

# ICES MIACO REPORT 2017

ICES ADVISORY COMMITTEE

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## Report of the Annual Meeting between ICES, Advisory Councils and other Observers (MIACO)

19–20 January 2017

Copenhagen, Denmark



**ICES**  
**CIEM**

International Council for  
the Exploration of the Sea

Conseil International pour  
l'Exploration de la Mer

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## **1 Opening of the meeting**

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The Advisory Committee Chair, Eskild Kirkegaard, opened the MIACO 2017 by welcoming participants to Copenhagen. A slide of the ICES structure was displayed. Eskild was pleased so many have found it worth their while to attend.

Representatives for the Baltic Sea, Long Distance, North Sea, North Western Waters and Pelagic Advisory Councils, as well as from the EUs DG-MARE and nine different NGOs and Fishermen's Associations were in attendance. See list of participants in Annex 1.

The General Secretary of ICES, Anne Christine Brusendorff, welcomed the participants and introduced the incoming Head of Science, Simon Jennings, and the new Head of Advisory Support, Lotte Worsøe Clausen.

## **2 Adoption of the Agenda**

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Adopted.

### 3 ICES Advisory process 2016

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#### 3.1 MIACO Baltic Sea Subgroup discussion; ICES Advisory process 2016

Present: Carmen Fernandez (ACOM vice-chair), Jette Fredslund (Secretariat), Kari Stange (Marine Stewardship Council), Gustav Almqvist (Baltic Sea Centre, Stockholm), Maciej Tomczak, Edward Stern (The Fisheries Secretariat), Reine Johansson (BSAC executive committee chairperson), Michael Andersen (Danish Fishermen's Association), Sally Clink (BSAC), Mogens Schou (BalticSea2020).

How have you perceived the advisory process in the past year? How can we improve, what can we make better?

Items discussed and main points from the discussion:

- **The advice is too narrow** and has only one purpose: to answer a request from the client. It is not open to interpretation, and any *other* interpretation of stock status, development, assessment etc. than what is stated in the ICES advice is regarded as "non-scientific".
- The example of **the Western Baltic cod** was mentioned. It was very unfortunate that the public perception seemed to be that fishing at any other level than what ICES recommended in its advice would result in stock collapse.
- The best **format of the advice** was when the advice contained many options, when it was directly linked to the SSB. It was pointed out that ICES have improved very much, but it would be better with many options. It was the wish that ICES take this criticism on board. It was raised whether it is not possible to give the advice in a more flexible way, so that the final advice is not considered the one and only truth? In the dialogue with the clients it should be stresses that they are invited to take up the issue of having one or several options (on the front page).
- The Council/Commission should let the ACs into the **formulation of requests** made to ICES.
- If ICES could let go of the mechanistic way of doing things; always doing the same for stocks in a certain category. **Stocks should be looked at more individually** instead.
- It would be beneficial if it was made clearer to decision makers what the risk for the stock development will be if the higher **ranges** are used.
- It would be good if the advice included some guidance in **how the advice can be used**. More exercises aimed at managers and stakeholders and advisory councils how to see the advice in a context.
- Regarding the **integrated ecosystem approach**, it is not yet being used operationally, it should be. Currently there is no formal way of including it in the advice, and it would be good if there was.

Carmen responded to this: ICES do try to incorporate more and more ecosystem aspects. The advice is scientifically based but comes from policy objectives (from the requests of the clients). We do try and include and integrate recent changes in the ecosystem.

- ICES was also praised for the fantastic job we are doing on **the conditions we have**. But there was concern about the conditions. The data: the data needs are not clear enough to the clients. The modelling: are the models used the most up-to-date ones?

- The need for **information from ICES whenever a correction is issued** was stressed. The example of WB cod was raised again. Everybody needs to be informed about corrections, not just the clients. There should be some easy way to sign up to get the information of when advice is released or re-issued.
- It was mentioned how very interesting it would be if ICES and the Commission could get someone like Jake Rice to look at **the relationship between ICES and the Commission** and do a review of the advocacy science (potentially going on?). A title could be “Advocacy science and its role in the relationship between ICES and the Commission. Roland Cormier (head of Advisory system in Canada) has done some work on this topic as well. It was mentioned that it is most likely the Commission that needs persuading if something like this were to take place.

### 3.2 MIACO Atlantic Subgroup discussion; ICES Advisory process 2016

Mark Tasker led discussions.

The NWWAC found that the ACOM presentation of advice (in July) was informative. However, they felt the WKIrish benchmark meeting (in September) was too detailed for stakeholders and unclear how they should contribute to such processes (links to item 5 on the agenda). Upcoming topics of interest for the NWWAC include the landings obligation, MPAs (involved through UK procedures in 3rd round), management plans for seabass, brown crab skate/rays and *Nephrops*. They are interested in Improving scientific and economic data quality and would like to plan future cooperation with scientists and data collectors. **They requested to be informed about contact points for specific subjects as they arise.**

Regarding the Barents Sea, Jan Ivar (Norwegian industry) reported good experience with ICES and co-operation with IMR (Norway). They are interested in **indicators to signal when a vulnerable situations regarding habitats in different waters arise**. Other concerns included the treatment of Greenland halibut in the Barents Sea. This is treated as one stock in ICES, but given the highly migratory nature of this fish, it was felt that the NWWG and the AFWG should collaborate on a solution for this ‘stock’. He also noted that there was a **general feeling in Norway that the EU uses ICES as a secretariat**, while in Norway their connection to the advice process was mainly through IMR. Mark Tasker noted that ICES has an MoU agreed with both the EU and Norway, and responds to request from both parties. The EU noted that, for example, much of its work is done through STECF (e.g. for the landings obligation, but for many other things too) rather than ICES. They feel their relationship with ICES is the same as others, except more MSs are represented by EU. Anne Christine Brusendorff added that a new MoU with Norway had recently been agreed that will pave the way for similar interactions to what EU receives.

The SWWAC (e-mailed in) reported that they were **fully satisfied** of ICES expertise and felt the dialog between the organisations has been very satisfactory as well. Involvement in Advice Drafting Groups and Benchmarks last year was mainly through SharePoint. They particularly appreciated the work done in 2016 to identify  $F_{MSY}$  ranges for many of their stocks and the request regarding MSY classification for category 3 and 4 stocks. They were unsure why  **$MSY_{Flower}$  and  $MSY_{Upper}$  options** were not included in the catch options tables, since this was considered desirable information that could have been in the *other options* section. They would also like to see an option corresponding to a *status quo* SSB. They are planning to organize a meeting in **July with**

**the specific aim of an ICES annual advice presentation.** We hope that ICES will accept our invitation for that meeting.

