced analytical techniques in general use.	Concentrations not in excess of the standards set in accordance with the procedure detailed in section 1.2.6 without prejudice to Directive 91/414/EC and Directive 98/8/EC. (below Environmental Quality Standard [<EQS])	Conditions consistent with the achievement of the values specified above for the biological quality elements.
Specified non-synthetic pollutants	Concentrations remain within the range normally associated with undisturbed conditions (background levels = bgl).	Concentrations not in excess of the standards set in accordance with the procedure detailed in section 1.2.6 (2) without prejudice to Directive 91/414/EC and Directive 98/8/EC. (<EQS)	Conditions consistent with the achievement of the values specified above for the biological quality elements.

Annex V, section 1.2.4 gives the definitions of high, good and moderate ecological status for coastal waters and this is a more detailed qualitative description of the targets outlined in table 1.2. The biological quality targets for coastal waters are shown in Table 11.

Table 11. Biological quality targets for coastal waters.

Element	High status	Good status	Moderate status
Phytoplankton	The composition and abundance of the phytoplanktonic taxa are consistent with undisturbed conditions. The average phytoplankton biomass is consistent with the type-specific physico-chemical conditions and is not such as to significantly alter the type-specific transparency conditions. Planktonic blooms occur at a frequency and intensity which is consistent with the type specific physico-chemical conditions.	The composition and abundance of phytoplankton taxa show slight signs of disturbance. There are slight changes in biomass compared to the type-specific conditions. Such changes do not indicate any accelerated growth of algae resulting in undesirable disturbance to the balance of organisms present in the water body or to the quality of the water. A slight increase in the frequency and intensity of the type-specific planktonic blooms may occur.	The composition and abundance of phytoplanktonic taxa show signs of moderate disturbance. Algal biomass is substantially outside the range associated with type-specific conditions and is such as to impact upon other biological quality elements. A moderate increase in the frequency and intensity of planktonic blooms may occur. Persistent blooms may occur during summer months.
Macroalgae and angiosperms (aquatic flora)	All disturbance-sensitive macroalgal and angiosperm taxa associated with undisturbed conditions are present. The level of macroalgal cover and angiosperm abundance are consistent with undisturbed conditions.	Most disturbance-sensitive macroalgal and angiosperm taxa associated with undisturbed conditions are present. The level of macroalgal cover and angiosperm abundance show slight signs of disturbance.	A moderate number of disturbance-sensitive macroalgal and angiosperm taxa associated with undisturbed conditions are absent. Macroalgal cover and angiosperm abundance is moderately disturbed and may be such as to result in an undesirable disturbance to the balance of organisms present in the water body.
Benthic invertebrate fauna	The level of diversity and abundance of invertebrate taxa is within the range normally associated with undisturbed conditions. All the disturbance-sensitive taxa associated with undisturbed conditions are present.	The level of diversity and abundance of invertebrate taxa is slightly outside the range associated with the type-specific conditions. Most of the sensitive taxa of the type-specific communities are present.	The level of diversity and abundance of invertebrate taxa is moderately outside the range associated with the type-specific conditions. Taxa indicative of pollution are present. Many of the sensitive taxa of the type-specific communities are absent.

The hydromorphological quality element targets for coastal waters is shown in Table 12.

Table 12. Hydromorphological quality element targets for coastal waters.

Element	High Status	Good Status	Moderate Status
Tidal regime	The freshwater flow-regime and the direction and speed of dominant currents corresponds totally or nearly totally to undisturbed conditions.	Conditions consistent with the achievement of the values specified above for the biological quality elements.	Conditions consistent with the achievement of the values specified above for the biological quality elements.
Morphological conditions	The depth variation, structure and substrate of the coastal bed and both the structure and condition of the intertidal zones correspond totally or nearly totally to undisturbed conditions.	Conditions consistent with the achievement of the values specified above for the biological quality elements.	Conditions consistent with the achievement of the values specified above for the biological quality elements.

The physico-chemical quality element targets for coastal waters is shown in Table 13.

Table 13. Physico-chemical quality element targets for coastal waters.

Element	High Status	Good Status	Moderate Status
General conditions	Physico-chemical elements correspond totally or nearly totally to undisturbed conditions. Nutrient concentrations remain within the range normally associated with undisturbed conditions. Temperature, oxygen balance and transparency do not show signs of anthropogenic disturbance and remain within the range normally associated with undisturbed conditions.	Temperature, oxygenation conditions and transparency do not reach levels outside the ranges established so as to ensure the functioning of the ecosystem and the achievement of the values specified above for the biological quality elements. Nutrient concentrations do not exceed the levels established so as to ensure the functioning of the ecosystem and the achievement of the values specified above for the biological quality elements.	Conditions consistent with the achievement of the values specified above for the biological quality elements.
Specified synthetic pollutants	Concentrations close to zero and at least below the limits of detection of the most advanced analytical techniques in general use.	Concentrations not in excess of the standards set in accordance with the procedure detailed in section 1.2.6 without prejudice to Directive 91/414/EC and Directive 98/8/EC. (<EQS)	Conditions consistent with the achievement of the values specified above for the biological quality elements.
Specified non-synthetic pollutants	Concentrations remain within the range normally associated with undisturbed conditions (background levels = bgl).	Concentrations not in excess of the standards set in accordance with the procedure detailed in section 1.2.6 (2) without prejudice to Directive 91/414/EC and Directive 98/8/EC. (<EQS)	Conditions consistent with the achievement of the values specified above for the biological quality elements.

Annex V section 1.4.1 describes the approach for ensuring that targets which define ecological status are consistent (where appropriate) across Member States. The monitoring systems in place under WFD should inform the values of the biological quality elements specified for each surface-water category. Therefore, specific quantitative targets are not prescribed within the Directive. The value for the boundary between the classes of high and good status, and the value for the boundary between good and moderate status is to be established through an intercalibration exercise (Annex V section 1.4.1) across Member States, facilitated by the European Commission's Common Implementation Strategy (CIS)[20].

xi Indicators (attributes)

Although the WFD text defines which biological elements must be taken into account when assessing ecological status, it leaves the Member States flexible to define the details of their own assessment system. This is why the purpose of intercalibration is not to harmonise assessment systems, but only their results. Annex V section 1.3 states that 'Member States shall monitor parameters which are indicative of the status of each relevant quality element. In selecting parameters for biological quality elements Member States shall identify the appropriate taxonomic level required to achieve adequate confidence and precision in the classification of the quality elements'.

Under WFD, classification tools are used for assessing the status of each individual quality element against high status. A list of the biological classification tools (indicators) which the UK Technical Advisory Group (TAG) on the WFD recommends for use is given in Sections 1 to 3 of the Appendix to the report 'Recommendations on surface water classification schemes for the purposes of the Water Framework Directive', December 2007[21].

The UK TAG recommends that the tools developed for classification should continue to be refined. The development work should take account of new data collected through the monitoring programmes and improvements in scientific understanding on causes and effects. New or modified tools should also be developed where the existing tools are unable to properly reflect the impact of particular pressures on the water environment.

The UK TAG list of recommended biological classification tools (indicators) for monitoring transitional and coastal waters against different important pressures is shown in Table 14.

[20] http://ec.europa.eu/environment/water/water-framework/objectives/implementation_en.htm
[21] http://www.wfduk.org/tag_guidance/Article%20_11/POMEnvStds/sw_class

Table 14. UK TAG list of recommended biological classification tools for monitoring transitional and coastal waters.

Pressure	Biological quality element	Name of tool(s) (indicator(s))
Organic enrichment	Benthic invertebrates	Infaunal quality index (IQI)
	Fish (transitional waters only)	Fish UK multi-metric
Nutrient enrichment	Phytoplankton	Phytoplankton toolbox: a) Chlorophyll biomass index b) Seasonal succession index c) Elevated taxa count index
	Macroalgae	Reduced species list
		Opportunistic algae
	Angiosperms	Seagrass (intertidal)
		Saltmarsh
Pollution by toxic chemicals	Benthic invertebrates	Infaunal quality index (IQI)
		The Vans Deferens Sequence Index (VDSI) - Imposex in dogwhelks (tributyltin- [TBT-] specific)
	Macroalgae	Fucoid extent tool (transitional waters only)
	Fish (transitional waters only)	Fish UK multi-metric
Commercial fishing	Angiosperms	Seagrass (intertidal)
	Benthic invertebrates	Infaunal quality index (IQI)
	Fish (transitional waters only)	Fish UK multi-metric
Change in freshwater flow	Benthic invertebrates	Infaunal quality index (IQI)
	Fish (transitional waters only)	Fish UK multi-metric
Aquaculture	Phytoplankton	Phytoplankton toolbox: d) Chlorophyll biomass index e) Seasonal succession index f) Elevated taxa count index
	Benthic invertebrates	Infaunal quality index (IQI)
	Fish (transitional waters only)	Fish UK multi-metric

A summary of each tool can be found within the report appendix, UK TAG 2007. Some of these tools and methods were subject to the intercalibration exercise mentioned above; the first phase of which was completed in 2008 with the second phase reported in early 2012 and leading to a Commission Decision (2013/480/EU[22]) on intercalibration. This intercalibration exercise is ongoing and will contribute to the continual refinement of the classification tools being developed across Member States. Guidance from the Common Implementation Strategy in 2002 states that 'Member States are encouraged to test existing tools in their eco-region and share the results and knowledge gained with experts from other Member States. This does not mean, however, that the same tools (indicators) are used for each quality element across Member States, only that they should be made comparable.

xii Indicator targets/thresholds

Annex V, section 1.4 of the Directive states that 'to ensure comparability of... monitoring systems, the results... shall be expressed as ecological quality ratios for the purposes of classification of ecological status'. Further guidance from the UK TAG (2007) states that 'the class boundaries for the biological classification tools will be expressed as ecological quality ratios (EQRs). EQRs are a means of expressing class boundaries on a common scale from zero to one. The boundary EQR values represent particular degrees of deviation from the corresponding reference values (reference condition baseline). High status is represented by values relatively close

[22] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:266:0001:0047:EN:PDF

to one (i.e. little or no deviation) and bad status by values relatively close to zero (i.e. substantial deviation).

The class boundaries for the biological quality elements are aligned across Member States via the intercalibration exercise, within different Geographic Intercalibration Groups (GIGs). Class boundaries are initially set through national development. The comparability of these boundaries is then explored through intercalibration. The Water Framework Directive intercalibration technical report[23] (2009) presents the results of the first intercalibration exercise (second phase from 2008-2011) and the status boundaries for the benthic invertebrate fauna quality element tools, metrics and boundaries representing the phytoplankton quality element, metrics representing the macroalgae and angiosperms quality elements (Baltic, Mediterranean and NE Atlantic) and provisional boundaries for the fish quality element (NE Atlantic). These boundaries are based on definitions of reference criteria and the application of the draft Boundary Setting Protocol (BSP) to set the high-good and good/moderate boundaries in line with the normative definitions for status class boundaries for each quality specified in the WFD. The results of the exercise were published as the Commission Decision (2008/915/EC)[24] establishing, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, the values of the Member State monitoring system classifications as a result of the intercalibration exercise[25].

The UK TAG methodologies for assessing the condition of the biological quality elements for transitional and coastal waters are set out in the method statements which can be found on the WFD UK TAG website[26].

xiii Aggregation rules (where relevant)

No formal spatial aggregation rules are required under the WFD as assessments are undertaken at the individual water body scale. Results from monitoring stations across waterbodies are usually averaged in order to determine if the waterbody has achieved the required biological quality standard. However, UK TAG guidance (2007) does state that if 1.5km^2 or 15% (unless 15% is less than 1.5km^2) of the waterbody area fails to meet the required 'good' ecological standard, the waterbody assessment can be downgraded. Aggregation is, however, required across the relevant biological and physico-chemical quality elements in order to assess ecological status for the water body (see section xiv below).

xiv Overall assessment approach

The assessment method for determining ecological status of surface waters under the Water Framework Directive (as defined in Annex V section 1.4.2) is a 'one-out, all-out' approach, that is, the lowest value of any quality element is used as the result for the whole water body. For example, if the benthic invertebrate quality element achieves only 'Poor' status, but all other relevant quality elements achieve 'Good' status, the overall result will be 'Poor status'. This concept also applies to the assessment of chemical status, that is, if a water body fails to meet one environmental quality standard; the result is a failure to achieve good chemical status.

[23] http://publications.jrc.ec.europa.eu/repository/bitstream/111111111/10473/1/3010_08-volumecoast.pdf
[24] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:332:0020:0044:EN:PDF
[25] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:332:0020:0044:EN:PDF
[26] http://www.wfduk.org/bio_assessment/

UK TAG WFD guidance (2007) states that water bodies can also be grouped together (according to the pressures to which they are subject, their characteristics and their proximity) and monitoring data from a representative water body or sub-group of water bodies can be used in estimating the status of each of the water bodies in the group.

2.2 International Conventions

2.2.1 Convention on Biological Diversity (CBD)

i High-level aspirations (including timeline for achievement)

Article 1 of the Convention states that 'the objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding'.

Article 7 of the Convention 'Identification and Monitoring' states that 'each Contracting Party shall, as far as possible and as appropriate, in particular for the purposes of Articles 8 to 10:
[a] Identify components of biological diversity important for its conservation and sustainable use having regard to the indicative list of categories set down in Annex I (see below);

[b] Monitor, through sampling and other techniques, the components of biological diversity identified pursuant to subparagraph [a] above, paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use;

[c] Identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques; and

[d] Maintain and organize, by any mechanism data, derived from identification and monitoring activities pursuant to subparagraphs [a], [b] and [c] above.'

The following information (relevant to [d] above is given in a **Annex I of the Convention 'Identification and Monitoring'**

1. Ecosystems and habitats: containing high diversity, large numbers of endemic or threatened species, or wilderness; required by migratory species; of social, economic, cultural or scientific importance; or, which are representative, unique or associated with key evolutionary or other biological processes;

2. Species and communities which are: threatened; wild relatives of domesticated or cultivated species; of medicinal, agricultural or other economic value; or social, scientific or cultural importance; or importance for research into the conservation and sustainable use of biological diversity, such as indicator species; and

3. Described genomes and genes of social, scientific or economic importance.

The vision of the CBD Strategic Plan for Biodiversity 2011-2020 is 'by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people'. Therefore, the Strategic Plan identifies a long term aim to have achieved the main pillars of the Convention by 2050 but the Convention itself does not identify a time frame to achieve a specified environmental quality status.

ii Assessment requirement

Article 26 of the Convention states that 'each Contracting Party shall, at intervals to be determined by the Conference of the Parties, present to the Conference of the Parties, reports on measures which it has taken for the implementation of the provisions of this Convention and their effectiveness in meeting the objectives of this Convention'.

Article 25 of the Convention identifies the Subsidiary Body on Scientific, Technical and Technology Advice (SBSTTA, open to all Parties) as being responsible for '...providing scientific and technical assessments of the status of biological diversity'

The CBD COP10 Decision X/2 (25b) highlights that 'Regular assessment of the state of biodiversity and ecosystem services, future scenarios and effectiveness of responses: this could be provided through an enhanced role for the Subsidiary Body on Scientific, Technical and Technological Advice as well as the proposed Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)' is key to the effective implementation of the Strategic Plan.

iii Geographic scope

The Convention on Biological Diversity has 193 Contracting Parties[27] across the globe (with only the United States, Andorra and the Vatican not being Parties) and subject to the rights of other States, and except as otherwise expressly provided in this Convention, the provisions of this Convention apply, in relation to each Contracting Party:

(a) In the case of components of biological diversity, in areas within the limits of its national jurisdiction; and

(b) In the case of processes and activities, regardless of where their effects occur, carried out under its jurisdiction or control, within the area of its national jurisdiction or beyond the limits of national jurisdiction.

iv Reporting scale

Article 26 of the Convention states that 'each Contracting Party shall, at intervals to be determined by the Conference of the Parties, present to the Conference of the Parties, reports on measures which it has taken for the implementation of the provisions of this Convention and their effectiveness in meeting the objectives of this Convention'. Therefore, reporting is undertaken at a national level (i.e. at the UK scale).

[27] http://www.cbd.int/convention/parties/list/

v Biological scope (species and habitats)

The Convention has a main goal concerned with the conservation of all biological diversity; therefore it covers all marine (and terrestrial) habitats and species, ecosystems and genes.

vi Reporting cycle frequency

Article 26 of the Convention states that national reports shall be produced 'at intervals to be determined by the Conference of the Parties' (COP, held every two years). Decision X/10 of COP-10 (2010) decided that the fifth national reports under CBD will be due by 31 March 2014. The fourth national reports were due by 30 March 2009.

vii Baselines used (i.e. the value of state against which subsequent values of state are compared, that is,. the standard against which environmental targets can be set)

There is a slight difficulty in that the framework for the national reports under CBD varies quite considerably. For example, the fifth national report (due in 2014) should focus on implementation of the 2011-2020 Strategic Plan for Biodiversity and progress towards the Aichi Biodiversity Targets[28], whereas the fourth national report was focused on providing evidence to assess progress towards achieving the 2010 biodiversity target (i.e. 'to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth'). Therefore, there are currently different requirements for each assessment and reporting cycle. In this review document we will focus on the next requirement, submission of the fifth national report to the CBD and the Strategic Plan for Biodiversity 2011-2020, including the Aichi Biodiversity Targets. The purpose of the Strategic Plan is to promote effective implementation of the Convention through a strategic approach and the text of the Convention provides the fundamental basis for it.

The baselines referred to within the targets of the Strategic Plan are varied. Some targets refer to a current (2010) baseline, for example, the rate of loss is halved (compared to current loss). Several targets do not state a baseline against which the target has been set, for example, target 11 states that '...at least 17% of terrestrial and inland water and 10 per cent of coastal and marine areas...are conserved'. However, it is not clear whether this target is set as a proportion of current relevant area or whether a different baseline is envisaged. It is noted in Decision X/2 that the 'need for baselines should be reflected in the technical rationales of several targets'. It may be appropriate to align all the 2011-2020 Strategic Plan baselines with the state of biodiversity as assessed in the third edition of the Global Biodiversity Outlook (Secretariat of the CBD 2010[29]), as this assessed progress towards the 2010 target and is a record of how much was achieved. Targets for the next 10 year period will build on this and therefore they could be set in relation to a 2010 standard value (although this carries the risk of shifting baselines and setting a baseline at an already highly degraded state).

viii Status classes of assessment

There are no status classes as such within the formal CBD assessment framework, either a certain target has been met, or it has not been met. However, at UK

[28] http://www.cbd.int/sp/targets/
[29] http://www.cbd.int/doc/publications/gbo/gbo3-final-en.pdf.

implementation level, a suite of indicators (see section xi) are used to inform progress towards the relevant CBD targets and these are assessed as falling into one of four categories. The categories are based on the trend of change in biodiversity, rather than a status class identifying when 'good' or 'poor' has been reached. However, they are useful in this context because they reflect whether certain aspects of biodiversity are:


Improving


Little or no overall change


Deteriorating


Insufficient or no comparable data

Although this is merely based on trend data, it still gives a useful impression of whether biodiversity at a UK scale is improving, or not.

ix Criteria used for assessment

There are no formal criteria for assessment of the 2011-2020 Strategic Plan for biodiversity under the CBD, however, five strategic goals outline the issues that must be addressed in order for successful achievement of the mission of the strategic plan. The five strategic goals (criteria) are as follows:

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society.

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use.

Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services.

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building.

x Criterion targets

The strategic plan includes 20 headline targets for 2015 or 2020 (the 'Aichi biodiversity targets') which are organised under the five strategic goals. Parties are invited to set their own targets within the flexible framework although not all countries necessarily need to develop a national target for each of the global targets.

National biodiversity strategies (e.g. the developing UK biodiversity framework) and action plans (e.g. the UK Biodiversity Action Plans – UKBAP[30]) are key instruments for translating the strategic plan to national circumstances. The thematic programmes

[30] http://jncc.defra.gov.uk/default.aspx?page=5155

of work of the Convention (including marine and coastal biodiversity) provide detailed guidance on implementation of the Strategic Plan and they are key tools to be considered in the updating of national biodiversity strategies and action plans. In between Conferences of the Parties, work areas are considered by the CBD's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA); SBSTTA16 in April 2011[31], for example, considered ecologically significant marine areas and adverse human impacts, such as underwater noise.

a **STRATEGIC GOAL A**: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Target 1
By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Target 2
By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Target 3
By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions.

Target 4
By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

b **STRATEGIC GOAL B**: Reduce the direct pressures on biodiversity and promote sustainable use

Target 5
By 2020, the rate of loss of all natural habitats, including forests, is at least halved and, where feasible, brought close to zero, and degradation and fragmentation is significantly reduced.

