ICES WKDECOVER REPORT 2013

ICES ACOM/SCICOM COMMITTEE

ICES CM ACOM/SCICOM:03

Report of the ICES Workshop to draft Advice on Ecosystem Overviews (WKDECOVER)

4–7 November

ICES HQ, Copenhagen

ICES International Council for the Exploration of the Sea
CIEM Conseil International pour l'Exploration de la Mer

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Contents

1 Introduction

WKDECOVER met 4–7 November 2013 to draft ecosystem overviews for as many ecoregions as possible, with special reference to:

i) Greater North Sea

ii) Norwegian Sea

iii) Celtic Seas

iv) Bay of Biscay and Atlantic Iberian waters

v) Baltic Sea

The terms of reference stated that the overviews should be based on the template and concepts outlined by WKECOVER (ICES, 2013), and using the documents prepared by the Regional Seas Programme (Annex 1). In this round of drafting, the emphasis was on describing the environmental drivers and anthropogenic impacts that broadly influence each regional eco-system. The overviews are seen as a progression towards operational implementation of the ecosystem approach and as such are aimed at informing expert working groups and assisting Regional Seas Conventions. With this in mind the Workshop was chaired by Darius Campbell, the executive secretary of OSPAR. The workshop followed an agenda that included plenary work (with WebEx) mixed with subgroup work (Annex 2).

To support emerging policy developments, those developing advice on the impacts of specific sectors (e.g. fisheries catch options, contaminants, by-catch, seabird abundance, sensitive areas etc.) will need to understand and respond to the implications of their advice for a range of ecosystem components and attributes, with priority given to those impacts that may compromise known management objectives.

Environments and ecosystems vary over time, sometimes with a trend and sometimes with a step change. The regional ecosystem overviews are intended to provide those preparing the advice and those receiving it, with information on natural variability, trends and step changes in the dynamics of their respective ecosystems that, based on the best available evidence, are expected to materially influence the advice. They will also summarise the trends in current pressures and impacts that effect living resources. This information needs to consider both spatial and temporal variability, with priority given to changes that would lead to the most significant modifications to the advice.

This development of ecosystem overviews is one of a number of ICES initiatives to integrate the advice on managing human impacts on marine ecosystems of the ICES area. ICES still does not have a good understanding of the distribution and scale of anthropogenic pressures across the marine system or a suitable ensemble of tools available to estimate their cumulative effects.

The process will be iterative with a number of phases which will increase the relevance, impact and quality of the ecosystem overviews. This Advice Drafting Group is a joint ACOM/SCICOM initiative as it relies on input from the research and development and the advisory sections of ICES. Participation was inadequate to cover all of the areas listed in the terms of reference (see Annex 3, list of participants).

2 Approach used and decisions taken

2.1 Structure of Overviews

The process was set out for developing the ecosystem overviews. Attendees to the meeting were supplied with templates pre-populated by the ICES secretariat. These were based on the work of WKECOVER (ICES, 2013) and the preliminary ecosystem overviews provided by the Integrated Ecosystem Assessment Groups.

In these templates, section 1 of the overviews (the description of the region) were almost complete and they contained descriptions of the sub regions and maps of the regions with wind farms areas, oil and gas platforms and of the catchment areas for the relevant seas. Section 2 was to cover the ecosystem change and drivers for state in the sub-region. These drivers should not be generally amenable to a management control. Section 3 was to cover man-made pressures on the systems. These drivers could be changed by regulation or other measures. Sources such as WGINOSE, WGEAWESS national MSFD initial assessments, OSPAR and HELCOM reports, environmental assessments and the ODEMMS project would be used to populate these sections. Section 4, was to be on state of the marine environment, but was not the focus of WKDECOVER

2.2 Key audience

The discussion clarified that the target audience for such ecosystem overviews should be ICES (and other) advisors who then go on to develop more specific advice on marine or fisheries management. The focus of the overviews should therefore explain processes linking status to pressures and drivers of the ecosystem. This discussion highlighted the problems with usability of 'status' reports which are static and do not describe the dynamics of the system. Section 4 of the overviews which had been nominally labelled 'status' (at WKECOVER in January 2013), would need a well thought through approach in order to be helpful to advisors in developing science-based advice for managers. As an example of the question as to what to put into status section of the reports, attendees discussed how to describe the processes of temperature, wind and nutrients on zooplankton 'status' and how to describe the dynamics of this process. Another example was how to describe the dynamics of the role of big predators in food webs and resultant 'states'. So the aim generally would be in discussing state, to signal the change in pressures/drivers. If tables are used, these could describe trend and time series rather than a static number (change vs. state). Trends should be accompanied by explanations of that trend.