The Long Distance AC (LDAC) noted that given the nature of their stocks, they work mainly with other RFMO scientific bodies (e.g. NAFO, ICCAT, NEAFC, etc.). However, they found Eskild's presentation on the ICES advisory system and NE Atlantic interactions with NEAFC was useful. Upcoming areas of interest for the LDAC include dealing with the landings obligation outside of EU waters, and proposals on deep-sea species (need better data and science for twelve stocks that are under TAC and quota regulation) to avoid choke species or clashes with NEAFC rules. It is likely they will look to ICES for the state of play on knowledge and how to improve discard data for these species.

In summary, the common themes raised included:

- 1 ) No loud complaints about observers' experience with ICES. **Generally good** collaboration, satisfaction with advice presentations.
- 2 ) Common issues:
  - 2.1 ) **Landings obligation.** ICES is trying to account for this in advice, but a lot depends on regulations on the ground and how they are implemented; not really ICES area of influence. Mark Dickey-Collas noted that this was challenging for ICES, since we are unsure what will happen because we are unsure on implementation. The WG on survivability is producing publications on this. ICES now advises on catch rather than landings, and tries to account for changes in assessment. Impacts of some technical measures are understood better than others, but if it is possible to account for these ICES will do so. The ACOM chair noted that ICES does not evaluate discard plans (this is done by STECF).
  - 2.2 ) **MPAs / VMEs.** ICES usually advises on regulations outside of territorial limits. Inside territorial limits is usually done by Member States with limited (if any) ICES involvement. WGDEC (deep-water ecology, with NAFO) has been plotting most of the VMEs and is putting more effort on Arctic region now. The Norwegian industry said that they needed procedures for when to open new areas to fishing (closed as standard, but are unsure how vulnerable these areas, are). Can ICES make bespoke indicators for different waters? Mark Tasker noted that this would be passed on to WGDEC.
  - 2.3 ) Determination of catch quotas, accounting for discarding from only some parties.
- 3 ) Specific issues, upcoming work:
  - 3.1 ) Greenland halibut. Potentially should go through a benchmark process with input from NWWG and AFWG.
  - 3.2 ) Seabass (Celtic Sea and English Channel), brown crab (having a focus group in NWWAC working on MP issues and developing advice; need a point of contact), skate/rays (focus group in October through national institutes), *Nephrops* (Irish Sea, etc.).
  - 3.3 ) Deep Sea Species. Likely to remain challenging for some time.

### 3.3 MIACO Pelagic Subgroup discussion; ICES Advisory process 2016

The subgroup on the pelagic fisheries got together to comment on following points.

An overview of the advice process and the advice provided in 2016 is given in document 03.

Meeting participants will be invited to report on their experience of working with ICES during 2016, to present their research and advisory needs and discuss their experience of the ICES participation in ACs' and other observers' meetings in 2016.

#### The subgroup was attended by

Esben Sverdrup-Jensen from the Danish Pelagic Producers' Organisation;

Eskild Kirkegaard Chair of ICES ACOM;

Martin Pastoors from the Pelagic Freezer-Trawler Association;

Rui Catarino ICES Secretariat;

Sean O'Donoghue from the Killybegs Fishermen's Organization.

Eskild Kirkegaard led the subgroup.

The subgroup focussed their evaluation of the 2016 advice in examples that should become lesson learned cases for the 2017 advice.

Regarding Mackerel there were a few issues raised by Sean O'Donoghue from the Killybegs Fishermen's Organization. These were pointing to the differences in survey results the IESSNS and egg surveys showing different signals. While the egg survey is showing a decline, the IESSNS shows an upward trend in the abundance of mackerel. From the industry perspective it is difficult to explain such deviation, but a couple potential culprits in the egg survey were identified. Namely the short coverage off the spawning area to the west. It was suggested to extend the west boundary of the survey where the survey usually falls short due to resource issues. Also, it was asked (ignoring resources limitations) if the egg survey was annual or biennial, would that change the perception of the stock? However, some of the issues raised by KFO were not commonly agreed as problematic by other industry stakeholders, and the PFTA represented by Martin Pastoors didn't show a concern with the fact of surveys showing different signals. In fact he pointed out that the model takes that into account and down weights data sources deviating from the remaining data sources. Regarding the IESSNS survey it seemed more relevant to PFTA the fact that ICES does not have the code used to raise the IESSNS survey, which impairs the ability to cross check and audit the survey properly.

This led to another point made by the representative of KFO that some errors are making it through the ICES audit systems, which appear not to be robust enough to pick them all out. A point was made that small errors in the case of mackerel may have large financial implications to the industry. It was suggested that ICES should go back to the drawing board to improve the review of the assessment process and implement QC and AC tools. ICES should try to find out other organizations that have dealt with similar problems and replicate good practices instead of re-inventing the wheel.

It was acknowledged that QC is difficult to achieve in a group like WGwide, especially when individuals are responsible for individual tasks; but the problem should be addressed and improved.

In reply to some of the comments above Eskild informed that ICES is planning a pilot plan on how to design a survey and survey optimisation. Currently 85% of all spending to provide advice is spent on data collection and this is a value that can be reduced. Also a greater involvement from the end-users should be sought to ensure all data needed are being collected.

Regarding herring in 6.a KFO claimed that ICES is giving separate advice for herring when it believes that it is a single stock. It was suggested that this issue should be taken to ACOM for further discussion, to see if it is possible to give a joint stock advice.

Using herring as an example the DPPO inquired why the reference points during the previous North Sea herring advisory process were changed. For the DPPO reference points should only be changed at a benchmark where there is participation from all stakeholders making it more transparent.

In the same line of thought it was also mentioned that the notice given to the North Sea, West of Scotland and Skagerrak haddock inter-benchmark was not enough. The 15 days given made it impossible for industry stakeholders to prepare and participate in the benchmark which had significant impacts in the final assessment.

The theme of top ups was also raised by the PFTA. The top ups were thought as "unhelpful" and more information was asked on the application in the 2017 advice. In reply Eskild said that ICES provides catch advice (discards plus landings) in the case of *Nephrops* the survival rate for the discards is also taken into account. However, this point has been raised before, and ICES has asked for clarification to clients on its use. Once information is available, ICES will inform stakeholders of the future procedures.

The agreed common points by all parties was the need to improve the audits of ICES advice. Errors have crept up in the past and ICES should invest in ways to reduce them. Also, the industry feels that strengthening in relations between industry and ICES has been beneficial for all. Participation in the advice process by stakeholders makes the process more transparent and a better product.

### 3.4 Plenary discussion

The following points were raised during the presentation to plenary.

- The rigidity of the advice, very narrow, lack of room for interpretation.
- Ranges and risk distribution, communication to the wider audience is hard.
- Integrated ecosystem assessment should be clearer in the advice.
- More catch options on the first page.
- Keep an eye on modelling issues, developments, data input.
- Changes made in the very last stages needs to be communicated. If they are not but are picked up by journalists for instance it creates a very unfortunate situation. There should be an "alert-list".
- Scientists and the EU commission: Dialogue or issue of advocacy science?