Target 6
By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems, and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Target 7
By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

[31] http://www.cbd.int/sbstta16/

Target 8
By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 9
By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

Target 10
By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

c **STRATEGIC GOAL C**: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11
By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Target 12
By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

Target 13
By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

d **STRATEGIC GOAL D**: Enhance the benefits to all from biodiversity and ecosystem services

Target 14
By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Target 15
By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Target 16
By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational,

consistent with national legislation.

e **STRATEGIC GOAL E**: Enhance implementation through participatory planning, knowledge management and capacity building

Target 17
By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Target 18
By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

Target 19
By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

Target 20
By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

xi Indicators (attributes)

The CBD COP 10 Decision X/7 (2010[32]) gives an examination of the existing outcome-oriented goals and targets (and associated indicators) and consideration of their possible adjustment for the period beyond 2010. In this decision, the Conference of the Parties agrees to:

[a] Pursue the use of the global headlines indicators contained in decision VIII/15[33] (COP 8) and the further development of measures (or specific indicators) in monitoring progress towards selected targets;

[b] Complement these global headline indicators with additional indicators which are suitable for monitoring progress towards those targets for which suitable indicators have not yet been identified, in particular in relation to the economics of biodiversity and ecosystem services and the benefits to people derived from these services; and

[c] Develop measures (or specific indicators), in co-operation with the scientific community, that could complement or substitute the existing indicators, taking into account indicators developed under other multilateral environmental agreements and international organizations and sector-based processes, and to bring these to the attention of the Executive Secretary.

[32] http://www.cbd.int/doc/decisions/cop-10/cop-10-dec-07-en.pdf
[33] http://www.cbd.int/decision/cop/?id=11029

Furthermore, this COP Decision (X/7) requested the convening of an Ad Hoc Technical Expert Group (AHTEG) on Indicators and a meeting was held in June 2011. The AHTEG were tasked with providing advice and guidance on the development of an indicator suite for assessing progress towards the Aichi targets. As a result of the meeting, a report was produced[34] which outlines 13 recommendations of the AHTEG. The group also identified 12 possible headline indicators[35] which could be used to assess global progress within the framework of the Aichi biodiversity targets, for example, for target 6 - trends in fish stocks and sustainability of marine harvesting practices. These proposals will continue to be developed within the SBSTTA to ultimately form a framework within which national or region indicators and targets can be identified.

In the UK, the publication 'UK Biodiversity Indicators in Your Pocket' (BIYP, first published in 2007) documents eighteen indicators selected by the UK to report on progress towards meeting international goals and targets to stem or slow the rate of biodiversity loss. Due to the recent and significant developments within international frameworks for biodiversity assessment and reporting (e.g. the Aichi targets), it has been necessary to review these indicators to ensure they are fit for purpose post 2010.

Although this review, begun in 2010, is still in progress, it is clear that the current indicator set, with some refinements, will remain relevant to the new international goals and targets. There are some gaps, where further indicators will need to be developed or where existing indicators will need to be adapted and interpreted. A rolling programme of changes to the indicator set has been agreed and will be implemented over the next three years.

The currently used indicators show changes in the status of wildlife; species and habitats; the level of pressure or threat to biodiversity; and the scale of the response to these pressures. The indicators are still grouped under six focal areas aligned to those used by the Convention on Biological Diversity in its 2002 Strategic Plan and in the European biodiversity indicators, although they will be re-aligned to the themes of the new Aichi targets in due course. Of the eighteen UK indicators, several relate directly to marine biodiversity and conservation:

1a. Populations of breeding seabirds;
3. UK BAP priority species;
4. UK BAP Priority habitats;
6. Protected areas;
9. Sustainable fisheries;
11. Invasive species; and
13. Marine ecosystem integrity (size of fish in the North Sea).

xii Indicator targets/thresholds

Each indicator is assessed separately using a set of 'traffic lights' as described in section viii, above. The 'traffic lights' only show 'change over time', they do not show whether the indicator has reached any published or implied targets, or indeed whether the status is 'good' or 'bad'; although where targets have been set, these are identified in the indicator text[36], for example, for the protected areas indicator, each

[34] http://www.cbd.int/doc/meetings/ind/ahteg-sp-ind-01/official/ahteg-sp-ind-01-03-en.pdf
[35] http://www.cbd.int/doc/meetings/ind/ahteg-sp-ind-01/official/ahteg-sp-ind-01-02-en.pdf
[36] http://jncc.defra.gov.uk/page-4233

country within the UK has a target for 95% of SSSIs to achieve favourable or recovering condition.

The 'traffic light' assessments are undertaken by identifying the period over which the change is to be assessed and comparing the value of the measure in the base or start year with the value in the end year. For some indicators, the assessment has been made by comparing the difference between the value of the measure in the base or start year and the value in the end year against a standard threshold. Where the data allow it, a three year average is used to calculate the base year, to reduce the likelihood of any unusual year(s) unduly influencing the assessment. Where an indicator value has changed by less than a threshold of three per cent, the 'traffic light' is set at amber. The choice of three per cent as the threshold is arbitrary but is commonly used across other Government indicators.

The key elements of the Strategic Plan for Biodiversity 2011-2020 highlight that Parties will inform the Conference of the Parties of the national targets or commitments and policy instruments they adopt to implement the Strategic Plan, as well as any milestones towards these targets, and report on progress towards these targets and milestones, including through their fifth and sixth national reports.

xiii Aggregation rules (where relevant)

There are no formal spatial or indicator aggregation rules stipulated within the Convention or its Strategic Plan for Biodiversity 2011-2020. The UK indicators which monitor progress towards implementing the Convention are assessed separately and their contribution to reporting on progress towards achieving the Aichi targets will be determined in due course. Assessments of the UK indicators will be made at a national level using data from many sources but no formal protocol exists for aggregating data at different spatial scales. There is a desire to disaggregate indicators assessments to a country scale within the UK where possible.

xiv Overall assessment approach

Assessment of each of the Aichi targets will be undertaken separately and at a national level for each Contracting Party to determine if each strategic goal has been achieved. COP 10 Decision X/2 on the Strategic Plan for Biodiversity 2011-2020 requests that the Executive Secretary prepares 'an analysis/synthesis of national, regional and other actions, including targets as appropriate, established in accordance with the Strategic Plan, to enable the Working Group on Review of Implementation of the Convention at its fourth meeting and the Conference of Parties at its eleventh and subsequent meetings to assess the contribution of national and regional targets towards the global targets'. It is also noted that a key element to ensure the effective implementation of the Strategic Plan is the 'regular assessment of the state of biodiversity and ecosystem services, future scenarios and effectiveness of responses: this could be provided through an enhanced role for the Subsidiary Body on Scientific, Technical and Technological Advice as well as the agreed but not yet fully operational intergovernmental platform on biodiversity and ecosystem services (IPBES[37])'. These requirements and the formal assessment framework for CBD reporting will become clearer in the coming years.

[37] http://www.ipbes.net/about-ipbes.html

2.2.2 Convention for the protection of the marine environment of the North-East Atlantic (OSPAR Convention)

i High-level aspirations (including timeline for achievement)

Article 2 (1a) 'The Contracting Parties shall, in accordance with the provisions of the Convention, take all possible steps to prevent and eliminate pollution and shall take the necessary measures to protect the maritime area against the adverse effects of human activities so as to safeguard human health and to conserve marine ecosystems and, when practicable, restore marine areas which have been adversely affected'

Annex V, Article 2 '…Contracting Parties shall:

[a] Take the necessary measures to protect and conserve the ecosystems and the biological diversity of the maritime area, and to restore, where practicable, marine areas which have been adversely affected; and

[b] Co-operate in adopting programmes and measures for those purposes for the control of the human activities...'

OSPAR has developed, and is implementing, a suite of five thematic strategies to address the main threats that it has identified within its competence:

1. Biodiversity and Ecosystem Strategy
2. Eutrophication Strategy
3. Hazardous Substances Strategy
4. Offshore Industry Strategy
5. Radioactive Substances Strategy.

There is also a strategy for the Joint Assessment and Monitoring Programme (JAMP), which assesses the status of the marine environment and follows up implementation of the other strategies and the resulting benefits to the marine environment. Regular activities under the JAMP include Quality Status Reports (QSR) which are comprehensive reports on the quality of the marine environment of the North-East Atlantic. These six strategies fit together to underpin the ecosystem approach. The Convention does not stipulate any time frame by which Contracting Parties must achieve a certain environmental quality status.

ii Assessment requirement

Article 6 of the Convention states that 'The Contracting Parties shall, in accordance with the provisions of the Convention, in particular as provided for in Annex IV:

[a] Undertake and publish at regular intervals joint assessments of the quality status of the marine environment and of its development, for the maritime area or for regions or sub-regions thereof; and

[b] Include in such assessments both an evaluation of the effectiveness of the measures taken and planned for the protection of the marine environment and the identification of priorities for action'.

Annex IV to the Convention provides for co-operation in monitoring programmes, joint quality assurance arrangements, the development of scientific assessment

tools, such as modelling, remote sensing and risk assessment strategies, and the preparation of assessments.

In 2010 the Ministerial Meeting of the OSPAR Commission adopted a renewed Strategy for the JAMP for the period 2010 to 2014[38]. This provides a framework for work to develop OSPAR's monitoring and assessment programmes, with a particular focus on supporting the work to implement the EU Marine Strategy Framework Directive that needs to be done by Contracting Parties that are EU Member States over this period. A further revision of the JAMP is expected to be undertaken for 2014 focussing on the development of new general assessments of the quality status of the marine environment for 2018.

iii Geographic scope

The OSPAR Convention is the mechanism by which fifteen Governments of the Western coasts and catchments of Europe, together with the European Union, co-operate to protect the marine environment of the North-East Atlantic. The fifteen Contracting Party Governments are Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom. The Convention covers the entire North-East Atlantic maritime area[39] which is split into five regions (see figure 6):

Region I – Arctic Waters
Region II – Greater North Sea
Region III – Celtic Seas
Region IV – Bay of Biscay and Iberian Coast
Region V – Wider Atlantic.

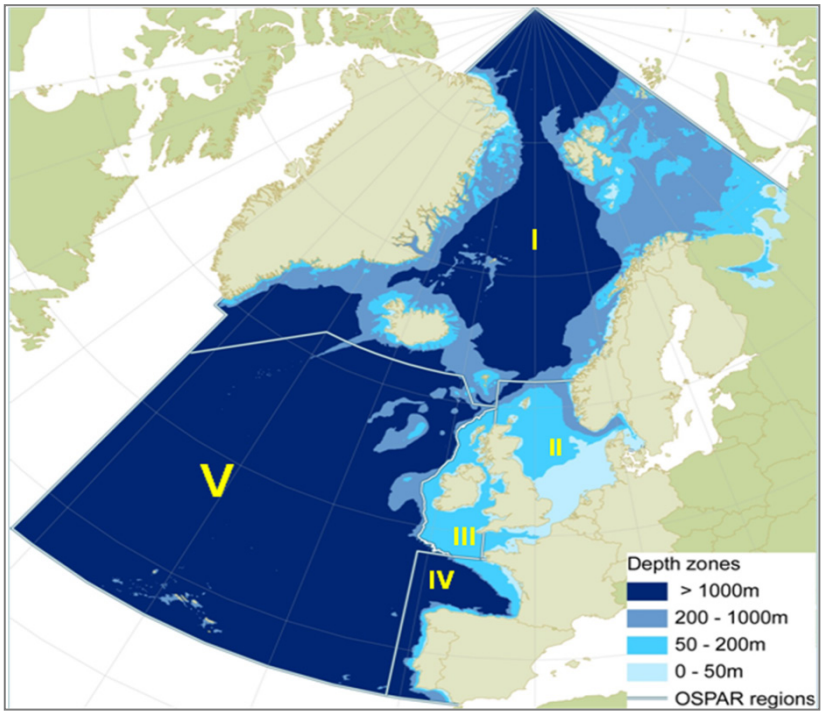

Figure 6. Map showing the five OSPAR regions of the North-East Atlantic

[38] http://www.ospar.org/html_documents/ospar/html/10-04e_jamp.doc
[39] http://www.ospar.org/content/regions.asp?menu=00020200000000_000000_000000

iv Reporting scale

Article 6 of the Convention stipulates that joint assessments of the quality status of the marine environment should be undertaken for the maritime area (North-East Atlantic) or for regions or subregions thereof. The OSPAR Quality Status Report 2010[40] (QSR 2010) reported progress on achieving OSPAR's five thematic strategies (see Section i above) for addressing the main threats within the North-East Atlantic at the scale of the five OSPAR regions and the entire North-East Atlantic.

v Biological scope (species and habitats)

Annex V, Article 2 of the Convention states that '...Contracting Parties shall:

[a] Take the necessary measures to protect and conserve the ecosystems and the biological diversity of the maritime area...'

Annex V, Article 1 states that 'for the purposes of this Annex... definitions of 'biological diversity', 'ecosystem', and 'habitat' are those contained in the Convention of Biological Diversity of 5 June 1992'.

Therefore, the OSPAR Convention covers all habitats and species of the North-East Atlantic maritime area. For the purposes of the 2010 QSR, marine biodiversity was split into the following broad biological components:

- Fish;
- Cetaceans;
- Seals;
- Seabirds;
- Rock and biogenic reef habitats;
- Shallow sediment habitats;
- Shelf sediment habitats; and
- Deep sea habitats.

The list of OSPAR threatened and declining species and habitats which require regular assessments can be found on the OSPAR website[41].

vi Reporting cycle frequency

Article 6 of the Convention states that Contracting Parties shall '...undertake and publish at regular intervals joint assessments of the quality status of the marine environment and of its development, for the maritime area or for regions or sub-regions thereof;'

In response to this requirement the OSPAR Quality Status Report (QSR) 2010 was prepared through the JAMP and covered the period from 1998-2008. It reported the achievements within OSPAR's five thematic work areas:

1. Biological Diversity and Ecosystem Strategy
2. Eutrophication Strategy
3. Hazardous Substances Strategy

[40] http://qsr2010.ospar.org/en/index.html
[41] http://www.ospar.org/content/content.asp?menu=00730302240000_000000_000000

4. Offshore Industry Strategy
5. Radioactive Substances Strategy.

Such QSRs are published periodically (1987, 1993, 2000 and 2010) as major milestones resulting from the joint efforts of Contracting Parties and as part of OSPAR's Strategy for Joint Monitoring and Assessment of the status of the marine environment. The next QSR may possibly be published shortly after 2018 as OSPAR aims to complete the next general assessment of the development in the quality status of the OSPAR maritime area and its (sub) regions in 2018[42].

vii Baselines used (i.e. the value of state against which subsequent values of state are compared, that is, the standard against which environmental targets can be set)

Within the OSPAR Commission's Biological Diversity and Ecosystems Strategy[43] (implemented by OSPAR's Biodiversity Committee – BDC), there are four elements (see Figure 7):

1. **Marine Protected Areas** – establishment of an ecologically coherent network of MPAs.
2. **Human Activities** – assess and introduce programmes of measures to mitigate against human impacts on the marine environment.
3. **Ecological Quality Objectives (EcoQOs)** – development of a monitoring and assessment framework to support the ecosystem approach to managing human activities.
4. **Species and Habitats** – protection of those species and habitats which are threatened or declining.

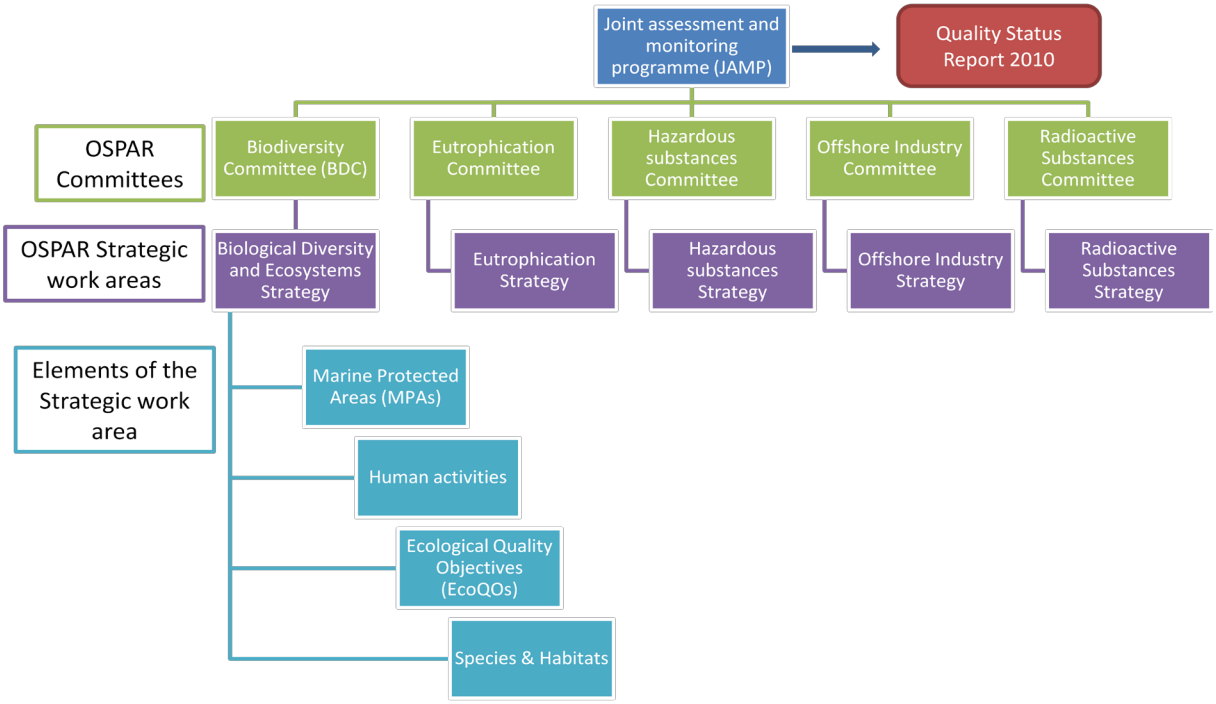

Figure 7. Showing the organisation of OSPAR's JAMP, committees, strategic work areas and work area elements for the biological diversity and ecosystems strategy.

[42] http://www.ospar.org/html_documents/ospar/html/10-04e_jamp.doc
[43] http://www.ospar.org/documents/dbase/decrecs/agreements/10-03e_NEA%20Environment%20Strategy.doc

When considering the concept of baselines, the third and fourth formal elements of the biological diversity and ecosystems strategy are relevant as well as the informal ad-hoc assessment process which produces the OSPAR Quality Status Reports. Each of these aspects will be addressed separately below (and in the following sections) as they often have differing approaches.

EcoQOs:
The OSPAR North Sea EcoQOs[44] provide a developing framework of objectives and indicators within which the ecosystem approach can be implemented. These EcoQOs specify the desired state of an ecological component or mechanism and can take the form of targets (which there is a commitment to reach) or limits (which should not be breached). An EcoQO may be defined in relation to a pre-selected reference level/baseline and not in absolute terms. The Ecological Quality Objective is the desired level of the Ecological Quality relative to a reference level, where the reference level is defined as 'the level of the Ecological Quality where the anthropogenic influence on the ecological system is minimal'. Thus the reference level is set as near the pristine state as possible, and the EcoQO is set relative to this to take account of acceptable deviation away from natural conditions consistent with sustainable exploitation. Thus, EcoQOs should be set to aim at sustainable use of each Ecological Quality. For the fish community Large Fish Indicator (LFI) EcoQO, the early 1980s was determined as being that last point in time when the state of the fish community was consistent with being in a sustainable condition. Analysis of earlier long-term data from a now extinct survey suggested that the LFI had varied around this 1983 value for the preceding 60 odd years, so the 1983 value was selected as the target value for this EcoQO.

Threatened and Declining Species and Habitats:
In order for a species or habitat to be listed on the OSPAR threatened or declining list, certain criteria must be met. The Texel-Faial criteria[45] are used in this case to assess whether or not a species or habitat should be listed. For both species and habitats, the criterion of 'decline' is considered to be an important factor. It is stated that decline (in numbers, extent or quality) may be 'historic, recent or current'. Therefore, for OSPAR threatened and declining habitats and species specifically, a baseline of reference conditions or past state may be used, against which the limit for the amount of acceptable 'decline' will be set (although decline due to sustainable use, and inevitable population dynamics, will often result in the loss of the most sensitive species and habitat types).

Quality Status Report:
Within the broader context of monitoring and assessment for the 2010 QSR, a supporting regional assessment was undertaken for each OSPAR region (via an expert workshop), covering selected habitats and species[46]. This resulted in a more-holistic assessment of the biodiversity status of the OSPAR maritime area and was completed by following a specific methodology (Robinson *et al* 2009) in a trial assessment using this pilot approach. The lessons learnt in piloting this new approach will be vital in the further development of the assessment methodologies across the OSPAR region. Appendix A1.4 of the workshop report (OSPAR Commission 2009) described the baseline against which the current status should be

[44] http://www.ospar.org/documents/DBASE/Publications/p00318_EcoQO%20brochure%20Towards%20a%20Healthy%20North%20Sea.pdf
[45] http://www.ospar.org/documents/DBASE/DECRECS/Agreements/03-13e_Texel_Faial%20criteria.doc
[46] http://qsr2010.ospar.org/media/assessments/p00468_Utrecht_workshop_report.pdf

assessed for each species and habitat, using this new piloted approach. It is stipulated that the baseline should be former natural conditions:

> ***Appendix A1.4 Baseline – former natural conditions***
>
> For the assessment of current status relative to former natural conditions, the generic baseline is the population/habitat range and extent (of the component) prior to industrialisation and a description of condition in pristine condition (for example types of features/species that would be expected).

viii Status classes of assessment

EcoQOs:
The status of any OSPAR EcoQO is either 'met' or 'not met' for the particular OSPAR region in which it applies.

Threatened and Declining Species and Habitats:
The species listed as being threatened or declining in the OSPAR maritime area are regularly assessed and either continue to be threatened and/or declining or have been successfully restored to a non-threatened/declining state.

