

# ICES WKECOVER REPORT 2013

ICES ADVISORY AND ICES SCIENCE COMMITTEE

ICES CM 2013/ACOM/SCICOM:01

REF. ACOM, SCICOM

## Report of the ICES ACOM/SCICOM Workshop on Ecosystem Overviews

7 – 11 January 2013

ICES Headquarters, Copenhagen, Denmark



**ICES**

International Council for  
the Exploration of the Sea

**CIEM**

Conseil International pour  
l'Exploration de la Mer

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## Executive summary

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The joint SCICOM-ACOM workshop on ecosystem overviews (WKECOVER) met at ICES HQ in Copenhagen from 7-11 January 2013. The workshop group comprised 21 participants from 10 countries.

The workshop defined four purposes of the ecosystem overview in the ICES advice: (1) to describe the location, scale, management and assessment boundaries of the eco-region; (2) to alert expert groups to situations within the environment and ecosystems that are expected to significantly influence their advice; (3) to describe the distribution of human activity and resultant pressure (in space and time) on the environment and ecosystem; and (4) to describe the state of the ecosystem (in space and time) and to comment on pressures accounting for changes in state. The participants agreed that the structure should reflect these purposes, and proposed that the overview comprised four sections to be titled (1) 'Ecoregion description'; (2) 'Key signals within the environment and ecosystem'; (3) 'Activity and pressure' and (4) 'State'.

The workshop concluded that overviews should be 'living' documents if they were to meet their purpose. The workshop recommended processes and timescales for updating, quality control and review. It was agreed that draft overviews need to be regularly reviewed in the context of other sections of the ICES advice to ensure that inconsistencies are identified and rectified and that incompatibilities are addressed. ICES is responsible for guiding the users' interpretation of the overview contents, and no contents of the overview should not be supported by narrative or be otherwise ambiguous.

Audiences for the overviews include client commissions and the ICES community and networks. Owing to the range of audiences, we accept that the overviews will be evolving documents, driven by top down processes (advisory requests and ICES decisions about strategic direction) and bottom up processes (information streams highlighting 'new' issues from the ICES community and network). Overviews will highlight ICES capacity to provide integrated advice that is expected to meet the future needs of client commissions.

The workshop defined the contents (sub-sections) in each of the four sections of the overview and partially developed these sub-sections for three example ecoregions: the Baltic Sea, North Sea and Celtic Sea. For each subsection, this workshop report identifies data sources, figures and tables to include, and the main features of the narrative; but WKECOVER emphasised that the overview contents should be regarded as 'work in progress' to be augmented by specialist input from other Expert Groups. This WKECOVER report also tabulates information on update frequencies, responsibilities for updates and quality control of the material that is presented. The workshop output is, in effect, a recipe book that can be used for developing and updating the ecosystem overviews. Incorporating material in the overviews and progressively improving them will require the engagement of many parts of the ICES community and network (identified in this report) and active management of the development, update and review process. Developments of some sub-sections of the overview will require new data streams and analytical tools, and some of these needs have been identified. WKECOVER recommends that Sections 1 and 2 of the overview are prioritised for short-term (2013) development and should appear in the 2013 advice to the extent possible with sub-sections in Sections 3 and 4 presented as they are developed and accepted by the ACOM review process. Sections 3 and 4 risk becoming repositories for all known information on 'pressure' and 'state' in each eco-region and WKE-

COVER participants emphasised the importance of focusing on indicators of direct relevance to client commissions in these sections.

## 1 Introduction

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WKECOVER was convened to further the integration of ICES advice. Briefly, the Terms of Reference for the workshop were to (a) construct a concise and informative format for ICES ecosystem overviews, while justifying the inclusion of material and the priority issues to address, (b) to populate the format for the Baltic, North and Celtic Seas and the Bay of Biscay using the best available information, (c) to define and report on state and pressure indicators, along with the data and analytical requirements to calculate them, to allow the overviews to describe both the state of, and pressures on, the regional ecosystems and (d) to provide guidance on the operational updates of the ecosystem overviews. The full Terms of Reference are presented in Annex 3.

To develop the overviews, workshop participants followed a process of (1) defining the role of the ecosystem overviews based on analysis of ICES documents on the development of integrated advice and the needs of client commissions, (2) identifying audiences for the overviews and how these audiences would be served by the information we might include and (3) defining a structure for the overviews and the criteria that would determine the categories of information that would be included. The workshop participants then defined the sections and sub-sections they would like to see included in an overview and developed and populated draft overviews for three example ecoregions: the Baltic Sea, North Sea and Celtic Sea. However, WKECOVER emphasise that the further development of the overviews will require input from a range of expert groups owing to draw on more expertise in the ICES community. The workshop participants could not develop a draft ecosystem overview for the Bay of Biscay (as requested in the Terms of Reference) because no participants had sufficient knowledge of the Bay of Biscay ecoregion.

We thank the ICES Secretariat for their support in arranging and running this workshop and for their assistance with developing maps and other output for workshop participants.

## 2 What is the role of the ecosystem overview?

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WKECOVER discussed and defined the role of the ecosystem overviews. The discussion was centred around background documents that sought to summarise the voluminous range of content that past and extant ICES groups had recommended for inclusion in ecosystem overviews. This content had been proposed to support many purposes and WKECOVER, recognising that the overviews could not simply catalogue all information on the ecoregions, sought to identify a clear role for the ecosystem overview that would meet ICES' and client commission needs.

The workshop concluded that the ecosystem overviews should provide a concise and informative introduction to ecoregions considered in the ICES advice. They should describe the location, scale, management and assessment boundaries of the ecosystem and its relationship with other assessment and management areas, alert expert groups to key situations within the environment and ecosystems that are expected to significantly influence their advice, describe the distribution of human activity and resultant pressure (in space and time) on the environment and ecosystem, summarise trends in the state of the ecosystem (in space and time) and comment on pressures accounting for changes in state.

WKECOVER considered that overviews should be ‘living’ documents, and that all sections of the overview should be supported by information on frequency of updates, responsibilities for updates and quality control processes. Overviews also need to be reviewed in the context of other sections of the ICES advice to ensure that inconsistencies are identified and rectified and that incompatibilities are addressed. ICES is responsible for guiding the users’ interpretation of the overview contents, and no contents of the overview should not be supported by narrative or be otherwise ambiguous.

The overviews are deliberately concise and informative and WKECOVER considered that they should not include content that replaces core requests for advice. For example, they will not include advice on management options and trade-offs when meeting targets for state of the environment, as this would usually require a tailored, and often extensive, analysis in the main body of the advisory text. The overviews are intended to promote progress towards the delivery of integrated advice by ICES; where integration refers to (a) taking account of the effects of multiple human pressures on the environment when developing management advice, (b) accounting for the effects of the most influential environmental and ecosystem processes on advice and (c) considering multiple objectives. However, we reiterate that analyses of trade-offs among objectives would be addressed in the main body of the advice.

### **3 Who are the audiences for an ecosystem overview?**

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WKECOVER considered that the overview contents would be directed at groups within ICES as well as external users of the advice and client commissions. The overviews include content that is requested by client commissions, but also show ICES capability in providing advice that is expected to be relevant or useful for client commissions in future. Owing to the range of audiences, the overviews will be evolving documents, driven by top down processes (advisory requests and ICES decisions about strategic direction) and bottom up processes (information streams highlighting ‘new’ issues from the ICES community and network). The process for compiling the overviews needs to identify the groups that contribute to them.

### **4 Structure of the Overview**

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WKECOVER agreed that the structure of ecosystem overviews should reflect the purposes that the overviews are intended to serve. Based on a discussion about the role of the overview and ICES and client commission needs and the contents of the existing ICES advice, WKECOVER defined four purposes that the overviews should serve.

1. To describe the location, scale, management and assessment boundaries of the ecoregion
2. To describe key signals within the environment and ecosystem: to alert expert groups to situations within the environment and ecosystems that are expected to significantly influence their advice
3. To describe the distribution of human activity and resultant pressure (in space and time) on the environment and ecosystem
4. To describe the state of the ecosystem (in space and time) and to comment on pressures accounting for changes in state.

It was agreed that each of these purposes would be addressed by a separate section of the overview:

1. Ecoregion description
2. Key signals within the environment and ecosystem
3. Activity and pressure
4. State

The proposed sections of the overview, the purposes they serve and the longer-term goals associated with developing these sections are summarised in Table 4.1.

## **5 Criteria for including information in ecosystem overviews**

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To bind the range of content that could be included in the overview sections, WKECOVER defined criteria for the inclusion of material (Table 5.1.). It was agreed that the criteria would be applied to sub-sections within each of the four sections, to determine whether they supported the purposes of the overview and/or the needs of ICES or client commissions.

For material to be included in the subsection, the response to question 'a' and at least one of the other questions 'b' to 'd' in Table 5.1 has to be 'yes'.

Once a decision has been made to include a sub-section, then it will be necessary to identify the frequency of update, the groups responsible for development and the update and the quality control processes used to review the sub-section. The three influences on the rate of update that WKECOVER considered were (1) whether a client commission cycle already defines an update rate, (2) whether an existing ICES process (e.g. frequency of EG meeting) requires updates on the same frequency and (3) knowledge of the rates of updating of data streams and analysis and expected rates of change in state or pressure.

**Table 4.1. Proposed sections of the ecosystem overview, their purpose, audience and priority.**

SECTION, PURPOSE	AUDIENCE	PRIORITY (1, HIGH)	LONGER TERM GOAL
Ecoregion description To describe the location, scale, management and assessment boundaries of the eco-region	All users of advice	2	NA
Key signals within the environment and ecosystem To alert expert groups to situations within the environment and ecosystems that are expected to significantly influence their advice.	EG, all users of advice	1	Continue to pick up environmental and ecosystem properties with consequences for the advice and continue to account for them in timely way.
Activity and pressure To describe the distribution of human activity and resultant pressure (in space and time) on the environment and ecosystem	EG, prioritise pressure indicators relevant to client commissions	1 (to meet client demands), 2 (others)	Towards cumulative impact assessment (ICES strategic desire), account for spatial issues in advice, outlet for ICES work on spatial planning
State To describe the state of the ecosystem (in space and time) and to comment on pressures accounting for changes in state.	EG, prioritise state indicators relevant to client commissions	1 (to meet client demands), 2 (others)	Link pressures and states explicitly as basis for management advice

**Table 5.1. Questions to assess whether potential content should be included in an ecosystem overview.**

CODE	QUESTION
A	Does the proposed sub-section support one of the purposes of the overview?
B	Has the ICES community identified a strategic reason why this section should be included in the overview?
C	Is the information in the proposed sub-section requested as advice by a client commission?
D	Is the information needed to support other assessments requested by client commissions?

For each subsection, WKECOVER recommended that the information on ‘data of inclusion and frequency of update’, ‘responsibilities’ and ‘quality control’ described in Tables 5.2, 5.3 and 5.4 should be recorded. This would ensure that, post workshop, there would be a ‘recipe’ available to support development of overview subsections.

**Table 5.2. Information to collate on date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB-SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)
3	Are there specific formats for the inclusion or updates required by a client commission?

**Table 5.3. Information to collate on responsibilities for sub-section**

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)
2	Identify group responsible for providing data to support update of the proposed sub-section?
3	Identify group responsible for data processing to support updates of the proposed sub-section?

**Table 5.4. Information to collate on quality control and risk.**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)

## 6 Sub-sections

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Based on the agreed purpose of the overviews and the criteria for inclusion of contents, WKECOVER proposed that the following subsections should be included in the ecosystem overviews (Table 6.1).

Once sub-sections were agreed, WKECOVER preceded to develop templates for each sub-section in each ecoregion. These described the contents of the subsection, data of inclusion and frequency of update, responsibilities and quality control.

WKECOVER considered that the longer-term aspiration for the overviews should be to develop the same set of subsections for each ecoregion, but accepted that data and information would not be sufficient to allow all subsections to be developed in the short-term. In such cases, groups dealing with specific ecoregions would simply flag that available data and information were inadequate.

Table 6.1. Subsections to include in the ecosystem overviews.

SECTION/ PURPOSE	SECTION TITLE	SUB- SECTION	SUBSECTION TITLE	COMMENTS ON CONTENT
1	Ecoregion description	1.1.	Ecoregion boundaries and geography	Map showing boundaries of ecosystem and depth contours
1	Ecoregion description	1.2.	Ecoregion management	Show relevant management and assessment regions (links to regions also referred to in subsequent sections- e.g. OPSAR, HELCOM, RAC areas, ICES areas and divisions). 1.1. and 1.2. can be combined on single interactive map/ layered pdf.
2	Key signals within the environment and ecosystem	2.1.	Physical and chemical oceanography	Focus only on changes on time and space scales that have consequences for subsequent advice- see criteria
2	Key signals within the environment and ecosystem	2.2.	Biotic processes	Focus only on changes on time and space scales that have consequences for subsequent advice- see criteria
2	Key signals within the environment and ecosystem	2.3.	Human impacts	Focus only on changes on time and space scales that have consequences for subsequent advice- see criteria
3	Activity and pressure	3.1.	Activity	Indicative list of activities. Identify priorities regionally- where priority activities are those making greatest contribution to pressure. Activities to consider include: Aquaculture, Fishing, Shipping, Renewable energy, Non renewable energy, Telecoms, Aggregates, Navigational dredging, Coastal infrastructure, Land-based industry, Agriculture, Tourism/ recreation, Military, Research, Desalination, Wastewater treatment, Carbon sequestration, Collecting
3	Activity and pressure	3.2.	Pressure	Capture pressure links to states in Section 4  Longer term ambition for assessment of cumulative pressure from multiple activities e.g. grouped according to Annex 3 Table 2 of MSFD. See also work of Stelzenmuller.
4	State	4.1.	Biodiversity	Trends in biodiversity e.g. using proposed MSFD, DCF and OSPAR indicators. For a range of ecosystem components, prioritising those that are linked to a manageable human pressure?  Proportion and numbers of species, by groups, for which trends in abundance are known  Protected areas classified by level of protection

				Listed species
4	State	4.2.	Non-indigenous species	WGITMO role
4	State	4.3.	Commercially exploited fish and shellfish	Fish stock summaries currently provided by Secretariat are a good start Populations of all commercially exploited fish and shellfish (drawing on single-species advice; a summary job of reporting stock status in relation to reference points) Proportion and numbers of species, by groups (e.g. WKLIFE categories), for which trends in state and abundance are known (mortality, extraction elements may be presented under 3 – pressure)
4	State	4.4.	Food webs	
4	State	4.5.	Eutrophication	
4	State	4.6.	Seabed	Pressure elements may be presented in section 3.
4	State	4.7.	Hydrological conditions	
4	State	4.8.	Concentrations and effects of contaminants in the environment and marine biota	Pressure elements may be presented in section 3.
4	State	4.9.	Marine litter	Pressure elements may be presented in section 3.
4	State	4.10.	Effects of introduction of energy, including underwater noise	Pressure elements may be presented in section 3.

WKECOVER discussed priorities for the development of Sections and Sub-sections, considering the state of development of the science that underpins overview contents and ICES considerations for the development of advice (e.g. ACOM Doc 7 ASC consultations 2012). WKECOVER recommend that Sections 1 and 2 of the overview are prioritised for short-term (2013) development and should appear in the 2013 advice with sub-sections in Sections 3 and 4 presented as they are developed. Prioritisation of content for inclusion in Sections 3 and 4 was challenging for workshop participants because a very wide range of data could be used to describe pressure and state. In general, participants considered that a pragmatic approach would have to be adopted here, with higher priority given to indicators that were of interest to client commissions (e.g. DCF pressure or state indicators, MSFD pressure or state indicators). Sections 3 and 4 would thus provide an opportunity to brigade indicators of likely interest to client commissions. However, including all the information in the overview that would ultimately contribute to assessments of pressure and state, for example in a cumulative impact assessment, is unlikely to be feasible or desirable.

WKECOVER considered the processes that would be used to elevate signals from the environment and ecosystem to 'key' and to lead to an entry identifying these signals in Section 2. WKECOVER considered that the regional integrated assessment groups should be key players in this process, to screen the wide range of environmental and ecosystem signals and to identify those that would have a significant effect on the way in which other Expert Groups would develop advice.

## **7 Draft overviews and supporting documentation**

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WKECOVER participants developed sub-section contents and supporting information for each sub-section. This was done for three example ecoregions: the Baltic Sea, North Sea and Celtic Sea. However, WKECOVER emphasise that the further development of the overviews will require input from a range of expert groups owing to draw on more expertise in the ICES community. These drafts are found in the annexes and are extremely preliminary in terms of content and format. They are also not concise enough. The workshop participants did not attempt to develop a draft ecosystem overview for the Bay of Biscay (as requested in the Terms of Reference) because no participants had sufficient knowledge of the Bay of Biscay ecoregion.

Clearly, the breadth of expertise in WKECOVER was less than that available within the regional assessment expert groups, stock assessment expert groups and expert groups studying aspects of pressure and state in the ecoregions. For this reason, the sub-section overviews completed within WKECOVER provide guidance for the groups that will conduct the analyses contributing to the overview, but are not considered to be the final 'product'. To reflect their status as 'works in progress' we have included them in this report as appendices. Sub-sections of the overviews for the Baltic Sea, North Sea and Celtic Sea are presented in Annexes 4, 5 and 6 respectively.

Successful development of the overview sub-sections will require on-going and active management of the process and WKECOVER made a recommendation to the ICES Secretariat to support such active management (Annex 7)

## **8 Next steps**

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WKECOVER expect that the capacity to develop sections 1-4 of the overview will vary among ecoregions. Consequently, WKECOVER propose that Section 1 would ideally be developed for all ecoregions in 2013 and that ICES should strive to make all possible progress with developing Section 2. Sections 3 and 4 have lower priority and would be developed in the longer-term.

Representatives of the advisory process commented that the approach to developing Section 2 might involve taking the benchmark assessments as an opportunity to account for signals in the environment and ecosystem (i.e. key signals relating to 'physical and chemical oceanography', 'biotic processes' and 'human impacts'), since immediate options to account for some of these influences may be limited by the assessment models that are currently available. In this case, material would be added to Section 2 (and the associated assessments modified) in a stepwise fashion. However, where existing assessment models can readily be modified to account for key signals in the environment and ecosystem then this should be done as part of the normal assessment cycle.

Through 2013, WKECOVER hope that the evolving overviews will be reviewed by the Regional Integrated Assessment Groups and the Regional Expert Groups (fish

stock assessment). WKECOVER note that the Working Group on the Ecosystem Effects of Fishing Activities (WGECO) will also be asked comment on the proposed structure of the Overviews and it is hoped that specialist expert groups (e.g. Working Group on Operational Oceanographic Products for fisheries and environment (WGOOFE), Working Group on Oceanic Hydrography (WGOH) and Expert Groups focusing on ecosystem components: e.g. zooplankton, mammals, birds) will make additional contributions to the ecosystem overviews throughout 2013. The Workshop on update and calculation of the DCF indicators (WKIND) will meet in the autumn 2013 and it is hoped that this workshop will further develop and populate sections 3 and 4 of the overviews.

