Northwest Atlantic Fisheries Organization

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SCIENTIFIC COUNCIL MEETING – JUNE 2012

Report to the NAFO Scientfic Council
Odd Aksel Bergstad, Institute of Marine Research, Norway

ICES/NAFO Joint Working Group on Deep-water Ecology (WGDEC)
26 –30 March, Copenhagen, Denmark

Meeting and attendance

WGDEC met at the ICES secretariat under the chairmanship of Dr Francis Neat from Scotland, UK.

A sub-set of the appointed members to the group attended (Annex 2) and some contributed on the sharepoint site. Full membership list is available on the ICES website.

The European Commission's DGMARE had asked for permission to attend as observers, and the meeting was attended by two representatives from 27th through 29th March.

Deliberations primarily focused on what was being asked of the group by NEAFC and ICES. The Terms of Reference are attached to this report as Annex 1. ICES had not received any special requests from NAFO, but the request from NEAFC with relevance to its pending review of the bottom fishing regulations may appear especially relevant to NAFO. Some of the experiences from NAFO had a bearing on WGDEC's considerations of the relevant ToRs.

No new data on VMEs had been received from the NAFO RA, and WGDEC did not discuss further measures for that area.

Conclusions from the meeting are well reflected in the executive summary and recommendation given below (extracts from the final draft of the report). The full report provides ample background information and will be available from ICES in due course.

Extracts from WGDEC report (final draft):

Executive summary

The terms of reference (ToR) for the WGDEC meeting of 2012 are listed in Section 2. ToR(a),was a standing request for advice to update records of deep-water vulnerable marine ecosystems (VMEs) in the North Atlantic and where appropriate advice on new or revised areas to be closed to bottom fisheries for the purposes of conservation of VMEs. New data from a range of sources including multibeam echosounder surveys, trawl surveys, long-line surveys, habitat modelling and seabed imagery surveys were available In the NE Atlantic new evidence came from video transects, side-scan sonar surveys, and trawl by-catch of coral from Rockall Bank. For the NW Rockall closure, these data largely support WGDEC's 2011 advice for boundary revision, with the exception that WGDEC advises a much reduced reopening of the south west corner of the current NEAFC because corals have since been found there. New trawl by-catch data from south-west Rockall suggest the presence of VMEs outside the current NEAFC closures in this area. Two options for greater protection of VMEs in this area are presented. New data from observers on long-line and trawler vessels operating in the Hatton bank suggest areas of deep-sea sponge aggregations and other VMEs that should be protected. Four closure boundary revision options are presented. Long-line records and high resolution multibeam imagery of Edora's bank (south-west of Hatton bank) suggest it is likely to contain concentrations of VMEs and thus a precautionary closure around the base of the bank is suggested. New data from the Whittard Canyon in the Bay of Biscay was available and this area is highlighted as an important area for VMEs that requires closer attention and consideration for protection. New records for the Norwegian Sea area are presented. New records of VME indicator species were obtained from the Josephine seamount (a NEAFC existing fishing area and an OSPAR MPA site) and attention is drawn to this area. In the Northwest Atlantic (NAFO regulated) new data were available from observers on trawlers suggesting the presence of VMEs in areas currently open to bottom to the east and west of Greenland.

To address ToR (b) a review is made of different species and habitats considered as potential VMEs in the NAFO and CCAMLAR regulatory areas. It is concluded that WGDEC should consider rarity or uniqueness more in its assessment of VMEs. Of particular significance for WGDEC to consider in more detail are the communities found around hydrothermal vents and seeps.

For ToR (c) a brief review is made of how indicators of biodiversity have been developed in the NAFO regulatory area. Methods for survey data, e.g. trawl by-catch or video transects, that allow quantification of the spatial distribution coral beds and sponge grounds may be used a proxies for monitoring biodiversity.

For ToR (d) there is a clear message that seamounts are not now generally considered to be sites of endemic species, but may nevertheless have faunal communities that are ecologically distinct. Alternative management advice for seamount fisheries is given as part of ToR e (iii).
To address ToR e (i), theoretical assumptions underlying VME distribution were considered in relation to empirical evidence from cumulative by-catch curves for VME species. As so little is known about VME distribution and patchiness, it is concluded that a 50 % reduction in the threshold to 30 kg coral and 400 kg sponges would be an ecologically broader and more realistic indicator of a VME encounter. A further suggestion is made to account for cumulative encounters below threshold levels, e.g. 2 by-catch events of 15 kg of corals in the same area is considered to be equivalent to a 30 kg threshold that triggers a move-on.

In ToR e (ii) the move-on rule is discussed in relation the different habitat types, fishing gear types and whether fishing is occurring in new or existing fishing areas. The move on rule is more appropriate for existing fishing areas, but less so in new fishing areas; moving off or away from a readily identified geo-morphological feature (such as distinctive outcrops, banks, ridges) may be a more effective means of avoiding further impacts on VME communities than moving a minimum distance. The move-on rule is not considered to be appropriate for seamount fisheries.