Quality Status Report:
Overall species or habitat status (determined by the pilot regional assessment protocol, OSPAR Commission 2009) assessed as part of the QSR was concluded as being 'Good' (green symbol), 'Moderate' (amber symbol) or 'Poor' (red symbol).

ix Criteria used for assessment

EcoQOs:
The EcoQO system contains both objectives and indicators, describing the desired state of the marine environment and a way in which to monitor progress towards achieving this state (see Section x on indicators, below). Therefore, the EcoQO system does not contain high-level criteria for assessment as such.

Threatened and Declining Species and Habitats:
Species assessed as being 'threatened or declining' according the following 'Texel-faial' criteria:

1. Global importance: Global importance of the OSPAR area for a species. Importance on a global scale, of the OSPAR Area, for the species is when a high proportion of a species at any time of the life cycle occurs in the OSPAR Area.
2. Regional importance: Importance within the OSPAR Area, of the regions for the species where a high proportion of the total population of a species within the OSPAR Area for any part of its life cycle is restricted to a small number of locations in the OSPAR Area.
3. Rarity: A species is considered rare if the total population size is small. In the case of a species that is sessile or of restricted mobility at any time of its life cycle, a species is rare if it occurs in a limited number of locations in the OSPAR Area, and in relatively low numbers. In case of a highly mobile species, the total population size will determine rarity.
4. Sensitivity: A species is 'very sensitive' when:
    - it has very low resistance (that is, it is very easily adversely affected by human

activity); and/or

- it has very low resilience (that is, after an adverse effect from human activity, recovery is likely to be achieved only over a very long period, or is likely not to be achieved at all).

A species is 'sensitive' when:

- it has low resistance (that is, it is easily adversely affected by human activity); and/or
- it has low resilience (that is, after an adverse effect from human activity, recovery is likely to be achieved only over a long period).

5. Keystone species: A species that has a controlling influence on a community.
6. Decline: This means an observed or indicated significant decline in numbers, extent or quality (quality refers to life history parameters). The decline may be historic, recent or current. 'Significant' need not be in a statistical sense.

Habitats are assessed as being 'threatened or declining' according to the following 'Texel-Faial' criteria:

1. Global importance: (importance of the OSPAR Area for the habitat in a global context): a high proportion of the habitat occurs in the OSPAR Area.
2. Regional importance: (importance of the sub-regions of the OSPAR Area for the habitat): a high proportion of the habitat occurs within a specific biogeographic region and/or region of national responsibility within the OSPAR Area.
3. Rarity: a habitat is assessed as being rare if it is restricted to a limited number of locations or to small, few and scattered locations in the OSPAR area.
4. Sensitivity: A habitat is 'very sensitive' when:
   - it has very low resistance (that is, it is very easily adversely affected by human activity); and/or
   - it has very low resilience (that is, after an adverse effect from human activity, recovery is likely to be achieved only over a very long period, or is likely not to be achieved at all).

   A habitat is 'sensitive' when:
   - it has low resistance (that is, it is easily adversely affected by human activity); and/or
   - it has low resilience (that is, after an adverse effect from human activity, recovery is likely to be achieved only over a long period).
5. Ecological significance: The habitat is very important for the wider significance of the ecological processes, functions and species that it supports.
6. Status of decline: Decline means a significant decline in extent or quality. The decline may be historic, recent or current. The decline can occur in the whole OSPAR maritime area or regionally.

Quality Status Report:
The regional assessment process for the OSPAR QSR 2010 used the following assessment criteria for habitats and species (see table 1 of OSPAR Commission 2009.

Report of the Utrecht Workshop – Regional Assessment):

Habitats	Species
Range	Range
Extent	Population size
Condition	Condition

Network of Marine Protected Areas:
The exact criteria which will be used to assess the ecological coherence of the OSPAR network of MPAs have not yet been finalised. However, they will be broadly based on the following criteria which have been defined and accepted by OSPAR[47]:

1. Adequacy;
2. Representativity;
3. Replication;
4. Connectivity.

x Criterion targets

EcoQOs:
As there are no criteria within the EcoQO system, there are no criterion level targets identified.
Threatened and Declining Species and Habitats:

Although there are no 'targets' as such defined for the threatened and declining species and habitats lists, there are limits identified in OSPAR guidance which, if exceeded, mean that a particular habitat or species can be nominated for inclusion on the list.

The guidance is as follows for species:

Criterion 1:

'High proportion' is considered to be more than 75%, when known.

Criterion 2:

'High proportion' is considered to be 90% of the population in a small number of locations of 50 km x 50 km grid squares. This is dependent on scientific judgement regarding natural abundance, range or extent and adequacy of recording. A different scale may be needed for different taxa.

Criterion 3:

'A limited number of locations' could be in a small number of 50 km x 50 km grid squares, but a different scale may be needed for different taxa. This is dependent on scientific judgement regarding natural abundance, range or extent and adequacy of recording. Species which are present in high abundance outside of the OSPAR Area and only occur at the edges of the OSPAR Area will not generally qualify as

[47] http://www.ospar.org/documents/DBASE/Publications/p00320_ecological%20coherence.pdf

'rare' species.

Criterion 4:

A 'very long period' may be considered to be more than 25 years and 'long period' in the range of 5 to 25 years. The time frame should be on an appropriate scale for that species.

Sensitivity to human activities is measured by:

a. life-history characteristics (including natural behaviour);
b. dependence on other specific ecological attributes e.g. restricted/specific habitats requirements.

'Decline' is divided into the following categories:

1. Extirpated (extinct within the OSPAR Area): a population of a species formerly occurring in the maritime area is defined as extirpated:
   - if it was still occurring in the area at any time during the last 100 years; and
   - if there is a high probability, or it has been proved, that the last individuals have since died or moved away; or
   - if surveys in the area have repeatedly failed to record a living individual in its former range and/or known or expected habitats at appropriate times (taking into account diurnal, seasonal, annual patterns of behaviour) for at least 10 years.
2. Severely declined: a population of species occurring in the maritime area is defined as severely declined:
   - if individual numbers show an extremely high and rapid decline in the area over an appropriate time frame, or the species has already disappeared from the major part of its former range in the area; or
   - if individual numbers are at a severely low level due to a long continuous and distinct general decline in the past.
3. Significantly declined: means a considerable decline in number, extent or quality.
4. High probability of a significant decline in number, extent or quality in the future.

Where the decline is 'clear and present', and can be linked directly or indirectly to human activity, the species is also considered to be 'currently threatened'. Where there is a high probability of significant decline linked directly or indirectly to human activity, the species is considered to be 'potentially threatened'" Where the species satisfies criterion 3 (rarity) or 4 (sensitivity), a lower threshold of probability can justify regarding the species as 'potentially threatened'.

For these purposes, 'decline' should only be regarded as occurring where the decline goes beyond that which can be expected from what is known about long-term natural variability and resilience in that species, over a time frame appropriate for it.

The guidance is as follows for habitats:

Criterion 1:

'High proportion' is considered to be more than 75%, when known. This criterion may require knowledge of the distribution of habitats at a global scale.

Criterion 2:

'High proportion' is considered to be more than 75%, when known.

Criterion 3:

'The 'limited number of locations' is set at 2% of the 50 km by 50 km UTM [Universal Transverse Mercator] grid squares for each of the following three bathymetric zones: a. littoral (intertidal and splash zone), b. sublittoral (down to 200 m depth), *c.* bathyal/abyssal (below 200 m depth)

The assessment is dependent on scientific judgement regarding natural abundance, range or extent and adequacy of recording.

Criterion 4:

A 'very long period' is considered to be more than 25 years and a 'long period' in the range of 5 to 25 years, dependent on the habitat. It is considered that the sensitivity of a habitat differs according to specific impacts of different human activities and, as such, should be applied at the end of the selection process with respect to the specific impacts of human activities.

Criterion 5:

The ecological functions within the habitat support species and ecosystem processes over a much wider area. Example habitats could be: spawning, breeding, reproduction, or nursery areas for fish, mammals or birds, resting and feeding areas, areas with a high natural productivity or diversity, areas with a high proportion of endemic species, and areas important as migratory routes.

Criterion 6:

Where the decline is 'clear and present', and can be linked directly or indirectly to human activity, the habitat is also considered to be 'currently threatened'. Where there is a high probability of decline that is linked directly or indirectly to human activity and that will reduce the extent of the habitat by 15% or more or move it into a more severely affected category as a result of changes in extent and/or quality, the habitat is considered to be 'potentially threatened'. Where the habitat satisfies criterion 3 (rarity) or 4 (sensitivity), a lower threshold of probability can justify regarding the habitat as 'potentially threatened'.

For these purposes, 'decline' should only be regarded as occurring where the decline goes beyond that which can be expected from what is known about long-term natural variability and resilience in that type of habitat, over a time frame appropriate for it.

Quality Status Report (QSR):

The criterion-level targets used within the regional assessment method for the QSR 2010[48] are as shown in Tables 15 and 16 for habitats and species (see tables A2.1 and A3.1 of OSPAR Commission 2009).

[48] http://qsr2010.ospar.org/en/index.html

Table 15. Habitat criterion targets used within the regional assessment method for the QSR 2010.

Status	**Good**	**Moderate**	**Poor**
Degree of impact	**Low**	**Moderate**	**High**
Range	Stable and not smaller than former natural conditions	<10% decrease	≥10% decrease
Extent	<1% loss	1 - <10% loss	≥10% loss
Condition	<10% damaged	10 – <25% damaged	≥25% damaged

Table 16. Species criterion targets used within the regional assessment method for the QSR.

Status	**Good**	**Moderate**	**Poor**
Degree of impact	**Low**	**Moderate**	**High**
Range	<10% of species with >10% decrease	10 - <50% of species with >10% decrease	>50% of species with >10% decrease
Population size	<10% of species with >25% decline	10 - <50% of species with >25% decline	>50% of species with >25% decline
Condition	<10% of species with major change	10 - <50% of species with major change	>50% of species with major change

xi Indicators (attributes)

EcoQOs:
The indicator framework being developed within the OSPAR maritime region (as part of the Biological Diversity and Ecosystems Strategy) currently consists of the nine North Sea EcoQOs[49]. The EcoQOs function both as objectives and indicators, describing the desired state of the marine environment and a way in which to monitor progress towards achieving this state. A first set of EcoQOs was tested as a pilot programme in the North Sea (OSPAR Region II) during 2002-2009 and these EcoQOs have contributed, along with the regional assessment approach, towards making an ecosystem-level assessment of the impacts of human pressures on the marine environment in the North Sea. This is reflected in the 2010 QSR results.

When considering moving towards an ecosystem assessment of the OSPAR area, the QSR 2010 also highlights that the EcoQO system needs to be consolidated to provide a more comprehensive coverage of ecosystem components and pressures, which will help to strengthen assessments of the overall status of the North Sea. The system needs to be extended to other OSPAR Regions and for this purpose existing EcoQOs may require some adaptation. Additional EcoQOs could be developed that are specific to each of the OSPAR Regions. Further development and validation of existing and proposed EcoQOs will, in future, allow a holistic assessment of marine ecosystem status across the OSPAR region and will facilitate a move away from the purely expert judgement based assessments which are currently undertaken. Additional EcoQOs are being developed and considered by OSPAR and the specific targets and indicators adapted to other OSPAR regions.

OSPAR's concept of EcoQOs has supported the selection of indicators for measuring progress toward Good Environmental Status (GES) under the EU Marine Strategy

[49] http://qsr2010.ospar.org/media/assessments/EcoQO/EcoQO_P01-16_complete.pdf

Framework Directive and should continue to support the development of a comprehensive set of indicators for good environmental status under the Directive. The aim must be to have a common set of indicators, regionally bespoke where appropriate (e.g. regionally appropriate species or assessment criteria), enabling a comparable judgement of GES across the OSPAR area (QSR, 2010). The proposed OSPAR common indicator set for the MSFD (OSPAR, 2012) contains several EcoQOs which may be adopted to inform progress towards achieving GES across the region.

The nine current North Sea EcoQOs are as follows:

1. Seal population trends (harbour seal population size and grey seal pup production);
2. By-catch of harbour porpoises;
3. Spawning stock biomass of commercial fish stocks;
4. Proportion of large fish in the community;
5. Occurrence of eutrophication;
6. Level of imposex in dogwhelks and other marine gastropods;
7. Proportion of oiled common guillemots;
8. Levels of hazardous substances in seabird eggs; and
9. Levels of plastic particles in fulmar stomachs.

There are around 11 more EcoQOs which are in development but have not yet been operationalised or adopted by OSPAR.

xii Indicator targets/thresholds

Table 17. Current targets/objectives for the North Sea EcoQOs.

EcoQO indicator	Target/Objective
Pup production of Grey Seals	Taking into account natural population dynamics and trends, there should be no decline in pup production of grey seals of ≥10 % as represented in a five-year running mean or point estimates (separated by up to five years) within any of a set of defined sub-units of the North Sea.
By-catch of harbour porpoises	Annual by-catch levels of harbour porpoises should be reduced to below 1.7 % of the best population estimate.
Spawning stock biomass of commercial fish stocks	Maintain the spawning stock biomass (SSB) above precautionary reference points for commercial fish stocks where those were agreed by the competent authority for fisheries management. SSB is the part of the biomass of the defined commercial fish stocks that takes part in the reproduction process.
Proportion of large fish in the community	At least 30 % of fish (by total weight) should be greater than 40cm in length
Occurrence of eutrophication	A marine environment where eutrophication does not occur
Level of imposex in dogwhelks and other marine gastropods	The average level of imposex in a sample of not less than 10 female dogwhelks (*Nucella lapillus*) should be consistent with exposure to TBT concentrations below the environmental assessment criterion for TBT. Where *Nucella lapillus* does not occur naturally or where it has become extinct, other species may be used.

EcoQO indicator	Target/Objective
Proportion of oiled common guillemots	The average proportion of oiled common guillemots in all winter months (November to April) should be 20 % or less by 2020 and 10 % or less by 2030 of the total found dead or dying in each of 15 areas of the North Sea over a period of at least 5 years.
Levels of hazardous substances in seabird eggs	*Mercury:* The average concentrations of mercury in the fresh mass of ten eggs from separate clutches of the common tern (*Sterna hirundo*) and Eurasian oystercatcher (*Haematopus ostralegus*) breeding adjacent to certain estuaries should not significantly exceed concentrations in the fresh mass of ten eggs from separate clutches of the same species breeding in similar, but not industrial, habitats. *Organochlorines:* For each site, the average concentrations in fresh mass of the eggs of the common tern (*Sterna hirundo*) and Eurasian oystercatcher (*Haematopus ostralegus*) should not exceed: 20 ng/g of Polychlorinated biphenyls (PCBs); 10 ng/g of **d**ichloro**d**iphenyl**t**richloroethane (DDT) and metabolites; and 2 ng/g of HCB (hexachlorobenzene) and of HCH (hexachlorocyclohexane).
Levels of plastic particles in fulmar stomachs	There should be less than 10% of northern fulmars (*Fulmarus glacialis*) having more than 0.1 g plastic particles in the stomach in samples of 50 to 100 beach-washed fulmars found from each of 4 to 5 areas of the North Sea over a period of at least five years.

xiii Aggregation rules (where relevant)

EcoQOs:
Each EcoQO is assessed individually as an indicator and objective within the OSPAR region to which it applies. Spatial aggregation rules are required where assessments are undertaken at the sub-regional level within the North Sea, for example, for the seal population trends EcoQO, 15 sub-regions of the North Sea are used and if 11 or more fail to meet the target, the EcoQO is not met overall.

Threatened and Declining Habitats and Species:
Threatened and declining habitats and species are assessed individually at the scale of the relevant OSPAR region. All of the criteria which have been used to assess the habitat or species are brought together and if any one criterion has been met, the habitat or species can be nominated by a Contracting Party for inclusion on the list. There is therefore aggregation across the criteria applied to determine if the habitat or species is threatened or declining.

Quality Status Report:
As part of the regional assessment of species and habitats for the OSPAR QSR 2010, ecosystem components were grouped at very broad ecological levels, such as 'seabirds' or 'deep sea habitats'. Therefore, the assessment was based on the aggregate response of the component to the particular pressure. The aggregate assessment takes account of the status of a component based on the majority response (>50% by area for habitats; following the criteria specified in Appendix 3 of the Utrecht workshop report for species) of all subcomponents. As an example, if considering the effect of the pressure 'habitat structure changes – abrasion' (as caused by dredging (fishing)) on the component subtidal rock: the aggregate response would be based on the majority response of all sub-components (infralittoral and circalittoral rock, and subtidal biogenic reef habitats) in the region being assessed. An assessment of the worst case scenario was also undertaken, if

necessary (i.e. assessment of the most sensitive habitat or species). These worst case results have been separated out from the overall assessment for the relevant ecosystem component.

The assessments were undertaken at the OSPAR regional scale (e.g. Greater North Sea, Celtic Seas etc.) and therefore no spatial aggregation rules apply.

xiv Overall assessment approach

EcoQOs:
The assessment approach varies for each EcoQO as each addresses a different ecological quality issue and describes the desired state for each issue and a mechanism for monitoring progress towards achieving this state. However, each indicator and target are assessed for the North Sea region individually and the appropriate data will be brought together to assess whether the EcoQO target (or limit) has been met.

Threatened and Declining Species and Habitats
The Texel-Faial criteria are applied to each potential listed habitat or species and if any one criteria (there are six relevant for species, and six for habitats) is met, the species or habitat can be nominated for listing. In this respect, the assessment approach can be thought of as a one-out-all-out approach as if one criterion indicates a threatening or declining status, the species or habitat as a whole can be classed as threatening and/or declining.

Quality Status Report:
The overall assessment approach used for the regional assessment of habitats and species for the OSPAR QSR was a precautionary approach, that is, the worst assessment across the three criteria (range, extent condition for habitats and range, population size and condition for species) is taken as the overall status assessment. The requirements to achieve each status class ('Good', 'Moderate', 'Poor') are outlined below:

Criterion	Overall Status Assessment		
	Good	Moderate	Poor
Range	All three criteria 'Good'	At least one criterion 'Moderate', no 'Poor'	At least one criterion 'Poor'
Extent/Pop size			
Condition			

2.2.3 Convention on the Conservation of Migratory Species of Wild Animals (CMS/Bonn Convention)

i High-level aspirations (including timeline for achievement)

Article II:
'1. The Parties acknowledge the importance of migratory species being conserved and of Range States agreeing to take action to this end whenever possible and appropriate, paying special attention to migratory species the conservation status of which is unfavourable, and taking individually or in co-operation appropriate and necessary steps to conserve such species and their habitat.
2. The Parties acknowledge the need to take action to avoid any migratory species becoming endangered.
3. In particular, the Parties:

[a] Should promote, co-operate in and support research relating to migratory species;

[b] Shall endeavour to provide immediate protection for migratory species included in Appendix I; and

[c] Shall endeavour to conclude AGREEMENTS covering the conservation and management of migratory species included in Appendix II.'

Article III:
'Parties that are Range States of a migratory species listed in Appendix I shall endeavour:

[a] to conserve and, where feasible and appropriate, restore those habitats of the species which are of importance in removing the species from danger of extinction;

[b] to prevent, remove, compensate for or minimize, as appropriate, the adverse effects of activities or obstacles that seriously impede or prevent the migration of the species; and

[c] to the extent feasible and appropriate, to prevent, reduce or control factors that are endangering or are likely to further endanger the species, including strictly controlling the introduction of, or controlling or eliminating, already introduced exotic species.'

Article IV
'3. Parties that are Range States of migratory species listed in Appendix II shall endeavour to conclude AGREEMENTS where these would benefit the species and should give priority to those species in an unfavourable conservation status.'

Article V Guidelines for AGREEMENTS
*'*1. The object of each AGREEMENT shall be to restore the migratory species concerned to a favourable conservation status or to maintain it in such a status. Each AGREEMENT should deal with those aspects of the conservation and management of the migratory species concerned which serve to achieve that object.'

The Convention does not stipulate any timeframe by which Contracting Parties must achieve a specified environmental quality status.

ii Assessment requirement

Article VI of the Convention states that '...Parties which are Range States for migratory species listed in Appendix I or Appendix II should inform the Conference of the Parties through the Secretariat, at least six months prior to each ordinary meeting of the Conference, on measures that they are taking to implement the provisions of this Convention for these species'.

iii Geographic scope

The Convention on the Conservation of Migratory Species of Wild Animals has 116 Contracting Parties across the globe[50]. It applies across the 'range states' of any migratory species[51]. Article I defines a range state as 'any State that exercises jurisdiction over any part of the range of that migratory species, or a State, flag vessels of which are engaged outside national jurisdictional limits in taking that

[50] http://www.cms.int/about/Partylist_eng.pdf

[51] "Migratory species" means the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries.

migratory species'. The Convention encourages the Range States to conclude global or regional Agreements for the conservation and management of individual species or, more often, of a group of species listed on Appendix II (e.g. Agreement on the Conservation of Small Cetaceans of the Baltic, North-East Atlantic, Irish and North Seas; ASCOBANS[52]). These agreements should be open to accession by all Range States of that species, whether or not they are Parties to the Convention. In this respect, CMS acts as a framework convention from which independent instruments evolve. The Agreements may range from legally binding treaties to less formal instruments, such as Memoranda of Understanding, and can be adapted to the requirements of particular regions. The development of models tailored according to the conservation needs throughout the migratory range is a unique capacity of the CMS.