## Annex 1: List of participants

Name	Country	Email	Notes
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## Annex 2: Agenda

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### ICES ACOM/SCICOM Workshop on Ecosystem Overviews

Chair: Simon Jennings , ICES Headquarters, Atlantic Room

7-11 January 2013

#### Monday 7 January

13.00 Opening

13.05 Welcome to ICES (*Adi Kellerman, House Keeping Mark DC*)

13.15 Tour de Table

13.30 Workshop objectives and organisation (*SJ*)

#### EVOLUTION OF ADVISORY NEEDS AND PRODUCTS

13.45 The developing context and content of ICES advice (*JJ Maguire, ICES*)

14.00 Future advisory needs of ICES clients (*Darius Campbell, OSPAR*)

#### DEVELOPING GENERIC ECOSYSTEM OVERVIEWS

14.15 Session introduction (*SJ*)

14.20 Individual presentations

(maximum of 4 slides and 7-10 minutes per person)

15.00 Tea/ coffee

15.30 Individual presentations (*continued*)

17.30 Close

#### Tuesday 8 January

09.00 Introduction to day (*SJ*)

09.10 Report on 'strawman' overview, presentation of revised overview structure

09.30 Discussion of revised overview (*all*)

10.30 Coffee

11.00 Refining the overview structure (item by item) to identify data sources, analytical support requirements and potential role of ICES and other groups (*all*)

13.00 Lunch

14.00 Refining the overview structure (item by item) to identify data sources, analytical support requirements and potential role of ICES and other groups (*all*)

15.00 Tea/coffee

15.30 Refining the overview structure (item by item) to identify data sources, analytical support requirements and potential role of ICES and other groups (*all*)

16.50 Reflections on progress and issues to address (*SJ*)

17.00 Close

## DEVELOPING REGION-SPECIFIC ECOSYSTEM OVERVIEWS

### Wednesday 9 January

09.00 Introduction to day (*SJ*)

09.10 Introduction to subgroups (Baltic Sea, Bay of Biscay, North Sea, Celtic Sea)

09.20 Subgroup working

10.30 Coffee

11.00 Subgroup working

13.00 Lunch

14.00 Subgroup working

15.00 Tea/coffee

15.30 Subgroup initial reports to plenary (c. 10 minutes each) (*subgroup leads*)

16.10 Subgroup working

17.00 Close

19.00 Workshop Dinner

### Thursday 10 January

09.00 Introduction to day (*SJ*)

09.10 Subgroup working

10.30 Coffee

11.00 Subgroup working

13.00 Lunch

14.00 Subgroup final reports to plenary (c. 15 minutes each) (*subgroup leads*)

15.00 Tea/coffee

15.30 Review of report

16.50 Reflections on progress and issues to address (*SJ*)

17.00 Close

### Friday 11 January

09.00 Introduction to day (*SJ*)

09.10 Review of report text

10.30 Tea/ coffee

11.00 Review of report text

13.00 Lunch

14.00 Next steps and reporting (*SJ*)

15.00 Close

### **Annex 3: Terms of Reference**

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The ACOM/SCICOM Workshop on Ecosystem Overviews [WKECOVER] will meet from 7–11 January 2013 at ICES HQ, Copenhagen, chaired by Simon Jennings, UK England to:

- a) Construct a concise and informative format for ICES ecosystem overviews. Justify how the information selected to populate the format is expected to influence the future development of advice, and prioritise work to develop contents based on ICES expectations' for the development of ICES advice, (targeted at the ICES assessment expert groups and additionally provide guidance for ecosystem sections in the regional advice).
- b) Populate this new format of the ecosystem overviews for the Baltic, North and Celtic Seas and the Bay of Biscay using the best available information and supported by new analyses or existing materials (WGRED reports, the reports from the Integrated Ecosystem Assessment groups (under SSGRSP)) as required to address the work priorities identified under (a)
- c) Define and report on state and pressure indicators, along with the data and analytical requirements to calculate them (spatial data and /or time series) to allow the overviews to describe both the state of, and pressures on, the regional ecosystems.
- d) Provide guidance on the operational updates of the ecosystem overviews.

WKECOVER will report to ACOM and SCICOM by 22 February 2013, although a preliminary report will be made by 17 January 2013 for WGCHAIRS.

## Annex 4: Baltic Sea      Draft 13 Jan 203

Note on Annex 4: The contents of the overview presented in this Annex are a ‘work in progress’ because the breadth of expertise in WKECOVER was less than that which will be available within the broad range of expert groups expected to contribute to the overview in the longer-term. Also WKECOVER participants developed these annexes based on their own expertise and by prioritising information they had available during the workshop, but recognise that additional material will need to be considered before overview contents are finalised. It is especially important that other expert groups focus on the contents of Section 2, and assess whether the signals currently identified are those that are most likely to have a significant effect on the advice.

### Section 1

#### Sub-section 1.1\_Ecoregion boundaries and geography

ECO-REGION	BALTIC SEA
Section number	1
Sub-section number	1.1
Sub-section title	Ecoregion boundaries and geography
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes, code 1,2,3,4

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

#### Description of figure/ table or other element:

Map including the following delineations:

- Natural delineations (OJAVEER, E. & KALEJS, M. 2008. On ecosystem-based regions in the Baltic Sea. *Journal of Marine Systems*, 74, 672-685)
- ICES areas and divisions ([www.ices.dk](http://www.ices.dk))
- HELCOM sub-regions ([http://www.helcom.fi/groups/monas/CombineManual/PartA/en\\_GB/main/#Divisions](http://www.helcom.fi/groups/monas/CombineManual/PartA/en_GB/main/#Divisions); table A.4)
- Data to be available for the user as pdf layers and shape-files, as far as possible.

#### Description of narrative:

- Text explaining content of the map, as far as needed in order to understand the contents.

**Date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB- SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Updated if management areas are changed
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	ICES SECRETERIAT
2	Identify group responsible for providing data to support update of the proposed sub-section?	ICES Secreteriat, HELCOM Secreteriat
3	Identify group responsible for data processing to support updates of the proposed sub-section?	ICES Secreteriat

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	ICES SECRETERIAT
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGIAB
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	ICES Secreteriat
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ICES Secreteriat
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	ICES Secreteriat

**Sub-section 1.2\_Ecoregion management**

ECO-REGION	BALTIC SEA
Section number	1
Sub-section number	1.2
Sub-section title	Ecoregion management

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<b>Does the proposed content meet the criteria for including a sub-section on the overview?</b>	Yes, code 1,2,4
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If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- Maps showing the delineation of closed areas (Natura 2000, fisheries closures, gear restrictions) as identified further by relevant expert groups
- Additional features if found consistent with criteria for inclusion in the overview
- Data to be available for the user as pdf layers and shape-files, as far as possible.

**Description of narrative:**

- Text explaining content of the maps, as far as needed
- The data and contents of this sub-section should be drawn to the attention of SGSPATIAL, WGVHES

**Date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB- SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annually, as motivated by ongoing development in the field
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	ICES SECRETERIAT
2	Identify group responsible for providing data to support update of the proposed sub-section?	ICES Secreteriat, HELCOM secretariat, EEA
3	Identify group responsible for data processing to support updates of the proposed sub-section?	ICES Secreteriat

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	ICES SECRETERIAT
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	SGSPATIAL
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	SGPATIAL and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	SGSPATIAL and ICES Secreteriat

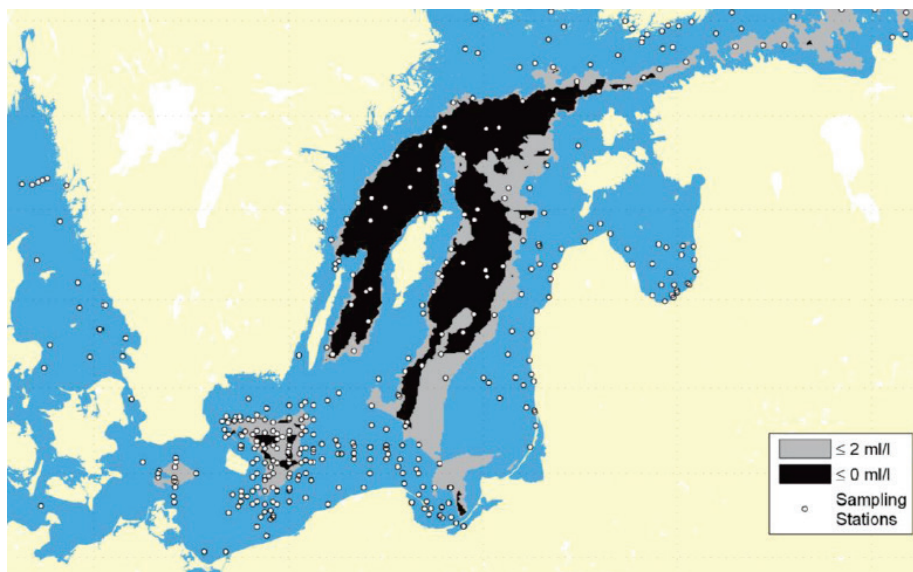
**Section 2****Sub-section 2.1\_ Physical and chemical oceanography**

ECO-REGION	BALTIC SEA
Section number	2
Sub-section number	2.1
Sub-section title	Key signals-Physical and chemical oceanography
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes, code 1, 2,4

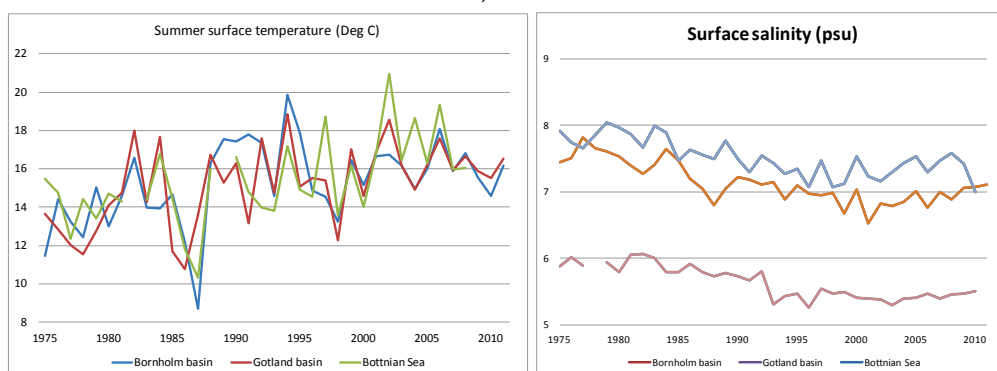
If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

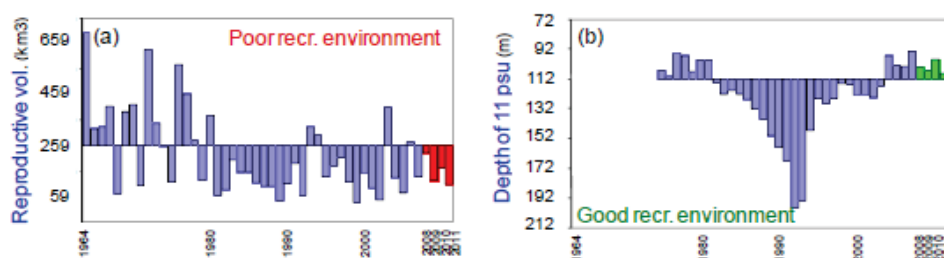
- Areal extent of hypoxia (Example map shows areal extent of hypoxia (grey), anoxia (black) and sampling stations (dots) in the Baltic Sea during autumn 2010; data from Swedish Meteorological and Hydrological Institute 2012)



- Temperature and salinity trends over time (Graph gives an example on how data could be represented to show temporal trends by sub-region, based on data from WGIAB 2012).



- Index of abiotic recruitment environment of cod given as cod reproductive volume and depth of the 11 psu isohaline. Cod reproductive volume shows volume of water with salinity above 11 and oxygen above 2 mL/L (graphs show data from WGIAB 2012).



#### Description of narrative:

- This sub-section should identify the most important trends in abiotic variables in Baltic Sea, to be lifted up from section 4 as information develops, with a focus on aspects potentially influencing fisheries management advice
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.

- The data and contents of this sub-section should be drawn to the attention of WGBFAS, WGBAST, WGOOFE, WGOH and WGIAB
- Add short text describing main trends in the variables

#### Date of inclusion and frequency of update of sub-section

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB-SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annually
3	Are there specific formats for the inclusion or updates required by a client commission?	No

#### Responsibilities for sub-section

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	WGIAB
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGIAB, (potentially WGOOFE, WGOH via section 4)
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGIAB

#### Quality control/ risk

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	WGIAB
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGIAB+ ACOM and SCICOM level activity
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM and SCICOM level activity
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGIAB

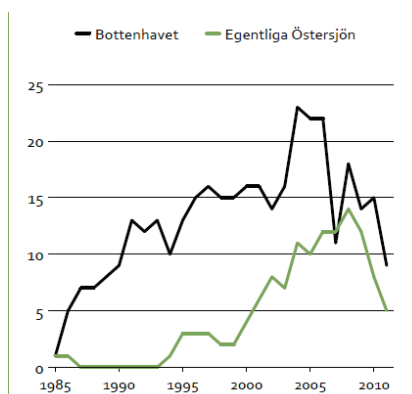
### Sub-section 2.2\_Biotic processes

ECO-REGION	BALTIC SEA
Section number	2
Sub-section number	2.2
Sub-section title	Key signals-Biotic processes
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes, code 1, 2,4

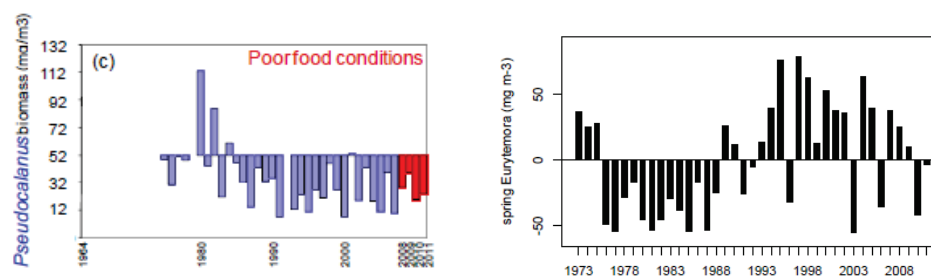
If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

#### Description of figure/ table or other element:

- (to be included: a highlight of biodiversity components below target, as information develops, see narrative)
- Temporal development of grey seal, to be considered in fisheries assessment and ecological status assessment. Example show data for Swedish waters of Bothnian Sea and Baltic Proper (Swedish Agency for Water and Marine Management 2012 (*Resurs och miljööversikt*, national report in Swedish). Data is currently not available at Baltic Sea level, but could potentially be obtained (to be consulted with HELCOM Coreset and ICES WGMME).



- Temporal development of the copepods, indicating the recruitment environment of 1) Eastern Baltic cod (*Pseudocalanus biomass*), 2) Gulf of Riga herring stocks (*Eurytemora affinis*), and 3) and Bothnian Sea herring stock (*Eurytemora, Bosmina*; WGBFAS 2012). Example show graphs from WGIAB 2012.



#### Description of narrative:

- This sub-section should identify 1) biodiversity aspects below target, to be lifted up from section 4 as information develops, and 2) main biotic components potentially influencing fisheries management advice
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.
- The data and contents of this sub-section should be drawn to the attention of WGBFAS, WGBAST, WGMME, WGZE
- Short text describing main trends in the variables

#### Date of inclusion and frequency of update of sub-section

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB- SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annually
3	Are there specific formats for the inclusion or updates required by a client commission?	No

#### Responsibilities for sub-section

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	WGIAB
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGIAB, WGMME, WGZE
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGIAB

### Quality control/ risk

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	WGIAB
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGEKO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGIAB+ ACOM and SCICOM level activity
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM and SCICOM level activity
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGIAB

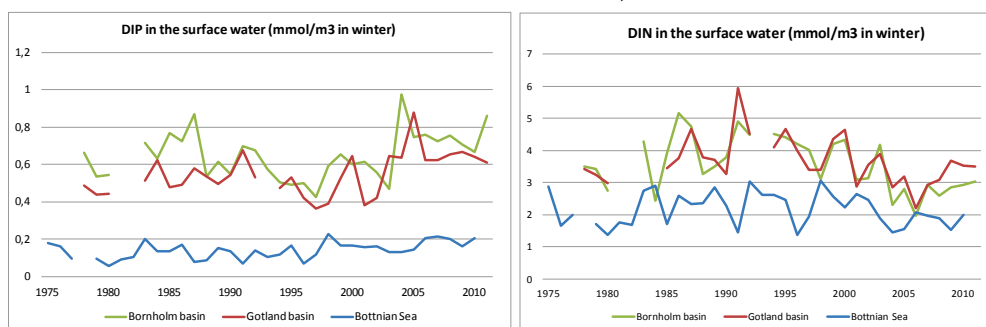
### Sub-section 2.3\_Human impacts

ECO-REGION	BALTIC SEA
Section number	2
Sub-section number	2.3
Sub-section title	Key signals-Human impacts
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes, code 1,2,4

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

#### Description of figure/ table or other element:

- (to be included: a highlight of pressures and activities below target, as information develops, see narrative, e g bycatches, seabed integrity)
- Temporal development of variables indicating eutrophication (winter DIN and DIP/annual TN and TP/Secchi depth, to be decided further. Example shows DIN and DIP, data from WGIAB 2012).



- Temporal and spatial development of variables indicating fishing activities in relation to different gear types.

### References:

- EERO, M., MACKENZIE, B. R., KÖSTER, F. W. & GISLASON, H. 2010. Multi-decadal responses of a cod (*Gadus morhua*) population to human-induced trophic changes, fishing, and climate. *Ecological Applications*, 21, 214-226.
- EERO, M., VINTHER, M., HASLOB, H., HUWER, B., CASINI, M., STORR-PAULSEN, M. & KÖSTER, F. W. 2012. Spatial management of marine resources can enhance the recovery of predators and avoid local depletion of forage fish. *Conservation Letters*, 5, 486-492
- HELCOM 2010. Ecosystem Health of the Baltic Sea. HELCOM Initial Holistic Assessment. Baltic Sea Environment Proceedings No. 122
- OJAVEER, H. & EERO, M. 2011. Methodological Challenges in Assessing the Environmental Status of a Marine Ecosystem: Case Study of the Baltic Sea. *PLoS ONE*, 6, e19231.
- WGSPATIAL 2012 Report

### Description of narrative:

- This sub-section should identify 1) pressures and activities below target, to be lifted up from section 3 as information develops, and 2) main activities and pressures potentially influencing fisheries management advice
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.
- The data and contents of this sub-section should be drawn to the attention of WGBFAS, WGBAST, HELCOM, SGSPATIAL
- Short text describing main trends in the variables

### Date of inclusion and frequency of update of sub-section

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB-SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annually
3	Are there specific formats for the inclusion or updates required by a client commission?	No

### Responsibilities for sub-section

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	WGIAB
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGIAB, SGSPATIAL
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGIAB, SGSPATIAL

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	WGIAB, SGSPATIAL
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGEKO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGIAB+ ACOM and SCICOM level activity
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM and SCICOM level activity
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGIAB, SGSPATIAL

**Section 3****Sub-section 3.1\_Activity**

ECO-REGION	BALTIC SEA
<b>Section number</b>	3
<b>Sub-section number</b>	3.1
<b>Sub-section title</b>	Activity
<b>Does the proposed content meet the criteria for including a sub-section on the overview?</b>	1,2,4

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

Data should preferably be presented in the form of maps showing frequency, density, or trends over time in the activity.

Potential factors to include

Fishing activities, indicated by estimates of temporal trends and/or spatial patterns in relation to different gear types

Activities related to physical alterations of the seabed, indicated by presence of off shore constructions (harbours, offshore wind farms, cables, pipelines)

Activities related to physical damage to the seabed, indicated by dredging activities, bottom trawling, and/or mineral extractions

Shipping activities, due to the risk of shipping accidents and associated chemical pollution

**References:**

HELCOM 2010, Maritime Activities in the Baltic Sea, Baltic Sea Environment Proceedings No.123

HELCOM 2010. Ecosystem Health of the Baltic Sea. HELCOM Initial Holistic Assessment. Baltic Sea Environment Proceedings No. 122

**Description of narrative:**

- The data in this section should show a summary of the main activities influential on the ecological status of Baltic Sea
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.
- The data and contents of this sub-section should be drawn to the attention of WGSPATIAL, HELCOM, SSGHIE, WGMBRED
- Add short text describing main trends in the variables

**Date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB-SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annually, as motivated by ongoing developments in the field
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	SGPATIAL
2	Identify group responsible for providing data to support update of the proposed sub-section?	SGPATIAL, SSGHIE, WGMBRED, HELCOM
3	Identify group responsible for data processing to support updates of the proposed sub-section?	SGPATIAL, SSGHIE, WGMBRED

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	SGSPATIAL
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGEKO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	SGSPATIAL and ACOM

4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	SGSPATIAL

### Sub-section 3.2\_Pressure

ECO-REGION	BALTIC SEA
Section number	3
Sub-section number	3.2
Sub-section title	Pressure
Does the proposed content meet the criteria for including a sub-section on the overview?	1,2,4

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

#### Description of figure/ table or other element:

Data should preferably be presented in the form of maps showing frequency, density, or trends over time in the activity.