The ACOM chair acknowledged that ICES has a "passive information" way of communicating when changes are made. It will be looked into again how better to get the message out.

## 4 Errors in Advice

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ICES always issues corrections of advice despite the 'size' of the error associated with appropriate notification of clients. Errors/mistakes in 2016 were 25 (seven in 2015 and 18 for 2016), that in contrast to the workload and production by ICES. 56% of the errors were of minor character (copy-paste); 20% were associated with actual computational errors (scripts/coding...), there were 16% errors related to data (pressure maps) which is unfortunate, and 8% were cases where the advice text was unclear. ICES does a lot of work in the background to minimize the occurrence of errors, however they do occur and this is of as much concern to ICES as to our clients.

Minimizing errors in relation to data: For surveys it is limited what ICES can do in terms of QA/QC, if the survey indices are provided as calculated indices and not as data to the DATRAS or Acoustic database. The calculation of indices has been validated, however, they are only as good as the input data. Thus ICES encourages all survey data to be submitted to the ICES databases, facilitating QC. It must be highlighted that ICES needs to get the detailed data into the database system at ICES to ensure the data quality as much as possible. It cannot be underlined enough that this is really a prerequisite to enabling a checking of input data. This is also the case for commercial fisheries data which are uploaded into InterCatch; currently ICES has no means of AQ/QC these data or the associated uncertainty with these data. This is why the RDB must be developed under the auspices of ICES to get access to commercial fisheries data on a detailed level allowing for raising data with appropriate métiers in a fully documented and repeatable way. Not raw data, but detailed data. A systematic approach to data will improve the means to have a QA/QC process on data input and a transparent, systematic mean to deal with data. Controlled data input and data output is the key.

Quality check procedure for analyses: Program scripts are available for review for the most part and with the introduction of TAF, ICES will have an increased quality check. This structure will indicate where the data come from, which data were included, how the assessment was performed and thus document the entire process. All this is already available; however, in a much less structured and less accessible way. The TAF will work best if all data are in ICES databases; cf. the above paragraph.

Observers understood that mistakes can happen; however, strongly encouraged ICES to also inform stakeholders, when mistakes were identified and anticipated corrections to the advice were foreseen. It is of outmost importance that stakeholders too are informed at the earliest stage possible. ICES will in the future ensure that observers are informed, e.g. through the AC secretariats. An alert system on the ICES webpage, where updates to advice are posted as a link was suggested; this can be resolved by applying 'query using web-services' if ICES can make a regular post when corrections are going to be issued. A wish to keep the original advice available for comparison was expressed and the ICES DataCentre is working on this part and expect it to be effectuated by the end of 2017; a very important part of this is to ensure that the most recent version is the one found on the Advice site on the ICES website.

The PELAC in particular were worried that it appeared to them that ICES does not have a robust QA/QC system in place. The PELAC encouraged ICES to find inspiration in large international companies in order to meet the necessary QA/QC, as the current system is foreseen to continuously experience errors in advice. ICES acknowledged that the QC system at ICES needs attention and that much is related to the uncontrollable part of the data submission.

## 5 Involvement of Stakeholders in ICES Advisory process

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Stakeholder and client/manager input and involvement in our science and advisory process is very important to ICES. ICES developed the benchmark process to help ensure the quality of ICES science and advice; at the time, benchmarks were largely driven by scientific developments and by national scientists. Recent developments show, however, that clients and stakeholders are now pushing for benchmarks. This has triggered a lot of reflection within ICES; how can we remain timely and relevant scientific organization?

One example of the new ICES approach to working with the community is the benchmark for Eastern Baltic Cod; ICES hoped to build upon this experience, however, clients expressed concern with our proposal. They want ICES to be independent, to limit bias, etc., and fear that such a proposal could endanger this.

Where do we go from here? Stakeholder input that requests benchmarks could definitely be biased, so where can we find opportunities that satisfy ICES, stakeholders and clients?

### 5.1 Discussion

- 1 ) Some industry observers are developing a code of conduct for their participation in ICES activities in an effort to define their role in science and ICES. In short, their goal is to work towards the best interest of science and advice, to work by consensus, actively participate in the entire meeting, separation of roles (e.g. don't attend EG and ADG on the same process).
  - 1.1 ) This was submitted to ICES in August as part of this broader ICES initiative on the conflict of interest issue and increasing stakeholder involvement.
  - 1.2 ) Not all industry stakeholders are interested in joining this code; others were unaware and interested in learning more.
- 2 ) Frustrations were expressed regarding the lack of communication by the ICES Secretariat regarding the timing of benchmarks, inter-benchmarks, and the treatment of qualitative stakeholder information. ICES is working on the later.
- 3 ) 3. How does ICES define an expert? It shouldn't matter who pays your salary, an expert is an expert, coming to ICES with no bias. Not everyone in the audience agreed with this.

## 6 Ecosystem overviews

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*ICES issued ecosystem overviews for the Barents Sea, Bay of Biscay, Celtic Sea and the North Sea ecoregions in January 2016. ICES is in the process of finalising overviews for the Icelandic and Baltic Sea ecoregions and updating the overviews released in 2016. ICES will give a short presentation of the plans and invite the meeting to provide comments on the overviews.*

The [ICES ecosystem overviews](#) (EOs) and their interactive “[wiring diagrams](#)” were presented by ACOM leadership (Mark Tasker). Several of the ecosystem overviews have already been published for the [Barents Sea](#), [Bay of Biscay and the Iberian Coast](#), [Celtic Seas](#), [Greater North Sea](#) ecoregions. Other ecoregions (Iceland, Norwegian Sea and Baltic Sea) will be published within the coming 1–2 years. The overview will be reviewed and updated every 3–4 year. The overviews are automated as far as possible to the underlying data, which will increase transparency of assessments and better facilitate updating. It was stressed that as far as possible the ecosystem overviews were using the same data layers and data sources as the EEA (WISE-MARINE), OSPAR and HELCOM, whom ICES is working in partnership with. The EO also serve to highlight any shortcomings of data, thus helping prioritize future data/resource requirements.

The ICES approach to Ecosystem Based Management (EBM, [document 6](#)) is strongly linked to the overviews that provide evidence-base to substantiate and operationalize EBM; thus better supporting management needs. The ICES press department is working to popularize the key messages of the ICES EBM approach.

The meeting was requested to comment on other uses that the ecosystem overviews could serve.

The meeting asked whether information from EO would be incorporated into fish stock advice, for example declines in copepod abundance and fish stock reference points.