The UK has currently ratified four legally binding Agreements under the Convention, namely the Agreement on the Conservation of Populations of European Bats (EUROBATS); the African-Eurasian Migratory Waterbird Agreement (AEWA); and the Agreement on the Conservation of Small Cetaceans of the Baltic, North-East Atlantic, Irish and North Seas (ASCOBANS), and the Conservation of Albatrosses and Petrels (ACAP). The UK is also a range state for the Agreement on the Conservation of Cetaceans of the Baltic Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS) because of the dependent territory of Gibraltar. The UK has also ratified the Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean, Atlantic Ocean, in respect of the British Indian Ocean Territory, the Memorandum of Understanding on that Aquatic Warbler, the Memorandum of Understanding concerning the Conservation of Migratory Birds of Prey in Africa and Eurasia and Memorandum of Understanding for the Conservation of Cetaceans and their Habitats in the Pacific Islands Region.

iv Reporting scale

Article VI states that '...Parties which are Range States for migratory species listed in Appendix I or Appendix II should inform the Conference of the Parties through the Secretariat, at least six months prior to each ordinary meeting of the Conference, on measures that they are taking to implement the provisions of this Convention for these species'. Therefore, reporting is undertaken at a 'national' level (i.e. at UK level).

v Biological scope (species and habitats)

The Convention applies to the migratory species listed on Appendix I and II[53]. Migratory species that have been categorised as being in danger of extinction throughout all or a significant proportion of their range are listed on Appendix I of the Convention. States strive towards strictly protecting these animals, conserving or restoring the habitats in which they live, mitigating obstacles to migration and controlling other factors that might endanger them. Migratory species that have an unfavourable conservation status or would benefit significantly from international co-operation organised by tailored agreements are listed in Appendix II to the Convention.

[52] http://www.cms.int/species/ascobans/asc_bkrd.htm
[53] http://www.cms.int/documents/appendix/Appendices_COP9_E.pdf

vi Reporting cycle frequency

Article VII (3) of the Convention states that '...the Secretariat shall convene ordinary meetings of the Conference of the Parties at intervals of not more than three years, unless the Conference decides otherwise, and extraordinary meetings at any time on the written request of at least one-third of the Parties. At these meetings, Parties to the Convention should report on measures that they are taking to implement the provisions of the Convention for relevant species (Article VI). The Conference of the Parties (COP) may also review and assess the conservation status of migratory species (Article VII (5)). Therefore, national reporting occurs every three years, in line with the COP meetings. The next national report will be due in 2014.

vii Baselines used (i.e. the value of state against which subsequent values of state are compared i.e. the standard against which environmental targets can be set)

There is no standard baseline used across the Convention, against which targets are set. However, for those species which are also listed under the Habitats Directive, the UK has used this assessment of conservation status to inform reporting under the CMS. Therefore, the baselines chosen under the Habitats Directive are applied to the CMS in these cases. See section vii covering the Habitats Directive for more details.

viii Status classes of assessment

Article I of the Convention recognises two classes of status assessment. These are 'favourable conservation status' and 'unfavourable conservation status'.

ix Criteria used for assessment

Article 1 of the Convention describes the criteria which will be used to determine favourable conservation status of migratory species. These are as follows:

1. Population dynamics and viability
2. Species range
3. Habitat for the species
4. Distribution and abundance of the species.

x Criterion targets

Article 1 of the Convention states that 'the conservation status of a species will be taken as favourable when:

(1) Population dynamics data indicate that the migratory species is maintaining itself on a long-term basis as a viable component of its ecosystems;
(2) The range of the migratory species is neither currently being reduced, nor is likely to be reduced, on a long-term basis;
(3) There is, and will be in the foreseeable future, sufficient habitat to maintain the population of the migratory species on a long-term basis; and
(4) The distribution and abundance of the migratory species approach historical coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management'.

xi Indicators (attributes)

The CMS Strategic Plan 2006-2011[54] outlines a series of targets and indicators within a logical framework structure which provides the basis for measuring the performance and achievements of the Convention over the strategic planning period. These indicators are not, however, used to assess the individual conservation status of the migratory species to which the Convention applies. Any indicators or attributes which may be employed to monitor and assess the status of species will be specific to that species and Agreement (if the species is listed on Appendix II and an agreement has been concluded).

xii Indicator targets/thresholds

As previously mentioned, the CMS Strategic Plan 2006-2011 lists a series of targets and indicators which relate to measuring performance and achievements of the Convention within a certain period. These targets are not directly related to assessing the conservation status of migratory species. Any indicator targets which may be employed to assess the status of species will be specific to that species and Agreement (if the species is listed on Appendix II and an agreement has been concluded).

xiii Aggregation rules (where relevant)

Assessment of species' conservation status is carried out, per species, and at the national level. Therefore, no spatial aggregation rules are applicable. Aggregation across the assessment criteria for each species is, however, required (see section xiv below).

xiv Overall assessment approach

The assessment approach under the CMS is a 'one-out, all-out' approach. Article I (d) states that conservation status will be taken as unfavourable if any of the 'criteria' set out in paragraph (c) of Article I are not met.

2.2.4 United Nations Convention on the Law of the Sea (UNCLOS)

i High-level aspirations (including timeline for achievement)

The United Nations Convention on the Law of the Sea lays down a comprehensive regime of law and order in the world's oceans and seas establishing rules governing all uses of the oceans and their resources. It enshrines the notion that all problems of ocean space are closely interrelated and need to be addressed as a whole. The Convention text comprises 320 articles and nine annexes, governing all aspects of ocean space, such as delimitation, environmental control, conservation of marine resources, marine scientific research, economic and commercial activities, transfer of technology and the settlement of disputes relating to ocean matters.

1 of Part VII (Protection and preservation of the marine environment) of the Convention outlines general provisions for states related to marine conservation:

Article 192
'States have the obligation to protect and preserve the marine environment'.

[54] http://www.cms.int/bodies/COP/cop8/documents/proceedings/pdf/eng/CP8Res_8_02_CMS_StrategicPlan_2006_2011_E.pdf

Article 193
'States have the sovereign right to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment'.

Article 194
'1. States shall take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and they shall endeavour to harmonize their policies in this connection.
2. States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention'.

ii Assessment requirement

Section 4 of Part VII (Protection and preservation of the marine environment) of the Convention specifically describes the requirements for Monitoring and Environmental Assessment. Articles 204 and 206 of this section outlines the aspirations of this part of the Convention:

Article 204
'1. States shall, consistent with the rights of other States, endeavour, as far as practicable, directly or through the competent international organizations, to observe, measure, evaluate and analyse, by recognized scientific methods, the risks or effects of pollution of the marine environment.
2. In particular, States shall keep under surveillance the effects of any activities which they permit or in which they engage in order to determine whether these activities are likely to pollute the marine environment'.

Article 206
'When States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of or significant and harmful changes to the marine environment, they shall, as far as practicable, assess the potential effects of such activities on the marine environment...'.

iii Geographic scope

The UN Convention on the Law of the Sea has 157 signatory states globally[55]. Within these Contracting Parties, parts of the Convention apply across the territorial seas of coastal states out to 12nm from the baseline (low-water line) as defined in Articles 3, 4 and 5. Other parts of the Convention apply to the Exclusive Economic Zones (EEZ) of coastal states and also to 'the area' of the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction (Part I, Article 1) i.e. the high seas.

[55] http://www.un.org/Depts/los/reference_files/status2010.pdf

iv Reporting scale

The reporting scale for the first assessment under the UN Regular Process (see below) has not yet been defined. It is likely to build on other large scale assessment processes undertaken within the chosen global regions.

v Biological scope (species and habitats)

Article 194 of the Convention (section 1, part VII) states:
'5. The measures taken in accordance with this Part shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life'.

Therefore, in terms of marine biodiversity issues, UNCLOS is primarily applicable to vulnerable, rare, or declining marine habitats and species across global oceans and seas. Part V of the Convention on Exclusive Economic Zones also mentions the use of natural resources and specifically promotes co-operation to conserve highly migratory species (listed on Annex I of the Convention), marine mammals and anadromous and catadromous fish species.

vi Reporting cycle frequency

The first integrated report on the state of the marine environment under the 'Regular Process' (see below) will be due in 2014. The subsequent reporting cycle frequency has not yet been defined. The Secretary-General of the UN reports annually to the General Assembly on Oceans and the Law of the Sea. This report should contain information on environmental impact assessments, as provided by Contracting Party States.

vii Baselines used (i.e. the value of state against which subsequent values of state are compared, that is, the standard against which environmental targets can be set)

The baselines which will be used for the assessment of marine environmental status under UNCLOS are currently unknown. Work is ongoing within the Division for Ocean Affairs and the Law of the Sea[56] to define and develop a process under the United Nations for global reporting and assessment of the state of the marine environment. This is known as the 'Regular Process' and the need for it was agreed by States at the World Summit on Sustainable Development in Johannesburg in 2002 (paragraph 36b of the Johannesburg Plan of Implementation[57]).

In order to develop this Regular Process, a group of experts recommended that the first phase should undertake an 'Assessment of assessments'[58] in order to review current large-scale assessment processes and inform the development of a global mechanism. A summary report of the findings of the expert group for the assessment of assessments (2009) can be found on the assessment of assessments website[59]. A key finding of the report is that 'there is no systematic effort to keep under continuing review the state of the world's oceans or the sustainability of how humans use and manage them. Without baselines and reference points, it is impossible to place current status and recent trends into historical contexts'. The first cycle of the regular

[56] http://www.un.org/Depts/los/index.htm
[57] http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIToc.htm
[58] http://www.un.org/depts/los/biodiversityworkinggroup/escobar_2008_aoa_abstract.pdf
[59] http://www.unga-regular-process.org/images/Documents/aoa%20sdm%20%28english%29.pdf

process will aim to rectify this shortcoming by providing a global baseline, against which to measure change in the marine environment on a global scale.

On the basis of these initial findings, an Ad-Hoc Working Group of the Whole[60] was set up to operationalise the regular process. This process was started in 2009 and in line with paragraphs 205 and 212 of resolution 65/37A of December 2010, the General Assembly emphasised the deadline of 2014 for the completion of the first cycle of the regular process. The report of the second meeting of the ad-hoc working group (June 2011) makes recommendations to the sixty-sixth session of the General Assembly and proposes a possible outline for the first global integrated assessment of the state of the marine environment.

Annex VI of the meeting report (document A/66/189) gives a possible outline (being reviewed in April 2012) for the first assessment and suggests that part II, chapter 4 should cover the context of the assessment, including methods and information sources. It is there that the chosen baselines, against which targets for the assessment should be set, will be described. As yet, these baselines have not been determined. This will need to be done before 2014, when the first assessment under the regular process is due for submission to the General Assembly.

viii Status classes of assessment

Not yet defined under the UN Regular Process. The integrated assessment will likely build on other large scale assessment processes undertaken within the chosen global regions.

ix Criteria used for assessment

Not yet defined under the UN Regular Process. The integrated assessment will likely build on other large scale assessment processes undertaken within the chosen global regions.

x Criterion targets

Not yet defined under the UN Regular Process. The integrated assessment will likely build on other large scale assessment processes undertaken within the chosen global regions.

xi Indicators (attributes)

Not yet defined under the UN Regular Process. The integrated assessment will likely build on other large scale assessment processes undertaken within the chosen global regions.

xii Indicator targets/thresholds

Not yet defined under the UN Regular Process. The integrated assessment will likely build on other large scale assessment processes undertaken within the chosen global regions.

[60] http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N11/433/82/PDF/N1143382.pdf?OpenElement

xiii Aggregation rules (where relevant)

Not yet defined under the UN Regular Process. The integrated assessment will likely build on other large scale assessment processes undertaken within the chosen global regions.

xiv Overall assessment approach

Not yet defined under the UN Regular Process. The integrated assessment will likely build on other large scale assessment processes undertaken within the chosen global regions.

2.3 UK Legislation

2.3.1 Wildlife and Countryside Act (1981)

i High-level aspirations (including timeline for achievement)

The Wildlife and Countryside Act 1981 consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention – requirements met in the EU through the Habitats Directive (92/43/EEC) and Council Directive (2009/147/EC) on the conservation of wild birds (Birds Directive). Various amendments have occurred since the original enactment in 1981, the most significant being:

- Wildlife and Countryside (Amendment) Act 1985
- Wildlife and Countryside (Amendment) Act 1991
- Countryside and Rights of Way (CRoW) Act 2000 (in England and Wales),
- Wildlife and Countryside Act 1981 (Amendment) (Scotland) Regulations 2001
- Wildlife and Countryside Act 1981(England and Wales) (Amendment) Regulations 2004,
- Wildlife and Countryside Act 1981 (Amendment) (Wales) Regulations 2004,
- Nature Conservation (Scotland) Act 2004 (in Scotland),
- Equivalent provisions for Northern Ireland are contained within the Wildlife (Northern Ireland) Order 1985 and the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985
- Natural Environment and Rural Communities Act 2006 (in England and Wales)

Part I of the Act refers specifically to Wildlife and the provisions of this part provide varying degrees of protection for the listed species, including comprehensive protection of wild birds.

Provisions for birds:

The Act makes it an offence (with exception to species listed in Schedule 2) to intentionally:

- kill, injure, or take any wild bird,
- take, damage or destroy the nest of any wild bird while that nest is in use or being built (also [take, damage or destroy the nest of a wild bird included in Schedule ZA1] under the Natural Environment and Rural Communities Act 2006), or

- take or destroy an egg of any wild bird.

The Secretary of State may also designate Areas of Special Protection (subject to exceptions) to provide further protection to birds. The Act also prohibits certain methods of killing, injuring, or taking birds, restricts the sale and possession of captive bred birds, and sets standards for keeping birds in captivity.

Provisions for wild animals and plants:

The Act also makes it an offence (subject to exceptions) to intentionally (or 'recklessly' under the Nature Conservation (Scotland) Act 2004) kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. It also prohibits certain methods of killing, injuring, or taking wild animals.

It is an offence (subject to exceptions):

- to intentionally pick, uproot or destroy:
  - any wild plant listed in Schedule 8, or
  - any seed or spore attached to any such wild plant (only under the Nature Conservation (Scotland) Act 2004[61]);
- unless the authorised person, to intentionally (or 'recklessly' under the Nature Conservation (Scotland) Act 2004) uproot any wild plant not included in Schedule 8,
- to sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

The Act contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 (and any hybrid – only under the Nature Conservation (Scotland) Act 2004). It also provides a mechanism making any of the above activities legal through the granting of licenses by the appropriate authorities.

Provisions for protected sites

Part II of the Act refers to Nature Conservation, Countryside and National Parks and the provisions of this part provide for the notification and confirmation of Sites of Special Scientific Interest (SSSIs). These sites are identified for their flora, fauna, geological or physiographical features by Natural England and Natural Resources Wales. (In Scotland similar powers are afforded to Scottish Natural Heritage under the Nature Conservation (Scotland) Act 2004 and in Northern Ireland the Council for Nature Conservation and the Countryside have powers under the Environment (Northern Ireland) Order 2002[62]) to designate Areas of Special Scientific Interest (ASSIs)). The Act also contains measures for the protection and management of SSSIs. The Act provides for the making of Limestone Pavement Orders, which prohibit the disturbance and removal of limestone from such designated areas, and the designation of Marine Nature Reserves.

The Act does not stipulate any timescale by which countries must achieve a specified environmental quality status.

[61] http://www.legislation.gov.uk/asp/2004/6/contents
[62] http://www.legislation.gov.uk/nisi/2002/3153/part/I/made

ii Assessment requirement

Part I, section 24 of the Act states that 'The GB conservation bodies, acting through the Joint Nature Conservation Committee in accordance with Part 2 of the 2006 Act may at any time and shall five years after 30th October 1991 and every five years thereafter, review Schedules 5 and 8 and advise the Secretary of State whether, in their opinion,
[a] any animal should be added to, or removed from, Schedule 5;

[b] any plant should be added to, or removed from, Schedule 8'

There is no stipulation within the Act which requires an assessment of the status of features protected within the SSSI/ASSI series.

iii Geographic scope

The Wildlife and Countryside Act applies to the territories of England, Wales and Scotland (as amended in the Nature Conservation Act (Scotland) 2004). The protection afforded to animals and plants listed on Schedules 5 and 8 extends out to 12nm. For the designation of Marine Nature Reserves (section 36), the scope extends out to 3nm from the baseline for territorial waters. For the identification of SSSIs/ASSIs, marine components can be included down to low water mark. There is no provision for marine SSSIs/ASSIs beyond low-water mark, although boundaries can sometimes extend more widely within estuaries and other enclosed waters (section 28CA).

iv Reporting scale

Reporting on the condition of SSSIs is done at the site level (or at the level of features within sites) and is submitted to the Secretary of State. However, these site assessments may then be aggregated to give an assessment of condition at the regional, county or national scale (in England). It is the responsibility of each UK country to best collate and present the data on the condition of their SSSIs/ASSIs.

Due to the fact that the small number of UK MNRs are converted to Marine Conservation Zones (MCZs) under the Marine & Coastal Access Act or Marine Scotland Act (see Sections 2.3.3 and 2.3.4 of part 2.3 herein), their assessment and reporting will fall under these obligations.

v Biological scope (species and habitats)

Schedules 5 and 8 of the Act list animals (except birds) and plants which are specially protected. The Secretary of State can add any animal (except birds) to Schedule 5 or any plant to Schedule 8 under certain circumstances (see section viii below). Any animal or plant currently listed can also be removed if the circumstances are no longer met. Therefore, the biological scope of the Act under these schedules is very wide ranging.

The statutory nature conservation bodies have a duty under the Wildlife and Countryside Act 1981, as amended, to notify any area of land which in their opinion is 'of special interest by reason of any of its flora, fauna, or geological or physiographical features', as an SSSI (ASSI in Northern Ireland). For specific guidance on which habitats and species should be selected for designation, Statutory Nature Conservation Bodies (SNCBs) can refer to the guideline for selection of

biological SSSIs[63], produced and managed by JNCC. In particular, those habitat types which are relevant in a marine context are the intertidal habitats and saline lagoons. There are also guidelines for selecting SSSIs on the basis of important species, including mammals (common and grey seals), birds and estuarine fish. Any aspect of biodiversity can be designated as an SSSI, providing it meets the guidelines of being of 'special interest'.

vi Reporting cycle frequency

There is a statutory five-yearly review of Schedules 5 and 8 (protected wild animals and plants respectively) and periodic review of Schedule 9 (in relation to non-native species). These reviews are undertaken by the country agencies and coordinated by JNCC[64].

The SNCBs assess and report on the condition of all SSSIs as part of a six year cycle in line with the Common Standards Monitoring[65] (CSM) Guidance produced by JNCC; although this is not formally stipulated within the Act. In addition, Natural England, in their annual report to the Secretary of State, include information about the condition of SSSIs to show how improvements are being made across the network of sites.

vii Baselines used (i.e. the value of state against which subsequent values of state are compared, that is, the standard against which environmental targets can be set)

There is no baseline identified against which to assess the status of animals and plants listed on Schedules 5 and 8 of the Act.

The condition of SSSIs is monitored and assessed in line with the CSM Guidance, as written by JNCC. The introductory chapter of this guidance[66] (2003) outlines how targets should be set to define favourable condition for each of the features which have been designated on a site:

'As a general guide, favourable condition will reflect the state of an interest feature at the time of its selection but with the proviso that the ecological or other processes supporting the feature should be such as to enable it to maintain its condition over time. In practice, the site condition at the time of selection may not be known, or be inappropriate, in which case the guidance provided in this manual, adjusted to meet the particular circumstances of the site as determined by best judgement, can be used to determine favourable condition.

'Targets should be set to ensure that habitats and species populations are maintained in a condition which is likely to be sustained over the foreseeable future, in line with the principles of favourable conservation status (as defined under the Habitats Directive). However, targets should not (for common standards monitoring purposes) be set at levels which seek to achieve substantial improvements to the feature beyond that needed to maintain its biological or earth science interest at the time of selection. In certain exceptional circumstances, where the feature was selected with the specific view to improving it to a better state (e.g. degraded raised bogs), the biological targets for favourable condition can be set significantly higher

[63] http://jncc.defra.gov.uk/page-2303
[64] Fifth Quinquennial Review http://jncc.defra.gov.uk/PDF/5qr.pdf
[65] Common Standards Monitoring is guidance for the simple, quick monitoring and assessment of protected sites
[66] http://jncc.defra.gov.uk/page-2201

than was their condition at the time of selection. This is, however, an exceptional circumstance and not to be applied generally'.

Therefore, CSM guidance suggests that targets should be set against a current baseline (if current condition is viable in the long-term). If not, there is scope for using other (possibly historical) data or expert judgment to identify a baseline which is more ambitious than current condition, and to set a target in relation to that.

viii Status classes of assessment

The animal and plant species listed on Schedules 5 and 8 of the Act are not assessed as falling into any particular status class. However, any taxon listed on the schedules must be considered to be 'endangered' in some way. This includes those species assessed as being extinct, endangered or vulnerable in the British Red Data Book (or extinct in the wild, critically endangered, endangered or vulnerable in the IUCN Red Lists[67]). It also includes those species which are rare (i.e. known from only a single locality), threatened (extent or quality being significantly reduced), declining (in population, number of localities or range) or targeted for exploitation.