Potential factors to include

- Effects of eutrophication, estimated as distribution and frequency of algal blooms and oxygen deficiency
- Fishing activities, indicated by estimates of temporal trends and/or spatial patterns in catches and by-catches in relation to different gear types
- Frequency of shipping and oil accidents

#### References:

HELCOM 2010. Ecosystem Health of the Baltic Sea. HELCOM Initial Holistic Assessment. Baltic Sea Environment Proceedings No. 122

HELCOM 2010, Maritime Activities in the Baltic Sea, Baltic Sea Environment Proceedings No.123

#### Description of narrative:

- The data in this section should show a summary of the pressures influential on the ecological status of Baltic Sea
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.
- The data and contents of this sub-section should be drawn to the attention of HELCOM, and relevant expert groups within ICES
- Add short text describing main trends in the variables

**Date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB- SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	3 years
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	XXXX
2	Identify group responsible for providing data to support update of the proposed sub-section?	XXXX
3	Identify group responsible for data processing to support updates of the proposed sub-section?	XXXX

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	XXXX
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	XXXX and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	XXXX and ACOM

**Section 4****Sub-section 4.1\_Biodiversity**

ECO-REGION	BALTIC SEA
<b>Section number</b>	4
<b>Sub-section number</b>	4.1
<b>Sub-section title</b>	Biodiversity

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<b>Does the proposed content meet the criteria for including a sub-section on the overview?</b>	Yes, code 1,2
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If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- Data should preferably be presented in the form of graphs showing trends over time.
- Data should cover trends in any of groups indicated below
- Data to include should preferably be in the form of estimates of abundance or be compatible with any of the HELCOM Coreset indicators (as indicated below, see also HELCOM 2012 and upcoming reports)
- Which data sets to include should be decided further within relevant expert groups, as indicated in brackets.
- Taxonomic groups to consider:
  - Phytoplankton (WGPE, WGIAB)
  - Zooplankton (WGZE, WGIAB)
  - Macrozoobenthos (WGBE, WGIAB)
  - Phytobenthic vegetation (WGBE)
  - Lower depth distribution limit of macrophyte species
  - Fish (WGIAB)
  - \*Fish population abundance
  - Mean metric length of key fish species
  - Fish community diversity
  - Proportion of large fish individuals in the community
  - Abundance of fish key trophic groups
  - Fish community trophic index
  - Marine mammals (WGMME, WGIAB)
    - Blubber thickness of marine mammals
    - Pregnancy rate of marine mammals.
    - \*Population growth rate of marine mammals
  - Waterbirds (WGSE, WGIAB)
    - \*Abundance of wintering populations of seabirds
    - Distribution of wintering seabirds

**References:**

HELCOM 2012; Development of a set of core indicators: Interim report of the HELCOM CORESET project. PART B: Descriptions of the indicators; Baltic Sea Environment Proceedings No. 129B

**Description of narrative:**

- The data in this section should show a summary of main trends in biotic variables in the Baltic Sea
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.
- The data and contents of this sub-section should be drawn to the attention of HELCOM, and relevant expert groups within ICES (see above)
- Add short text describing main trends in the variables

**Date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB- SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	3 years
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	WGIAB
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGIAB, WGPE, WGZE, WGBE, WGMME, WGSE
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGIAB, (WGPE, WGZE, WGBE, WGMME, WGSE)

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	WGIAB, (WGPE, WGZE, WGBE, WGMME, WGSE)
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGIAB and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section	WGIAB, (WGPE, WGZE,

contents (e.g. IPCC guidance)	WGBE, WGMME, WGSE)
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### Sub-section 4.2\_Non-indigenous species

ECO-REGION	BALTIC SEA
Section number	4
Sub-section number	4.2
Sub-section title	Non-indigenous species
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes, code 1,2

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

#### Description of figure/ table or other element:

- Data should preferably be presented in the form of graphs showing trends over time.
- Data to include should preferably be compatible with any of the HELCOM Coreset indicators (as indicated below, see also HELCOM 2012 and upcoming reports)
- Which data sets to include should be decided further within relevant expert groups
- Potential variables to include:
  - Number of new alien species per 6-year period in an assessment area (Measures the effectiveness of the IMO Ballast Water Convention)
  - The biopollution index (impacts on ecosystem)
  - Abundance and distribution of particularly invasive species

#### Description of narrative:

- The data in this section should show a summary of main trends in the presence of non-indigenous species in the Baltic Sea
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.
- The data and contents of this sub-section should be drawn to the attention of HELCOM and WGITMO
- Add short text describing main trends in the variables

**Date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB- SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	3 years
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	WGITMO
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGITMO
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGITMO

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	WGITMO
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGITMO and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGITMO and ACOM

**Sub-section 4.3\_ Commercially exploited fish and shellfish**

ECO-REGION	BALTIC SEA
Section number	4
Sub-section number	4.3
Sub-section title	Commercially exploited fish and shellfish
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes, code 1,2,4

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- Data should preferably be presented in the form of graphs showing trends over time.
- Data to include should be compatible with the criteria for indicators within Descriptor 3 of the MSFD
- Which data sets to include should be decided further within relevant expert group.
- Potential species to include
  - Cod, herring, sprat, flatfishes, salmon, eel

**Description of narrative:**

- The data in this section should show a summary of main trends in commercially exploited fish species in the Baltic Sea
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.
- The data and contents of this sub-section should be drawn to the attention of HELCOM, and relevant expert groups within ICES (see above)
- Add short text describing main trends in the variables

**Date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB- SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	3 years
3	Are there specific formats for the inclusion or updates required by a client commission?	No
1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	WGBFAS
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGBFAS, WGEEL, WGBAST
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGBFAS, WGEEL, WGBAST

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	WGBFAS
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGBFAS and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGBFAS and ACOM

**Sub-section 4.4\_Food webs**

ECO-REGION	BALTIC SEA
Section number	4
Sub-section number	4.4
Sub-section title	Food webs
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes, code 1,2

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- Which data sets to include should be decided further within relevant expert groups.

**Description of narrative:**

- The data in this section should show a summary of main trends in food-webs in the Baltic Sea
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.
- The information in this section should, as far as possible, be compatible with corresponding reporting within the MSFD by EU member states
- The data and contents of this sub-section should be drawn to the attention of HELCOM, and relevant expert groups within ICES (see section 4.1 and 4.3)
- Add short text describing main trends in the variables

**Date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB- SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	NOT BEFORE 2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	3 years
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	WGIAB
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGIAB, (WGPE, WGZE, WGBE, WGMME, WGSE)
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGIAB

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	WGIAB
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGIAB and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGIAB

**Sub-section 4.5\_Eutrophication**

ECO-REGION	BALTIC SEA
Section number	4
Sub-section number	4.5
Sub-section title	Eutrophication

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**Does the proposed content meet the criteria for including a sub-section on the overview?** Yes, code 1,2,4

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If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- Which data sets to include should be decided further within relevant expert groups.

**Description of narrative:**

- The data in this section should show a summary of main trends in eutrophication status of the Baltic Sea
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.
- The information in this section should, as far as possible, be compatible with corresponding reporting within the MSFD by EU member states
- The data and contents of this sub-section should be drawn to the attention of HELCOM
- Add short text describing main trends in the variables

**Date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB- SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	3 years
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	WGIAB
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGIAB, WGOOFE, WGOH, potentially others
3	Identify group responsible for data processing to support	WGIAB

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updates of the proposed sub-section?

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### Quality control/ risk

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	WGIAB, POTENTIALLY OTHERS
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGEKO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGIAB and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGIAB and ACOM

### Sub-section 4.6\_Seabed

Eco-region	Baltic Sea	
Section number	4	
Sub-section number	4.6	
Sub-section title	Seabed	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes, code1,2	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

### Description of figure/ table or other element:

- The information in this section should, as far as possible, be compatible with corresponding reporting within the MSFD by EU member states
- Which data sets to include should be decided further within relevant expert groups

### Description of narrative:

- The data in this section should show a summary of main trends in biotic variables in the Baltic Sea
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.

- The data and contents of this sub-section should be drawn to the attention of HELCOM, and relevant expert groups within ICES
- Add short text describing main trends in the variables

#### Date of inclusion and frequency of update of sub-section

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	Not before 2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	3 years
3	Are there specific formats for the inclusion or updates required by a client commission?	No

#### Responsibilities for sub-section

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	XXXX
2	Identify group responsible for providing data to support update of the proposed sub-section?	XXXX
3	Identify group responsible for data processing to support updates of the proposed sub-section?	XXXX

#### Quality control/ risk

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	XXXX
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	XXXX and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	XXXX and ACOM

#### Sub-section 4.7\_Hydrological conditions

ECO-REGION	BALTIC SEA
Section number	4
Sub-section number	4.7
Sub-section title	Hydrological conditions

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**Does the proposed content meet the criteria for including a sub-section on the overview?** Yes, code 1,2,4

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If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- Salinity
- Oxygen
- Temperature
- DIN
- DIP
- pH

**Description of narrative:**

- The data in this section should show a summary of the main trends in abiotic variables influencing Baltic Sea biota
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.
- The data and contents of this sub-section should be drawn to the attention of WGIAB, WGOOFE, WGOH
- Add short text describing main trends in the variables

**Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	3 years
3	Are there specific formats for the inclusion or updates required by a client commission?	No

### Responsibilities for sub-section

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	WGIAB
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGIAB, WGOOFE, WGOH
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGIAB

### Quality control/ risk

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	WGIAB
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGIAB+ ACOM and SCICOM level activity
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM and SCICOM level activity
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGIAB, WGOOFE, WGOH, potentially others

### Sub-section 4.8\_ Concentrations of contaminants in the environment and marine biota

ECO-REGION	BALTIC SEA
Section number	4
Sub-section number	4.8
Sub-section title	Concentrations of contaminants in the environment and marine biota
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes, code 1,2

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- Data to include should, as far as possible, be compatible with corresponding reporting within the MSFD by EU member states, and preferably also with any of the HELCOM Coreset indicators
- Which data sets to include should be decided further within relevant expert groups
- Potential variables to include
  - Productivity of white-tailed eagles

**References:**

HELCOM 2012; Development of a set of core indicators: Interim report of the HELCOM CORESET project. PART B: Descriptions of the indicators; Baltic Sea Environment Proceedings No. 129B)

**Description of narrative:**

- The data in this section should show trends in the abundance of contaminants in the Baltic Sea
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.
- The data and contents of this sub-section should be drawn to the attention of WKLINCON and HELCOM

**Date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB-SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	NOT BEFORE 2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	3 year
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	XXXX
2	Identify group responsible for providing data to support update of the proposed sub-section?	XXXX
3	Identify group responsible for data processing to support updates of the proposed sub-section?	XXXX

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	XXXX
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	XXXX and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	XXXX

**Sub-section 4.9\_Marine litter**

ECO-REGION	BALTIC SEA
Section number	4
Sub-section number	4.9
Sub-section title	Marine litter
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes, code 1,2

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- To be decided

**Description of narrative:**

- The data in this section should show trends and distribution in the abundance of marine litter in the Baltic Sea
- The information in this section should, as far as possible, be compatible with corresponding reporting within the MSFD by EU member states
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.
- The data and contents of this sub-section should be drawn to the attention of HELCOM
- Add short text describing main trends in the variables

**Date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB- SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	NOT BEFORE 2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	3 years
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	XXXX
2	Identify group responsible for providing data to support update of the proposed sub-section?	XXXX
3	Identify group responsible for data processing to support updates of the proposed sub-section?	XXXX

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	XXXX
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	XXXX and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	XXXX

**Sub-section 4.10 Effects of introduction of energy, including underwater noise**

ECO-REGION	BALTIC SEA
Section number	4
Sub-section number	4.10
Sub-section title	Effects of introduction of energy, including underwater noise
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes, code 1,2

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- The information in this section should, as far as possible, be compatible with corresponding reporting within the MSFD by EU member states
- Which data sets to include should be decided further within relevant expert groups
- Potential factors to include
  - Estimates of distribution and density of main traffic routes and their effects in terms of noise disturbance
  - Estimates of frequency and density of marine construction work, such as piling and their effects in terms of noise disturbance
  - Estimates of frequency and density of seismic explorations and their effects in terms of noise disturbance
  - Estimates of frequency and density of military activities and their effects in terms of noise disturbance
  - Estimates of distribution and density of off shore wind farms and their effects in terms of noise disturbance
  - Estimates of measured actual noise levels

**Description of narrative:**

- The information in this section should show trends and distribution in the major factors influencing Baltic Sea underwater noise levels
- Ensure that if there are restrictions to data interpretation, this should be mentioned in connection to the graphs.
- The data and contents of this sub-section should be drawn to the attention of HELCOM
- Add short text describing main trends in the variables

**Date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB- SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	NOT BEFORE 2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	3 years
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	XXXX
2	Identify group responsible for providing data to support update of the proposed sub-section?	XXXX
3	Identify group responsible for data processing to support updates of the proposed sub-section?	XXXX

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	XXXX
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	XXXX and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	XXXX

## Annex 5: North Sea – Draft January 2013

Note on Annex 5: The contents of the overview presented in this Annex are a ‘work in progress’ because the breadth of expertise in WKECOVER was less than that which will be available within the broad range of expert groups expected to contribute to the overview in the longer-term. WKECOVER participants developed these annexes based on their own expertise and by prioritising information they had available during the workshop, but recognise that additional material will need to be considered before overview contents are finalised. It is especially important that other expert groups focus on the contents of Section 2, and assess whether the signals currently identified are those that are most likely to have a significant effect on the advice.

### Section 1

ECO-REGION	NORTH SEA	
<b>Section number</b>	1	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
<b>Sub-section number</b>	1.1	(See document: Sub-sections 10-1-13)
<b>Sub-section title</b>	<b>Ecoregion boundaries and geography</b>	To include known sub-division of North Sea into Northern and Southern parts.
<b>Does the proposed content meet the criteria for including a sub-section on the overview?</b>	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

#### Description of figure/ table or other element:

Map showing bathymetry.

#### Description of narrative:

NOTE: This text should be limited to the content of map. e.g. could be extended Figure caption which does not change from year to year unless the map content changes.

#### Date of inclusion and frequency of update of sub-section

8.5	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB-SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	END OF FEBRUARY 2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Not needed unless boundaries change or other content added to the map
3	Are there specific formats for the inclusion or updates required by a client commission?	No

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	ICES DATA CENTRE (TO LIAISE WITH RELEVANT ORGANISATION)
2	Identify group responsible for providing data to support update of the proposed sub-section?	ICES Data Centre (to liaise with relevant organisation)
3	Identify group responsible for data processing to support updates of the proposed sub-section?	ICES Data Centre (to liaise with relevant organisation)

### Quality control/ risk

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	ICES DATA CENTRE (TO LIAISE WITH RELEVANT ORGANISATION)
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGINOSE
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGINOSE WGECO
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	WGINOSE WGECO
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	N/A

### Sub-section contents and review

ECO-REGION	NORTH SEA	
Section number	1	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	1.2	(See document: Sub-sections 10-1-13)
Sub-section title	Ecoregion management	To include known sub-division of North Sea into Northern and Southern parts.
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

Map showing boundaries of ICES ecoregion , North Sea RAC, OSPAR, ICES sub-divisions, known sub-regional boundary which defines the Northern North Sea and Southern North Sea sub-regions (provided by WGINOSE), other sub-regional boundaries e.g. defined by WFD.

**Description of narrative:**

NOTE: This text should be limited to the content of map. e.g. could be extended Figure caption which does not change from year to year unless the map content changes.

**Date of inclusion and frequency of update of sub-section**

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB- SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	END OF FEBRUARY 2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Not needed unless boundaries change or other content added to the map
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	ICES DATA CENTRE (TO LIAISE WITH RELEVANT ORGANISATION)
2	Identify group responsible for providing data to support update of the proposed sub-section?	ICES Data Centre (to liaise with relevant organisation)
3	Identify group responsible for data processing to support updates of the proposed sub-section?	ICES Data Centre (to liaise with relevant organisation)

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	ICES DATA CENTRE (TO LIAISE WITH RELEVANT ORGANISATION)
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGINOSE
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGINOSE WGECO
4	Review contents of proposed sub-section for	WGINOSE

	incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	WGECO
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	N/A

### Sub-section contents and review

ECO-REGION	NORTH SEA	
Section number	2	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	2.1	(See document: Sub-sections 10-1-13)
Sub-section title	Key signals in physical and chemical oceanography	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

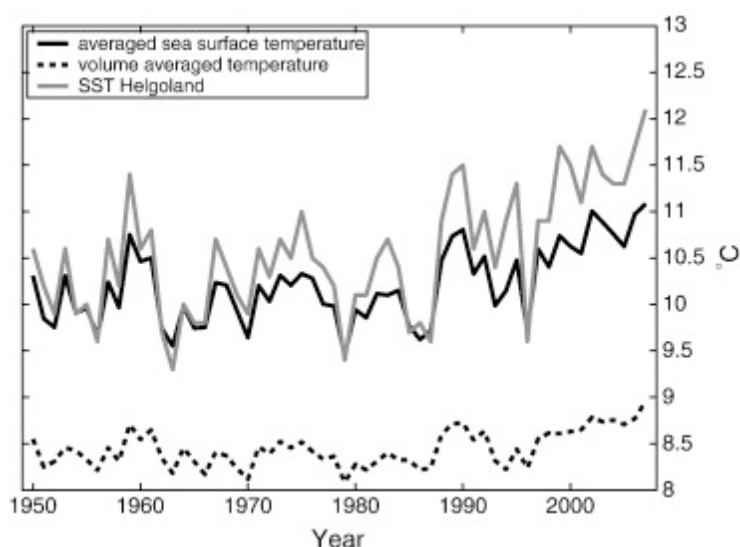
If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

Description of figure/ table or other element:

This list is not exhaustive and needs expert group input

- 1) Sea water temperature (direction of change over-time)

[http://www.bsh.de/en/Marine\\_data/Observations/Sea\\_surface\\_temperatures/anom.jsp#AnomJ](http://www.bsh.de/en/Marine_data/Observations/Sea_surface_temperatures/anom.jsp#AnomJ)



Other parameters that might be considered: Nutrients (e.g. Input from the Atlantic (Russell cycle?) and wind as a driver of summer stratification. Both as drivers of food web changes resulting in changing fish production.

Description of narrative:

This list is not exhaustive and needs expert group input

Bring to the attention of WGSE, long-term increases in SST likely to reduce kittiwake breeding success to below EcoQO level (Frederikson *et al.*, 2004).

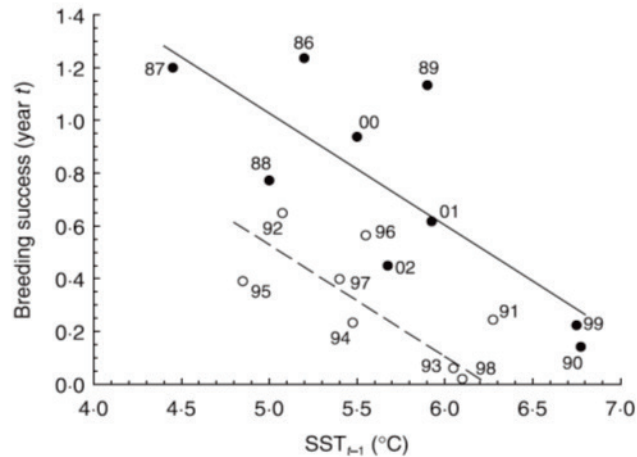


Figure XXX Kittiwake breeding success as a function of local SST in February–March of the previous year and presence/absence of the Wee Ban kje sandeel fishery. Data labels indicate current year. Regression lines estimated from weighted multiple regression. Filled circles and solid line, non-fishery years; open symbols and dashed line, fishery years (from Frederikson *et al.* 2004).