It was stressed that climate change has not been incorporated in the overviews, and plans are to also include such information in the overviews. However, science is still challenged to move from a correlative relationship (between climate change, copepod abundance and stock size SSB) toward a deterministic relationship that would enable ICES to provide robust fish stock advice that takes environmental drivers into account. Several ICES working groups are working on this and have made slow but incremental progress.

The meeting questioned how pressures had been chosen, and why for the North Sea offshore oil platforms and invasive species were not featured?

Offshore oil platforms had been considered as part of pressures caused by offshore structures and extraction of non-living resources. Invasive species had also been considered but other pressures had been prioritized in the current iteration of the EOs.

It was stressed that for the purpose of the EOs pressures were scaled and considered in the context of being linked to manageable human activity. This often requires some degree of subjectivity as pressures can be very different (apples and pears). Methods do exist to evaluate pressures in a more objective way using expert analysis, and were being considered for future interactions of the EOs.

The meeting was informed that the Baltic Sea Advisory Council’s newly established ecosystem group would be meeting in Denmark, and that this forum could provide feedback on the EOs. ICES was invited to present at this meeting.

Overall the feedback on the ICES ecosystem overviews was positive. They provide a comprehensive introduction to the main ecoregion-specific human activities, pressure

and state drivers. They are a useful tool for managers, whom are required to simultaneously consider several often conflicting interests (i.e. marine spatial planning for marine protected areas and/or fishing opportunity).

## **7 Fisheries overviews**

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The current state and development of Fisheries Overviews was presented by Mark Tasker and Scott Large. Meeting participants received the presentation and promised products as useful and needed, but did not discuss further.

## 8 MSY approach for category 3 and 4 stocks

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ICES has developed methods for estimating  $F_{MSY}$  and  $MSY B_{trigger}$  proxies. The methods have been applied for Western Waters stocks in response to a request from the EU. ICES will in 2017 apply the methods for category 3 and 4 stocks in other ecoregions.

Currently the proxies are used to assess the state of stocks and their exploitation against MSY objectives and the advice for these stocks is still based on ICES Precautionary Approach. However, ICES is in the process of developing an MSY-based advice rule for the stocks for 2018 or beyond.

There will be a workshop in early March, WKMSYcat34 that will initiate this process. All are invited to participate. Check the ICES website for further information and recent developments.

## **9 Workload**

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### **9.1 Frequency of assessments**

ACOM Chair introduced the criteria considered by ACOM when evaluating the need for annual assessments of stocks. Given the current advice workload that ICES has, it would be beneficial to reduce demands placed on ICES to produce annual advice for stocks where this may not be necessary. It was emphasised that the idea is not too reduce quality of advice, but rather to reduce the frequency of assessment where more frequent assessments are not required. It could still be possible to provide annual advice, but managers could also consider whether longer term advice might be appropriate. No suggestions have been made yet from managers, but the list of potential stocks was provided for information.

The frequency of assessment analyses done by the various assessment WGs in 2015/2016 was then shown. The recipients of advice were asked to consider the lists of potential candidate stocks for less frequent assessment that have been produced.

The PelAC would like to sit down and explore the options for this since this would not be appropriate for all stocks. Given the massive fluctuations for some pelagic stocks, they could benefit from a more long-term approach. Would like ICES to participate with regards to issues such as this at AC meetings, i.e. instead of just presenting advice. The meeting in July could have it on the agenda.

Martin Pastoors (Pelagic industry) asked about the impact of revisions in advice to the issue of assessment frequency. He wants to look at what the advice given in the past was compared to what it should have been or would have been. Trying to do this still and will add that information when available.

Esben Sverdrup Jensen (Danish Pelagic Producers Organization) noted that costs were also an issue for stakeholder organisations. They spend a lot of money on this annually, so see an opportunity to save some costs in the pelagic world. He asked when this could be in place, and the ACOM chair replied that it could be implemented as soon as 2018 for advice in 2019, depending on the reaction from the managers.

### **9.2 Reopening of Advice**

ACOM Chair introduced the background of reopening procedure in the NS. One proposal from this was to move the assessment and advice of the stocks affected (all EU-Norway stocks) to autumn, after the in-year surveys are available.

The NWWAC noted that eventual management decisions are based on a lot of thought on advice from June, but if shortened to October that discussion would be reduced. The ACOM chair noted that this was up to the managers, and that they are being asked whether or not this is acceptable. Barry Deas (NFFO) noted that nowadays managers and stakeholders have more access to benchmarks, ADGs, etc., so they are likely to have more information about the advice that could allow a later release for some stocks.

## 10 Management Plans as basis for ICES Advice

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The ACOM Chair introduced the management plans and the ICES hierarchy of advice, and the criteria ICES uses for evaluating MPs as precautionary. The 95%  $p(B > B_{lim})$  is an ICES criterion, not linked to any global agreements, etc., but we will keep using this criterion unless managers ask for alternative criteria e.g. a different risk level.

Kari Stange (MSC) said they were interested in the science-politics in MPs. Plans may have many different owners, and content of MPs varies a lot (simple HCR, to more detailed widely applicable components). The ICES list of known management plans seemed more like 'is there a HCR available that is precautionary to use?', i.e. focussing specifically on MPs that include methods for specifying fishing opportunities. The ACOM chair confirmed that this was specifically regarding fishing opportunities. While there may be various other measures, ICES is not necessarily dealing with those unless specifically requested to evaluate the impact (e.g. eel MP between Poland and Russia in 2016, or closed areas, etc.). The difficulty is that often with regards to non-fishery aspects there are no clear objectives, so it is difficult to evaluate them. Kari Stange noted that response to this list this could be misinterpreted by readers. i.e. 'no MP known to ICES' may mean no HCR, but actually there is another type of MP that should be used still in other ways.

Esben Sverdrup Jensen said that some pelagic plans have seen their reference points not in agreement with current ICES reference points, but are still used. ICES needs to make sure that MPs are in line with their current advice and the quality of the MP to achieve its targets. The ACOM chair responded that this depends on the objectives of the MP e.g. it may still be precautionary, though MSY conformity may be uncertain.

Regarding the mixed fisheries multiannual plan in the Baltic, what criteria would be used to evaluate it (if at all)? Carmen Fernandez said that ICES still needs to figure out how we will use this plan, since no HCRs are specified. It is flexible, but we need to understand the limits. The main issue is what happens when a stock biomass is below  $MSY_{Btrigger}$ . The EU noted that this was a discussion for recipients more, to distinguish between ICES precautionary criteria and other standards. The European Commission is bound to the plan and would ideally would like to meet ICES standards, but does not necessarily require evaluation from ICES.

## **11 ICES Advisory Workplan 2017**

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The Head of Advisory Support made a detailed presentation of the meeting calendar, the workplan calendar view on SharePoint and the Advisory Process view on SharePoint.

Alternative ways to find ICES Advice were demonstrated.