For SSSIs, as outlined in the CSM Guidance, sites are assessed as falling into one of the following condition classes:

- **Favourable - maintained**

  An interest feature should be recorded as *maintained* when its conservation objectives were being met at the previous assessment, and are still being met.

- **Favourable - recovered**

  An interest feature can be recorded as having *recovered* if it has regained favourable condition, having been recorded as unfavourable on the previous assessment.

- **Unfavourable - recovering**

  An interest feature can be recorded as *recovering* after damage if it has begun to show, or is continuing to show, a trend towards favourable condition.

- **Unfavourable - no change**

  An interest feature may be retained in a more-or-less steady state by repeated or continuing damage; it is unfavourable but neither declining nor recovering. In rare cases, an interest feature might not be able to regain its original condition following a damaging activity, but a new stable state might be achieved.

- **Unfavourable - declining**

  Decline is another possible consequence of a damaging activity. In this case, recovery is possible and may occur either spontaneously or if suitable management input is made.

- **Partially destroyed**

  It is possible to destroy sections or areas of certain features or to destroy parts of sites with no hope of reinstatement because part of the feature itself, or the habitat or processes essential to support it, has been removed or irretrievably altered.

- **Destroyed**

[67] http://jncc.defra.gov.uk/page-3352

The recording of a feature as destroyed will indicate the entire interest feature has been affected to such an extent that there is no hope of recovery, perhaps because it's supporting habitat or processes have been removed or irretrievably altered.

ix Criteria used for assessment

In order for any animal or plant to be listed on Schedule 5 or 8 of the Act and therefore be afforded special protection, one or both of the following circumstances must apply (section 22 of the Act):

1. They are in danger of extinction in Great Britain or likely to become so endangered unless conservation measures are taken;
2. For the purpose of complying with an international obligation.

JNCC advises that scheduling is considered to be particularly appropriate where there is a need to:

1. Protect an animal or plant species from direct human pressure such as persecution, collection or trade;
2. Protect elements of habitat essential for the survival of an endangered species.

For a species to be recommended for scheduling, one of the eligibility criteria in each of the Sections A to D below should be met:

A. Generally, only native (including re-established) taxa are to be considered. Taxa introduced or thought to be introduced to Great Britain by human activity could be considered exceptionally, with the following provisos:

1. the organism is endangered or extinct in its native range, and
2. preferably, the natural range reaches the north-west coast of Europe (i.e. continental distribution extends to the Atlantic coast of France, Belgium, the Netherlands, Germany or Scandinavia; for marine taxa, the distribution includes the north-west Atlantic area), and provided that
3. information suggests that the organism is unlikely to have an adverse impact on important native species or ecosystems.

B. The taxon must be either:

1. Be established in the wild in Great Britain; or
2. occur as a vagrant in Great Britain and require international protection; or
3. be believed extinct in Great Britain as a breeding species, but be in the process of re-establishment; or
4. be believed extinct in Great Britain, but with the possibility that it could become re-established naturally.

C. The taxonomic status of the organism must be well authenticated. Taxa below the species level could be considered, providing they are:

1. clearly recognisable (i.e. morphologically distinct), and
2. geographically or ecologically distinct.

D. The taxon must be endangered in Great Britain, or likely to become so unless conservation measures are taken, and/or be subject to an international obligation for protection. One or more of the following may indicate that a taxon is or may become endangered:

1. it is included in a JNCC-approved British Red Data Book[68] as 'Extinct', 'Endangered' or 'Vulnerable' (or, in Red Lists drawn up using the recently revised IUCN criteria, as 'Extinct in the Wild', 'Critically Endangered', 'Endangered' or 'Vulnerable');
2. it has been well searched for but is known from only a single locality;
3. it is confined to a particularly threatened habitat. The extent or quality of the habitat is being significantly reduced or is likely to become significantly reduced, thus threatening the survival of the organism;
4. it is rapidly declining in population, number of localities occupied or range. Indicative would be at least 50% decline observed, estimated inferred or suspected in the last 20 years, or a decline of at least 50% projected, inferred or suspected to be likely in the near future. The decline must transcend normal fluctuations;
5. it is endangered, or likely to become endangered through being targeted for exploitation or killing for commercial reasons and/or through being particularly attractive to collectors. International obligations apply to a taxon which is:
6. naturally resident and listed on Appendices I, II or III of the Bern Convention; Annexes II, IV or V of the EC Habitats and Species Directive; Appendix I of the Bonn Convention (unless derogations are in force); and/or
7. endemic to Great Britain and included in a JNCC-approved British Red List.

There are no formal criteria for the assessment of SSSIs. The primary aim of site monitoring using the UK CSM guidance is to determine the overall 'condition' of features designated on a site. Therefore, this can be thought of as the only criteria for assessment.

x Criterion targets

As described above under section D of the eligibility criteria for species to be listed on Schedule 5 or 8 of the WCA, a limit threshold exists for identifying declining species (point (4)). A 50% decline in population, number of localities or range over 20 years or a projected/inferred decline of 50% would result in a species meeting the requirements of section D. Although this is not articulated as a target as such, it is still relevant in biodiversity assessment terms as we would conversely be aiming for no species of animal or plant to be declining at a rate of 50% (or more) over a 20 year period.

Under the CSM Guidance used to monitor and assess SSSIs, there are no criterion level targets stipulated.

xi Indicators (attributes)

CSM guidance gives a small number of characteristics (attributes) for each SSSI feature type (e.g. rock or biogenic reef habitats, marine mammals) which together describe the feature's condition (e.g. extent, species composition etc.). The section of the guidance which identifies a set of attributes to specifically assess marine (habitat)

[68] http://jncc.defra.gov.uk/page-3352

feature condition can be found here: http://jncc.defra.gov.uk/page-2236. The guidance highlights that any attribute (indicator) must:

- help define condition;
- be capable of identifying a change in condition;
- be measureable; and
- be capable of being monitored practically and economically.

A condition assessment should be based on the attributes as derived from the relevant generic attributes table (attributes in black text are mandatory, the rest are site specific used to highlight local distinctiveness where appropriate). For example, attributes to monitor and assess littoral rock (and inshore sublittoral rock) habitats are shown in Table 18.

Table 18. CSM Attributes used to monitor and assess littoral (and inshore sublittoral) rock habitats (optional attributes are greyed out).

Attribute
Extent
Biotope composition
Distribution of biotopes
Extent of sub-feature/notable biotopes (where relevant)
Presence of sub-feature/notable biotopes (where relevant)
Species composition of notable biotopes (where relevant)
Presence/abundance of specified species

This guidance will allow site specific attributes (indicators) to be selected to monitor and assess any feature for which a SSSI has been designated.

xii Indicator targets/thresholds

In line with the generic marine feature CSM guidance[69], 'a target is intended to reflect the desired condition of the attribute for a feature that we wish to achieve on that particular designated site, not the management systems or operations that lead to that condition. A target may be a single threshold (upper or lower) beyond which condition is judged unfavourable. For example, the extent of a feature would generally be specified as a numeric value, below which the attribute would be judged unfavourable. Marine ecosystems are, however, characterised by dynamic processes that often manifest through a cyclical change in the prevailing biological communities. In making a decision on the target for favourable condition, it is necessary to encapsulate the likely range of communities and their different stages of transition that may be observed on a feature. A target may therefore be defined as a range within which fluctuations may occur. For example, the target for an attribute describing the biotope composition of a dynamic rocky shore ecosystem may require that a proportion of biotopes are drawn from a list detailing the range of biotopes that could be present, and accepting a degree of cyclical change in the precise composition.'

It is important to remember that the target/target range represents a threshold that should be considered a trigger for further action. When an attribute fails to meet the target condition for a feature, this will require further investigation to ascertain if any

[69] http://jncc.defra.gov.uk/PDF/CSM_marine_introduction.pdf

management response is needed to ensure the feature is restored to favourable condition at future date.

In order to define favourable condition (i.e. set a target) of a feature on a site it is necessary to:

1. identify any sub-features that are important;
2. identify the attributes that can assess condition; and
3. set site specific targets for the attributes.

Using the previous example of inshore sublittoral sediment, the following targets (Table 19) are suggested within the CSM guidance document for the mandatory and optional attributes.

Table 19. CSM targets for assessing inshore sublittoral sediment habitats (optional attributes are greyed out).

Attribute	Target
Extent	No change in extent
Biotope composition	Maintain the variety of biotopes (allowing natural change/succession)
Distribution of biotopes	Maintain the distribution of biotopes (allowing natural change/succession)
Extent of sub-feature/notable biotopes (where relevant)	No change in extent of biotopes (allowing natural change/succession)
Presence of sub-feature/notable biotopes (where relevant)	Maintain presence of the biotopes (allowing natural change/succession)
Species composition of notable biotopes (where relevant)	No decline in biotope quality as a result of reduction in species richness/removal of notable species (allowing natural change/succession)
Presence/abundance of specified species	Maintain presence/abundance of specified species Absence of specified species

The general principle behind attribute (indicator) targets at the site level is to maintain the current condition. This is assuming that the condition of the feature at the time of designation is favourable (see Section vi, above, on baseline setting) and is viable/can be maintained in the long term. If this is not thought to be the case, attribute targets can be set at a level which aims to restore the condition to something better than current condition on the basis of historical data or expert judgement.

xiii Aggregation rules (where relevant)

Spatial aggregation rules will apply in order to produce site level assessments in England from SSSI unit assessments. These units are used in order to make the assessment of larger sites more manageable and to reflect boundaries of management and human pressures. In terms of aggregation across biological components, assessments are carried out at the site level (designated for a particular feature) and therefore no aggregation rules apply. The attributes for each feature are aggregated in order to arrive at a condition assessment at the feature level and this follows the approach outlined in Section xiv) below.

xiv Overall assessment approach

The overall assessment approach for assessing the condition of SSSIs is a 'one-out, all-out' approach, in line with the guidance stipulated under CSM. This means that if one attribute fails to achieve its target, the whole feature on that site is judged to be unfavourable. This is termed the 'default-approach' within generic marine feature CSM guidance (section 1.2 Assessment Process). It is also noted that employing a weighted approach may be appropriate where certain attributes are considered to be important to achieving favourable condition than others.

2.3.2 Conservation of Seals Act (1970)

i High-level aspirations (including timeline for achievement)

The Conservation of Seals Act provides for the protection and conservation of seals in England and Wales, including their territorial waters out to 12nm. The Conservation of Seals Act in Scotland has been repealed by the Marine Scotland Act (2010) and provisions have been made for seals in Scotland under this new legislation (see Section 2.3.3 below).

The Act makes it an offence to:

- use for the purpose of killing or taking any seal any poisonous substance; or
- use for the purpose of killing, injuring or taking any seal, any firearm other than a rifle using ammunition having a muzzle energy of not less than 600 footpounds and a bullet weighing not less than 45 grains; or
- willfully kill, injure or take a seal during the closed season; or
- willfully kill, injure or take a seal in an area prohibited by the Secretary of State.

Licences can (where appropriate) be granted by the Secretary of State allowing individuals to kill/take seals for scientific, management or fisheries protection reasons (section 10). There is also a closed season for both seal species, during which, the wilful killing, injuring or taking of a seal is an offence.

ii Assessment requirement

The Act does not contain a formal requirement to assess the status of seal populations in UK waters. However, section 13 of the Act specifies that 'the Natural Environment Research Council (NERC) shall provide the Secretary of State with scientific advice on matters related to the management of seal populations'.

iii Geographic scope

The Conservation of Seals Act covers the territories of England and Wales, including their territorial waters out to 12nm.

iv Reporting scale

The Natural Environment Research Council (NERC) has a duty to provide scientific advice to Government on matters related to the management of seal populations. NERC has appointed the Special Committee on Seals (SCOS) to formulate this advice. Formal advice is given based on the latest scientific information provided to

SCOS by the Sea Mammal Research Unit (SMRU). The scale at which this information is reported is national (UK level). However, within the advice report, information is also provided at the country level (i.e. England or Wales) and is also presented in terms of the main colonies within countries (e.g. South West England).

v Biological scope (species and habitats)

The Act covers the two species of seal which live and breed in UK waters, the grey seal (*Halichoerus grypus*) and the harbour seal (*Phoca vitulina;* also referred to as the common seal). Other seal species also occasionally occur in UK waters (e.g. ringed seals (*Phoca hispida*), harp seals (*Phoca groenlandica*), bearded seals (*Erignathus barbatus*), and hooded seals (*Cystophora crystata*)). These are all covered by the Conservation of Seals Act.

vi Reporting cycle frequency

Advice on the status of UK seal populations is provided to Government by SCOS (supported by SMRU) on an annual basis.

vii Baselines used (i.e. the value of state against which subsequent values of state are compared, that is, the standard against which environmental targets can be set)

The SCOS Main Advice 2010 report[70] describes the current status of British seals against a variety of baselines. For grey seals, trends in pup production are assessed against a baseline set in the 1960s, when regular monitoring began. Pup production is also expressed as a change over the last five year period and therefore, this utilises a form of shifting baseline which will be modified as time goes on. When assessing trends in grey harbour seal (estimate and surveyed) population size, a baseline of the mid-1990s is used, as this is the time when population monitoring techniques became more accurate. Measures of age structure and survival rates do not seem to have been assessed against any particular baseline. It is noted within the report that there is little information available on the historical status of seal populations in the UK. Therefore, ecologically meaningful baselines may be difficult to define.

viii Status classes of assessment

There are no formal status classes for assessment under the Conservation of Seals Act.

ix Criteria used for assessment

Although there are no formal criteria for the assessment of the status of UK seal populations under the Conservation of Seals Act, the SCOS Main Advice 2010 report outlines some key aspects which underpin the assessment of how well the populations are doing. These aspects are:

1. population size;
2. age structure of the population; and
3. survival rates within the population.

The reporting is structured around several specific questions which have been posed to the SCOS by Scottish Government and Defra. These questions cover aspects

[70] http://www.smru.st-andrews.ac.uk/documents/389.pdf

such as 'what are the latest estimates of the number of seals in UK waters?' (relating to criterion 1, above and the direct assessment of the biodiversity status of the seals) and 'what is the latest understanding of the causes of the recent decline in harbour seals?' (relating to informing management action to mitigate important impacts but not directly related to the assessment of seal population status). In the 2010 report, there are ten questions specifically posed by Scottish Government and 34 posed by Defra (with some overlap between the two groups of questions). The reporting format is therefore more heavily focused on providing Governments with practical information to guide the management of seal populations.

x Criterion targets

There are no targets associated with the 'criteria' identified for the assessment of UK seal populations under the Conservation of Seals Act.

xi Indicators (attributes)

Table 20. The specific attributes which are monitored in order to contribute to assessing the criteria outlined in Section ix).

Criterion	Attributes	
	Grey Seals	Harbour Seals
Population size	Pup production, i.e. total number of pups born	Survey counts of individuals
Age structure	Female age structure estimated from population growth rate	Female age structure estimated from population modeling (under development)
Survival rate	Adult female survival estimated from re-sightings of marked animals	Pup survival rates in Orkney and Scottish West Coast
	Individual fecundity estimated from mass and reproductive success	

xii Indicator targets/thresholds

There are no specified targets for the attributes monitored across UK seal populations.

xiii Aggregation rules (where relevant)

Status assessments are made for each of the two seal species and population size estimates are calculated at various spatial scales to produce the required results for Government. No aggregation rules are required as no formal status class is assigned.

xiv Overall assessment approach

There is no specified assessment approach for seals under the Conservation of Seals Act as no formal status classes are defined and assessment criteria are not aggregated together to give an overall judgement against defined targets.

2.3.3 Marine and Coastal Access Act (2009)

i High-level aspirations (including timeline for achievement)

The Marine and Coastal Access Act (MCAA) is a wide-ranging Act affecting marine activities, including definitions of the EEZ, fisheries, the role of the Marine Management Organisation (MMO) as well as formalising national objectives for coastal access and marine nature conservation. The primary focus for nature conservation purposes is provisions for the establishment of Marine Conservation Zones, although there is a section on definition of marine boundaries for SSSIs and Marine Nature Reserves (MNRs). Part 5 is the section dedicated to conservation:

'Part 5 of the Act provides a power, across most of UK waters, to designate new Marine Conservation Zones ("MCZs"), in place of the current power under the Wildlife and Countryside Act 1981 to designate Marine Nature Reserves. Existing Marine Nature Reserves will be converted into MCZs. There will be a duty to designate MCZs so as to contribute to a UK network of marine sites, MCZs complementing the Natura 2000 network of European sites, Sites of Special Scientific Interest and wetlands protected under the Ramsar Convention. This will help the Government to fulfil the UK's commitment, under the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR), to establish an ecologically coherent network of marine protected areas. The Act provides for new duties on public bodies to exercise their functions in ways that further the conservation objectives set for MCZs, and not to authorise activities or development which carry a significant risk of hindering those conservation objectives."[71]

Some provisions of the Act have been amended through The Conservation of Habitats and Species Regulations 2010 (SI 2010/490). The focus of the Act is on the designation and management of protected marine areas than on the detail of reporting.

ii Assessment requirement

Section 124 of the Act states that 'Before the end of every relevant period (beginning on the date on which this section comes into force and ending on 31 December 2012 and every subsequent period of six years), the appropriate authority must lay before the appropriate legislator (Parliament, Welsh National Assembly, Scottish Parliament) a report setting out:

[a] The extent to which, in the opinion of the authority, the objective in section 123(2) has been achieved;

[b] Any further steps which, in the opinion of the authority, are required to be taken in order to contribute to the achievement of that objective.'

Section 123(2) states that 'The objective is that the MCZs designated by the appropriate authority, taken together with any other MCZs designated... and any relevant conservation sites in the UK marine area, form a network which satisfies the conditions in subsection (3)'.

[71] Marine & Coast Access Act 2009 c.23 (legislation.gov.uk): explanatory notes

iii Geographic scope

The geographic scope for the Act is from the Mean High-Water Spring (MHWS) tide level out to the limits of the UK Marine Area. In estuaries and rivers, MCZs can be identified up to the upper limit of estuarine waters (as far as the tide flows at mean high water spring tide). The upper limits of these transitional waters have been mapped by the Environmental Agency. The furthest boundary of the UK Marine Area is generally the outer limit of the UK Continental Shelf, or the agreed administrative boundary or median line with neighbouring countries.

The appropriate authority is the Secretary of State except (S116 (7)):

- for Scottish offshore waters, where these sites will be designated by Scottish ministers and known as Scottish MPAs, though (S116 (6)) Scottish ministers cannot designate without UK Secretary of State approval; and
- in Welsh inshore waters, the appropriate authority is Welsh Ministers.

The main exceptions here are that the Northern Ireland and Scottish inshore regions are excluded from provisions of the Act concerning marine conservation zones[72].

iv Reporting scale

Before the end of every 'relevant period', the appropriate authority must lay before the appropriate legislator a report setting out how the sites have performed against their conservation objectives as well as the effectiveness of the network as a whole (see below under indicators Section xi).

v Biological scope (species and habitats)

An MCZ can be created for the purposes of conserving:

- marine flora or fauna;
- marine habitats or types of marine habitat; or
- features of geological or geomorphological interest.

The designation order must identify the protected features and also state the conservation objectives for the MCZ (S117 (1) and (2)). The level of protection depends on the site's conservation objectives (i.e. to maintain or restore favourable condition) which take account of conservation and socio-economic considerations. However, if the site contains rare, threatened or declining features, or has high biodiversity value, conservation considerations can take a higher priority. Where there is a choice of alternative sites, socio-economic factors can be more significant in determining MCZ location and designation.

vi Reporting cycle frequency

The 'relevant period' for reporting by the relevant authority began on the date on which the Act came into force and ended on 31 December 2012, and then is cyclical for each subsequent period of six years.

[72] S116 (3)

For the purposes of complying with its duty under this section, the appropriate authority for any area may direct the appropriate statutory conservation body for that area to carry out such monitoring of MCZs in that area as is specified in the direction.

vii Baselines used (i.e. the value of state against which subsequent values of state are compared, that is, the standard against which environmental targets can be set)

The Act does not prescribe a detailed baseline except that the OSPAR network conditions should be met (see below under criterion targets Section ix below).

viii Status classes of assessment

The Act does not specify any classes of status assessment for MCZ features. The only reference to how conservation objectives (i.e. maintain at favourable condition or recover to favourable condition) should be set for MCZs is in S117 of the MCAA (Grounds for designation of MCZs).

'An authority *may* make an order to conserve marine flora, fauna, habitats, geological or geomorphological features. For flora and fauna, the order includes a reference to the limited number of individuals of a species, or the limited number of locations. The reference also has a wider view of conserving the diversity of flora, fauna or habitats, whether or not they are rare or threatened. Conservation objectives also need to be clear for public authorities to understand implications (S112).'

In designation, (S7) Ministers can consider socio-economic consequences but if features are 'rare', 'threatened' or 'declining', or belong to a 'biodiversity hotspot', the weighting is towards ecological considerations. The MCZ Project Conservation Objective Guidance (2011)[73] outlines in more detail how the conservation objectives for a feature should be set but further assessment guidance will be required in future.

ix Criteria used for assessment

The Act does not specify assessment techniques or how condition objectives should be reached.

x Criterion targets

The Act requires the creation of a network of conservation sites, comprising designated MCZs and relevant conservation sites (any European marine site or SSSI or Ramsar site), such that:

[a] the network contributes to the conservation or improvement of the marine environment in the UK marine area;

[b] the features which are protected by the sites comprised in the network represent the range of features present in the UK marine area;

[c] the designation of sites comprised in the network reflects the fact that the conservation of a feature may require the designation of more than one site.