Bring to the attention of the North Sea Herring Working Group. Decadal variation in SST influences small pelagic fish stock recruitment and so should influence management.

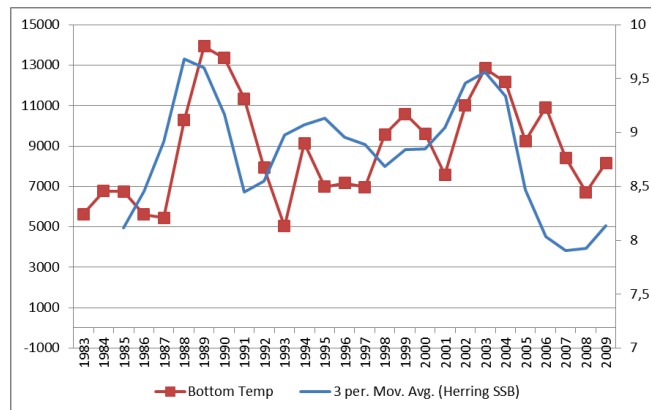


Figure 1. Average bottom water temperature and spawning stock biomass of herring in the North Sea between 1983 and 2009 (there is data going back to 1950 for both time series, the plot can be up-dated).

Date of inclusion and frequency of update of sub-section

The data that generate the signal are available on an annual basis so the signal can be up-dated annually but changes in advice may not be necessary at this frequency. E.g with respect to kittiwakes, should the long-term trend in SST rise above a given level, then the overview may seek to inform the relevant small pelagic stock assessment groups to take such information into account when advising on TACs.

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB- SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	DEPENDS ON THE MEETING TIMES OF RELEVANT EXPERT GROUPS
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annual up-dates of signal possible but not always necessary.
3	Are there specific formats for the inclusion or updates required by a client commission?	unknown

### Responsibilities for sub-section

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	WGECO.
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGOOFE/WGOH
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGOOFE/WGOH, WGSE, WGINOSE, BEWG, WGZE, HAWG, WGNSSK

### Quality control/ risk

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	WGOOFE/WGOH, WGINOSE.
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGSE, WGINOSE, BEWG, WGZE, HAWG, WGNSSK

### References

Frederickson, M., Wanless, S., Harris, M.P., Rothery, P. and Wilson, L.J. 2004. The role of industrial fisheries and oceanographic change in the decline of North Sea black-legged kittiwakes. *Journal of Applied Ecology*, 41: 1129–1139.

### Sub-section contents and review

ECO-REGION	NORTH SEA	
Section number	2	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	2.2	(See document: Sub-sections 10-1-13)
Sub-section title	Key signals in <b>biota and</b> biotic processes	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

### Description of figure/ table or other element:

#### 1) Changes in abundance and distribution of sea mammals

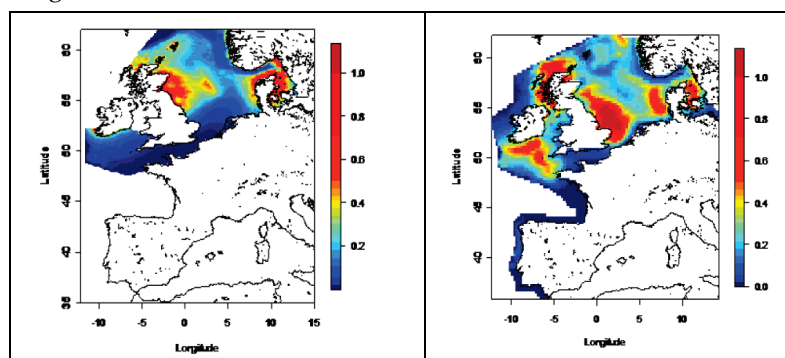


Figure 1. Harbour porpoise in the North Sea in 1995 and 2005, a new distribution needs to be added.

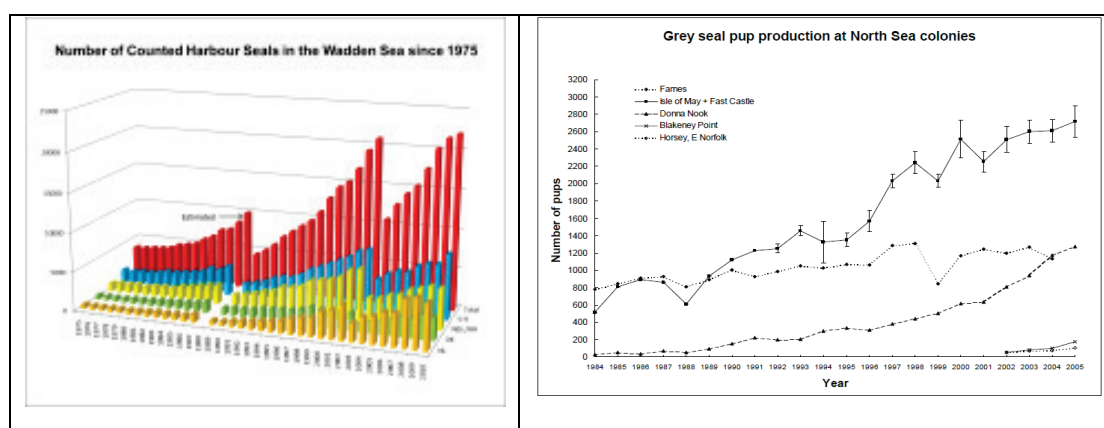
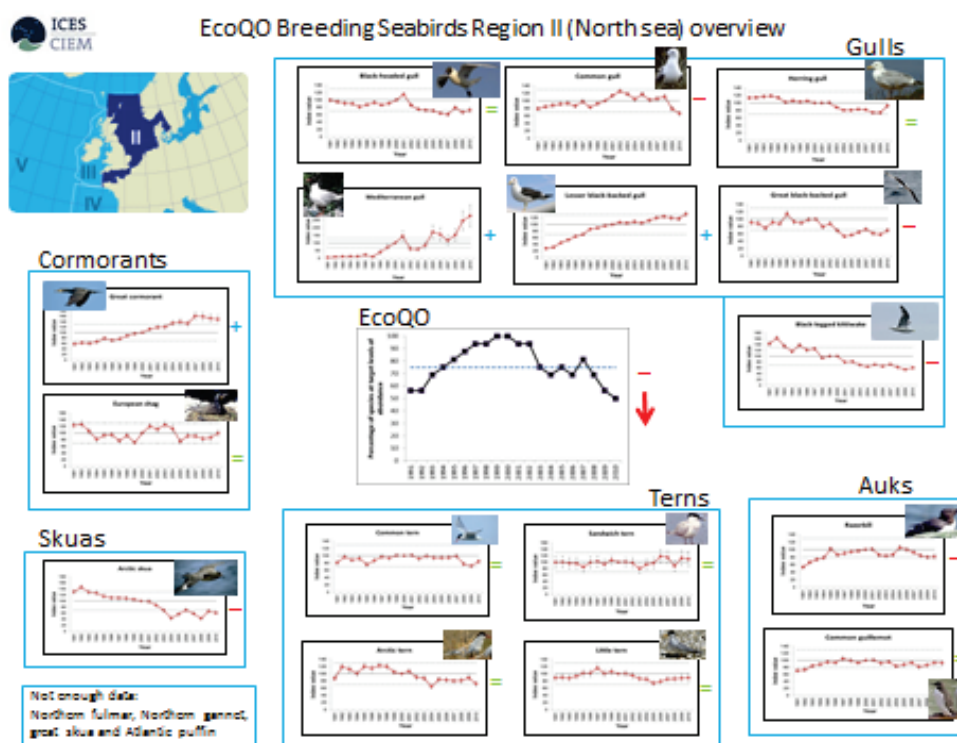


Figure 2. Harbour Seals in the Wadden Sea (left) and Grey Seal pups in the UK (right)

- 2) Changes in specific seabird abundance and distribution (kittiwake, gannet, see EcoQO graph)



Sea bird at sea data to be added for specific species like kittiwake, gannet, auks, [Note this figure should be considered an example of relevant content as it depicts variation in breeding bird population size. In reality what is needed is variation in the total numbers of seabirds using each region – seabirds at sea data.]

### 3) Plankton

Long term trends in biomass and timing of blooms

Toxic algal blooms (to be included if it is also included in the Baltic).

Jelly fish?

### 4) Large fish indicator

Description of narrative:

Increasing trends in sea bird and marine mammal piscivorous predators has implications for natural mortality rates in many assessed and non-assessed species, hence:

1. WGMME (Marine mammal ecology working group), WGSAM (multi species), WGNSSK
2. WGSE (Sea Bird ecology working group), WGSAM (multi species)

3. Links between plankton and fish have been established. Shifts or instabilities in plankton may be signals for future changes in fish stocks. WGZE (zooplankton), WGPME (phytopl), ...
4. Recovery of LFI has stalled in recent years. The expert working groups need to consider whether more stringent fisheries management measures are necessary to achieve the North Sea target. WGEKO, WGSAM, WGNSSK

Could feed into different fish working groups if related to food for birds and mammals

#### Date of inclusion and frequency of update of sub-section

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB-SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Birds bi-annual Mammals decadal
3	Are there specific formats for the inclusion or updates required by a client commission?	Bird advice to OSPAR

#### Responsibilities for sub-section

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	WGMME WGSE WGPME WGZE
2	Identify group responsible for providing data to support update of the proposed sub-section?	Countries/ organisations
3	Identify group responsible for data processing to support updates of the proposed sub-section?	

**Quality control/ risk**

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	ADGSE
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	

**Sub-section contents and review**

ECO-REGION	NORTH SEA	
<b>Section number</b>	2	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
<b>Sub-section number</b>	2.3	(See document: Sub-sections 10-1-13)
<b>Sub-section title</b>	<b>Human Impacts</b>	
<b>Does the proposed content meet the criteria for including a sub-section on the overview?</b>	<b>Yes</b>	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- 1) Impacts from fisheries
- 5 ) Impacts from large scale new developments of wind farms

Description of narrative:

Effects of fisheries on habitats and species (WGNSSK)

Impacts of wind farm by closing of areas for fisheries (WGNSSK), Impacts from wind turbines on birds (WGMBRED, WGSE), changes in hydrographic conditions and knock on effects on benthic habitats (WGOOFE, WGMHM, BEWG).

Date of inclusion and frequency of update of sub-section

1	GIVEN AVAILABLE EXPERTISE AND RESOURCES, WHEN WILL THE PROPOSED SUB-SECTION BE INCLUDED IN THE OVERVIEW? (YEAR, MONTH)	2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	annual
3	Are there specific formats for the inclusion or updates required by a client commission?	?

#### Responsibilities for sub-section

1	IDENTIFY GROUP RESPONSIBLE FOR INCLUDING, UPDATING AND PROVIDING CONTEXT AND INTERPRETATION LINKED TO THE PROPOSED SUB-SECTION? (ICES EG NAMES, ACOM, SECRETARIAT, EXTERNAL GROUPS ETC)	WGNSSK, WGNBRED, WGSE, WGOOFE, WGMHM, BEWG
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGOOFE, WKNSSK
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGNBRED, WGSE, WGOOFE, WGMHM, BEWG

#### Quality control/ risk

1	IDENTIFY GROUP TO PRODUCE AND ARCHIVE DESCRIPTION OF THE RELEVANT DATA (HOW THEY ARE WORKED UP, CODE, QUALITY ASSURANCE METHOD)	
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	

**Sub-section contents and review**

Eco-region	North Sea	
Section number	3	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	3.1	(See document: Sub-sections 10-1-13)
Sub-section title	Activity	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes (hopefully)	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- 1 ) List of all activities ongoing in North Sea (should follow activity list provided by WG DIKE for the MSFD Initial Assessment – see table 1)
- 2 ) Maps of priority activities (i.e. those making greatest contribution to pressures in the North Sea). Provisional prioritisation included in Table 1 - suggest only those with 1 or 2 are mapped out.
- 3 ) Summary statistics for priority activities, could include:
  - Spatial footprint trends over time;
  - Future predictions for changes in spatial footprint;

Table 1 Activity list from MSFD Initial Assessment reporting guidance

Activity general	Activity specific	<p>Priority in North Sea, according to criteria (1 – high, 3 – low).</p> <p>NB Priority score reflects present situation (i.e. not likely future priority)</p> <p>? – means don't know!</p>
Energy production	Marine-based renewable energy generation (wind, wave & tidal power)	2
	Marine hydrocarbon extraction (oil & gas)	1
	Energy production - other	NA
Extraction of living resources	Fisheries incl. recreational fishing (fish & shellfish)	1
	Seaweed and other sea-based food harvesting	3
	Extraction of genetic resources/bioprospecting/maerl	3
	Extraction of living resources - other	3
Extraction of non-living resources	Marine mining (sand, gravel, rock)	1
	Dredging	2
	Desalination/water abstraction	3
	Extraction of non-living resources - other	NA
Food production	Aquaculture (fin-fish & shellfish)	3
	Food production - other	NA
Land-based activities/industries	Industry (discharges, emissions)	2
	Agriculture & forestry (run-off, emissions)	1
	Urban (municipal waste water discharge)	2
	Land-based activities/industries - other	NA
Man-made structures (incl. construction phase)	Land claim, coastal defence	1
	Port operations	1
	Placement & operation of offshore structures (other than for energy production)	?
	Submarine cable & pipeline operations	2
	Man-made structures (incl. construction phase) - other	?
Military	Recurrent defence operations	2
	Dumping of unwanted munitions	2
	Military - other	1 (noise explosions)
Recreation	Tourism & recreation incl. yachting	2
	Recreation - other	3
Research and survey	Marine research, survey & educational activities	3
Transport	Shipping	1
	Transport - other	NA
Waste disposal	Solid waste disposal incl. dredge material	?
	Storage of gasses	?
	Waste disposal - other	NA
Z - Other marine uses and activities	Other marine uses and activities	NA

**Description of narrative:**

Text to support figures, tables and maps provided. However, this should be limited and the main information should be presented through the figures, tables and maps.

**Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	Dependant on availability of underpinning data sets and information. Will vary according to activity type.
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Every other year – human activities change frequently, but unlikely to change significantly over a year (at the scale of the North Sea)?
3	Are there specific formats for the inclusion or updates required by a client commission?	Yes – specific formats should be set to ensure data sets are common across different countries.

**Responsibilities for sub-section**

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	ICES Data Centre
2	Identify group responsible for providing data to support update of the proposed sub-section?	ICES Data Centre
3	Identify group responsible for data processing to support updates of the proposed sub-section?	ICES Data Centre

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WKIND – DCF indicators?
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	?
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	?
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	?
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	?

**Sub-section contents and review**

Eco-region	North Sea	
Section number	3	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	3.2	(See document: Sub-sections 10-1-13)
Sub-section title	Pressure	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:****Physical disturbance**

Loss

Damage

Noise

Marine litter

Introduction of hard substrate (e.g. wind turbines)

**Interference with hydrological processes****Contamination with hazardous substances****Nutrient and organic matter enrichment****Biological disturbance**

Introduction of pathogens and non-indigenous species

(Selective) extraction of species, including by-catch

**Description of narrative:**

**The three major pressures in the North Sea are:**

1. Extraction of species
2. Physical damage of the sea floor
3. Contamination with hazardous substances

.....Runners-up are: noise and marine litter

**Ad 1: Total biomass extracted annually from the North Sea ??**

**Ad 2: Space and scale of sediment extraction (WGEXT), space and scale of bottom trawling**

**Ad 3: Present degree of biological effects of contaminants (WGBEC)**

**Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annually
3	Are there specific formats for the inclusion or updates required by a client commission?	?

**Responsibilities for sub-section**

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGEXT, WGBEC
2	Identify group responsible for providing data to support update of the proposed sub-section?	ICES data centre
3	Identify group responsible for data processing to support updates of the proposed sub-section?	ICES data centre

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	

### Sub-section contents and review

Eco-region	North Sea	
Section number	4	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	4.1	(See document: Sub-sections 10-1-13)
Sub-section title	Biodiversity	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

#### Description of figure/ table or other element:

OSPAR considered six separate ecosystem components and has compiled a list of “common indicators” for each component. As a result of this OSPAR decision, most MSs who are also CPs to OSPAR compiled their own lists of indicators to comply with these Ecosystem component categories. These ecosystem components are: Pelagic habitats, Sedimentary habitats, Rock and biogenic reef, Seabirds, Marine mammals and reptiles, Fish and Cephalopods. For the North Sea eco-region we now adopt the same approach to considering biodiversity indicators.

#### Pelagic habitats

- 1) Change of plankton functional types (life form) index Ratio. Targets presently not defined for this indicator.
- 2) Plankton biomass and/or abundance. Targets presently not defined for this indicator.
- 3) Changes in biodiversity index(s). Targets presently not defined for this indicator.

#### Sedimentary habitats

- It is not known whether “common indicators” for biodiversity are currently being considered by OSPAR for this ecosystem component.

#### Rock and biogenic reef

- It is not known whether “common indicators” for biodiversity are currently being considered by OSPAR for this ecosystem component.

#### Seabirds

- 1) Distributional pattern of breeding and non-breeding marine birds: No major shifts or shrinkage in the range of marine birds in 75% of species monitored.

- 2) Species-specific trends in relative abundance of non-breeding and breeding marine birds: 75% of species should be above their individual species-specific thresholds.
- 3) Annual breeding success of kittiwake: No specific target set for this, but target under consideration is linked changes in surface sea water temperature (Frederikson et al., 2004), so is a moving target reflecting changes in environmental conditions.
- 4) Breeding success/failure of marine bird species: Widespread seabird colony breeding failures should occur rarely in other species that are sensitive to changes in food availability. Based on species-specific target of - The annual percentage of colonies experiencing breeding failure does not exceed the mean percentage of colonies failing over the preceding 15 years, or 5%, whichever value is greater, in more than three years out of six.
- 5) Mortality of marine birds from fishing (bycatch) and aquaculture: Estimated mortality as a result of fishing bycatch and aquaculture entanglement does not exceed levels that would prevent targets for MSFD Descriptor 1 Criterion 2 (population size) from being achieved.
- 6) Non-native/invasive mammal presence on island seabird colonies: Minimise the risk of invasion by non-native mammals on all island seabird colonies, where this has not already occurred (including islands from where mammals have been eradicated); and eliminate detrimental impacts caused by mammals at a prioritised list of island seabird colonies.

#### **Marine mammals and reptiles**

- 1) Distributional range and pattern of grey and harbour seal haul-outs and breeding colonies: No decrease with regard to the baseline beyond natural variability.
- 2) Distributional range and distributional pattern within range of cetaceans: No decrease with regard to the baseline beyond natural change OR to restore or maintain populations in a healthy state.
- 3) Abundance of harbour and grey seals: No statistically significant decrease with regard to the baseline beyond natural variability.
- 4) Abundance, at the relevant temporal scale, of cetacean species regularly present: No statistically significant decrease with regard to the baseline beyond natural variability (1): An increase in numbers in all areas where it occurs, and a recovery in areas where it was known to occur up to the 20th century (2).
- 5) Fecundity rate of harbour seal and grey seal (pup production): No statistically significant deviation from long-term variation / no decline of  $\geq 10\%$  at each management unit.
- 6) Mortality rate due to bycatch: The annual bycatch rate of [marine mammal species] is reduced to below [X] of the best population estimate.

#### **Fish and Cephalopods**

- 1) Population abundance/biomass of a suite of selected species, eg trends in the abundance of sensitive fish species: a statistically significant fraction of the sensitive species for which data meet “adequately monitored” criteria are increasing in abundance (trends-based targets for individual species abundance metrics).