For ToR e (iii) WGDEC discussed alternative management options to encounter thresholds and move-on rules. Technical conservation measures that lessen seabed impact are discussed and are certainly to be encouraged, but WGDEC's main conclusion is the best solution is to invest heavily in high technology monitoring of the fishery and mapping of the habitat so as to avoid impacting VMEs as much as possible. For seamounts fisheries in particular this should be an unconditional requirement in their regulation.

ToR e (iv) discusses uncertainty in our state of knowledge of VME occurrence and how different sources of information are to be interpreted at different geographical scales. In particular the outputs of habitat suitability models are discussed. Where there are unequivocal occurrences of VMEs in the NEAFC RA, e.g. visual validations of Lophelia pertusa reefs, there have been closures to bottom fisheries enforced.

For ToR (f) the NAFO observer guides for corals and sponges were reviewed and an analysis was made of how appropriate these guides would be for the NEAFC RA. While the guides are seen as very useful and there is some overlap between species in the NAFO and NEAFC RAs there was consensus that separate guides would be needed for the NEAFC area, especially in the case of the sponges. Advice is presented on which key species such a report should focus on.

Recommendations

1) *WGDEC recommends that recent (post 2009) VMS data is provided to ICES in advance of the 2013 WGDEC meeting. Notable areas of interest include fisheries in the Rockall-Hatton area, all seamounts, the mid-Atlantic ridge, and the continental slope (including the Bay of Biscay). All form of identification of vessel or nationality should be removed from the data. For the data to be useful, however, WGDEC will need;*

    i. *the data resolved at the finest possible temporal and spatial scale*

    ii. *information on gear type*

    iii. *information that links the VMS data to log book records.*

2) *WGDEC recommends that ICES SGVMS considers a means of processing the VMS data so that fishing effort maps can be readily made.*

3) *WGDEC recommends that NEAFC consider whether log-book records of encounters with VME indicator species (below current thresholds) could be made available to the group for purposes of assessing VME indicator by-catch frequency and distribution.*

Appendix 1: Terms of Reference of ICES/NAFO WGDEC, 2012.

a) Provide all available new information on distribution of VMEs in the North Atlantic and update maps with a view to advising on any boundary modifications of existing closures to bottom fisheries.

b) Review the FAO criteria and definition of vulnerable marine ecosystems and consider how WGDEC could incorporate a broader range of VMEs into its work, e.g. fish species, spawning areas, etc.

c) Review the use of indices of biodiversity and community change in deep-water ecosystems and suggest how this may be used in an advisory capacity.

d) Assess new information on the degree to which seamounts are isolated and contain endemic species or unique communities with a view to alternative management options for seamount fisheries.

e) Support to NEAFC review of bottom fisheries regulations (See Consolidated text of all NEAFC recommendations on regulating bottom fishing, on the web site www.neafc.org)

   i) Encounter thresholds:

   Assess the appropriateness of the current quantitative thresholds of VME indicator organisms, i.e. live coral and sponge, adopted in the NEAFC bottom fishing regulations. The assessment should include an evaluation of the likelihood of achieving conservation objectives, i.e. the prevention of significant adverse impacts on VMEs as defined in the FAO guidelines.

   ii) Move-on-rule:

   Assess the appropriateness of the current move-on-rule adopted in the NEAFC bottom fishing regulations. The assessment should take into account the different habitats where bottom fisheries occur, e.g. continental slopes, mid-ocean ridges and seamounts, as well as the variable amount and quality of information on the relevant spatial distribution of VMEs.

   iii) Alternatives to thresholds and move-on-rules:

   Inform on alternative or additional measures to the currently adopted encounter thresholds and move-on-rule, especially technical measures, that may reduce the risk of encounters with VME indicators.

   iv) Identifying vulnerable marine ecosystems:

   Using the best available scientific information including bio-geographic information, to identify in the NEAFC Regulatory Area:

   1) Areas where VMEs do not occur;
   2) Areas where VMEs are not likely to occur;
   3) Areas where VMEs are likely to occur
   4) Areas where VMEs are known to occur;

f) NAFO guide for identification of corals and sponges

   i) Assess whether the NAFO coral and sponge guides are appropriate for use in the NEAFC area as onboard tools to identify and quantify VME indicator organisms as defined in the NEAFC bottom fishing regulations and,

   ii) Advice on species that should be added to the guide, and species that are superfluous.

WGDEC will report by 11 April 2012 to the attention of the ACOM Committee.

Appendix 2. List of members of WGDEC participating in person or by correspondence in the 2012 meeting.

Jeff Ardron	USA
Peter J. Auster	USA
Odd Aksel Bergstad	Norway
Robert J. Brock By correspondence	USA
Pablo Duran Muñoz	Spain
Helen Ellwood Invited Expert	UK
Jeroen Ingels By correspondence	Netherlands
Neil Golding	UK
Anthony Grehan	Ireland
Brigitte Guillaumont By correspondence	France
Jason M. Hall-Spencer By correspondence	UK
Lea-Anne Henry By correspondence	UK
Kerry Howell By correspondence	UK
Ellen L. Kenchington	Canada
Pål Buhl Mortensen	Norway
Francis Neat Chair	UK
Karina Suhangulova	Russian Federation
Ole Secher Tendal	Denmark
Vladimir Vinnichenko	Russian Federation
Les Watling	USA