These are specifically based on the OSPAR definition of an ecologically coherent network[74] (a subset of the OSPAR network principles) and although they are not

[73] http://jncc.defra.gov.uk/PDF/MCZ%20Project%20Conservation%20Objective%20Guidance.pdf
[74] Marine & Coastal Access Act 2009 Explanatory notes para.349

formally identified assessment criteria, they are the high-level aspects which will be considered when assessing whether the network has achieved its objectives.

xi Indicators (attributes)

The responsible authority must report back to the appropriate legislator (i) between the commencement of the Act and 31st December 2012 and then (ii) every six years thereafter. The report needs to contain information on the following 'indicators' of conservation status and the effectiveness of management:

[a] number of MCZs which the authority has designated during the relevant period;

[b] size and the conservation objectives for each MCZ;

[c] number of MCZs designated by the authority in which any licensable marine activity, fishing, or taking animals or plants from the sea are prohibited or significantly restricted;

[d] information about any amendments which the authority has made to any orders made under section 116 (MCZ designation);

[e] extent to which, in the opinion of the authority, the conservation objectives stated for each MCZ which it has designated have been achieved; and

[f] any further steps which, in the opinion of the authority, are required to be taken in relation to any MCZ in order to achieve the conservation objectives stated for it.

For the purposes of complying with its duty under this section of the Act, the appropriate authority for any area may direct the appropriate statutory conservation body for that area to carry out such monitoring of MCZs in that area as is specified in the direction.

For individual features on sites, the MCZ Project Conservation Objective Guidance offers templates and draft attributes which could be monitored in order to assess whether favourable condition is being achieved e.g. extent, diversity, community structure. However, these draft suggestions will need to be further refined in relation to each specific site feature over the coming months/years.

xii Indicator targets/thresholds

The target for a site is to achieve the specific feature conservation objectives and to determine how the MCZs contribute to the achievement of an ecologically coherent network of marine protected areas[75].

xiii Aggregation rules (where relevant)

No formal aggregation rules are identified within the Act. It is possible that some form of aggregation process will be required in order to bring assessment results at the site level together to make an assessment of status at the network scale. This process is as yet undefined.

xiv Overall assessment approach

A specific assessment approach or methodology is not given within the Act. The Act specifies duties of reporting and care, and the need to report on condition whether

[75] Marine & Coast Access Act 2009 Explanatory Notes para353

sites are meeting the relevant standards and the relationship of relevant authorities (national and devolved administrations) with SNCBs.

2.3.4 Marine Scotland Act (2010)

i High-level aspirations (including timeline for achievement)

The Marine (Scotland) Act (MSA) is the Scottish legal mechanism to help ensure that marine and coastal environments are clean, healthy, safe, productive and biologically diverse, and managed to meet the long term needs of both nature and people, by putting in place a new system for improved management and protection of the marine and coastal environment. The MSA introduces new powers relating to functions and activities in the Scottish marine area, including provisions concerning marine plans, licensing of marine activities (transferred to the Scottish Ministers under the Wildlife and Countryside Act 1981), the protection of the area (Part 4) and its wildlife including seals (Part 5, which repeals the 1970 Conservation of Seals Act and introduces a new licensing regime), and regulation of sea fisheries[76].

Part 5 of the Act responds to Scotland's role as a primary location for seals and the need to bring legislation in line with the Habitats Directive (where both seal species are in Annex II of the Directive). This Part of the MSA repeals the Conservation of Seals Act 1970, which allowed for closed and open seasons for hunting. Licences can only be granted after consultation with NERC; Ministers must also consult SNH if the licence covers a protected area. Licences cannot be granted if they are detrimental to the maintenance of the seal population at a favourable conservation status within its range (under the Habitats Directive). The main provision is that all killing, injuring or removing a seal is illegal, except under licence or because of animal welfare concerns. Any killing or taking has to be reported. It should be noted that this is significantly different to the provisions of the Conservation of Seals Act 1970. A licence may be granted for purposes such as research, conservation, protection of aquaculture, health reasons or cases of overriding public interest.

The Act puts into place some of the requirements under the MSFD (e.g. marine planning and MPAs) but does not provide a full transposition (unlike the WFD which was transposed by Water Environment & Water Services Act (Scotland) 2003). The implementation of an ecosystem-based approach compatible with both GES and sustainable use underpins the MSA.

Due to the fact that the terms of the Act closely mirror many of those within the UK MCAA, the sections below cover the main differences, rather than reproducing the sections covered within the UK Act.

ii Assessment requirement

Section 103 of the Act states that 'Before the end of each relevant period (beginning on the date on which this section comes into force and ending on 31 December 2012 and every subsequent period of six years), Scottish Ministers must lay before the Parliament a report setting out the information mentioned in subsection (3)'.

For nature conservation MPAs this information includes the:

- number of MPAs;

[76] According to www.legislation.gov.uk some of the provisions in Part 5 of the act are yet to commence.

- size of each MPA;
- conservation objectives of each MPA;
- the extent to which in the opinion of the Scottish Ministers the stated conservation objectives have been achieved for each MPA; and
- any further steps which in their opinion are required to be taken in order to contribute to the achievement of those objectives for each MPA.

iii Geographic scope

The MSA applies to the inshore area in Scotland[77], and to some functions in the Scottish offshore area (those delegated from the UK Secretary of State) between 12 and 200nm and excludes any waters upstream of the freshwater limit of estuarial waters. Unlike the UK MCAA, the MSA does not cover 'closed' seaways (e.g. ones protected by lock gates). All nature conservation functions in the Scottish Offshore area are governed by the UK Marine & Coastal Access Act 2009. The powers in the MSA complement the provisions of the UK Marine &Coastal Access Act 2009, which created new responsibilities for Scottish Ministers on marine planning in offshore waters outside 12 nautical miles (nm).

iv Reporting scale

Ministers must assess 'from time to time' (see below under reporting cycle frequency, Section vi) the extent to which the stated conservation objectives have been achieved, by reporting on the:

- number, size and Conservation Objectives (COs) for nature conservation MPAs (including how COs have been achieved and any further steps required to achieve them);
- same as above for Demonstration and Research MPAs except there is a requirement to state their purpose rather than any COs; and
- amendments of any S74 designation order, or management scheme.

Formed through this Act, Marine Scotland will be responsible for marine nature conservation for the Scottish Government, including obligations under the EU Habitats Directive and the MSFD, as well as other international commitments. Note that the Act specifies SNH[78] as the statutory nature conservation advisors (i.e. for inshore waters). JNCC's role for offshore is not covered in the Marine (Scotland) Act but is specified in the UK MCAA.

v Biological scope (species and habitats)

The Act covers the creation of MPAs for the purposes of:

1. conserving marine flora or fauna; and
2. conserving
   a. marine habitats or types of such habitat; and
   b. features of geological or geomorphological[79] interest.

[77] The Nature Conservation part of the Act relates to the "Scottish Marine Area", defined as "the area of sea within the seaward limits of the territorial sea of the United Kingdom adjacent to Scotland and includes the bed and subsoil of the sea within that area" (Marine (Scotland) Act 2010 Part 1 S1).
[78] Marine Scotland 2009 Strategy Statement
[79] 'Geomorphological' equates to the term 'physiographical'.

There are three separate types of MPAs:

- Nature conservation MPAs;
- Demonstration and research MPAs; and
- Historical MPAs [not considered further here].

For Nature Conservation MPAs specifically, and unlike the UK MCAA, the Act states there must be guidance setting out scientific criteria for designating an MPA and that this must be taken into consideration by Scottish Ministers. The designation may also recognise the representativeness of a habitat when determining the case for designation. Note that there is no use of the term 'biodiversity' in the Act, unlike in the UK MCAA. Demonstration and research MPAs can be for either or both purpose and are intended to provide sites for research and development into sustainable methods of marine management and exploitation. They therefore do not have a nature conservation focus.

Under Part 5 of the Act, Scottish Ministers will have the power to designate Seal Conservation Areas after consultation with NERC.

vi Reporting cycle frequency

The report is given by Ministers at end of the 'relevant period' (S103(1)) which is defined in S103(4) as between enforcement date and 31 Dec 2012, and then each subsequent period of six years (i.e. similar to that required for the UK MCAA).

vii Baselines used (i.e. the value of state against which subsequent values of state are compared, that is, the standard against which environmental targets can be set)

There is no baseline defined within the Act.

viii Status classes of assessment

No formal status classes are specified in the Act (though this aspect is being developed through Marine Scotland's A Strategy for Marine Nature Conservation in Scotland's Seas).

ix Criteria used for assessment

The Act does not specify how assessments are to be measured but the Scottish National Marine Plan[80] sets out a proposed system of indicators.

x Criterion targets

The Act requires the creation of a network of conservation sites, comprising designated MPAs and relevant conservation sites (any European marine site or SSSI or Ramsar site), such that:

- the network contributes to the conservation or improvement of the marine environment in the UK marine area;
- the features which are protected by the sites comprised in the network represent the range of features present in the UK marine area; and

[80] http://scotland.gov.uk/Publications/2011/03/21114728/0

- the designation of sites comprised in the network reflects the fact that the conservation of a feature may require the designation of more than one site.

These are specifically based on the OSPAR definition of an ecologically coherent network[81] (a subset of the OSPAR network principles) and although they are not formally identified assessment criteria, they are the high-level aspects that will be considered when assessing whether the network has achieved its objectives.

xi Indicator targets/thresholds

The Act references the same report (in this case by the Scottish Ministers to the Scottish Parliament) as in S124 of the UK MCAA but the reporting criteria are restated in this Act. The specific ones for Nature Conservation MPAs are as follows (sections not required under the UK MCAA are underlined):

i) number of Nature Conservation MPAs, in designation orders made during the relevant period;

ii) size and stated conservation objectives of each Nature Conservation MPA;

iii) for each extant Nature Conservation MPA (1)the extent to which in the opinion of the Scottish Ministers the stated conservation objectives have been achieved and (2) any further steps required;

iv) information about any amendments made during the relevant period to any designation order by order under section 74 [Amendment or revocation of designation orders];

v) information about any marine conservation order or urgent continuation order made, or any amendment of any such order, during the relevant period;

vi) information about any marine management scheme made, or any amendment of any such scheme, during the relevant period;

vii) extent to which in the opinion of the Scottish Ministers the exercise by them of the power in section 67(1)(a) [designation of Nature Conservation MPAs] contributes to the [creation of a network of conservation sites] S79(2).

xii Indicator targets/thresholds

The target is as for the UK MCAA, to 'achieve the conservation objectives and for how the MCZs contribute to the achievement of an ecologically coherent network of marine protected areas'[82].

xiii Aggregation rules (where relevant)

No formal aggregation rules are identified within the Act. It is possible that some form of aggregation process will be required in order to bring assessment results at the site level together to make an assessment of status at the network scale. This process is as yet undefined.

[81] Marine & Coastal Access Act 2009. Explanatory notes para.349.
[82] Marine & Coast Access Act 2009. Explanatory Notes para 353.

xiv Overall assessment approach

A specific assessment approach or methodology is not given within the Act. The Act specifies duties of reporting and care, and the need to report on condition whether sites are meeting the relevant standards and the relationship of relevant authorities (national and devolved administrations) with SNCBs.

2.4 Policies/Policy Instruments (UK and EU)

This section contains non-legally binding policies and policy instruments which outline requirements for, or background to, the development of, marine biodiversity assessments and reporting. In some cases there is not (currently) a specified and formal assessment framework for the obligation. Therefore, some of the sections which have been covered for previous obligations (e.g. criteria; indicators etc.) may not be included for those listed below; specifically the High-Level Marine Objectives and Marine Policy Statement.

2.4.1 High-Level Marine Objectives (2009)

i High-level aspirations (including timeline for achievement)

The high-level marine objectives[83] (2009) reflect the full range of the UK Government and Devolved Administrations' policies in the marine area, rather than the priorities of any particular Government Department, for example in relation to specific marine uses or marine environment conservation. It is by considering sectoral interests holistically that UK Governments hope to achieve sustainability. The articulation of these high-level objectives began the process of the preparation of an integrated Marine Policy Statement by all Administrations across the UK.

The objectives are intended to:

- steer Administrations and the wider public sector in their (joint) achievement of sustainable development in the marine area and the wider context;
- steer, inform and educate the public, business and voluntary sectors in their actions and attitudes;
- underpin the UK approach to negotiation and implementation of European and international marine policy; and
- underpin the development of an integrated Marine Policy Statement by Administrations which will provide a means to achieve these objectives in practice.

The objectives are designed to provide a comprehensive set of outcomes which will drive UK Government and Devolved Administrations' marine policies in a coherent and consistent way. They are articulated below in the context of the five sustainable development principles. They set out the outcomes sought by the UK Government and Devolved Administrations. Government actions and regulatory structure will support the delivery of these outcomes to achieve sustainability. The objectives which are of most relevance to biodiversity issues are those under the heading of 'Living within environmental limits'.

[83] http://archive.defra.gov.uk/environment/marine/documents/ourseas-2009update.pdf

Achieving a sustainable marine economy

- Infrastructure is in place to support and promote safe, profitable and efficient marine businesses.
- The marine environment and its resources are used to maximise sustainable activity, prosperity and opportunities for all, now and in the future.
- Marine businesses are taking long-term strategic decisions and managing risks effectively. They are competitive and operating efficiently.
- Marine businesses are acting in a way which respects environmental limits and is socially responsible. This is rewarded in the marketplace.

Ensuring a strong, healthy and just society

- People appreciate the diversity of the marine environment, its seascapes, its natural and cultural heritage and its resources and act responsibly.
- The use of the marine environment is benefiting society as a whole, contributing to resilient and cohesive communities that can adapt to coastal erosion and flood risk, as well as contributing to physical and mental wellbeing.
- The coast, seas, oceans and their resources are safe to use.
- The marine environment plays an important role in mitigating climate change.
- There is equitable access for those who want to use and enjoy the coast, seas and their wide range of resources and assets and recognition that for some island and peripheral communities the sea plays a significant role in their community.
- Use of the marine environment will recognise, and integrate with, defence priorities, including the strengthening of international peace and stability and the defence of the UK and its interests.

Living within environmental limits

- Biodiversity is protected, conserved and where appropriate recovered and loss has been halted.
- Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems.
- Our oceans support viable populations of representative, rare, vulnerable, and valued species.

Promoting good governance

- All those who have a stake in the marine environment have an input into associated decision-making.
- Marine, land and water management mechanisms are responsive and work effectively together, for example through integrated coastal zone management and river basin management plans.
- Marine management in the UK takes account of different management systems that are in place because of administrative, political or international boundaries.
- Marine businesses are subject to clear, timely, proportionate and, where appropriate, plan-led regulation.
- The use of the marine environment is spatially planned where appropriate and based on an ecosystems approach which takes account of climate change and recognises the protection and management needs of marine cultural heritage according to its significance.

Using sound science responsibly

- Our understanding of the marine environment continues to develop through new scientific and socio-economic research and data collection.
- Sound evidence and monitoring underpins effective marine management and policy development.
- The precautionary principle is applied consistently in accordance with the UK Government and Devolved Administrations' sustainable development policy.

i Assessment requirement

There is no formal requirement stated within the High-Level Marine Objectives which requires an assessment of the status of marine biodiversity aspects. However, it is mentioned within the text that the UK Marine Monitoring and Assessment Strategy (UKMMAS) forms the framework within which Governments collaborate in assembling the evidence necessary to monitor and assess progress towards the shared vision.

ii Geographic scope

The High-level marine objectives cover the entire UK marine area and have been adopted by all UK Governments and devolved administrations.

2.4.2 Government's vision for UK Seas (2002)

i High-level aspirations (including timeline for achievement)

The 2002 Defra report 'Safeguarding Our Seas: A Strategy for the Conservation and Sustainable Development of our Marine Environment'[84] outlines the UK Government's vision for:

'Clean, healthy, safe, productive and biologically diverse oceans and seas. Within one generation we want to have made a real difference by building on the progress already made'.

The report also highlighted the aim of meeting the 2010 target of halting the loss of biodiversity, as set by the CBD.

It is noted within the report that to ensure the delivery of this vision, the UK will require:

- sustainable development – so that the needs of future generations are not compromised by the actions of people today;
- integrated management – looking at the wider picture and developing a common understanding through the use of an ecosystem approach;
- conservation of biological diversity – conserving and enhancing biological diversity within the UK and contributing to the conservation of global biodiversity;
- robust science – understanding our marine environment better and integrating scientific knowledge into policy-making;

[84] http://archive.defra.gov.uk/environment/marine/documents/marine_stewardship.pdf

- the precautionary principle – sensibly erring on the side of caution where the scientific evidence is not conclusive; and
- stakeholder involvement – involving stakeholders as an integral part of policy-making.

It also emphasises the importance of robust science and monitoring to inform policy decisions and the ecosystem approach. The report articulates Government aspirations to develop a monitoring and assessment framework and produce an integrated assessment of the state of UK seas in 2004. The report stated that Government will 'seek to improve co-ordination of the interfaces between monitoring and observation for different sectoral interests, i.e. to co-ordinate the assessment of oceanographic climate and fisheries with the monitoring of environmental and ecological quality and nature conservation status'. It articulates the aim of supporting more integrated and coherent assessments of the state of the UK marine environment at regular intervals. In 2005 the first assessment was published in the form of a State of Our Seas report, Charting Progress[85]. The second assessment, Charting Progress 2: The State of UK Seas[86] (CP2) was produced in 2010 through the UK Marine Monitoring and Assessment Strategy[87] (UKMMAS). Although the UK Government Vision is not a legally binding instrument, the Government and Devolved Administrations are committed to achieving its aspirations.

ii Assessment requirement

Chapter 1 of Safeguarding Our Seas: A Strategy for the Conservation and Sustainable Development of our Marine Environment states that UK Government will 'develop our environmental monitoring framework and produce a first integrated assessment of our seas in 2004'.

iii Geographic scope

The vision applies across all UK waters and is adopted by Defra, Scottish Government, Welsh Assembly Government and the Northern Ireland Assembly.

iv Reporting scale

The assessments undertaken within CP2 used eight regions within UK waters and reported status within these regions[88] (Figure 8).

[85] http://chartingprogress.defra.gov.uk/charting-progress2005
[86] http://chartingprogress.defra.gov.uk/
[87] http://www.defra.gov.uk/environment/marine/science/ukmmas/
[88] http://chartingprogress.defra.gov.uk/regional-basis-charting-progress-2

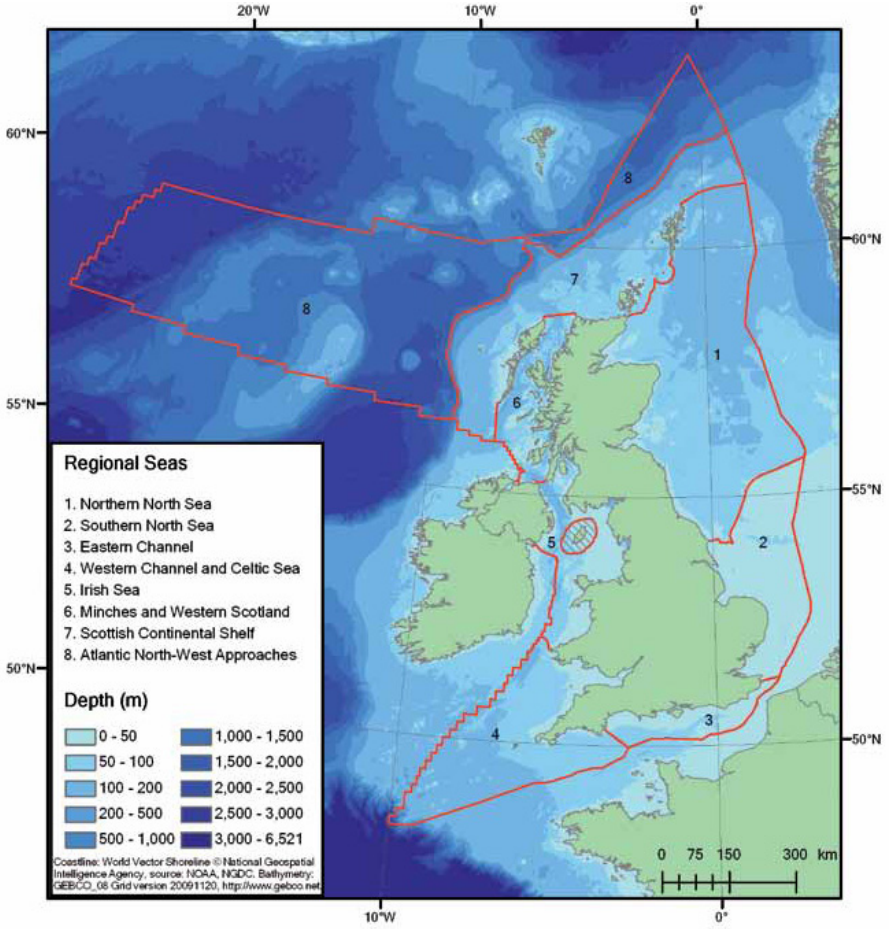

Figure 8. Map showing the eight regional seas used within the Charting Progress 2 assessment process.

v Biological scope (species and habitats)

The UK vision covers all marine habitats and species within UK waters. However, for assessment and reporting purposes, CP2 grouped aspects of biodiversity into benthic habitats (six broadly defined types - intertidal rock, intertidal sediment, subtidal rock, shallow subtidal sediment, shelf subtidal sediment and deep-sea habitats), plankton and microbes, fish, seals, turtles, cetacean and marine birds.

vi Reporting cycle frequency

Safeguarding our Seas (2002[89]), recommends that integrated assessments should be undertaken at regular intervals. The first assessment was published in 2005, the second in 2010. There is no formal plan for producing a Charting Progress 3 report as this may be subsumed within the reporting requirements for MSFD and other obligations, but it remains a possibility.

vii Baselines used (i.e. the value of state against which subsequent values of state are compared, that is, the standard against which environmental targets can be set)

[89] http://archive.defra.gov.uk/environment/marine/documents/marine_stewardship.pdf

Table 21. Summary of the baselines used for different ecosystem components within CP2.