2.3 Principles and elements to the Overviews

The following outline elements to be included in the Ecosystem Overviews were agreed:

- Non-changing elements such as geography should not be described in any detail, nor key attributes of systems which are very well known to the expected readership (advisors and other experts).
- Any state information should identify links back to pressures and drivers.
- Visual tools should be used to describe the dominant pressures and interactions, simplified to a degree so that results were intelligible and useful. Diagrams with arrow thickness to symbolise the importance of a pressure

could be used. An interactive graphic, so pressure arrows etc. link to the relevant parts of the overview document would be helpful.

- Systems are complex in reality but simplification was a necessity. Either the top impacts or those pressures most amenable to management controls could be used. [Economic considerations such as the most amenable to cost-effective management could also be used to filter the top human pressures to report on. [but imply an iterative approach]].
- The different regions should reflect different pressures/ecosystem drivers and the differing interactions between pressures and drivers with state between the different regions. The reports would however be written for the region as a whole. Any important differences within the region to be reflected in a few brief sub-region bullets.
- The text should be assertive and use specific language, without too many qualifications, stating what facts are or not.
- Where data from an area was partial, e.g. 3 out of 4 countries are providing data for a region, it was agreed to use a pragmatic approach assessing whether such data gave a reliable impression of trends/pressures etc. across that region.
- Where particular pressures, such as contamination, reflect a series of localised datasets, a set of time series from these differing locations is not deemed as useful, rather, possibly misleading.

3 Considerations for Section 2 "Key signals within the environment and ecosystem"

In this Section on ecosystems, natural variability and patterns can be usefully highlighted. Signals may be on differing time scales from less than a year to over 10 years or more, so variation and its implications for advice need to be set out.

The key environmental signals should be covered by short pieces of text, with standalone bullet points for each section

The ecosystem variation section should cover changes in mammal and bird populations, with a short paragraph on each, including such issues as bycatch, and with reference to threatened species such as the OSPAR Threatened and Declining Species list and the HELCOM (IUCN) red list. However some of these elements may be covered below under 'extractive pressures'.

Some indicators of change in the ecosystem could in fact be related to human pressures. So change in large fish numbers in the population (due to changes in extraction pressure), could indicate a change within the ecosystem as the food web alters in response to a pressure. Thus fish length/large fish frequencies, conservation status of stock from DCF data reporting and discard size can be used as an indicator of pressure, and in turn indicate a change in the food web.

An ecosystem overview diagram should be used to help advisors visualise interactions and dependencies. Visualisations could include bow-tie diagrams and other infographics. While these should spark consideration of interrelations, the ecosystem overviews should be authoritative with the relationships set out in the diagrams as ICES approved top down statements to be used by the advisors. As such the process to get to the relationship diagrams must be traceable (as background info).

4 Considerations for Section 3 "Pressures"

This should focus on pressures, using the ODEMM list as the basis for listing and prioritising. For example abrasion can be listed as the pressure, with links through to an activity, such as bottom trawling, etc.

It was agreed that a list of top 5 pressures should be used, highlighting the main ones for that region. Within these pressures, top 5 human activities and their dynamics that contribute to these pressures could be described. These activities should be in the body of the pressures descriptions, not listed separately.

Although ODEMM categories were useful in analysis, the overviews will use broader categories for the key messages. Eg rather than use abrasion, siltation, smothering and habitat loss, the overviews should just use abrasion, smothering (including siltation) and sealing of coastal/seabed (e.g. by man-made structures)

The text could be forward-looking where new technologies or economic development are likely.

While pressures could be described at a local level, most of the advice to be developed, taking into account the context of these overviews, will be developed for the regional level. Large scale effects are the most appropriate level for the overviews.

For pressures, proxies can be used, such as bottom trawling footprint as a proxy for abrasion.