- 2) OSPAR EcoQO for proportion of large fish; for all species from the IBTS. [It may be that this is an error in the document. The ICG-COBAM technical lead on fish still believes that this indicator relates primarily to demersal fish]. A target of 0.3 has been proposed for the North Sea demersal fish community (Heslenfeld and Enserink 2008).
- 3) Mean maximum length of demersal fish and elasmobranchs. Targets presently not defined for this indicator.
- 4) Conservation status of elasmobranch and demersal bony fish species (IUCN). Targets presently not defined for this indicator.
- 5) Proportion of mature fish in the populations of all species sampled adequately in international and national fish surveys. Targets presently not defined for this indicator.
- 6) Bycatch rates of Chondrichthyes. Targets presently not defined for this indicator.
- 7) Distributional range of a suite of selected species, eg trends in range extent of sensitive fish species: a statistically significant fraction of the sensitive species for which data meet “adequately monitored” criteria are increasing the extent of their range (trends-based targets for individual species range extent metrics).
- 8) Distributional pattern within range of a suite of selected species. Targets presently not defined for this indicator.

**Description of narrative:**

**Pelagic habitats**

**Sedimentary habitats**

**Rock and biogenic reef**

**Seabirds**

**Marine mammals and reptiles**

**Fish and Cephalopods**

- 1) Theory and published literature infer that sensitive species populations have declined as a consequence of high levels of fishing mortality. To meet GES, recovery among these populations is required. This indicator has been proposed by the UK and is currently considered as an OSPAR common indicator (Greenstreet et al. 2012).
- 2) The original OSPAR EcoQO for the North Sea considered only species “adequately” sampled by the survey trawl, and so excluded pelagic species from the analysis (Greenstreet et al., 2011). A similar approach has been adopted in the Celtic Sea (Shephard et al., 2011) (Note: the “Celtic Sea” is a small part of the whole MSFD “Celtic Seas” sub-region).

**Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	By 2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Variable depending on Ecosystem component. Data available annually for Pelagic Habitats, Seabirds and Fish components, but updates every 3 years(?). Data available much less frequently for Sedimentary Habitats, Rock and Biogenic Reefs and Marine Mammals.
3	Are there specific formats for the inclusion or updates required by a client commission?	

**Responsibilities for sub-section**

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGZE, BEWG, WGSE, WGMME, WGECO, WGBIODIV
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGZE, BEWG, WGSE, WGMME
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGZE, BEWG, WGSE, WGMME, WGECO, WGBIODIV

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	

**References**

Greenstreet, S. P. R., Rogers, S. I., Rice, J. C., Piet, G. J., Guirey, E. J., Fraser, H. M., and Fryer, R. J. 2011. Development of the EcoQO for the North Sea fish community. – ICES Journal of Marine Science, 68: 1–11.

- Greenstreet, S. P. R., Rossberg, A. G., Fox, C. J., Le Quesne, W. J. F., Blasdale, T., Boulcott, P., Mitchell, I., Millar, C., and Moffat, C. F. 2012. Demersal fish biodiversity: species-level indicators and trends-based targets for the Marine Strategy Framework Directive. – ICES Journal of Marine Science, 69: 1789–1801.
- Shephard, S., Reid, D. G., and Greenstreet, S. P. R. 2011. Interpreting the large fish indicator for the Celtic Sea. – ICES Journal of Marine Science, 68: 1963–1972.

**Sub-section contents and review**

Eco-region	North Sea	
Section number	4	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	4.2	(See document: Sub-sections 10-1-13)
Sub-section title	Non-indigenous species	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- 1. Rate of new introductions of NIS (per defined period).**
- 2. Pathways management measures: Monitoring at key high risk/hot spot areas of introduction/potential spread.**

**Description of narrative:****Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	
3	Are there specific formats for the inclusion or updates required by a client commission?	

**Responsibilities for sub-section**

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	
2	Identify group responsible for providing data to support update of the proposed sub-section?	
3	Identify group responsible for data processing to support updates of the proposed sub-section?	

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	

**Sub-section contents and review**

Eco-region	North Sea	
Section number	4	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	4.4	(See document: Sub-sections 10-1-13)
Sub-section title	Foodwebs	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

OSPAR considered six separate ecosystem components and has compiled a list of “common indicators” for each component. As a result of this OSPAR decision, most MSs who are also CPs to OSPAR compiled their own lists of indicators to comply with these Ecosystem component categories. These ecosystem components are: Pelagic habitats, Sedimentary habitats, Rock and biogenic reef, Seabirds, Marine mammals and reptiles, Fish and Cephalopods. For the North Sea eco-region we now adopt the same approach to considering biodiversity indicators.

**Pelagic habitats**

- 1) Change of plankton functional types (life form) index Ratio. Targets presently not defined for this indicator.
- 2) Plankton biomass and/or abundance. Targets presently not defined for this indicator.

### **Sedimentary habitats**

- It is not known whether “common indicators” for biodiversity are currently being considered by OSPAR for this ecosystem component.

### **Rock and biogenic reef**

- It is not known whether “common indicators” for biodiversity are currently being considered by OSPAR for this ecosystem component.

### **Seabirds**

- 1) Species-specific trends in relative abundance of non-breeding and breeding marine birds assigned to specific trophic guilds: 75% of species should be above their individual species-specific thresholds.
- 2) Annual breeding success of kittiwake: No specific target set for this, but target under consideration is linked changes in surface sea water temperature (Frederikson et al., 2004), so is a moving target reflecting changes in environmental conditions. Target of 0.6 has been suggested previously.
- 3) Breeding success/failure of marine bird species: Widespread seabird colony breeding failures should occur rarely in other species that are sensitive to changes in food availability. Based on species-specific target of - The annual percentage of colonies experiencing breeding failure does not exceed the mean percentage of colonies failing over the preceding 15 years, or 5%, whichever value is greater, in more than three years out of six.

### **Marine mammals and reptiles**

- 1) Abundance of harbour and grey seals: No statistically significant decrease with regard to the baseline beyond natural variability.
- 2) Abundance, at the relevant temporal scale, of cetacean species regularly present: No statistically significant decrease with regard to the baseline beyond natural variability (1): An increase in numbers in all areas where it occurs, and a recovery in areas where it was known to occur up to the 20th century (2).
- 3) Fecundity rate of harbour seal and grey seal (pup production): No statistically significant deviation from long-term variation / no decline of  $\geq 10\%$  at each management unit.

### **Fish and Cephalopods**

- 1) OSPAR EcoQO for proportion of large fish; for all species from the IBTS. [It may be that this is an error in the document. The ICG-COBAM technical lead on fish still believes that this indicator relates primarily to demersal fish]. A target of 0.3 has been proposed for the North Sea demersal fish community (Heslenfeld and Enserink 2008).
- 2) Biomass and abundance of fish assigned to different dietary functional groups. Targets presently not defined for this indicator.

**Description of narrative:****Pelagic habitats****Sedimentary habitats****Rock and biogenic reef****Seabirds****Marine mammals and reptiles****Fish and Cephalopods**

- 1) The original OSPAR EcoQO for the North Sea considered only species “adequately” sampled by the survey trawl, and so excluded pelagic species from the analysis (Greenstreet et al., 2011). A similar approach has been adopted in the Celtic Sea (Shephard et al., 2011) (Note: the “Celtic Sea” is a small part of the whole MSFD “Celtic Seas” sub-region).

**Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub-section be included in the overview? (year, month)	By 2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Variable depending on Ecosystem component. Data available annually for Pelagic Habitats, Seabirds and Fish components, but updates every 3 years(?). Data available much less frequently for Marine Mammals.
3	Are there specific formats for the inclusion or updates required by a client commission?	

**Responsibilities for sub-section**

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGZE, BEWG, WGSE, WGMME, WGECO, WGBIODIV
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGZE, BEWG, WGSE, WGMME
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGZE, BEWG, WGSE, WGMME, WGECO, WGBIODIV

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	

## References

- Greenstreet, S. P. R., Rogers, S. I., Rice, J. C., Piet, G. J., Guirey, E. J., Fraser, H. M., and Fryer, R. J. 2011. Development of the EcoQO for the North Sea fish community. – ICES Journal of Marine Science, 68: 1–11.
- Shephard, S., Reid, D. G., and Greenstreet, S. P. R. 2011. Interpreting the large fish indicator for the Celtic Sea. – ICES Journal of Marine Science, 68: 1963–1972.

### Sub-section contents and review

Eco-region	North Sea	
Section number	4	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	4.6	(See document: Sub-sections 10-1-13)
Sub-section title	Seabed	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

#### Description of figure/ table or other element:

**OSPAR initially considered two separate sea-floor components, but these have been combined into a single “benthic” component in addressing the Descriptor “Seafloor integrity”.**

- 1) Area of habitat damage: No more than 15% damage from baseline conditions, reflecting the different substrate types and depth zones.
- 2) Area of habitat loss: No more than 15% damage from baseline conditions, reflecting the different substrate types and depth zones.
- 3) Typical species composition: Maintain or increase the proportion of typical and/or character species inventory (preferred above a certain % baseline). OR Condition/density/proportion of selected sensitive species increasing.
- 4) Multi-metric indices applied to assess variation in the condition of the benthic community.
- 5) Size- frequency distribution of benthic species: Maintain the population structure of sensitive long-living species near natural size spectrum.

#### Description of narrative:

- 1) Essentially a pressure limitation target determined on the basis of “expert judgement”, and reflecting the fact that availability of data may not be adequate to assess variation in state at sufficient spatial or temporal resolution to support management advice.
- 2) Essentially a pressure limitation target determined on the basis of “expert judgement”, and reflecting the fact that availability of data may not be adequate to assess variation in state at sufficient spatial or temporal resolution to support management advice.
- 3) Uncertain whether data would be available to assess state adequately to support management.
- 4) Uncertain whether data would be available to assess state adequately to support management.
- 5) Uncertain whether data would be available to assess state adequately to support management.

**Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	By 2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Data to assess variation in state available at less than regional spatial scale, and less than annual temporal scale. Updating likely to be infrequent fo Benthic Habitats. Assessment of variation in pressure on Benthic Habitats possible at regional and annual scales.
3	Are there specific formats for the inclusion or updates required by a client commission?	

**Responsibilities for sub-section**

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	BEWG, WGECO, WGBIODIV
2	Identify group responsible for providing data to support update of the proposed sub-section?	BEWG,
3	Identify group responsible for data processing to support updates of the proposed sub-section?	BEWG, WGECO, WGBIODIV

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	

**Annex 6: Celtic Sea –Draft January 2013**

Note on Annex 6: The contents of the overview presented in this Annex are a ‘work in progress’ because the breadth of expertise in WKECOVER was less than that which will be available within the broad range of expert groups expected to

contribute to the overview in the longer-term. WKECOVER participants developed these annexes based on their own expertise and by prioritising information they had available during the workshop, but recognise that additional material will need to be considered before overview contents are finalised. It is especially important that other expert groups focus on the contents of Section 2, and assess whether the signals currently identified are those that are most likely to have a significant effect on the advice.

## Section 1

Eco-region	Celtic Seas	
Section number	1	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	1.1	(See document: Sub-sections 10-1-13)
Sub-section title	Ecoregion boundaries and geography	To include known sub-division of North Sea into Northern and Southern parts.
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

### Description of figure/ table or other element:

Map showing bathymetry.



Celtic Seas 1.0  
map.pdf

### Description of narrative:

The text should be limited to the content of map. e.g. could be extended Figure caption which does not change from year to year unless the map content changes.

**Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	End of February 2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Not needed unless boundaries change or other content added to the map
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	ICES Data Centre (to liaise with relevant organisation)
2	Identify group responsible for providing data to support update of the proposed sub-section?	ICES Data Centre (to liaise with relevant organisation)
3	Identify group responsible for data processing to support updates of the proposed sub-section?	ICES Data Centre (to liaise with relevant organisation)

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	ICES Data Centre (to liaise with relevant organisation)
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGEAWESS
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGEAWESS ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	WGEAWESS ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	N/A

## Sub-section contents and review

Eco-region	Celtic Seas	
Section number	1	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	1.2	(See document: Sub-sections 10-1-13)
Sub-section title	Ecoregion management	To include known sub-division of North Sea into Northern and Southern parts.
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

Map showing boundaries of ICES ecoregion , North Western Waters RAC, OSPAR Celtic Seas (Region III), MSFD Celtic Seas sub-region, ICES sub-divisions, other sub-regional boundaries e.g. defined by WFD.

**Description of narrative:**

The text should be limited to the content of map. e.g. could be extended Figure caption which does not change from year to year unless the map content changes.

**Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	End of February 2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Not needed unless boundaries change or other content added to the map
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	ICES Data Centre (to liaise with relevant organisation)
2	Identify group responsible for providing data to support update of the proposed sub-section?	ICES Data Centre (to liaise with relevant organisation)
3	Identify group responsible for data processing to support updates of the proposed sub-section?	ICES Data Centre (to liaise with relevant organisation)

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	ICES Data Centre (to liaise with relevant organisation)
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGEAWESS
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGEAWESS ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	WGEAWESS ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	N/A

### Sub-section contents and review

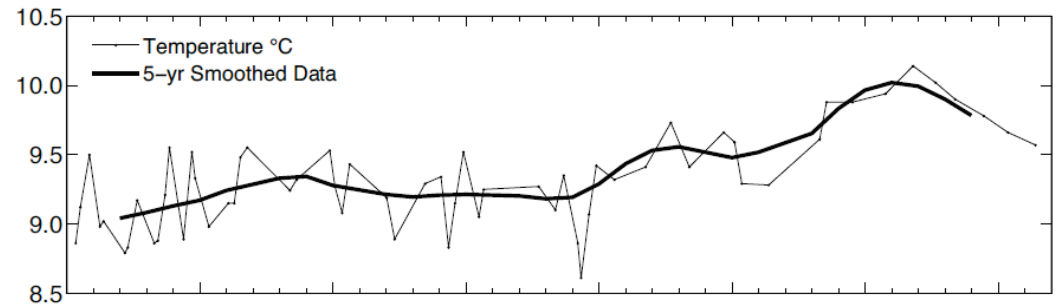
Eco-region		Celtic Sea
Section number	2	Key signals within the environment and ecosystem
Sub-section number	2.1	(See document: Sub-sections 10-1-13)
Sub-section title	Physical and chemical oceanography	
Does the proposed content meet the criteria for including a sub-section on the overview?	yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

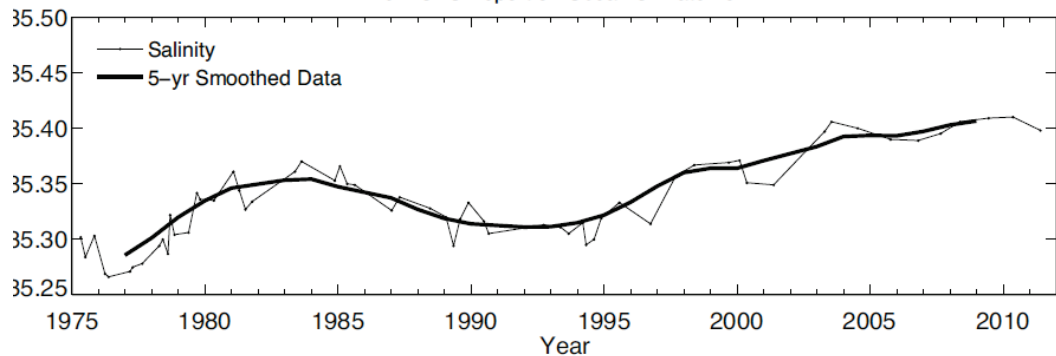
### Description of figure/ table or other element:

- Temperature/Salinity figures for the Celtic Sea shelf edge waters (Rockall Trough) and the shelf waters (Malin Shelf and or Western Channel)
- Possibly temperature/Salinity figures from the Irish Sea

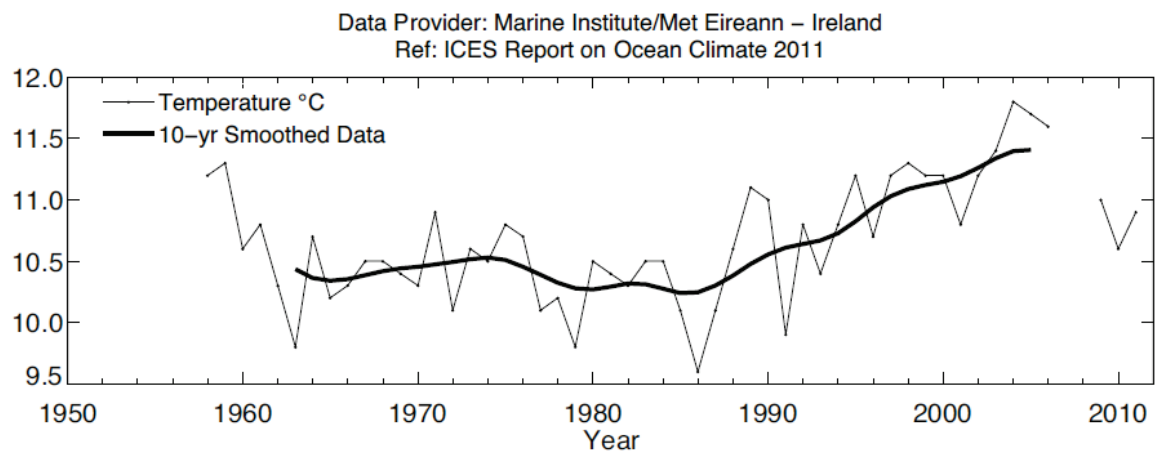
Example 1: Temperature (upper panel) and salinity (lower panel) for the upper ocean (0–800 m) in the Rockall Trough from WGOH 2012 and their published climate status report 2012.



Data Provider: National Oceanography Centre Southampton and Scottish Association for Marine Science – UK  
Ref: ICES Report on Ocean Climate 2011



Example 2: Sea surface temperature at the Malin Head coastal station (55.39°N 7.38°W) from WGOH 2012 and their published climate status report 2012.



#### Description of narrative:

Potential linkages for the shelf edge oceanography and pelagic fisheries:

- Influence of the strength of the Subpolar Gyre on spawning distribution and success of blue whiting (Hatun et al., 2009b, Hatun et al., 2009a).
- Influence of shelf edge water temperatures on migration routes for mackerel, horse mackerel and blue whiting (Blanchard and Vandermeirsch, 2005; Reid et al., 1997; Reid et al., 2001; Macer, 1977, Lockwood and Johnson, 1977, Eaton, 1983).

- Potential Influence of water temperature on recruitment for Horse Mackerel (Pipe and Walker, 1987).

Statement on temperature and salinity as given by the ICES climate status report 2012 (Based on WGOH work): The post-2006 cooling trend continues in the upper 800 m of the Rockall Trough accompanied by a freshening between 2010 and 2011. Although the potential temperature of the upper 800 m remains higher than the long-term mean, the cooling trend that started after the peak of 10.09°C in 2006 continues, with a value of 9.52°C observed in May 2011. More significantly, perhaps, the equivalent salinity, though still high, has fallen slightly for the first time since 2006 from the peak of 35.410 in 2010 to 35.398 in 2011. Whether these observations mean that the Subpolar Gyre is expanding in the NE Atlantic again remains to be seen.

Data products from WGOOFE or WGOH in relation to the subpolar gyre should be further explored.

Potential linkages for water temperatures and shelf fisheries (West of Scotland, Irish Sea & Celtic Sea):

- Influence of water temperatures on on recruitment of shelf stocks ( addressed in ICES advice 2012 for Cod VIa, VIIb-k, HerringVIaN, Plaice VIIa).

Statement on temperature and salinity as given by the ICES climate status report 2012 (Based on WGOH work): Sea surface temperatures at Malin Head, have been increasing since the late 1980s, and those for the mid-2000s were the highest since records began in 1960. In 2011, the sea surface temperature anomaly at Malin Head was slightly higher than in 2010 and remains as a positive anomaly in the time-series. At the M3 buoy, there is considerable interannual variability, with the warmest recorded summer temperatures in 2003 and 2005, and the warmest winter temperatures in 2007. In 2011, temperatures started below the time-series mean (2003–2011) until March. Temperatures were above the timeseries mean between March and May, and then below the mean values until November

Data products from WGOOFE or WGOH in relation to temperature/salinity data in the Irish Sea should be further explored.