Ecosystem component	Baseline used for assessment
Benthic Habitats	Former natural conditions (i.e. absence of human pressures)
Microbes	No assessment made
Plankton	1940s (beginning of wide scale monitoring)
Fish (demersal)	1980s (first robust monitoring) but also refers to status of fish in relation to historical baselines (i.e. 100 years ago) within the supporting feeder report[90].
Harbour Seals	1980s
Grey Seals	1960s in Scotland, 1980s elsewhere in the UK
Turtles	No assessment
Cetaceans	Depending on the species - 1994 (SCANS I), 2003 (Cetacean Atlas), 2005 (SCANS II), or 2007 (CODA)
Waterbirds	1975/76
Seabirds	1969 for whole UK assessment

Several chapters within CP2 highlight the importance of establishing standard and ecologically meaningful baseline values against which to set targets and make assessments of status in future.

viii Status classes of assessment

Charting Progress 2 uses the following classes ('traffic lights') for assessing the status of marine habitats and species, including, where possible, an assessment of trends and confidence in the judgement (Figure 9):

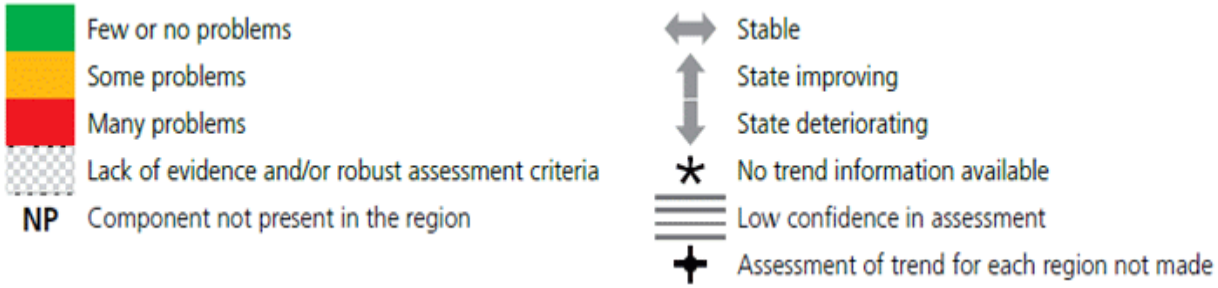

Figure 9. Status classes (and trend/confidence categories) used to assess biological components within CP2.

ix Criteria used for assessment

A variety of different criteria were used to undertake the assessments of species and habitats in CP2 (Table 22). This reflects the different type, amount and quality of data available for different components of the marine ecosystem and any methods which already existed to undertake assessments.

[90] http://chartingprogress.defra.gov.uk/healthy-and-biologically-diverse-seas-feeder-report-download

Table 22. Criteria employed for the assessment of different biological components in CP2.

Biological component	Criteria used
Cetaceans	Range Population Habitat for the species Future prospects } Same as under Habitats Directive
Seals	Trends in population size i.e. numbers of individuals
Marine birds	Trends in population size i.e. numbers of individuals
Plankton	No assessment criteria identified
Fish	Structure of fish assemblage Functioning of fish assemblage
Benthic habitats	Current status (assessed using human pressures data) Recent trends Future prospects (20 years into the future)

x Criterion targets

Criterion level targets were articulated for benthic habitats. In assessing the current status of the habitat, the % area impacted by human pressures was used and three different threshold limits were assigned (see red, amber and green 'traffic lights' and associated % thresholds in Figure 10).

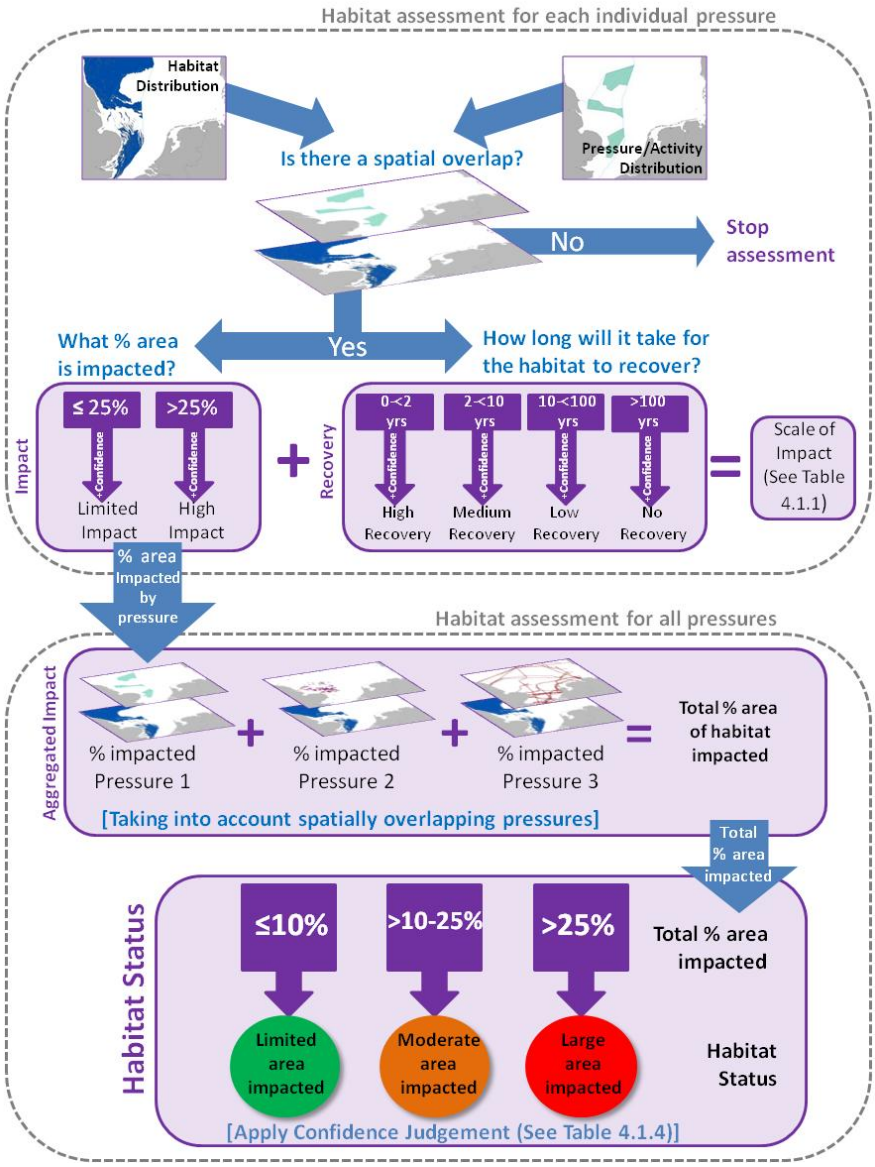

Figure 10. Summary of the method for assessing current status of benthic habitats in CP2, showing the % limit thresholds for area impacted, i.e. to achieve a green 'traffic light', less than or equal to 10% area of the habitat type could be impacted by human pressures.

For fish species, a detailed quantitative assessment was undertaken for each CP2 region, involving the collation of fish survey datasets from institutes in England, Scotland, Wales and Northern Ireland. This provided time-series for 15 community and ecosystem metrics, and allowed an assessment of the changing structure and functioning of fish assemblages over the past 20 years, and particularly since 'Charting Progress' was published in 2005. The assessment could not use the same methodologies and metrics to determine the status of demersal, estuarine and deep-water fish communities due to differences in data availability. Along with the analysis of the trends in these data, expert judgement was employed to assess whether the status of fish communities around the British Isles are thought to have 'improved' (green), 'deteriorated' (red) or stayed about the same (amber) over the past five to ten years.

For cetacean species, the assessment employed expert judgement, using mainly the 2007 Favourable Conservation Status (FCS) assessments of all cetacean species

occurring in UK waters. The judgements also took into account the approach used for the OSPAR Quality Status Report 2010 assessments. The final status assessments in CP2 for cetaceans were therefore a combination of the Habitats Directive FCS and OSPAR approaches (please see relevant sections for criteria and targets used under these approaches).

For seal species, the assessment was based on population estimates and trends for the grey seal and harbour seal. These data were coupled with expert judgement on the impacts of human pressures on seal populations in each regional sea to arrive at a 'traffic light' (green, amber or red) assessment for each of the two species in each region.

For marine birds, the assessment was based on trends in population size of species. An assessment of the magnitude of the impacts of pressures from human activities was also undertaken, using eight broad pressure themes, encompassing 22 pressures. The assessments were based on expert judgement, supported by published evidence where possible.

The assessment of the status of plankton communities in the UK was undertaken using the available long-term monitoring data and peer-reviewed research, in combination with expert judgement. No assessment was undertaken for microbes due to insufficient data and current understanding of the ecology of these organisms.

xi Indicators (attributes)

The CP2 assessment incorporates the use of indicators to varying degrees. Specific detail can be found in the HBDSEG feeder report which provides supplementary detail to the main CP2 report.

For some ecosystem components (e.g. plankton and fish), the use of indicators in undertaking assessments is well developed, compared to other components. In the case of plankton, the Sir Alistair Hardy Foundation for Ocean Science (SAHFOS) have developed several large-scale indicators of plankton community health, which can also act as early warning signals for change in the marine environment generally. For example, the ratio of two plankton species (one warm water and one cold water) can give a good indication of the ecosystem effects of climate change in the Atlantic Ocean.

In the case of fish status assessment under CP2, indicators of fish community status have been used e.g. the Large Fish Indicator (LFI). Due to the fact that there are good time series data for fish populations in UK waters, 15 community and ecosystem indicators (see HBDSEG feeder report, 2010[91]) could be used to assess changes over the last 20 years (and particularly since 2005). The use of these indicators resulted in the most comprehensive assessment ever produced for UK fish communities being undertaken for CP2.

For cetaceans, the UK Cetacean Strandings Investigation Programme (CSIP) produces strandings data as an indicator of the impact of certain human pressures (e.g. pollutants and by-catch on cetacean populations). The UK bycatch monitoring project provides by-catch data which acts as an impact indicator for the status of cetacean populations (data on by-catch of harbour porpoise can feed into the OSPAR EcoQO on harbour porpoise). Abundance and distribution estimates along with trend information are also currently used to undertake status assessments for

[91] http://chartingprogress.defra.gov.uk/feeder/HBDSEG-feeder.pdf

cetaceans and more-effective indicators of status may be developed in future. There is a similar situation for seabirds and waterbirds. CP2 states that further work will be needed to define good indicators of seabird status. However, several indicators are currently being developed (e.g. seabird OSPAR EcoQOs relating to plastic particles, mercury contamination and seabird population trends).

In terms of benthic habitats assessments, CP2 recognises that there is a need to review the Robinson *et al* (2009) methodology which was employed, to enable incorporation of a mixture of expert judgement and data on specific indicators when undertaking future assessments, and to incorporate confidence assessments of recent and future trends. At the time of publication, no method had yet been developed that is able to incorporate the wide range of indicators and data in use across different benthic habitats. For this reason, the assessment largely relied on expert judgement.

xii Indicator targets/thresholds

The CP2 status assessment describes some indicator level targets which are in operation for marine biodiversity components, for example, the Large Fish Indicator has a target value of 0.3 in the North Sea (i.e. 30% of fish should be at a length above 40cm. For the Celtic Sea, the target is for 40% to be over 50cm). Many of the other EcoQOs which have been used in the assessment of birds, cetaceans and seals, also have associated targets (e.g. annual bycatch levels of harbour porpoise should be reduced to levels below 1.7% of the best population estimate).

However, for most aspects of the UK marine environment, there are, as yet, no recognised target levels which could be considered to represent a 'healthy and biologically diverse sea'. This is due to the issue of assigning ecologically meaningful baselines and setting targets in relation to this. It is challenging to identify what 'good' means for marine biodiversity across such large scales and when taking account of the need for sustainable use. It is noted in CP2 that the development of baselines and targets is a key task for the future, especially to support the implementation of the MSFD in UK waters.

xiii Aggregation rules (where relevant)

In order to produce assessments at the relevant spatial scales for benthic habitats components, the following aggregation rules were employed under CP2:

a Aggregation rule 1: Total % Area Impacted

Once the broad-habitat assessment and associated worst-case scenario assessments were complete, an overall status assessment for each broad habitat within each Regional Sea was made. The 'Total % Area Impacted' values for all pressures were arrived at by summing together the '% Area Impacted' values for each individual pressure. Where the percentage was less than one, or where the experts considered there to be insufficient data or knowledge available to calculate a percentage, it was assumed to be negligible and thus treated as zero in the calculations.

A single activity can lead to several different pressures that may simultaneously impact a habitat. Such pressures are therefore not 'independent' and should not be summed to arrive at the 'Total % Area Impacted' value. To take account of this, along with the fact that reliable judgements around synergistic or additive effects of combined pressures are not currently possible, a simple aggregation

rule was used. Where two or more pressures were known to overlap, it was assumed that they completely overlapped such that the largest percentage was used to account for all pressures (to avoid double-counting). For example, if 10% of Intertidal Sediment habitat was impacted by organic enrichment and 10% by nitrogen and phosphorus enrichment, then, in theory, the total area impacted would be 20%. However, this would be an over-estimate of the area impacted if both these pressures were known to affect the same area (for example, within estuaries subject to terrestrial input of nutrients and organic matter). In such situations, the sum was corrected to reflect this on the basis of expert judgement; in the example above, the sum would have been reduced by 10%.

Worst-case scenarios were not further considered in the calculation of the 'Total % Area Impacted', but were included within the results of the assessments. A problem was encountered while attempting to aggregate information on recent and future trends related to multiple pressures. Based on the available information on trends of habitat status, resulting from the impact of each pressure within each Regional Sea, it proved impossible to distil a robust statement on trends. As a result, the trend information was selected from those pressures considered to impact a significant fraction of the habitat (≥1% within a Regional Sea), using the following guidelines:

- if several pressures all had a roughly comparable impact on a habitat, the most conservative trend was used, following the Precautionary Principle; and
- if a single pressure was clearly having a greater impact than all other pressures combined, then the trend information associated with that pressure was used as the overall trend.

b Aggregation rule 2: Aggregation of assessments of a broad habitat from different Regional Seas

In order to achieve consistency within the HBDSEG Feeder Report, several of the 11 Regional Seas used in the Habitats Chapter were aggregated to achieve a total of 8 Regional Seas. The 'Total % Area Impacted' of each habitat within the 11 Regional Seas was calculated according to the aggregation rules described above. To arrive at the required eight regions, the following aggregation rules were applied:

- estimate total surface area (in km^2) of each of the 11 Regional Seas;
- estimate total area occupied by each broad habitat (in km2) within each of the 11 Regional Seas, and sum;
- for each habitat and Regional Sea impacted, calculate 'Total % Habitat Area Impacted' by anthropogenic pressures within each of the 11 Regional Seas;
- calculate the equivalent surface area (in km^2) of broad habitat impacted by anthropogenic pressures for each original Regional Sea, and sum these values;
- divide the summed Area Impacted by the summed Total Area of the habitat within the combined Regional Seas to determine the 'Total % Habitat Area Impacted' for the combined Regional Sea;
- assess whether this percentage is greater than either the 10% or 25% Area Impacted thresholds, to determine the status for each of the eight Regional Seas.

xiv Overall assessment approach

There is no formal standardised assessment approach employed within CP2 in order to produce the summary traffic light assessments. The assessment addresses the condition of a component occurring within a Region, and the extent of the problems is based on the number of pressures exerted on it, or the impacts it receives, or a combination of the two. For benthic habitats, the approach to assessing status involved calculating the cumulative extent to which each habitat type within each regional sea had been affected by all human pressures and assigning a traffic light colour depending on which extent threshold had been exceeded. For mobile species and plankton/microbes, assigning a 'traffic light' of either red (many problems), amber (some problems) or green (few/no problems) was done on the basis of the detailed information and assessments within the feeder report combined with expert judgement. This approach allowed a single, comparable assessment of status to be produced across all of the ecosystem components.

2.4.3 Marine Policy Statement (2011)

i High-level aspirations (including timeline for achievement)

The Marine Policy Statement[92] (MPS) is the framework for preparing Marine Plans and taking decisions affecting the marine environment. It will contribute to the achievement of sustainable development in the United Kingdom marine area. It has been prepared and adopted for the purposes of section 44 of the Marine and Coastal Access Act 2009 and Part 3, section 5 of the Marine (Scotland) Act 2010 (see part 2.3, above).

Across the UK new systems of marine planning are being introduced through primary legislation (i.e. the Marine and Coastal Access Act and Marine Scotland Act). The MPS is the framework for these marine planning systems. It provides the high-level policy context within which national and sub-national Marine Plans will be developed, implemented, monitored, amended and will ensure appropriate consistency in marine planning across the UK marine area. The MPS also sets the direction for marine licensing and other relevant authorisation systems.

The MPS highlights that the UK vision for the marine environment is for 'clean, healthy, safe, productive and biologically diverse oceans and seas'. It also notes that the UK high-level marine objectives published in April 2009 set out the broad outcomes for the marine area in achieving this vision, and reflect the principles for sustainable development. The process of marine planning in line with the MPS will contribute to the achievement and integration of sectoral/activity specific policy objectives within a framework of economic, social and environmental considerations in order to deliver the high-level marine objectives. This approach will help ensure the sustainable development of the UK marine area and thus deliver the UK vision.

Decisions on Marine Plans and activities should be undertaken in accordance with requirements under UK and EU legislation and should be consistent with obligations under international law. Marine Plans will contribute to meeting the objectives of EU legislation such as the MSFD and WFD, especially in relation to any measures under these Directives which have a spatial dimension. Particularly, marine planning will be a key tool to ensure that the targets and measures under the UK delivery of the MSFD are implemented successfully.

[92] http://www.defra.gov.uk/publications/files/pb3654-marine-policy-statement-110316.pdf

The MPS states that in line with the UK high-level objectives, planning authorities should be mindful that the UK aims to ensure:

- halting and, if possible, a reversal of biodiversity loss with species and habitats operating as a part of healthy, functioning ecosystems; and
- the general acceptance of biodiversity's essential role in enhancing the quality of life, with its conservation becoming a natural consideration in all relevant public, private and non-governmental decisions and policies.

The main policy objectives (outcomes) that are being sought by UK Governments to achieve the UK vision and sustainable development of UK waters can be summarised as:

1. Marine Protected Areas (MPAs):
    a. An ecologically coherent network;
    b. Designation of International sites (e.g. SACs, SPAs, Ramsar sites);
    c. Designation of MCZs and MPAs in Scotland; and
    d. Designation of SSSIs.
2. Energy production and infrastructure development:
    a. A secure, sustainable and affordable supply of energy;
    b. Meeting relevant national and international energy targets;
    c. Offshore oil and gas exploration;
    d. Renewable energy developments;
    e. Protecting the marine environment; and
    f. Carbon capture and storage.
3. Ports and shipping:
    a. Continued trade via shipping routes;
    b. Supporting the economy; and
    c. Supporting remote communities with transport links.
4. Marine aggregates:
    a. Continued provision of required materials; and
    b. Suitable environmental assessments completed.
5. Marine dredging and disposal:
    a. Maintenance of channels for navigation; and
    b. Compliance with international conservation obligations.
6. Telecommunications cabling:
    a. Coordination of activities to ensure safety.
7. Fisheries:
    a. Taking account of socioeconomic factors;
    b. Provisions of the CFP are taken account of;
    c. Move towards sustainable fisheries; and
    d. Healthier marine environment.
8. Aquaculture:
    a. Food security ensured; and
    b. Minimising risks of alien species introduction.

9. Surface water management and waste water treatment and disposal:
    a. Human health and well being; and
    b. Environmental protection.

10. Tourism and recreation:

    a. Improving the marine environment; and
    b. Benefitting local economies.

ii Assessment requirement

There is no formal requirement stipulated within the Marine Policy Statement that requires an assessment of the status of marine biodiversity aspects. However, the statement emphasises throughout the importance of all marine plans complying with any relevant national or international legislative obligations. This includes complying with the Strategic Environmental Assessment (SEA) Directive, requirements for Environmental Impact Assessment (EIA) and appropriate assessments under the Habitats Directive. It also refers to the provisions of the MSFD, WFD and Birds Directive.

iii Geographic scope

The Marine Policy Statement covers the entire UK marine area and has been adopted by Government and the Devolved Administrations.

2.4.4 European Biodiversity Strategy (2011)

i High-level aspirations (including timeline for achievement)

The EU biodiversity strategy[93] 'Our life insurance, our natural capital: an EU biodiversity strategy to 2020' was adopted by the European Commission in 2011 and has the main aim of 'reversing biodiversity loss and speeding up the EU's transition towards a resource efficient and green economy'.