How to access data on the ICES website was also shown.

## 12 AOB

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The Chair of the Advisory Committee gave the participants the opportunity to discuss other issues and asked if the format of MIACO was satisfactory. The Chair is very interested in other participants being more involved.

### Pew Charitable Trusts

- Evaluation of Baltic MAP. NGOs have been and continue to be concerned about the use of ranges. ICES provided two options for these ranges and the one agreed on, was supposed to require that the ICES advice rule needs to be followed. Yet, Ministers did not follow this rule in October for WB cod for instance. It would be good to learn more about when and how ICES will evaluate the agreed Baltic MAP, and if it looks, among other things, into the likelihood of the plan to restore biomass above levels capable of producing MSY in line with Art. 2.2....
- New CFP progress analysis requested in the DG MARE – ICES MoU from 2016: In the 2016 MoU ICES is asked to provide an “Annual analysis of the long-term development of stocks and their exploitation in relation to reference points and MSY points and the objectives in Art. 2.2. of Regulation 1380/2013, also taking into account influences on biomass that are not related to fisheries, such as ecosystemic, trophic or other factors. Where possible, the relation between exploitation and biomass development shall be included in the analysis.” Among other things, it would be good to learn more about the state of affairs of this analysis and to what extent it includes an analysis of  $B/B_{MSY}$ .

## Annex 1: List of participants

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## **Annex 2: LDAC Summary Report**

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Below follows a summary report written by Alexandre Rodriguez, Executive Secretary of LDAC, on the MIACO 2017.



## **SUMMARY REPORT**

### **Annual Meeting between ICES and the Advisory Councils (MIACO)**

**Author: Alexandre Rodriguez, Executive Secretary LDAC**

**Date: 27 January 2017**

***DISCLAIMER NOTE: This is a summary of the meeting from the LDAC Executive Secretary highlighting those issues which are deemed to be relevant for the LDAC. Therefore, it is not intended to cover all topics that were dealt with at MIACO as this will be covered by the ICES ACOM report (e.g. determination of MSY ranges; use of multiannual management plans as a basis for advice and alignment of its objectives with ICES methodology and Precautionary Approach).***

### **Main topics discussed and relevant actions agreed**

#### **1. Overview**

The meeting was well attended by over 20 delegates from 5 Advisory Councils out of the existing 8 (all except the South Western Waters, the Mediterranean Sea and the Market ACs), as well as ICES scientists and representatives from third non EU countries (i.e. the Norwegian Fishermen's Association). Due to justified last minute absence of the Chair and the First and Second Vice Chairs, the LDAC was solely represented by its Executive Secretary, who provided an overview of the work between the LDAC and ICES in 2016 and identified some potential advisory needs from the LDAC for 2017.

***The agenda for MIACO and the list of attendees is appended to this report.***

#### **2. General considerations and main issues for collaboration ICES - ACs**

- The Advisory Councils agreed to take ownership together with ICES in organising a bilateral preparatory meeting prior to MIACO, together with setting the agenda and co-chairing this meeting. The Baltic Sea Advisory Council (Chair + Secretariat) was appointed as first coordinator dealing with ICES for next year.
- Enhanced cooperation is required in the process for making effective regional pre-meetings between ICES and AC stakeholders prior to AC Working Group meetings. It would be advisable also to channel input and participation of ACs at ICES meetings that are open to observers (e.g. Advisory Drafting Groups).
- Increased communication is demanded particularly on the scoping and the organisation of Benchmark Workshops (BW). The benchmark workshops are set to review and improve assessment data and methodology.

The benchmarking process is an important one as it might result in changes in the perception of the state of stocks and eventually shape ICES policy advice. The main output produced on the benchmarking process is the stock annex, in which the data and methods are described, and these are peer reviewed. ICES and ACs exchanged views during MIACO on how to strike the right balance for scientists to remain independent while opening up for review a stock assessment with participation of all stakeholders. This would also apply to the known as Inter Benchmark Workshops, which are "fast track" procedures dealt with by designated experts to address specific issues by correspondence.



- ICES will work with Secretariats and AC members on improving knowledge and training to access to ICES improved features of its web and SharePoint sites.
- ICES will proactively inform of their meetings calendar and plan and will provide ToR and any relevant background information for future BW meetings.
- Despite the fact that presentations of advice by ICES to the ACs are generally well structured and seem to respond to the needs of the stakeholders, ICES staff was asked by the ACs to be available at critical dates after the release of advices (i.e. end of June for demersal mixed fisheries in EU waters and end of September for widely distributed and pelagic stocks). To this purpose, maximum utilization of the MoU to be signed between the European Commission and ICES allocates 15 days for ICES scientists to participate in all the existing ACs (8) for 2017.
- ACs improved communication with ICES and participated around the clock in several physical and web meetings in 2016. However, the level of ambition also increases in terms of input, questions and level of involvement of stakeholders along the years. It was perceived that a more formalised relationship might be articulated for dealing with both specific questions on stocks assessments and other more general critical observations made by stakeholders resulting from the advice (e.g. quality control issues, how to deal with uncertainty of data, etc.)
- It would be very valuable to find a forum besides MIACO to further strengthen dialogue between ICES and ACs in order to discuss the "meta level" issues, such as progress in methodology and work on data limited stocks, implementation of ecosystem approach to fisheries management, complexities of mixed fisheries, impact of LO on ICES advisory process and models used in the assessments, etc.
- The Pelagic AC asked that ICES gives due thought and consideration to the treatment made of stakeholders' information (both editing and additions) and its inclusion into the scientific advice given their recent lack of reporting on changes made in 2016.
- Regarding VMEs, the representative of the Norwegian Fishermen's Association asked if ICES could define objective indicators for different waters and sea beds. As an example, at the present time, habitats from the Barents Sea identified by ecosystem studies commissioned by Norway and Russia do not have good quality controls and are regarded as biased when they define "no go" fishing areas, providing uncertainty to fishermen on their fishing grounds. ICES noted that there is work already from UN guidelines which might be useful or not, about thresholds for vulnerable ecosystems.
- In terms of Communications with media, stakeholders and public in general, ICES has limited resources. In terms of what it would be useful for the ACs to see in the advice, there is still room for discussion on the way the MoU between the ICES and EU constraints and shape how the advice is presented. There was also a debate on how to read/interpret the advice sheets, maybe changes to the webpage might help and maybe a glossary of technical terms. Also, it was brought up that ICES PA and CFP PA are not identical, and this brings some consequences. All these are pertinent considerations for fisheries managers for making a better integration with the different policies under the CFP (MAMPs. TCMs, discards...).
- It would be interesting for the stakeholders' perspective that ICES might consider spending less resources on surveys and more on processing data and computing, thus increasing the quality of surveys with data we are feeding (e.g. blue whiting).