Fisheries and fisheries footprints can be covered under the pressures section on extraction. This information on activity is available from the EU STECF report (STECF, 2013). Transiting fish stocks and bycatch can also be covered under extraction pressures. The use of OSPAR and HELCOM threatened and endangered species/red lists should avoid just being an insertion of a table. The relevant species should be mentioned under specific pressures, in order to help advisors to be alert to considerations of wider impacts of management measures etc. for priority species. The full tables of the OSPAR/HELCOM threatened species can be placed in an annex.

5 Considerations for Section 4 "State"

For this section the group considered what should be there to help advisors make the connections between pressure, ecosystem change and state.

The earlier WKECOVER meeting had concluded that that the MSFD 11 descriptors would be a useful basis for organising a State section. WKDECOVER discussed the risks that such an approach could lead to replication or contradiction with such analysis at regional seas or national level. The discussion concluded that an alternative could be to base structure of the state sections around particular strengths within ICES such as around habitats/ecosystem structure/biodiversity. This in turn would rely on indicators developed by regional seas but based on ICES-held data on fish populations, birds, plankton etc.

6 Results and Conclusions

Despite the reduced participation, progress was made on 4 ecosystem overviews, namely:

- Greater North Sea
- Celtic Seas
- Bay of Biscay and Atlantic Iberian waters
- Baltic Sea

Of these the greatest progress was made on the top three. The guidance provided by WKDECOVER will allow the ICES secretariat to continue development of the overviews in readiness for the 2014 advice cycle.

These overviews will be sent to the Integrated Ecosystem Assessment Groups for further comment and improvement in 2014. The development of a delivery system for operational oceanographic products and services will also feed into the process. Researchers from other areas should be stimulated to produce overviews for each respective region.

Action is still required to:

- Create graphic or interactive graphic for interrelationship diagram
- Finalise maps in section 1
- Ensure that the overviews are standard in approach

These actions must be carried out by the ICES secretariat prior to February 2014.

7 References

ICES. 2013. Report of the ICES ACOM/SCICOM Workshop on Ecosystem Overviews, 7 - 11 January 2013, ICES Headquarters, Copenhagen, Denmark. ICES CM 2013/ACOM/SCICOM:02. 123 pp.

STECF. 2013. Evaluation of Fishing Effort Regimes in European Waters - Part 1 (STECF-13-06). 2013. Publications Office of the European Union, Luxembourg,

Annex 1 Terms of Reference ACOM/SCICOM Joint Resolution

2013/2/ACOMSCICOM01 The ACOM/SCICOM Workshop to draft advice on Ecosystem Overviews (WKDECOVER), chaired by Darius Campbell, will meet 4–7 November 2013 at ICES HQ, Copenhagen to:

a) Based on the template and concepts outlined by WKECOVER 2013, and using the documents prepared by the Regional Seas Programme, prepare draft advice ecosystem overviews (maximum 4 pages) of:
   i. Greater North Sea
   ii. Norwegian Sea
   iii. Celtic Seas
   iv. Bay of Biscay and Atlantic Iberian waters
   v. Baltic Sea

   In this round of drafting, the emphasis will be on describing the environmental **drivers** and **anthropogenic impacts** that broadly influence each regional ecosystem. In drafting the Ecosystem Overviews for the five regions, WKDECOVER will also start to include information on the functional interactions between ecosystem components. The overviews are seen as a progression towards operational implementation of the ecosystem approach and as such are aimed at informing expert working groups and assisting Regional Seas Conventions.

b) List gaps in knowledge and provision of operational products required to regularly update the Ecosystem Overviews.

The Ecosystem Overviews must be agreed by ACOM in the same manner as book 1 of the advice. Their purpose is to provide robust advice for the application of the ecosystem approach at the regional scale. The drafts produced by WKDECOVER must be provided by 30 November 2013.

Supporting information

Priority	High. The regional ecosystem overviews are required to (1) continue the process of embedding the current advice in a realisation that the marine ecosystem is dynamic and organisms respond to changes in the drivers of the system and to highlight information that needs to be used when developing ICES advice (2) support advice on the effects of sectoral and cross-sectoral pressures on progress towards meeting management targets for the marine environment. (3) progress knowledge on the implementation of the ecosystem approach WKDECOVER will primarily synthesise and produce highlights from the existing ecosystem overviews.WKDECOVER is required to synthesise the state of the ecosystem drivers and pressures for integrated advice and to explore the impact of anthropogenic impacts compared to the other drivers. WKDECOVER is part of the larger initiative to make the ecosystem advice operational in ICES
Scientific justification	Environments and ecosystems vary over time, sometimes with a trend and sometimes with a step change. The regional ecosystem overviews are intended to provide advisory groups with information on natural variability, trends and step changes in the dynamics of their respective ecosystems that, based on the best available evidence, are expected to materially influence the advice. They will also summerise the trends in current pressures and impacts that effect living resources. This information needs to consider both spatial and temporal variability, with priority given to changes that would lead to the most significant modifications to the advice. To support emerging policy developments, those developing advice on the impacts of specific sectors (e.g. fisheries catch options, contaminants, bycatch, seabird abundance, sensitive areas etc) will need to understand and respond to the implications of their advice for a range of ecosystem components and attributes,