The EU 2020 biodiversity strategy (EUBS) responds to both EU and global mandates, as outlined below:

a EU 2050 vision

By 2050, European Union biodiversity and the ecosystem services it provides — its natural capital — are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human well-being and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided.

b EU 2020 headline target

Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss.

The EU Environment Council Conclusions in June 2011 adopted the Strategy, but noted further work was required on the listed Actions in the Annex to the Strategy. Council Conclusions[94] in December 2011 refined the focus of implementation of the EUBS.

[93] http://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/1_EN_ACT_part1_v7%5b1%5d.pdf
[94] http://consilium.europa.eu/media/1379139/st18862.en11.pdf

ii Assessment requirement

There is currently no formal requirement stipulated within the EUBS which requires an assessment of the status of marine biodiversity aspects outside of the assessments required under the Habitats and Birds Directives. However, it is stated that 'The Commission will work with Member States and the European Environment Agency to develop by 2012 an integrated framework for monitoring, assessing and reporting on progress in implementing the strategy'.

iii Geographic scope

The EUBS covers the European territory of the Member States of the European Community (including terrestrial, coastal and marine).

iv Reporting scale

Details of reporting against this strategy are not yet finalised. A Common Implementation Framework (CIF) and an integrated framework for monitoring, assessing and reporting on progress in implementing the strategy are currently under development. The Commission aims to align the reporting system with the review and reporting obligations under the CBD wherever possible.

v Biological scope (species and habitats)

The EUBS responds to the EU 2020 headline target of 'Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020...' and therefore encompasses all marine (and terrestrial) habitats and species.

vi Reporting cycle frequency

Details of the reporting against this strategy are not yet finalised.

vii Baselines used (i.e. the value of state against which subsequent values of state are compared, that is, the standard against which environmental targets can be set)

Although the details of the assessment framework are not yet defined, it seems that the EU biodiversity strategy is using a baseline of 2010 against which to assess progress. Section 2.3 of the strategy states that the EU 2010 biodiversity baseline will be a key component of the assessment framework. The status of the environment in 2010 (as a product of the measures taken to try and achieve the 2010 target) will therefore be the standard against which future status assessments will be made i.e. improvements compared to 2010 will be the important aspect.

viii Status classes of assessment

Details of the assessment framework of this strategy are not yet finalised.

ix Criteria used for assessment

There are no formal assessment criteria defined within the strategy.

x Criterion targets

The strategy contains six mutually supportive and inter-dependent targets that articulate the ambitions for biodiversity across the EU. They are as follows (targets not directly applicable to the marine environment have been greyed out):

a Target 1: Fully implement the Birds and Habitats Directives

'To halt the deterioration in the status of all species and habitats covered by EU nature legislation and achieve a significant and measurable improvement in their status so that, by 2020, compared to current assessments:

(i) 100% more habitat assessments and 50% more species assessments under the Habitats Directive show an improved conservation status; and
(ii) 50% more species assessments under the Birds Directive show a secure or improved status.'

The focus is on completing, in a timely manner, the establishment of the Natura 2000 network and ensuring good management and restoration, where appropriate. Also on integrating protection and management needs of species and habitats into key policy and financial instruments, and promoting investment in Natura 2000 areas through strategic planning and prioritised action frameworks.

b Target 2: Maintain and Restore Ecosystems and their Services

'By 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15 % of degraded ecosystems.'

The focus is on valuing ecosystems and their services, integrating these values into decision making processes and reporting systems at EU and national level by 2020, and the importance of ecosystem mapping and assessment of the state of ecosystems and their services.

c Target 3 ...: Increase the contribution of Agriculture and Forestry to maintaining and enhancing biodiversity

*'*A) Agriculture: By 2020, maximise areas under agriculture across grasslands, arable land and permanent crops that are covered by biodiversity-related measures under the CAP so as to ensure the conservation of biodiversity and to bring about a measurable improvement ... in the conservation status of species and habitats that depend on or are affected by agriculture and in the provision of ecosystem services as compared to the EU2010 Baseline, thus contributing to enhance sustainable management.

B) Forests: By 2020, Forest Management Plans or equivalent instruments, in line with Sustainable Forest Management (SFM), are in place for all forests that are publicly owned and for forest holdings above a certain size ... (to be defined by the Member States or regions and communicated in their Rural Development Programmes) that receive funding under the EU Rural Development Policy so as to bring about a measurable improvement ... in the conservation status of species and habitats that depend on or are affected by forestry and in the provision of related ecosystem services as compared to the EU 2010 Baseline.'

d Target 4: Ensure the sustainable use of fisheries Resources

'Fisheries: Achieve Maximum Sustainable Yield (MSY) by 2015. Achieve a population age and size distribution indicative of a healthy stock, through fisheries management with no significant adverse impacts on other stocks,

species and ecosystems, in support of achieving Good Environmental Status by 2020, as required under the Marine Strategy Framework Directive'.

The Focus is on supporting ongoing efforts to protect and sustainably use fish populations and aquatic genetic resources in seas and inland waters, including aquaculture; the reform of the CFP to address discarding and effective implementation of the ecosystem approach; production of sustainable long-term multi-annual regional management plans; improved collection of scientific data on fish populations; and ensuring that marine activities comply with requirements of Habitats and Birds Directives and the MSFD.

e Target 5: Combat Invasive Alien Species (IAS)

'By 2020, Invasive Alien Species and their pathways are identified and prioritised, priority species are controlled or eradicated, and pathways are managed to prevent the introduction and establishment of new IAS.'

The focus is on incorporating effects of IAS on biodiversity in the EU Plant and Animal Health Regimes; encouraging ratification of the Ballast Water Convention to limit the spread of IAS; and reiterating the need for an EU strategy on IAS including a dedicated legislative instrument on IAS by 2012. A proposal was subsequently made by the European Commission for a Regulation in 2013, relating to the introduction and spread of IAS[95].

f Target 6: Help Avert Global biodiversity loss

By 2020, the EU has stepped up its contribution to averting global biodiversity loss.'

xi Indicators (attributes)

There are no formal indicators stipulated within the strategy for monitoring of progress towards achieving the strategy aspirations. However, it is mentioned that the 26 SEBI (Streamlining Europe's Biodiversity Indicators) EU biodiversity indicators[96] will form a key component of the monitoring, assessment and reporting framework under the 2020 strategy.

xii Indicator targets/thresholds

Details of the indicators are not yet finalised.

xiii Aggregation rules (where relevant)

Details of the assessment framework of this strategy are not yet finalised.

xiv Overall assessment approach

Details of the assessment framework of this strategy are not yet finalised.

[95] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52013PC0620:EN:NOT
[96] http://biodiversity.europa.eu/topics/sebi-indicators

3 High-level summary table

A high level summary table of the present report is provided here.

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5 Glossary

ACAP	Agreement on the Conservation of Albatrosses and Petrels
AEWA	Agreement on the Conservation of African-Eurasian Migratory Waterbirds (also known as the African-Eurasian Waterbird Agreement)
ASCOBANS	Agreement on the Conservation of Small Cetaceans of the Baltic, North-East Atlantic, Irish and North Seas
ASSI	Area of Special Scientific Interest [in Northern Ireland]
BD	Birds Directive
CBD	Convention on Biological Diversity
CCW	Countryside Council for Wales [now Natural Resources Wales, NRW]
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CMS	Convention on Migratory Species
CO	Conservation Objective
COP	Conference of Parties (of the CBD)
CS	Continental Shelf / Conservation Status [according to context]
CSA	Conservation of Seals Act
D	Descriptor
DA	Devolved Administration
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EcoQO	Ecological Quality Objective
EEA	European Environmen Agency
EEZ	European Economic Zone
EQR	Ecological Quality Ratios
EQS	Environmental Quality Standard
EU	European Union
EUBS	European Union Biodiversity Strategy
FCS	Favourable Conservation Status
GEcS	Good Ecological Status
GES	Good Environmental Status
Gov Vision	UK Government Vision for the marine environment
HBDSEG	Healthy and Biologically Diverse Seas Evidence Group (of the UK)
HD	Habitats Directive
HLMOs	UK High-level Marine Objectives
ICES	International Council for the Exploration of the Sea
ICG-COBAM	OSPAR's Inter-sessional Correspondence Group on the Coordination of Biodiversity Assessment and Monitoring
JNCC	Joint Nature Conservation Committee
JRC	European Commission Joint Research
LFI	Large Fish Indicator

MCAA	Marine and Coastal Access Act
MCZ	Marine Conservation Zone
MNR	Marine Nature Reserve
MPA	Marine Protected Area
MPS	UK Marine Policy Statement
MS	Member States
MSA	Marine (Scotland) Act
MSFD	Marine Strategy Framework Directive
Natura 2000	An ecological network of protected areas in the territory of the EU, brought about through BD and HD
NERC	Natural Environment Research Council
NIEA	Northern Ireland Environment Agency
OSPAR	Convention for the protection of the marine environment of the North-East Atlantic
QSR	Quality Status Report
SAHFOS	Sir Alister Hardy Foundation for Ocean Science
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SCANS	Small Cetacean Abundance in the North Sea and Adjacent waters
SEPA	Scottish Environment Protection Agency
SMRU	Sea Mammal Research Unit
SNCB	Statutory Nature Conservation Body [e.g. Natural England, JNCC]
SNH	Scottish Natural Heritage
SSSI	Site of Special Scientific Interest [in Great Britain]
UK TAG	UK Technical Advisory Group (of the WFD)
UNCLOS	United Nations Convention on the Law of the Sea
TBT	Tributyl tin
WCA	Wildlife and Countryside Act
WFD	Water Framework Directive

Annex A

Description of the different types of national and international legislative and non-legislative obligations

Type of obligation	Description
Introduction	All proposals for EU legislation are the exclusive prerogative of the European Commission. Legislative proposals may take the form of Regulations, Directives or Decisions. The European Council and The Council (of Ministers) through respective Council Conclusions and the European Parliament through 'Own Initiative Reports' may recommend the need for legislation, as may the outcome of international agreements but, none of these are binding on the European Commission. It will consider any recommendations and act accordingly. In many cases, especially with regard to Conclusions from the European Council and the Council (of Ministers), the European Commission does indeed act in accordance with their wishes. This may give the impression that it is taking instructions from the other Institutions but this is not the case. The decision procedure to be used for adopting legislative proposals is set out in the Treaty for each policy area. For environment, climate, agriculture, fisheries and cohesion policies, legislation will be agreed by the Ordinary Legislative Procedure (i.e. co-decision between the Council and the European Parliament). In addition to these legal instruments, referred to in Article 288 of the Treaty on the Functioning of the European Union (TFEU), the Institutions may also agree Recommendations and Opinions, however these are non-binding. In practice, the development of a whole series of *sui generis* documents: inter-institutional agreements, resolutions, conclusions, communications, green papers and white papers may be adopted.
Competences	The TFEU clarifies, for the first time, the division of competences between the EU and Member States. It distinguishes between three main types of competence: *Exclusive competences*: (a) customs union, (b) the establishing of the competition rules necessary for the functioning of the internal market, (c) monetary policy for the Member States whose currency is the euro, (d) the conservation of marine biological resources under the common fisheries policy, (e) common commercial policy. *Shared competences*: (a) internal market, (b) social policy, for the aspects defined in this Treaty, (c) economic, social and territorial cohesion, (d) agriculture and fisheries, excluding the conservation of marine biological resources, (e) environment, (f) consumer protection, (g) transport, (h) trans-European networks, (i) energy, (j) area of freedom, security and justice, (k) common safety concerns in public health matters. *Supporting competences*: (a) protection and improvement of human health, (b) industry, (c) culture, (d) tourism, (e) education, vocational training, youth and sport, (f) civil protection, (g) administrative co-operation.
EU Regulation	Regulations are the most direct form of EU law. Once they are passed, they have binding legal force throughout every Member State. Regulations are binding in their entirety and have equal 'weight' to national laws. National governments do not have to take action themselves to implement EU

	regulations. Regulations are passed either jointly by the EU Council and European Parliament or, by the Commission alone.
EU Decision	Decisions are binding in their entirety but are addressed to a specific party or parties, e.g. one or more Member State, other public authorities, companies or individual legal persons or entities. Decisions are passed by the EU Council (sometimes jointly with the European Parliament) or the by Commission alone.
EU Directive	Directives are binding as to the end results to be achieved but Member States and have a degree of flexibility over the means/method of implementation to achieve those results. All Member State governments must transpose each Directive into existing national legislation or create new national legislation. Each Directive specifies the date by which the national laws must be adopted/amended through transposition. Directives are used to align national legislation among the Member States to achieve the required results in a consistent manner across the EU. E.g. the Marine Strategy Framework Directive (MSFD) must be transposed into national law either through new primary or secondary legislation or through existing legislation with administrative steps to ensure compliance. Framework Directives such as MSFD or the Water Framework Directive (WFD) are generally less prescriptive, allowing for some flexibility in implementation. Framework Directives such as WFD may have 'daughter' Directives, which focus on a particular aspect of the Framework Directive, requiring more detailed legislation e.g. under WFD there is a Groundwater Directive and Priority Substance Directive.
Comitology	Comitology is the informal term used to describe the process through which the Commission exercises its implementing and delegated powers with assistance from (and control by) (comitology) committees, composed of officials from Member States governments. These powers have been established to avoid burdening the legislators (the Council and European Parliament) with designing and agreeing the detailed implementing measures needed for the basic EU legislation, and to allow the Commission to make appropriate amendments to non-essential elements of legislation. This is a complex process (particularly to describe concisely) but it is a vital part of the EU decision making process and one in which the UK, as all Member States, has considerable influence over the outcome of the decisions. The Habitats and Ornis Committees are examples of comitology committees. The Lisbon Treaty supposedly simplified and made more transparent and accountable the previous comitology process by distinguishing between Delegated Acts (Article 290 of the TFEU) and Implementing Acts (Article 291 of the TFEU): i) Delegated Acts – the objectives, scope, duration and the conditions to which the delegation is subject will be established in each and every basic legislative act. Delegated Acts will be used normally for more politically sensitive matters that the legislators want to keep a closer eye on, notably in the environment, financial services, public health, and law enforcement co-operation areas. Under Delegated Acts the Commission may amend, delete or supplement certain non-essential elements of the basic piece of EU legislation (e.g. adding substances to an annex of banned products). Delegated Acts can only be used for basic legislation adopted under the Ordinary Legislative Procedure

	(co-decision) The Commission is not obliged to seek a formal opinion from any Committee. However, it is likely to exchange ideas with Member States using an Expert Group. The Commission then presents its Delegated Act directly to both legislators at the same time. The legislators have a period (specified in the basic legislation) to object (on any grounds) or to revoke the delegation altogether. They also have the possibility to give their approval to allow the Commission to adopt the Delegated Act much faster. ii) Implementing Acts – are the second category of measures that can be delegated to the Commission under rules set out in Regulation (EU) No 182/2011. The rule establishes an 'Advisory Procedure' and an 'Examination Procedure'. The Advisory Procedure is used (just as before Lisbon) to deal with low sensitivity measures such as grant and funding approvals. The Advisory Committee must provide its opinion through a Qualified Majority Vote (QMV). The Commission must take account of the opinion but is not obliged to follow it. The Examination Procedure (is new and replaces the previous Management and Regulatory Procedures) will be used where the basic legislation requires consistent implementation across Member States for (amongst others) implementing measures of general scope, programmes with substantial budgetary implications, measures related to the Common Agricultural Policy and Common Fisheries Policy, taxation and the Common Commercial Policy (CCP). Under the Examination Procedure, the Commission must get a QMV in favour in order to adopt its Implementing Act. Both legislators have the right of scrutiny to ensure the Commission does not exceed its implementing powers provided for in the basic legislative act. If there is a QMV against its proposal the Commission will submit the Implementing Act to an Appeals Committee If there is no QMV in favour or against (i.e. no opinion) the Commission may reconsider and resubmit its Implementing Act. In the event of a Simple Majority against its proposal the Commission cannot adopt its Implementing Act.
EU policy (non-binding) instruments	The EU's environmental legislation is complemented by a variety of other non-binding policy instruments such as strategies, programmes and action plans to address the wider use of terrestrial and marine resources, eg the EU Biodiversity Strategy.
Non-binding tools	The European Commission may also use broader non-binding tools to deliver solutions - eg Market-based instruments (MBIs), voluntary agreements, eco-labelling, environmental management systems (EMS).
International Conventions	At the international level, Conventions are the commonest form of agreement between countries. Often referred to as Multi-lateral Environmental Agreements (MEAs) if they refer to environmental conservation. Conventions are legally binding, and having signed, each country follows a process of ratification, whereby the means for implementing the provisions of the agreement nationally must be ascertained. Countries become party to these agreements and are often required to transpose them into national law. E.g. OSPAR and CBD, UNFCCC, RAMSAR, IPBES, etc. The EU is a signatory to

	many International conventions as a block. Conventions may also give rise to national legislation.
UK Legislation	National laws made in UK Parliament, Scottish Government, Welsh Government or NI Assembly, e.g. Wildlife and Countryside Act or Habitats Regulations etc. A driver for the Wildlife and Countryside Act (1981) was ratification of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention).
Policy drivers	Issues which prompt the development and adoption of policy(ies). Including; climate change; energy (biomass, bioliquids, land use change, indirect land use change), pollution, transport, exploitation of natural resources - water, over-consumption, food security (GMOs etc), non-native/invasive species, MEA and TEEB, the economic climate, etc.
Commission Proposals	The Commission presents the annual policy strategy for the following year to the European Parliament and the Council in February. The three institutions then engage in a structured dialogue and each Commissioner has a discussion with the relevant Parliamentary committee. The result of this dialogue is a stock taking document which is used to prepare the Commission work programme. The Commission work programme, adopted in November ahead of the year in question, translates policy strategy into a concrete action plan and a set of deliverables. Each Commission department (directorate-general) then develops its annual management plan. These describe how the DGs will plan their activities and how they contribute to the priorities set by the Commission, including the allocation of human and financial resources to the activities. The Commission's legislative and non-legislative proposals must all be accompanied by an impact assessment undertaken by the DG responsible. The proposals are developed with an extensive consultation process, which may be conducted in various ways (impact assessment, reports by experts, consultation of national experts, international organisations and/or non-governmental organisations, consultation using Green and White Papers, etc.). Prior to final adoption by the College of Commissioners all proposals are subject to a formal internal consultation process (Inter-service Consultation) among the relevant DGs including the legal service, in the case of legislative proposals. The date a draft legislative proposal is adopted and published by the Commission marks the start of that proposal´s passage through the legislative process. Once the Commission has adopted its proposals it presents them simultaneously to The European Council and Parliament and national governments, and, where applicable to the Committee of the Regions and the Economic and Social Committee.
Impact Assessments	Prior to the European Commission proposing any new initiative it will have been subject to a screening process by the Commission's Impact Assessment Board, which determines whether an Impact Assessment is required. IAs are normally prepared for: • legislative proposals which have significant economic, social and environmental impacts • non-legislative initiatives (white papers, action plans, expenditure programmes, negotiating guidelines for international agreements) which define future policies • certain implementing measures (so called 'comitology' items) which are

	likely to have significant impacts. The relevant Directorate General is responsible for conducting the Impact Assessment of the potential economic, social and environmental consequences that they may have. All Impact Assessments follow a set of logical steps set out in Commission guidelines. It is a process that prepares evidence for political decision-makers on the advantages and disadvantages of possible policy options by assessing their potential impact. All impact assessments are published at the time the Commission adopts and publishes the initiative for which the IA has been conducted. They are available online on the European Commission's website. Impact Assessments are published as 'Commission Staff Working Documents' (and given a SEC, as opposed to COM, document number e.g. SEC(2012)123) and as such are not political documents. Draft IAs are subject to consultation among all relevant DGs (in parallel with the initiative itself) and submitted to the Impact Assessment board for scrutiny.
Green Papers/White Papers	It is important to know that, while there are similarities in a broad sense, it can be misleading to substitute the terminology of Green Paper or White Paper from a national government context into the EU (European Commission) context. People commonly refer to Commission proposals as Green or White papers, when in fact they are not. Green and White Papers do exist formally at EU level. They are both consultation documents and do NOT contain legislative proposals. Only very few are published in any one year, especially when compared to the huge number of legislative acts adopted in the EU each year. In 2010 and 2011 there were respectively 10 and 5 Green Papers. During the same two year period, only three White Papers were published. ***A Green Paper*** is a consultation document from the Commission to stimulate discussion on given topics at European level. It may be followed by a White Paper or a Communication to the European Parliament and the Council with legislative proposals for decision before being passed into law or as a non-legislative proposal. For example, in 2008 the Commission published a Green Paper on CFP reform; this was followed by extensive consultations, a report on the outcome and in 2011 a Communication to the Council and European Parliament with legislative proposals for CFP post 2012. ***A White Paper*** is a consultation document containing proposals for Community action in a specific area. Of the few published, some White Papers may follow a Green Paper published to launch a consultation process at European level. Although a White Paper is not addressed specifically to the Council, if it is favourably received by the Council, it can lead to an action programme for the Union in the area concerned. These are usually more authoritative reports containing proposals of enactment or action. For example, in 2009 the Commission published a White Paper on Adaptation to Climate Change with a view to publishing a Communication setting out an EU Strategy (non-legislative) in 2013.