- It was noted that there is not an overall and/or permanent group to look at quality of surveys. ACs encouraged ICES to take this challenge. ICES acknowledged that a huge amount of the overall costs are invested in data collection and processing, while only about a 10% of the overall budget is allocated for work in ICES by EWG. Perhaps more weight should be given to the work of scientists at Working Groups.
- To optimise efforts while ensuring adequate coverage on key stocks, it was suggested by ICES revisit of the frequency of the assessments for certain candidate stocks. This is a process that has already at its final stage and is being looked at within ICES this year. It is expected that the stakeholders will be consulted soon with the view of start implementing a first tranche on 2018, and start the changes in provision of advice effectively in 2019.

### 3. LDAC considerations (discussed with and supported by ICES ACOM)

- The LDAC representative reminded that ACs under article 44.2. (c) of CFP reform are required to *"contribute, in close cooperation with scientists, to the collection, supply and analysis of data necessary for the development of conservation measures"*. Linked to this, the LDAC wishes to have specific information on data gaps and data need requirements in advance for any Benchmark Workshops so the Secretariat can appoint-collect the necessary data from their members and identify/designate the relevant participants.
- It is very important to make clear linkages and effects of the implementation of the ecosystem based approach to fisheries management (i.e. systems and pressures for water column and seabed and interactions between species and habitats) and the impact of economic human activities other than fisheries on the environment and the fishing activities (e.g. oil and gas extractions or seabed mining) outside EU waters. ICES replied that a document specifically on this topic will be published soon and submitted to the LDAC Secretariat for further deliberations. It is mainly an informative document but has the aspiration of serving as basis for providing future advice on this subject matter.

***MIACO Doc 6A titled "ICES and Ecosystem-based Management" is annexed to this report.*** ICES welcomes comments and views from stakeholders of this document, particularly on the use and application of these ecosystem overviews on fishing activities. This document is considered not as an advice on EBFM but a supporting document furnishing evidence to support to be updated every 4 years. ICES is working on this field in close collaboration with the European Environmental Agency (EEA) and HELCOM to avoid duplication of work.

- Regarding implementation of the LO outside EU waters, the LDAC announced that they will be working in improving knowledge on state of deep-water species (including deep-sea sharks) in NEAFC RA. The LDAC is currently waiting for the adoption of the EC Delegated Regulation setting *de minimis* rules for such species in NEAFC, given the inaction by MS and their lack of political will to date to set up a dedicated Regional MS Group to deal with implementation of LO outside EU waters.
- The LDAC will work on producing an advice and might submit a formal request for advice to ICES via the Commission to report on the existing scientific knowledge and review of stock assessments for the deep-water species as well as the availability and quality of the discard data.

***The list of relevant deep-water species mentioned is annexed to this report.***



- Work of the LDAC on management measures for Atlantic Tropical Tuna was also mentioned, highlighting the issue of improving knowledge and management of FADs. The Inter-RFMO meeting on FADs scheduled for April-May 2017 was flagged up as an opportunity to make progress on this topic. ICES Vice-Chair replied that ICES has not a specific mandate to deal with Atlantic Tropical Tuna although ICCAT scientists are or were in several occasions ICES scientists. However, they are not sure what ICES role would be here other than assessing implementation of LO for pelagic stocks. The ICES Working Group on survivability of species was mentioned. ICES is now advising on catches rather than landings and they include on the forecast as much information as possible.
- The LDAC announced that, in partnership with the Pelagic AC, they will be holding a Second International Conference on the North Atlantic Fisheries, with a panel dedicated to scientific issues including stock migrations and patterns due to climate change; and ecosystem considerations. This event is likely to be held in Norway in summer 2017 and an ICES representative will be invited as speaker or panelist under the LDAC funding. ICES delegates (Mark Tasker and Mark Dickey-Collas) thanked LDAC for this invitation and showed their interest in attending. It was also identified NAFO WG on Integrated Ecosystems as a reference together with work initiated in the Western Pacific.

#### **4. ICES Summary on Fisheries overviews**

This work started with the North Sea and is under phase of completion for all fisheries now: they hope to have five ecoregions completed by the end of May 2017 and the rest before the end of the year. ICES Fisheries overviews are reports giving summaries on who is fishing, landings by nation, graphs of catches by gear, stock status by group stock status for benthic fisheries, spatial distribution by gear (done on annual base).

ICES welcomes suggestions from policy makers, MS and stakeholders on management measures and regulations to be included here for getting a clearer picture of what is going on. The idea is to explore the trade-offs with different managements measures or policies, e.g. Cod as food for other species or for fisheries activities, predator-prey relations, etc.

The alternative would be to give only biological advice, but there is an economic dimension which is relevant, apart from biological indicators, and economic performance of fisheries is important here. For mixed fisheries, in MoU can be analysed how to optimize in the Baltic. EU system on ranges for F, how can you optimize the yield (as in tonnage does not reflect the economic yield...). However, some NGOs represented at the meeting did not support this idea as in their view is not for ICES to propose a MSE, as trade off analysis often influence policy.

The aim for ICES is that these fisheries overviews serve as backgrounds for developing regional MAMPs that are easily adaptable and contain clear references to data sources so it can be traced back and reviewed every 2-3 years.

**-END-**

## **ANNEX I. Catch limits for Deep-sea Stocks**

### **International Waters, ICES VIb, XII, XIVb**

#### **Summary description:**

- Most of the TACs for this species in EU waters were set on a biannual basis (2017-2018), as a result of the agreement reached by the Council in November 2016, and as such they have been accordingly reflected in the Council Regulation on TAC and Quota 2017.
- Annex IB NEAFC FO includes 49 species: 12 are subjected to TACs by the EU; 17 are deep-water sharks (coinciding with the EU Deep-sea Regulation); and the remaining 20 not subjected to catch limits (quotas).
- NEAFC Rec. 7/13 forbids direct fishery and retention on board of deep-water sharks.
- Unknown Stocks of wide distribution, without reference points.
- Limited data: only exploitation and stock trends (Increasing/Stable/ Decreasing)
- Recommendation made on catches, by-catches and discards.
- Little quota or quota cero in several cases ("Choke Species")
- Catch and discard data insufficient, although improving in the last years.