	with priority given to those impacts that may compromise known management objectives. This development of ecosystem overviews is one of a number of ICES initiatives to integrate the advice on managing human's impacts on marine ecosystems of the ICES area. ICES still does not have a good understanding of the distribution and scale of anthropogenic pressures across the marine system or a suitable ensemble of tools available to estimate their cumulative effects. The process will be iterative with a number of phases which will increase the relevance, impact and quality of the ecosystem overviews. This advice drafting group is a joint ACOM/SCICOM initiative as it relies on input from the research and development and the advisory sections of ICES.
Resource requirements	Two large meeting rooms at ICES HQ
Participants	Scientists from across a range of disciplines with ICES plus experts from outside the traditional ICES community. The Chair and the ICES Secretariat will canvas participation from across the academic and institutional realms. Particpation by Regional Seas Commissions will be encouraged.
Secretariat facilities	Secretariat administrative and scientific support
Financial	No extra funding requested
Linkages to advisory committees	WKDECOVER links directly into the short and medium term needs of ICES advice.
Linkages to other committees or groups	WKDECOVER draws on the experience and knowledge of the ecosystem and functional groups under SCICOM.
Linkages to other organizations	WKDECOVER is seen as a mechanism to provide partner organisations with focused input into their own regional assessments. It is designed to prevent repetition of effort and use effectively shared resources. Such organsiations include OSPAR, HELCOM and the EEA.

Annex 2 Agenda of WKDECOVER

Blue colour denotes plenary webex

WKDECOVER

Chair: Darius Campbell, OSPAR

Agenda

Monday, 4th November 2013, 11:00 to

Thursday 7th November 2013, 17:00

ICES HQ, Copenhagen, Denmark

Monday

Welcome, Introductions 11:00

Sharing of Tasks

Loading of background documents and reading

Lunch 13:00

- **Webex begins** 14:00
  Concept of Workshop on Drafting [Mark DC]
- Discussion of Approach- Building on WKECOVER [Darius]
  Including objectives of Overviews, defining pressures and drivers
- Key signals- Summarising information and prioritising the message [Leonie]
- Areas and sub areas [suggestion by Mark DC]
- Overview Templates and standardisation, future approaches [Mark DC]
- Section 4 – Status [Darius]
- Suggested work plan for WKDECOVER [Darius] –**end webex**

Coffee 16:00

Standard approach to drivers

Standard approach to activities and pressures (also WKIND results)

Scope of overviews including common approaches to birds, sea mammals, endangered species, bycatch, fishing pressure, spatial management etc 16:15

Tuesday

Discussion on Progress 09:00

Work on Overviews

Lunch 13:00

Webex begins – Progress and challenges to writing Overviews 14:00

- Greater North Sea
- Celtic Seas
- Bay of Biscay and Atlantic Iberian waters
- Norwegian Sea
- Baltic Sea

Coffee (end webex) 16:00

Work on Overviews	16:15

Wednesday

Work on Overviews	09:00
Coffee	**11:00**
Work on Overviews	11:15
Lunch	**13:00**
Formal Reviewing of Overviews (webex by region) • Greater North Sea • Celtic Seas • Bay of Biscay and Atlantic Iberian waters • Norwegian Sea • Baltic Sea	14:00
Coffee	**16:00**
Reviewing Continued	16:15

Thursday

Data needs and operational requirements (TOR b) Proposed call for Operational Products and Services [Mark DC] Future Needs of OSPAR from ICES (ICES & OSPAR collaboration) Work on Overviews	09:00 10:30
Lunch	**13:00**
Webex begins - Final Review of Overviews Sections 4 status [Darius]	14:00
Closing	**17:00**

Annex 3 List of participants

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