#### Date of inclusion and frequency of update of sub-section

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annual
3	Are there specific formats for the inclusion or updates required by a client commission?	No, potential formats could be time series of temperature and salinity at selected water depths (as given in WGOH).

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external)	WGOH/WGEAWESS
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	groups etc)	
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGOH, WGGOOFE with support from ICES data centre?
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGOH, WGGOOFE with support from ICES data centre?

### Responsibilities for sub-section

### Quality control/ risk

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WGOH
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGWIDE/WGCSE
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGWIDE/WGCSE +ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGOH

### Sub-section contents and review

Eco-region	Celtic Sea	
Section number	2	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	2.2	(See document: Sub-sections 10-1-13)
Sub-section title	Key signals in biotic processes	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

#### Description of figure/ table or other element:

- Marine Mammals: Table of harbour and grey seal trends
- Example 1&2: Trends table for harbour and grey seal from WGMME 2012.

Proposed data format: trend table for the Celtic Sea ecoregion split by subregion rather than nation eg- West of Scotland, Irish Sea, Celtic Sea for both harbour seals and grey seals.

Region	Number of seals counted <sup>1</sup>	Years when latest information was obtained	Possible population trend <sup>2</sup>
Outer Hebrides	1,800	2008	Declining
Scottish W coast	11,400	2007-2009	None detected
Scottish E & N coast	1,600	2010	Declining
Shetland	3,000	2009	Declining
Orkney	2,700	2010	Declining
<b>Scotland</b>	<b>20,400</b>		
<b>England</b>	<b>4,200</b>	<b>2008</b>	<b>Recent decline<sup>3</sup></b>
<b>Northern Ireland</b>	<b>1,200</b>	<b>2002</b>	<b>Decrease since '70s</b>
<b>UK</b>	<b>25,900</b>		
Ireland	2,900	2003	Unknown
Wadden Sea-Germany	10,200	2010	Increasing after 2002 epidemic
Wadden Sea-NL	5,000	2010	Increasing after 2002 epidemic
Wadden Sea-Denmark	2,800	2010	Increasing after 2002 epidemic
Lijmfjorden-Denmark	1,050	2008	Recent decline <sup>3</sup>
Kattegat/Skagerrak	11,700	2007	Recent decline <sup>3</sup>
West Baltic	750	2008	Increasing
East Baltic	600	2008	Increasing
Norway	6,700	2006	Declining
Iceland	12,000	2006	Declining
Barents Sea	700	2008	Unknown
<b>Europe excluding UK</b>	<b>54,400</b>		
<b>Total</b>	<b>80,300</b>		

<sup>1</sup> – counts rounded to the nearest 100. They are minimum estimates of population size as they do not account for proportion at sea and in many cases are amalgamations of several surveys.

<sup>2</sup> – There is a high level of uncertainty attached to estimates of trends in most cases.

<sup>3</sup> – Declined as a result of the 2002 PDV epidemic.

Data sources: [www.smr.u-st-and.ac.uk](http://www.smr.u-st-and.ac.uk); ICES Report of the Working Group on Marine Mammal Ecology 2004; Desportes, G., Borge, A., Aqalu, R-A and Waring, G.T. (2010) Harbour seals in the North Atlantic and the Baltic. NAMMCO Scientific publications Volume 8.

Nilssen K. 2011. Seals – Grey and harbour seals. in Agnalt A-L, Fossum P, Hauge M, Mangor-Jensen A, Ottersen G, Rottingen I, Sundet JH, & Sunnset BH. (eds) 2011 Havforskningsrapporten 2011. Fiskeri og havet, 2011(1); Hårkönen, H. & Isakson E. 2010. Status of the harbor seal (*Phoca vitulina*) in the Baltic Proper. NAMMCO Sci Pub 8:71-76.; Olsen MT, Andersen SM, Teilmann J, Dietz R, Edren SMC, Linnet A., & Hårkönen T. 2010. Status of the harbour seal (*Phoca vitulina*) in Southern Scandinavia. NAMMCO Sci Publ 8: 77-94.

Region	Pup Production	Years when latest information was obtained	Possible population trend <sup>4</sup>
UK	50,200	2010	Increasing
Ireland	1,600	2005	Unknown <sup>1</sup>
Wadden Sea	400	2008	Increasing <sup>2</sup>
Norway	1,300	2008	Unknown <sup>3</sup>
Russia	800	1994	Unknown <sup>2</sup>
Iceland	1,200	2002	Declining <sup>2</sup>
Baltic	4,700	2007	Increasing <sup>2,b</sup>
<b>Europe excluding UK</b>	<b>10,000</b>		<b>Increasing</b>
Canada - Sable Island	62,000	2008	Increasing <sup>4</sup>
Canada - Gulf St Lawrence + Eastern Shore	14,400	2007	Declining <sup>5</sup>
USA	2,600	2008	Increasing <sup>6</sup>
<b>WORLD TOTAL</b>	<b>137,700</b>		<b>Increasing</b>

<sup>1</sup> Ó Cadhla, O., Strong, D., O'Keeffe, C., Coleman, M., Cronin, M., Duck, C., Murray, T., Dower, P., Nairn, R., Murphy, P., Smiddy, P., Saich, C., Lyons, D. & Hiby, A.R. 2007. An assessment of the breeding population of grey seals in the Republic of Ireland, 2005. Irish Wildlife Manuals No. 34. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

<sup>2</sup> Data summarised in: Grey Seals of the North Atlantic and the Baltic. 2007 Eds: T. Haug, M. Hammill & D. Olafsdottir. NAMMCO Scientific publications Vol. 6

<sup>3</sup> Nilssen K. 2011. Seals – Grey and harbour seals. in Agnalt A-L, Fossum P, Hauge M, Mangor-Jensen A, Ottersen G, Rottingen I, Sundet JH, & Sunnset BH. (eds) 2011 Havforskningsrapporten 2011. Fiskeri og havet, 2011(1).

<sup>4</sup> Bowen, W.D., McMillan, J.I. & Blanchard, W. 2007. Reduced Population Growth Of Gray Seals At Sable Island: Evidence From Pup Production And Age Of Primiparity. Marine Mammal Science, 23(1): 48–64

<sup>5</sup> Baltic pup production estimate based on mark recapture estimate of total population size and an assumed multiplier of 4.7 HELCOM fact sheets ([www.HELCOM.fi](http://www.HELCOM.fi))

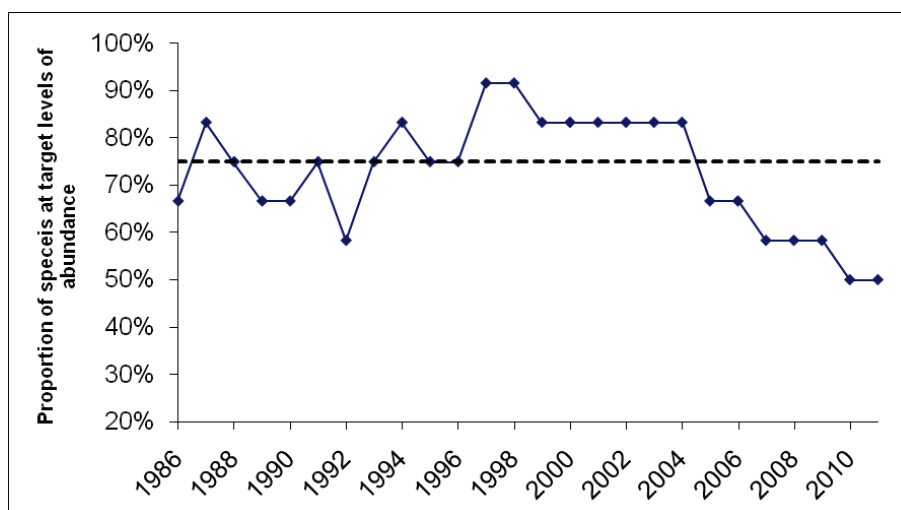
<sup>6</sup> Thomas, L., Hammill, M.O. & Bowen, W.D. 2007. Estimated size of the Northwest Atlantic grey seal population 1977–2007

Canadian Science Advisory Secretariat: Research Document 2007/082 pp31.

<sup>7</sup> NOAA (2009) [http://www.netsc.noaa.gov/publications/tm/tm219/184\\_GRSE.pdf](http://www.netsc.noaa.gov/publications/tm/tm219/184_GRSE.pdf)

- Sea birds: ECOQO on seabird abundance trends in OSPAR region 3 (Celtic Seas)

Example: The proportion of species in OSPAR III that were within target levels of abundance during 1986- 2011 (The graph represents the New target option' without an upper target level of 130%) from ICES WCBIRD 2012.



#### Descriptive Text:

Marine Mammals: Population of Harbour seals in the West of Scotland is stable; Population of Grey seals around the UK is increasing (need separated signal from the west of Scotland).

Sea birds: The proposed EcoQO indicator on breeding seabird population trends in OSPAR region III for the period 1986–2011 was not achieved in 1986, 1989–1992, 1996 and in consecutive years during 2003–2011 and six bird species (Northern fulmar, Arctic skua, European shag, herring gull, black-legged kittiwake and roseate tern), are all below the lower target baseline levels.

#### Date of inclusion and frequency of update of sub-section

	Marine Mammals	
1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	Late 2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Depending on data sources- it is anticipated that there will not be an annual update of new data.
3	Are there specific formats for the inclusion or updates required by a client commission?	No, potential formats could be distribution maps and tables of temporal trends

1	Identify group responsible for including, updating and providing context and interpretation linked to the _proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGMME /WGEAWESS
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGMME

3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGMME
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### Responsibilities for sub-section

#### Quality control/ risk

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WGMME
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGEAWESS /ACOM
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGMME

### Date of inclusion and frequency of update of sub-section

	<b>Seabirds</b>	
1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	Early 2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annual
3	Are there specific formats for the inclusion or updates required by a client commission?	As OSPAR ECOQO

### Responsibilities for sub-section

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGSBE (depending on continuity of group or WGBIODIV?)and ACOM
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGSBE (WGBIODIV)
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGSBE (WGBIODIV)

#### Quality control/ risk

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WGSBE (WGBIODIV)
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGEAWESS /ACOM
3	Review contents of proposed sub-section to ensure there is	ACOM

	no inconsistency with other information in the overview or advice. If there is, correct it.	
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGSBE (WGBIODIV)

#### Sub-section contents and review

Eco-region	Celtic Sea	
Section number	2	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	2.3	(See document: Sub-sections 10-1-13)
Sub-section title	Key signals in human pressures	
Does the proposed content meet the criteria for including a sub-section on the overview?		

Currently, no impacts have been identified that are not already considered in the advisory process and contravene existing management targets.

Eco-region	Celtic Seas	
Section number	3	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	3.1	(See document: Sub-sections 10-1-13)
Sub-section title	Human Activities	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	Individual components to be reviewed by WGEAWESS

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- 1 ) Map (layered pdf or similar) showing distribution of fishing activity, for all fishing activity combined, for all fisheries using mobile bottom contacting gears, and by metier.
- 2 ) Figure showing temporal trends in fishing pressure by metier for the whole eco-region, and by sub-region as separate panels to the plot.
- 3 ) Map (layer pdf or similar) showing distribution of additional activities based on the latest update of the level of activity for each activity. The selection of activities to include should be based on a strict pragmatic prioritisation by WGEAWESS of the significance of different activities. The activities to be displayed for example may include:
  - a) Shipping routes / shipping activity
  - b) Aggregate extraction sites
  - c) Aquaculture facilities
  - d) Renewable energy locations
  - e) Non-renewable energy (oil & gas) infrastructure
  - f) Sub-sea cables and pipelines
  - g) Capital dredging
- 4 ) Figure showing temporal trends in other activities that are deemed appropriate for inclusion by WGEAWESS (as per point 3).

**Illustrative examples of elements:**

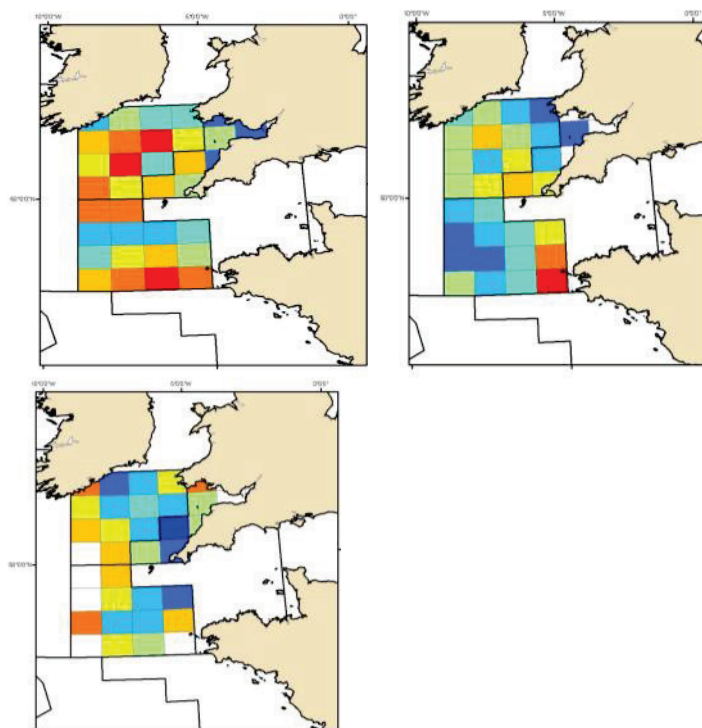


Figure 1: Illustrative example of fishing activity plot based on statistical rectangle level data. STECF SGMOS effort data for 2008, international effort for a) otter trawls, b) beam trawls, c) set nets. Scale bars not included and not consistent between plots. [STECF Evaluation of fishing effort regimes in European waters ]

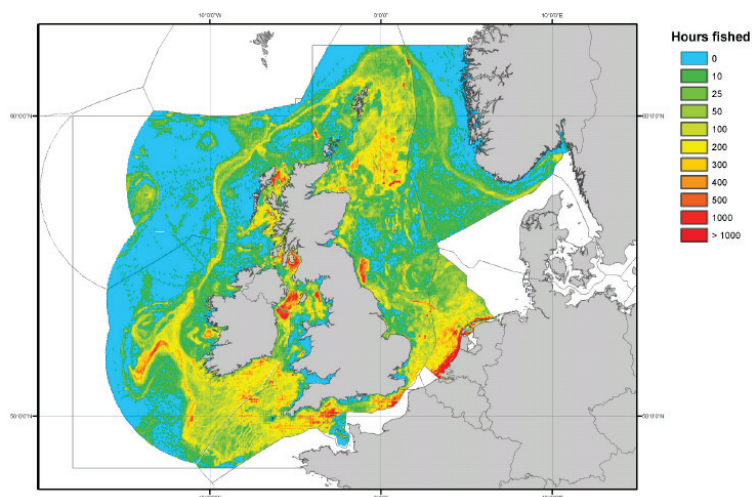


Figure 2: Illustrative example fishing activity plot based on VMS data. Calculated based on 2006 VMS data from submitting nations for all mobile bottom gears combined. From Le Quesne et al 2010 MEFEP North Sea GES report. See Le Quesne et al 2010 for description of methods. [Le Quesne et al. 2010 Assessing the impact of fishing on the Marine Strategy Framework Directive objectives for Good Environmental Status. MEFEP FP7 project WP2 report. [www.liv.ac.uk/mefepo/](http://www.liv.ac.uk/mefepo/).]

Figure 3.12 Trends in fishing effort by CP2 Region. Source: STECF (2008).



Figure 3: Illustrative example fishing activity plot. [Source: Charting Progress 2 Productive Seas feeder report; Original data source: STECF]

Figure 5: Illustrative example shipping activity information. Traffic separation schemes and shipping routes. From Nolan et al 2010. [Nolan et al 2010 A technical review document of the ecological, social and economic features of the North Western Waters region. MEFEP0 FP7 project WP1 report. [www.liv.ac.uk/mefepo/](http://www.liv.ac.uk/mefepo/)]

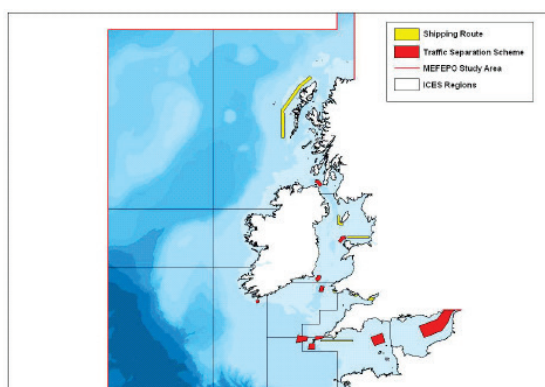


Figure 5: Illustrative example shipping activity information. Traffic separation schemes and shipping routes. From Nolan et al 2010. [Nolan et al 2010 A technical review document of the ecological, social and economic features of the North Western Waters region. MEFPO FP7 project WP1 report.

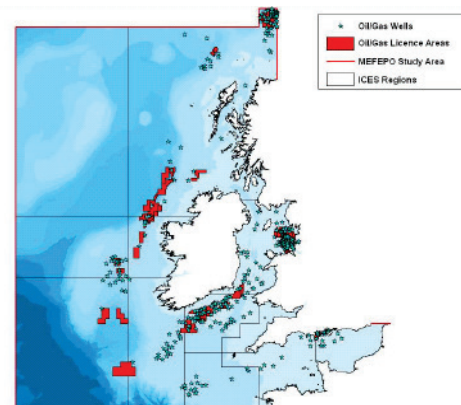


Figure 5: Illustrative example of non-renewable energy (oil and gas) activity. Licensed areas and well heads. From Nolan et al 2010. [Nolan et al 2010 A technical review document of the ecological, social and economic features of the North Western Waters region. MEFPO FP7 project WP1 report. [www.liv.ac.uk/mefepo/](http://www.liv.ac.uk/mefepo/)]

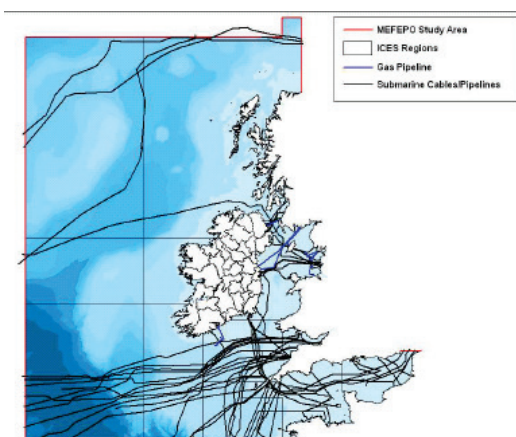


Figure 6: Illustrative example of submarine cables and pipelines. From Nolan et al 2010. [Nolan et al 2010 A technical review document of the ecological, social and economic features of the North Western Waters region. MEFPO FP7 project WP1 report

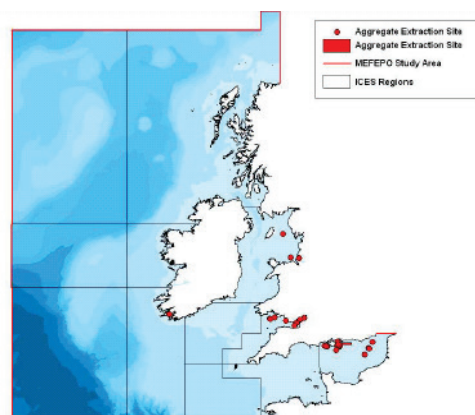


Figure 7: Illustrative example of extraction sites. From Nolan et al 2010. [Nolan et al 2010 A technical review document of the ecological, social and economic features of the North Western Waters region. MEFPO FP7 project WP1 report. [www.liv.ac.uk/mefepo/](http://www.liv.ac.uk/mefepo/)]

**Description of narrative:**

Narrative to briefly highlight notable trends in the main human activities including, and where possible comments on the drivers behind changes.

Highlight specific concerns on data quality/completeness.

Narrative to guide users interpretation of content to ensure appropriate interpretation of content by users.

**Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	Initial version to be included in 2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Fishing activity data to be updated annually. Other activity data to be updated on a 3-6 yearly basis.
3	Are there specific formats for the inclusion or updates required by a client commission?	tbc

**Responsibilities for sub-section**

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, ACOM, Secretariat, external groups etc)	WGEAWESS
2	Identify group responsible for providing data to support update of the proposed sub-section?	Fishing effort: Rectangle level effort data available via STECF. No formal access routes to VMS data currently available. Aggregate extraction: Other activities: Appropriate OSPAR, EAA, ICES or MS sources as appropriate.
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGEAWESS (or other groups defined as appropriate by WGEAWESS)

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WGEAWESS (or other groups defined as appropriate by WGEAWESS)
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	ACOM
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	ACOM

**Sub-section contents and review**

Eco-region	Celtic Seas	
Section number	3	(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	3.2	(See document: Sub-sections 10-1-13)
Sub-section title	Human Pressures	
Does the proposed content meet the criteria for including a sub-section on the overview?	Individual components of sub-section to be reviewed by WGEAWESS.	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

The predominant human pressures should be presented. Where possible this will include a map (layered pdf or similar) of the distribution and intensity of the pressure, plots of trends in pressure over time, and/or tables of the extent of the pressure. Furthermore, where possible pressures should be presented in accordance with MSFD pressure characterisation (Annex 1) based on the latest update for each pressure.

The pressures presented should include the predominant pressures determined by WGEAWESS. In addition pressures with a direct impact on policy objectives may be included.

At this stage the priority pressures to be reported are:

- 1) physical damage; in the first instance this should be based on the DCF indicator 'Areas not impacted by mobile bottom gears'. Additional activities contributing to physical damage should be included as methods and data streams become available.
- 2) bycatch of protected species; in the first instance this should provide information on the bycatch of cetaceans, information on additional taxa could be included as data streams become available.

Illustrative examples of elements:

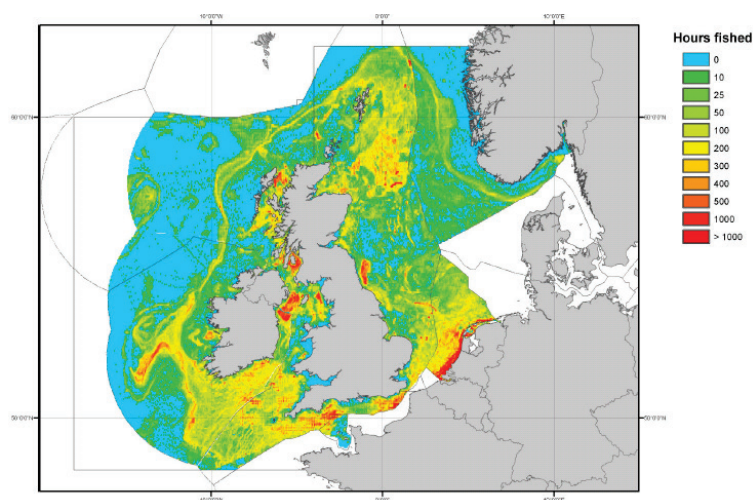


Figure 8: Illustrative example fishing activity plot based on VMS data. Calculated based on 2006 VMS data from submitting nations for all mobile bottom gears combined. From Le Quesne et al 2010 MEFEP North Sea GES report. See Le Quesne et al 2010 for description of methods. [Le Quesne et al. 2010 Assessing the impact of fishing on the Marine Strategy Framework Directive objectives for Good Environmental Status. MEFEP FP7 project WP2 report. [www.liv.ac.uk/mefepo/](http://www.liv.ac.uk/mefepo/).]

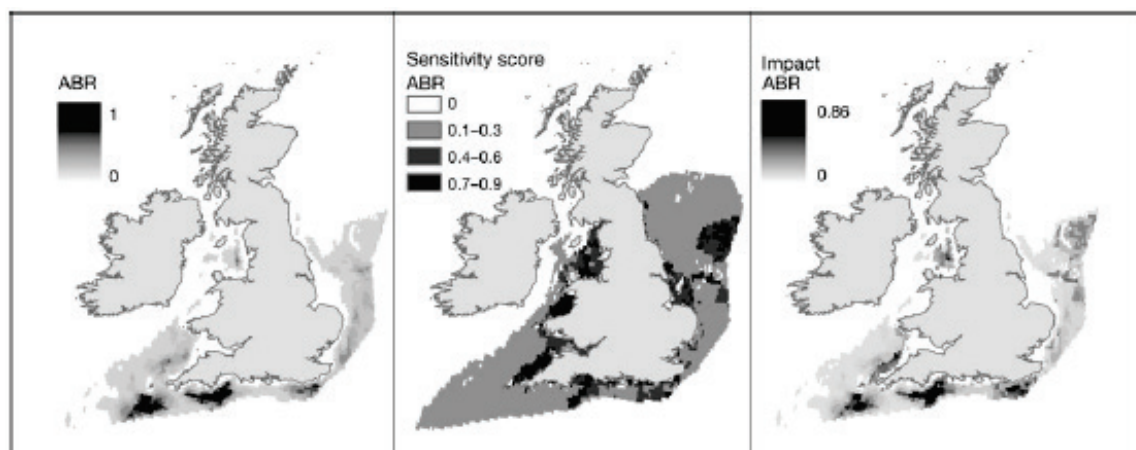






Fig. 3. Left: Abrasion (ABR) pressure map based on processed Vessel Monitoring System (VMS) data reflecting the average (2001 to 2006) fishing pressure of beam trawls, otter trawls and scallop dredgers (see Stelzenmüller et al. 2008); mid: marine landscape categories with associated measure of sensitivity (derived from Defra 2007) to abrasion; right: estimated impact of abrasion

Figure 9: Illustrative example of fishing pressure abrasion pressure map from Stelzenmuller et al 2010. [Stelzenmuller et al 2010 Quantifying cumulative impacts of human pressures on the marine environment: a geospatial modelling framework. Marine Ecology Progress Series 398: 19-32.]

Table 1: Proportion of area not trawled ( $A_{NT}$ ) for the Celtic Sea MSFD Eco-region by depth band as a proportion of the area for which data is available. The percentage of the area for which data is available is shown in parentheses. Based on 2007 VMS data for all mobile bottom gears combined. Calculated according to Le Quesne et al in prep. [Source: Le Quesne et al in prep].

Depth Band (m)	$A_{NT}$
0-20	0.74 (84)
20-50	0.68 (94)
50-80	0.47 (94)
80-130	0.51 (88)
130-200	0.58 (90)
>200	0.89 (72)

Table 2: Possible scale of bycatches of cetaceans in static nets and pelagic trawls, with comparison with 1.7% limit and caveats. Summary key: red circle icon = recommend immediate mitigation measures; orange circle icon = enhanced short-medium term observation to decide appropriate action; green circle icon = no action required at present beyond background observation. Atlantic region covers ICES areas VI, VII, VIIIa,b,c,d,e, IX. Atlantic (North) covers ICES areas VI, VII, VIIIa,b, Atlantic (South) covers ICES areas VIIIc,d,e, XI. [Source: ICES 2011 Advice Book 1, Section 1.5.1.4]

Management region	Possible scale of annual bycatch	1.7%	Comment (most important caveats)	Summary
Harbour porpoise – static nets				
Atlantic (North)	1520–19 634 animals per year 2009: UK 791; France >300; Spain ~300	2617	High figure based on one sample off Ireland; incomplete fleet sampling in all member states.	
Common dolphin (+ striped dolphin) – static nets				
Atlantic	1111 (or 1778 if all fleets extrapolated at UK rate) excl Iberia	5841	Sum of French days x bycatch rate, UK days x bycatch rate, and Spain days x bycatch rate, with the remainder of the fleet extrapolated at the UK rate.	
Common dolphin (+ striped dolphin) – for bass/tuna pair trawls				
Atlantic	1253	5841	For 2009, most recent year of estimates, but it has been higher.	
Common dolphin (+ striped dolphin) – other pelagic trawls				
Atlantic	0-30	5841	Very low bycatch rate, but observer coverage is incomplete.	

### Description of narrative:

Narrative to briefly highlight notable trends in the main human activities pressures, and where possible comments on the drivers behind changes.

Highlight specific concerns on data quality/completeness.

Narrative to guide users interpretation of content to ensure appropriate interpretation of content by users.

### Date of inclusion and frequency of update of sub-section

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	Initial version to be included in 2013.
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Fishing pressure data to be updated annually. Bycatch of protected species should be updated annually if possible, otherwise based on latest available data. Other pressure data to be updated on a 3-6 yearly basis.
3	Are there specific formats for the inclusion or updates required by a client commission?	Tbc

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGEAWESS
2	Identify group responsible for providing data to support update of the proposed sub-section?	VMS data for fishing pressure calculations to be accessed via WGVMS. Data on bycatch of protected species to be accessed via WG BYC. Other groups identified by WGEAWESS as appropriate.
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WG VMS responsible for processing VMS data on fishing pressure. WG BYC responsible for processing data on bycatch of vulnerable species. Other groups identified by WGEAWESS as appropriate.

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WG VMS to produce descriptions for the fishing pressure analysis. WG BYC to produce descriptions for the bycatch of protected species. Other groups identified by WGEAWESS as appropriate.
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	ACOM
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	ACOM

## Annex 1:

**Marine Strategy Framework Directive Annex III Table 2 Indicative list of pressures and impacts.**

Physical loss	— Smothering (e.g. by man-made structures, disposal of dredge spoil),
	— sealing (e.g. by permanent constructions).
Physical damage	— Changes in siltation (e.g. by outfalls, increased run-off, dredging/disposal of dredge spoil),
	— abrasion (e.g. impact on the seabed of commercial fishing, boating, anchoring),
	— selective extraction (e.g. exploration and exploitation of living and non-living resources on seabed and subsoil).
Other physical disturbance	— Underwater noise (e.g. from shipping, underwater acoustic equipment),
	— marine litter.
Interference with hydrological processes	— Significant changes in thermal regime (e.g. by outfalls from power stations),
	— significant changes in salinity regime (e.g. by constructions impeding water movements, water abstraction).
Contamination by hazardous substances	— Introduction of synthetic compounds (e.g. priority substances under Directive 2000/60/EC which are relevant for the marine environment such as pesticides, antifoulants, pharmaceuticals, resulting, for example, from losses from diffuse sources, pollution by ships, atmospheric deposition and biologically active substances),
	— introduction of non-synthetic substances and compounds (e.g. heavy metals, hydrocarbons, resulting, for example, from pollution by ships and oil, gas and mineral exploration and exploitation, atmospheric deposition, riverine inputs),
	— introduction of radio-nuclides.
Systematic and/or intentional release of substances	— Introduction of other substances, whether solid, liquid or gas, in marine waters, resulting from their systematic and/or intentional release into the marine environment, as permitted in accordance with other Community legislation and/or international conventions.
Nutrient and organic matter enrichment	— Inputs of fertilisers and other nitrogen — and phosphorus-rich substances (e.g. from point and diffuse sources, including agriculture, aquaculture, atmospheric deposition),
	— inputs of organic matter (e.g. sewers, mariculture, riverine inputs).
Biological disturbance	— Introduction of microbial pathogens,
	— introduction of non-indigenous species and translocations,
	— selective extraction of species, including incidental non-target catches (e.g. by commercial and recreational fishing).

### Sub-section contents and review

Eco-region		
Section number		(ie. 1 Ecoregion description; 2 Key signals within the environment and ecosystem; 3, Activity and pressure or 4, State)
Sub-section number	4.1.	(See document: Sub-sections 10-1-13)
Sub-section title	Biodiversity	
Does the proposed content meet the criteria for including a sub-section on the overview?	yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

### Description of figure/ table or other element:

Pelagic habitats:

- Temporal trend of phytoplankton and zooplankton biomass/abundance
- Changes of plankton functional types (life form) index ratio
- Changes in biodiversity index (s)

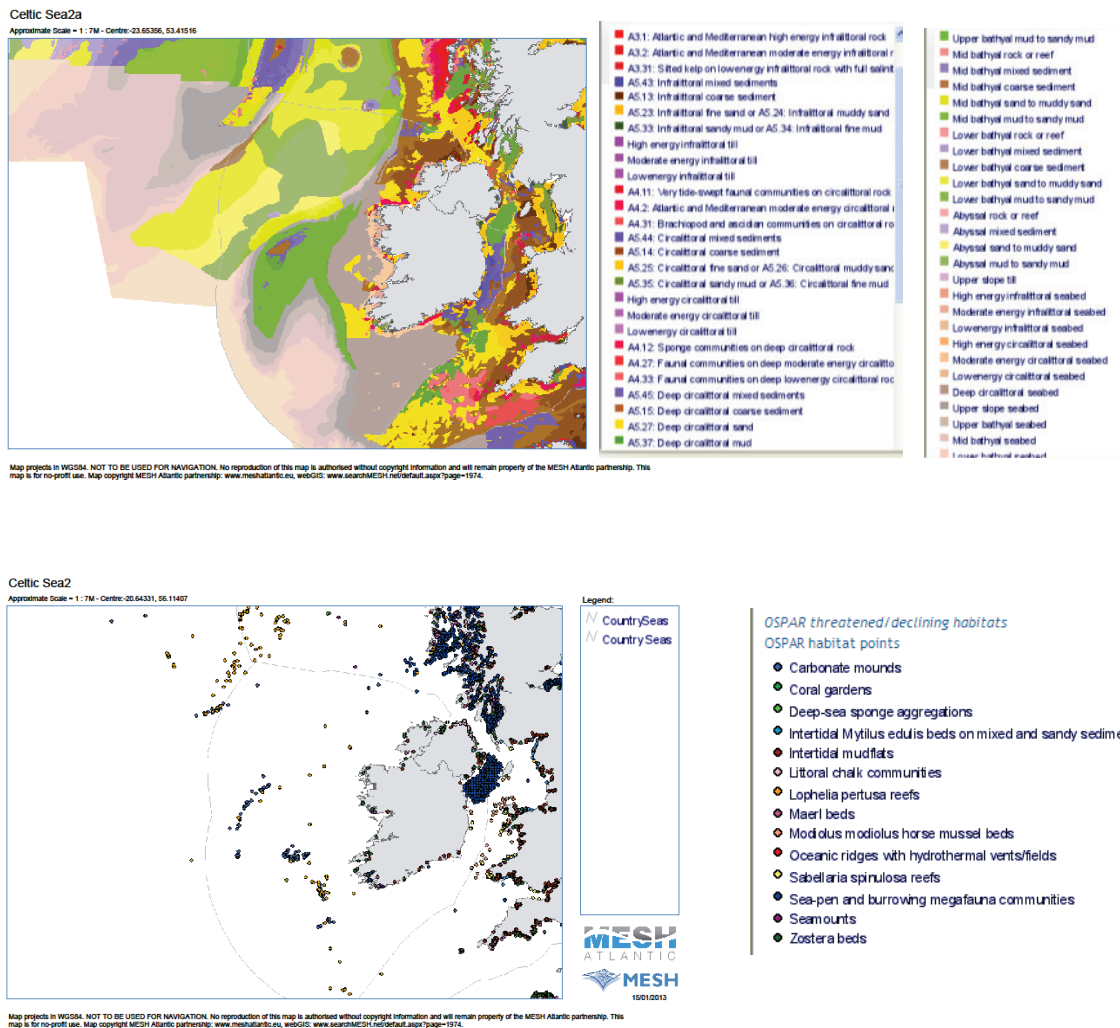
Benthic Habitats

- Rocky and Sediment Habitats: Distribution maps of predominant and vulnerable/listed habitats
- Typical species composition
- Multi metric indices

Some of the listed data sets are indicators which are currently being proposed as core indicators for the regional MSFD coordination under OSPAR. Targets are currently being considered for the proposed indicators. Data should be presented in relation to targets where established or in relation to trends.

Example maps: Distribution of predominant habitats (Eunis classification) and OSPAR threatened and declining habitats on

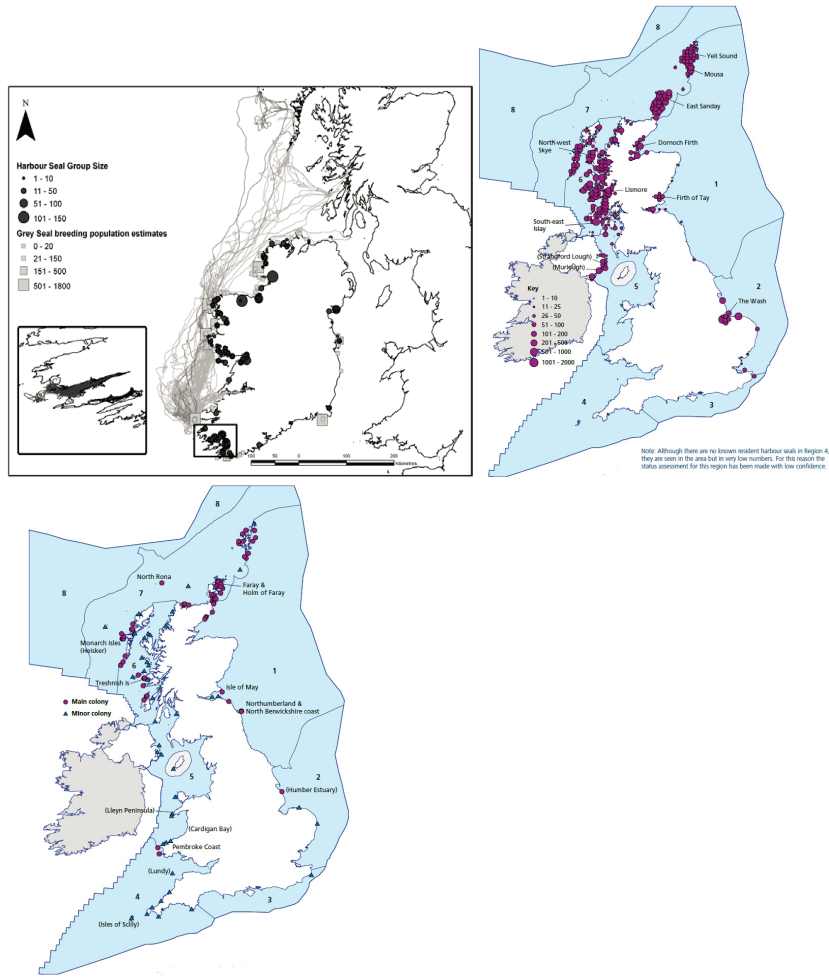
<http://www.searchmesh.net/default.aspx?page=1974>



## Marine Mammals

- Distribution range and patterns of harbour seals, grey seals and cetacean species regularly present from WGMME by ecoregion. Data should be presented by ecoregion and possibly subregion rather than nation.

Example: Location of haul out and breeding sites for harbour and grey seals, respectively, in the Republic of Ireland (left panel) and the distribution and number of harbour seals (middle panel) and grey seals (right panel) in Great Britain and Northern Ireland in August, by 10 km squares, from surveys carried out between 2000 and 2006 from WGMME 2012.



- Abundance trends of harbour seals, grey seals and cetacean species regularly present from WGMME Data should be presented by ecoregion and possibly subregion rather than nation.

Example: Size and status of European harbour seal populations. Data are counts of seals hauled out during the moult (taken from SCOS, 2011, presented in ICES WGMME 2012).

Region	Number of seals counted <sup>1</sup>	Years when latest information was obtained	Possible population trend <sup>2</sup>
Outer Hebrides	1,800	2008	Declining
Scottish W coast	11,400	2007-2009	None detected
Scottish E & N coast	1,600	2010	Declining
Shetland	3,000	2009	Declining
Orkney	2,700	2010	Declining
<b>Scotland</b>	<b>20,400</b>		
<b>England</b>	<b>4,200</b>	2008	Recent decline <sup>3</sup>
<b>Northern Ireland</b>	<b>1,200</b>	2002	Decrease since '70s
<b>UK</b>	<b>25,900</b>		
Ireland	2,900	2003	Unknown
Wadden Sea-Germany	10,200	2010	Increasing after 2002 epidemic
Wadden Sea-NL	5,000	2010	Increasing after 2002 epidemic
Wadden Sea-Denmark	2,800	2010	Increasing after 2002 epidemic
Ljmfjorden-Denmark	1,050	2008	Recent decline <sup>3</sup>
Kattegat/Skagerrak	11,700	2007	Recent decline <sup>3</sup>
West Baltic	750	2008	Increasing
East Baltic	600	2008	Increasing
Norway	6,700	2006	Declining
Iceland	12,000	2006	Declining
Barents Sea	700	2008	Unknown
<b>Europe excluding UK</b>	<b>54,400</b>		
<b>Total</b>	<b>80,300</b>		

<sup>1</sup> –counts rounded to the nearest 100. They are minimum estimates of population size as they do not account for proportion at sea and in many cases are amalgamations of several surveys.