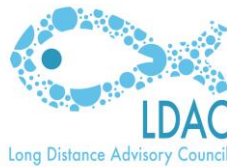
#### **Table of deep-water species subject to catch limits in EU waters and NEAFC**

\* Regulation (CE) 2016/2285 of 12.12.2016

\*\* EU Regulation 2017/127, published on 28.1.2017

| Nombre especie /<br>Species Name            | Cod./<br>Code | Areas<br>CIEM /<br>Cpaco | 2017      |         | 2018      |         | TAC       |
|---|---------------|--------------------------|-----------|---------|-----------|---------|-----------|
|   |               |                          | EU        | ES<br>P | EU        | ES<br>P |           |
| <b>Sable negro / Black<br/>Scabbardfish</b> | BSF           | I-IV y AAI               | 9         | 0       | 9         | 0       | Cautelar  |
|   | BSF           | V-VII and<br>XII y AAI   | 2.9<br>54 | 16<br>8 | 2.6<br>00 | 14<br>8 | Analítico |
|   | BSF           | VIII, IX y X<br>y AAI    | 3.3<br>30 | 10      | 2.9<br>97 | 9       | Analítico |
|   | BSF           | 34.1.2 y<br>AAI          | 2.4<br>88 | 0       | 2.1<br>89 | 0       | Cautelar  |
| <b>Argentina / Greater<br/>Silver Smelt</b> | ARU           | I, II y AAI              | 90        | 0       |           |         |           |
|   | ARU           | III, IV y<br>AAI         | 1.0<br>28 | 0       |           |         |           |
|   | ARU           | V-VII y<br>AAI           | 3.8<br>84 | 0       |           |         |           |
| <b>Alfonsino</b>                            | ALF           | III-X, XII,<br>XIV y AAI | 28<br>0   | 63      | 28<br>0   | 63      | Analítico |
| <b>Brosmio / Tusk</b>                       | USK           | I-II, XIV<br>y AAI       | 21        | 0       |           |         | Cautelar  |
|   | USK           | V-VII y<br>AAI           | 3.8<br>60 | 46      |           |         | Cautelar  |

|   |                   |                            | 2017           |           | 2018      |           |                            |
|---|-------------------|----------------------------|----------------|-----------|-----------|-----------|----------------------------|
| Nombre especie /<br>Species Name          | Cod./<br>Code     | Areas<br>CIEM /<br>Cpaco   | EU             | ES<br>P   | EU        | ES<br>P   | TAC                        |
| Grenadiers                                | RNG/<br>RHG       | I, II, IV y<br>AAII        | 10             | 0         | 10        | 0         |                            |
|   | RNG/<br>RHG       | III y AAII                 | 27<br>8        | 0         | 22<br>3   | 0         |                            |
|   | RNG/<br>RHG       | Vb - VII                   | 3.0<br>52      | 49        | 3.1<br>20 | 50        |                            |
|   | RNG/<br>RHG       | VIII-X, XII,<br>XIV y AAII | 2.6<br>23      | 1.8<br>83 | 2.0<br>99 | 1.5<br>08 |                            |
| Reloj Anaranjado /<br>Orange Roughy       | ORY               | VII                        | 0              | 0         | 0         | 0         |                            |
|   | ORY               | I-V and<br>VIII-XIV        | 0              | 0         | 0         | 0         |                            |
| Maruca Azul / Blue<br>Ling                | BLI               | Vb -VI - VII               | 11.<br>31<br>4 | 36<br>5   |           |           | No Definido<br>Precautorio |
|   | BLI               | AAII XII                   | 35<br>7        | 34<br>1   |           |           |                            |
| Maruca / Ling                             | LIN               | I,II y AAII                | 36             | 0         |           |           |                            |
|   | LIN               | V y AAII                   | 33             | 0         |           |           |                            |
|   | LIN               | VI-XIV                     | 13.<br>69<br>6 | 3.7<br>44 |           |           |                            |
| Besugo / Red<br>Seabream                  | SBR               | VI-VIII y<br>AAII          | 14<br>4        | 11<br>6   | 13<br>0   | 10<br>4   | Analítico                  |
|   | SBR               | IX, y AAII                 | 17<br>4        | 13<br>7   | 16<br>5   | 13<br>0   |                            |
|   | SBR               | X y AAII                   | 51<br>7        | 5<br>5    | 51<br>7   | 5         |                            |
| Brótola de fango /<br>Greater Forkbeard   | GFB               | I-IV y AAII                | 24<br>34       | 70<br>6   | 24<br>34  | 70<br>6   | Analítico                  |
|   | GFB               | V-VII, y<br>AAII           | 24<br>34       | 70<br>6   | 24<br>34  | 70<br>6   | Analítico                  |
|   | GFB               | VIII-IX y<br>AAII          | 28<br>5        | 25<br>8   | 25<br>4   | 23<br>0   | Analítico                  |
|   | GFB               | X-XII y AAII               | 58             | 0         | 52        | 0         | Analítico                  |
| Tiburones profundas /<br>Deepwater Sharks | 15<br>Specie<br>s | V-IX y AAII                | 10             | --        | 10        | --        | Cautelar                   |
|   |                   | X y AAII                   | 10             | --        | 10        | --        | Cautelar                   |
|   |                   | 34.1.1<br>aguas UE         | 10             | --        | 10        | --        | Cautelar                   |
| Deanias (Bird Beak<br>Dogfish)            | 2<br>Specie<br>s  | XII AAII                   | 0              | 0         | 0         | 0         | Cautelar                   |



## **ANNEX II. MIACO Doc 6A**

### **ICES and Ecosystem-Based Management**

ICES sees Ecosystem-based Management (EBM) as the primary way of managing human activities affecting marine ecosystems. Ecosystem-based Fisheries Management (EBFM) addresses the fishing sector. These approaches to management of marine activities have been described by a number of organizations (FAO, CBD, Arctic Council, NOAA,) and applied in relevant legislation (e.g. CFP, MSFD). Certain key phrases illustrate the central tenet of the ecosystem approach: management of human activities, consideration of collective pressures, achievement of good environmental status, sustainable use, optimization of benefits among diverse societal goals, regionalization, trade-offs, and stewardship for future generations.

ICES role is to provide the evidence for ecosystem-based decision making for the management of fisheries and other sectors in the ICES area. The evidence is required to explore the consequences of likely trade-offs (central to EBM) in the management of and between sectors and their impacts and services from the biodiversity of species and habitats. This is to support sustainable development aimed at both human and ecosystem well-being and stewardship of marine ecosystems. EBFM should result in fisheries management that maintains resilient and productive ecosystems. ICES provides the knowledge base to achieve this end, as encapsulated in its mission of providing the "information, knowledge, and advice on the sustainable management of human activities affecting, and affected by, marine ecosystems."

EBM is a process towards this goal, and the organization is incrementally using its network, data centre, and advisory role to provide the scientific basis for operational management. As the process is incremental, it allows ICES to respond appropriately to the changing demands of a developing policy landscape and dynamic ecosystem.

### **Evidence base and tools**

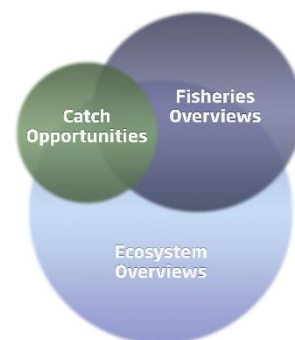
Since 1992, the ICES Working Group on Ecosystem Effects of Fishing Activities (WGECO) has considered the framework and application of both EBM and EBFM. Through its outputs, WGECO has provided leadership in the development of major concepts, such as those underlying the European Marine Strategy Framework Directive (MSFD). These concepts have propagated throughout the ICES network, driving further development of the evidence required to provide relevant and timely operational advice.

Through the ICES data centre and with strategic partners, it provides operational information products to underpin the exploration of what can be called the safe-operational space for trade-offs. The data centre is leading European initiatives to improve collaboration between resource use scientists and conservation practitioners by building common vocabularies and data sharing between organizations such as FAO, EUROSTAT, and OBIS (Ocean Biogeographic Information System). It is also working with the ICES working groups on marine spatial planning, habitat mapping, and fisheries spatial data to make the provision of spatial data consistent across various data sources, to enable clear and traceable provenance of information for decision making.

A series of integrated ecosystem assessment groups are in place to cover a number of regional parts of the ICES area (ecoregions). These groups are developing methods and tools to make the ecosystem approach operational. Their ecosystem assessments include ecosystem trend analyses, the building of Bayesian networks, and methods to qualify, quantify, and prioritize regional anthropogenic pressures. The impact of climate change on marine ecosystems is a key issue that ICES builds into its work.

## Application of evidence base to EBFM

ICES provides three main outputs to support EBM: advice on fishing opportunities, fisheries overviews, and ecosystem overviews. These products are continually developing to address new information as well as changes in the ecosystem, legislation, and the drivers of fisheries. Spatial management and regional priorities are addressed as all of the advice is given by ecoregion. The ecoregions reflect both the biogeography of the ICES area and the management of the area by national and regional authorities.



Advice on fishing opportunities has evolved from the traditional focus on single species catch options. It now includes an assessment of the stock status, the exploitation rate in relation to maximum sustainable yield (MSY), and projections of the consequences of fisheries actions for each stock impacted by fisheries in the European ICES area. The assessments are a mixture of analytical and knowledge-limited (proxy) approaches which encompass target species, bycatch species, and deep sea and elasmobranch fisheries.

Where evidence exists of productivity changes in the ecosystem or fish stocks, researchers are encouraged to consider the evidence and implications for management of these changes.

Advice on fishing opportunities uses rules, with associated reference points, that reflect policy objectives. The ecosystem approach is integrated into the reference points, which are based on the current state of the ecosystem and updated to reflect any effects of the ecosystem on stock dynamics. Where appropriate, such as with forage fish or cannibalistic fish, estimates of the temporal variation of natural mortality are built into the stock assessments to consider the implications for fish for top predators or density effects on stock dynamics.

The fisheries overviews are summaries of the activities and impacts of the fleets fishing in the ICES area. They describe the fleets operating in each ecoregion, the composition of their catches, and their interactions with the ecosystem, thus documenting the goods and services derived from fishing. Mixed fisheries considerations, which describes the consequences and options for management of mixed fisheries, are part of these overviews. Mixed fisheries advice highlights the impossibility of the objective of maximum sustainable yield for all stocks and provides trade-off options between different management strategies. Methods have been developed to include information on the impact of fisheries on the sea bed and the impact of bycatch of endangered, protected, or threatened species within the fisheries overviews.

## Building the evidence base for EBM

The ecosystem overviews use qualitative methods to identify and focus on the top five priority human activities and resulting pressures that can be locally managed within each ecoregion. They thus put fishing activities into the context of the trends and status of the marine ecosystem as a whole. Quantitative methods to further assess these pressures are currently being developed. In many ecoregions, ICES considers that fishing contributes major anthropogenic pressures on the ecosystem. The approach of assessing activities, pressures, and state of the ecosystem provides the flexibility to monitor for cumulative effects of the pressures on the ecosystem and to accommodate impacts of climate change as they become apparent. Work is being done with the regional sea commissions – OSPAR, HELCOM, and ICES Member Countries – to keep these overviews relevant to the knowledge needs of management.

In addition to these three main areas of advice, ICES is regularly asked to provide bespoke advice on issues relating to EBFM and EBM. For example in recent years, methods have been devised to assess the status of information poor stocks, monitor recreational fishing, and explore maximum sustainable yield as a range of catch rather than as a point estimate. Advice has also been issued on the impact of aquaculture.



ICES data centre also hosts and maintains the OSPAR and HELCOM impulsive noise register, marine litter datasets (collected in conjunction with ICES coordinated surveys), a biodiversity portal (aimed at seal and bird populations) and the North Atlantic vulnerable marine ecosystem (VME) portal, which all provide a valuable resource to our partner environmental and fisheries organizations. They also facilitate the production of advice that is integrated into the overall framework for EBM in a strategic and responsive manner.

### **Engagement with society**

People are central to EBM. Any process that engages with society needs to be transparent, adaptive, and inclusive. Assurances should be given of proper quality control so that personal bias in science and advice is minimized and good professional standards are upheld. Transparency is at the core of science and means that ICES science processes, documentation, and products must be open to observation and scrutiny for the users of the science and advice. The evidence base and methodologies used to provide knowledge products are openly accessible in the highest resolution that the underlying data sources allow. Inclusiveness is at the core of an ecosystem approach.

ICES engages with the users of its science and advice to define the issues of concern, understand interests, bring in other sources of knowledge, and ensure that advice relates to societal choices. Inclusiveness is implemented through scoping processes, where scientists engage with users and stakeholders to ensure that their questions and issues are addressed. ICES works hard to ensure the legitimacy and credibility of its advice. The “benchmark” is now widely used throughout the organization to enable stakeholder input into method development and knowledge acquisition. Industry-science partnerships feed information through to ICES products. Working groups look at the provision of goods and services, and its strategic initiative on the human dimension challenges. ICES and its partners work to incorporate trans-disciplinary approaches to the provision of knowledge for society, whilst also liaising with international bodies and research projects to maintain relevance. Ensuring that the provision of knowledge remains independent and yet also open and challengeable is key.

### **Summary**

In its Strategic Plan 2014-2018, ICES is committed to building a foundation of science around one key challenge: integrated ecosystem understanding. Part of this integrated approach is the implementation of EBM as a continuous and iterative process. The principles of EBFM and EBM are clear and are being incorporated into every facet across the data, science, and advisory programmes. EBM requires the consideration of broader issues, where the impacts of marine sectors intersect and society needs information on trade-offs between such activities and with marine ecosystems. Regular reviews of progress are made to ensure the momentum of incorporating EBFM and developing methods for EBM are being maintained.

*Prepared by Council Steering Group on MSFD & Ecosystem Approach, ACOM leadership, ACOM and SCICOM and ICES secretariat.*