<sup>2</sup> – There is a high level of uncertainty attached to estimates of trends in most cases

<sup>3</sup> – Declined as a result of the 2002 PDV epidemic.

Data sources: [www.smr.st-and.ac.uk](http://www.smr.st-and.ac.uk); ICES Report of the Working Group on Marine Mammal Ecology 2004;

Desportes, G., Bjørge, A., Aqgalu, R-A and Waring, G.T. (2010) Harbour seals in the North Atlantic and the Baltic.

NAMMCO Scientific publications Volume 8.

Reisen, M., T. Sunde, J. H. & Sunnset BH. (eds). Havforskningsrapporten 2011. Fiske og havet, 2011(1);

Rottungen I, Sundet JH, & Sunnset BH. (eds). Havforskningsrapporten 2011. Fiske og havet, 2011(1);

Olsen MT, Andersen SM, Teilmann J, Dietz R, Edren SMC, Linnet A., & Harkonen T. 2010. Status of the harbour seal

(Phoca vitulina) in the Baltic Sea. *Marine Mammals* 36: 1-10.

These indicators are currently being proposed as core indicators for the regional MSFD coordination under OSPAR. Targets are currently being considered for the proposed indicators. Data should be presented in relation to targets where established or in relation to trends.

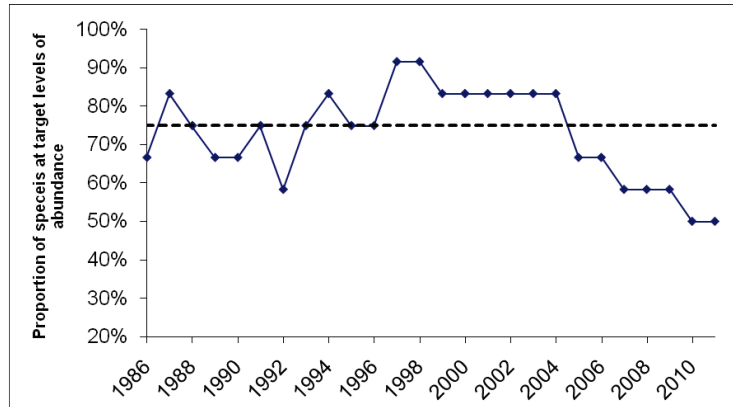
### Sea birds

- Distributional pattern of breeding and non-breeding marine birds
- Species-specific trends in relative abundance of non-breeding and breeding marine bird species
- Breeding success/failure of marine birds including annual breeding success of kittiwake
- Non-native/invasive mammal presence on island seabird colonies

These indicators are currently being proposed as core indicators for the regional MSFD coordination under OSPAR. Targets are currently being considered for the proposed indicators. Data should be presented in relation to targets where established or in relation to trends.

Example figure: OSPAR ECOQO of abundance trends of breeding and non breeding seabirds in the Celtic Seas (Region 3). The proportion of species in OSPAR III that were within target levels of abundance during 1986 – 2011. The EcoQO was not

achieved in years when the proportion dropped below 75% (shown with new target option without an upper target level of 130% (from ICES WCSEABIRD, 2013).



Example table: Species specific assessment of relative breeding abundance in the Celtic Seas in 2011.

Green cells indicate that species-specific targets have been met; orange cells indicate that the lower species-specific target has been met but that relative abundance has exceeded 130%; red cells indicate that the lower species-specific targets have not been met. Arrows indicate recent trend in relative abundance (2010-2011)<sup>1</sup> (from ICES WCSEABIRD 2013).

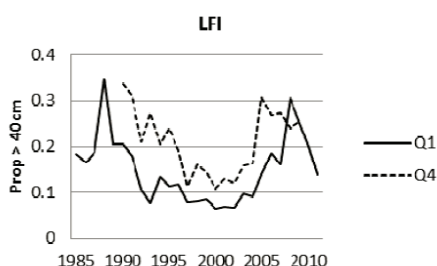
Species	English name		Relative abundance:
1 Fulmarus glacialis	northern fulmar	↓	> 130%
2 Carbo aristotelis	european shag	↓	> 70 or > 80%, and ≤ 130%
3 Carbo carbo	great cormorant	↓	≤ 70% or ≤ 80%
4 Stercorarius parasiticus	arctic skua	↓	
5 Sterna sandvicensis	sandwich tern	↓	
6 Sternula albifrons	little tern	↑	
7 Sterna dougalii	roseate tern	↑	
8 Sterna hirundo	common tern	↓	
9 Larus argentatus	herring gull	↓	
10 Larus marinus	great black-backed gull	↓	
11 Rissa tridactyla	black-legged kittiwake	↔	
12 Uria aalge	common guillemot	↓	
13 Alca torda	razorbill	↑	

### Fish and Cephalopods

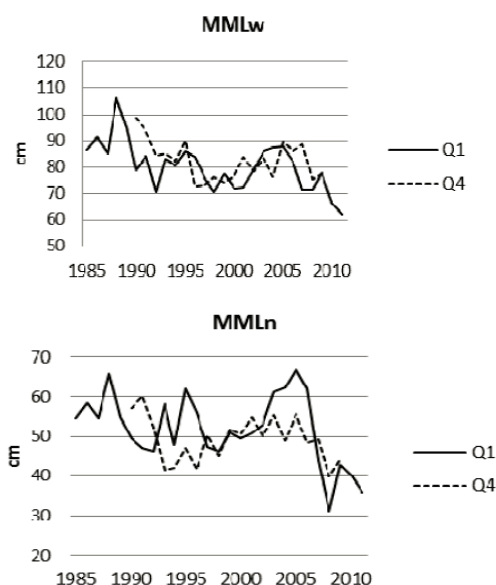
- Population abundance/ biomass of a suite of selected teleost and elasmobranch species
- OSPAR EcoQO for the proportion of large fish: for species from the International Bottom Trawl Survey (DCF indicator)
- Mean maximum length of demersal fish and elasmobranchs (DCF indicator)
- Distributional range and pattern within range of a suite of selected species
- Conservation status of elasmobranch and demersal bony-fish species (IUCN) (DCF indicator)
- Proportion of mature fish in the populations of all species sampled adequately in international and national fish surveys

The upper three indicators are currently being proposed as core indicators for the regional MSFD coordination under OSPAR, the lower three indicators are considered as “candidate indicators”. Existing DCF indicators to evaluate the effect of fishing on the wider fish community are listed. For most indicators, targets are still being considered for the Celtic Sea ecoregion. Data should be presented in relation to targets where established or in relation to trends.

Example figure 1: OSPAR ECOQO: Trends in the large fish indicator based on the Scottish West Coast Ground fishsurveys data (Q1 and Q4 refer to quarters 1 and 4)- from STECF 2012.



Example figure 2: Trends in the mean maximum length indicator based on the Scottish West Coast Ground fishsurveys data (Q1 and Q4 refer to quarters 1 and 4)- from STECF 2012.



#### Description of narrative:

For all biodiversity sections, short text should describe the main spatial and temporal trends, highlighting any differences between subregions (subject to data availability by sub region). Where targets are established, the state should be described in relation to set targets. Any data issues which impact on the confidence of the conclusions should be mentioned.

#### Date of inclusion and frequency of update of sub-section

	<b>Biodiversity-pelagic habitats- Temporal trends of phytoplankton and zooplankton</b>	
1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	2013/2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annual to biennial
3	Are there specific formats for the inclusion or updates required by a client commission?	no

#### Responsibilities for sub-section

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGPE, WGZE, WGBIODIV
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGPE, WGZE
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGPE, WGZE

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WGPE, WGZE, WGBIODIV
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGEAWESS, WGBIODIV
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGEAWESS, ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	WGEAWESS, ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGPE, WGZE

**Date of inclusion and frequency of update of sub-section**

	<b>Biodiversity-Rocky and sediment habitats- Map of predominant rocky and sediment habitats (EUNIS level)</b>	
1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	2013 for preliminary map
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Depending on updates from mapping projects and data portals eg Mesh Atlantic/EMODNET
3	Are there specific formats for the inclusion or updates required by a client commission?	No (EUNIS level?)

**Responsibilities for sub-section**

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGMHM, possibly BEWG
2	Identify group responsible for providing data to support update of the proposed sub-section?	BEWG ,ICES data centre
3	Identify group responsible for data processing to support updates of the proposed sub-section?	BEWG ,ICES data centre

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WGMHM, BEWG, ICES data centre
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	EEA, JNCC, WGEKO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGMHM, BEWG

**Date of inclusion and frequency of update of sub-section**

	<b>Biodiversity- Rocky and sediment habitats – Vulnerable habitats</b>	
1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	Mid 2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annual
3	Are there specific formats for the inclusion or updates required by a client commission?	Spatial Maps of up to date knowledge (accumulative)

**Responsibilities for sub-section**

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGDEC WGEAWESS? WGMHM, BEWG
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGDEC /Data centre
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGDEC /Data centre

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WGDEC WGEAWESS? Data centre using OSPAR database?
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	OSPAR?
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGDEC /WGMHM

**Date of inclusion and frequency of update of sub-section**

	<b>Biodiversity-Marine Mammals</b>	
1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	Late 2013

2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annual to decadal depending on data source
3	Are there specific formats for the inclusion or updates required by a client commission?	Tentative: Distribution maps and tables of temporal trends

#### Responsibilities for sub-section

1	Identify group responsible for including, updating and providing context and interpretation linked to the _proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGMME (WGEAWESS)
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGMME
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGMME

#### Quality control/ risk

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WGMME
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	ACOM
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WCOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGMME

#### Date of inclusion and frequency of update of sub-section

	<b>Biodiversity-seabirds</b>	
1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	Early 2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annual
3	Are there specific formats for the inclusion or updates required by a client commission?	As OSPAR ECOQO

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGSBE (or WGBIODIV?) and ACOM
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2	Identify group responsible for providing data to support update of the proposed sub-section?	WGSBE
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGSBE

#### Responsibilities for sub-section

#### Quality control/ risk

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WGSBE
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	ACOM
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGSBE/WGBIODIV? WGECO?

#### Date of inclusion and frequency of update of sub-section

	<b>Biodiversity-fish and cephalopods</b>	
1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	Mid 2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Annual
3	Are there specific formats for the inclusion or updates required by a client commission?	Tentative: Distribution maps and tables of temporal trends for selected species

#### Responsibilities for sub-section

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGBIODIV and or WGIBTS
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGIBTS DATRAS support by ICES data centre
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGIBTS /WGBIODIV?

#### Quality control/ risk

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WGBIODIV
2	Identify reviewer of process and sub-section (external experts	ACOM

	for first round, internal review for update process?)	
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGBIODIV/WGECO

#### Date of inclusion and frequency of update of sub-section

	<b>Biodiversity-Fish Community indicators</b>	
1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	Late 2013 (after WKIND)
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	annually
3	Are there specific formats for the inclusion or updates required by a client commission?	No

#### Responsibilities for sub-section

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGBIODIV (WGECO)
2	Identify group responsible for providing data to support update of the proposed sub-section?	ICES data centre
3	Identify group responsible for data processing to support updates of the proposed sub-section?	ICES WKIND (WGBIODIV thereafter?)

#### Quality control/ risk

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	ICES
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGECO and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	WGECO and ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGECO & WKIND (WGBIODIV thereafter)

#### Sub-section 4.2\_Non-indigenous species

Eco-region	Celtic Sea	
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Section number	4	
Sub-section number	4.2	
Sub-section title	Non-indigenous species	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- Table of NIS species per region
- Graph on the rate of new introductions of NIS (per defined period)

**Description of narrative:**

- Description of the pathways management measures in the region, possibly broken down by subregion
- Description of the trends in new introductions
- Highlight any introduced species that have a significant impact on the regional ecosystem

Pathways management measures and the rate of new introductions of NIS (per defined period) are currently being proposed as core and candidate indicators respectively for the regional MSFD coordination under OSPAR for descriptor 2.

**Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Description of measures only needs to be updated when there are changes; the update on the rate of new introduction depends on data availability.
3	Are there specific formats for the inclusion or updates required by a client commission?	No

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGITMO
2	Identify group responsible for providing data to support update	WGITMO

	of the proposed sub-section?	
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGITMO

**Responsibilities for sub-section****Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WGITMO
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	OSPAR?
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGITMO and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGITMO

**Sub-section 4.3\_ Commercially exploited fish and shellfish**

Eco-region	Celtic Sea	
Section number	4	
Sub-section number	4.3	
Sub-section title	Commercially exploited fish and shellfish	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- Proportion of stocks below and above target (msy) for F and SSB, possible broken down by sub-region (ie Celtic Sea, west of Scotland, Irish Sea, widely distributed) or by functional group (pelagic, demersal, shellfish) to show synoptic overview
- Temporal trends of relative F (F/Fmsy ratios) and possibly B (SSB/Btrig ratios) to show change in pressure and state over time.

- Stocks should include all main TACs stocks in the ecoregion that ICES provides advice for.

**Description of narrative:**

- Statement if targets have been reached and what stocks fall outside GES boundaries
- Description of temporal trends, ie are we moving in the right direction?
- Highlight stocks that fail to reach target, despite specific management measures

**Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	2013/2014
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	annual
3	Are there specific formats for the inclusion or updates required by a client commission?	Not yet specified

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGEAWESS
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGCSE, WGWIDE, WGHMM, WGEF, (WGDEEP)
3	Identify group responsible for data processing to support updates of the proposed sub-section?	ICES data centre

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	ICES data centre
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGEAWESS
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGCSE, WGWIDE, WGHMM, WGEF, (WGDEEP) and ACOM

**Sub-section 4.4\_Food webs**

Eco-region	Celtic Sea	
Section number	4	

Sub-section number	4.4	
Sub-section title	Food webs	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

There are a number of foodweb indicators proposed under OSPAR as core indicators for the regional MSFD coordination. These are:

- Reproductive success of marine birds in relation to food availability
- Production of phytoplankton
- Size composition in fish communities (LFI)
- Changes in average trophic level of marine predators (cf MTI)
- Change of plankton functional types (life form) index Ratio between: Gelatinous zooplankton & Fish larvae, Copepods & Phytoplankton; Holoplankton & Meroplankton

Some of these indicators are already captured under biodiversity, however they should be described under the foodweb descriptor if the metrics or target setting deviate from the equivalent biodiversity indicators. Figures should capture the main temporal trends of the indicators and where possible highlight spatial differences by subregion. If targets are established, figures should express the indicators in relation to set targets or GES boundaries.

**Description of narrative:**

- Description of temporal and spatial trends.
- Description of state in relation to targets/GES boundaries (where established) based on selected indicators.
- Highlight any data issues which impact on the confidence of the conclusion.

**Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	2014 or later
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Depending on data availability
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGBIODIV/WGEAWESS
2	Identify group responsible for providing data to support update of the proposed sub-section?	WGBIODIV, WGPE, WGZE, WGSE, WGIBTS
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WGBIODIV, WGPE, WGZE, WGSE, WGIBTS

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	WGEAWESS, WGBIODIV
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGEAWESS and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGBIODIV, WGPE, WGZE, WGSE, WGIBTS

**Sub-section 4.5\_Eutrophication**

Eco-region	Celtic Sea	
Section number	4	
Sub-section number	4.5	
Sub-section title	Eutrophication	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

- Map of eutrophication status of the ecoregion as developed through the WFD/MSFD assessment

Additional elements could include

- Temporal /spatial trends of nutrients
- Temporal /spatial trends of Phytoplankton production/chl a concentration
- Temporal/spatial trends of indicator species

Description of narrative:

- Description of temporal and spatial trends of eutrophication indicators in relation to agreed targets/GES boundaries.
- Highlight any data issues which impact on the confidence of the conclusion.

**Date of inclusion and frequency of update of sub-section**

1	Given available expertise and resources, when will the proposed sub- section be included in the overview? (year, month)	2013
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Depending on data availability
3	Are there specific formats for the inclusion or updates required by a client commission?	No

**Responsibilities for sub-section**

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	MCWG in collaboration with relevant OSPAR groups eg ICG EUT & ICG EMO
2	Identify group responsible for providing data to support update of the proposed sub-section?	MCWG, WGPE, WGOH
3	Identify group responsible for data processing to support updates of the proposed sub-section?	MCWG, WGPE, WGOH

**Quality control/ risk**

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	MCWG in collaboration with relevant OSPAR groups eg ICG EUT & ICG EMO
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGEAWESS
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGEAWESS and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	WGEAWESS and ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	MCWG

**Sub-section 4.6\_Seabed integrity**

Eco-region	Celtic Sea	
Section number	4	
Sub-section number	4.6	
Sub-section title	Seabed integrity	
Does the proposed content meet the criteria for including a sub-section on the overview?	Yes	

If the proposed sub-section passes the criteria for inclusion then the following process should be followed to develop the subsection.

**Description of figure/ table or other element:**

Indicators on habitat condition are captured under the biodiversity descriptor, in addition there are some specific indicators for seafloor integrity which are proposed as OSPAR common indicators, such as

- the physical damage of predominant and special habitats
- the area of habitat loss

These indicators are currently being proposed as candidate indicators and require further development. More details of data products in relation to seafloor integrity are given in section 3.2 on human pressures.

**Description of narrative:**

- Temporal and spatial trends of selected indicators should be described in relation to agreed targets/GES boundaries (where established).
- Pressures/state relationships which results in significant negative impact eg certain gear/habitat interactions should be highlighted.

- Highlight any data issues which impact on the confidence of the conclusion.

#### Date of inclusion and frequency of update of sub-section

1	Given available expertise and resources, when will the proposed sub-section be included in the overview? (year, month)	2014 or later
2	What is the update frequency for updating the sub-section after first inclusion? (year, month) (drivers may be client needs, EG meeting dates or based on dates of data provision or expected rates of change in activity, state and pressure)	Depending on data availability
3	Are there specific formats for the inclusion or updates required by a client commission?	No

#### Responsibilities for sub-section

1	Identify group responsible for including, updating and providing context and interpretation linked to the proposed sub-section? (ICES EG names, Acom, Secretariat, external groups etc)	WGBE, WGECO, WGBIODIV, WGMHM
2	Identify group responsible for providing data to support update of the proposed sub-section?	WKIND, WGBE, WGMHM, ICES data centre with support from JRC?
3	Identify group responsible for data processing to support updates of the proposed sub-section?	WKIND, WGBE, WGMHM, ICES data centre

#### Quality control/ risk

1	Identify group to produce and archive description of the relevant data (how they are worked up, code, quality assurance method)	ICES data centre
2	Identify reviewer of process and sub-section (external experts for first round, internal review for update process?)	WGECO
3	Review contents of proposed sub-section to ensure there is no inconsistency with other information in the overview or advice. If there is, correct it.	WGECO and ACOM
4	Review contents of proposed sub-section for incompatibilities with other information in the overview or advice. If there are incompatibilities, highlight them	ACOM
5	Ensure narrative captures uncertainties in the sub-section contents (e.g. IPCC guidance)	WGBE, WGMHM, WGECO

## Annex 7: Recommendations

Recommendation	Adressed to
1.Continue to actively manage the process of ecosystem overview development and to ensure EG identified in the WKECOVER report are actively engaged in the process	ICES Secretariat
2.To use available processes to encourage international compilation of pressure data, with an initial emphasis on VMS	ICES Secretariat
3.	
4.	
5.	

