

## ICES 105<sup>th</sup> Statutory Draft Meeting Agenda

Copenhagen, Denmark

Chair: Cornelius Hammer

18–19 October 2017

Day 1 (9:00 – 17:15)

Followed by a reception hosted by the Portuguese Ambassador

Day 2 (8:30 – 15:00)

### **1 Adopt the Agenda**

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Meeting participants will be invited to adopt the agenda.

#### **1.1 President's review**

Council delegates will be invited to review the follow-up, in relation to actions decided at the 2016 Council meeting.

### **2 ICES Strategic Plan and Implementation plans**

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#### **2.1 ICES Strategic Plan and implementation plans**

Meeting participants will be invited to consider the development of objectives for the work of the organization for the next strategic-planning period.

Council Delegates are requested to submit a shortlist of national science priorities (3-5) for discussion and to ensure that these are considered in the preparation of the objectives and implementation plan starting in 2019.

### **3 Finance**

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#### **3.1 Finance Committee Report**

The meeting is invited to comment and approve the report from the Finance Committee, as well as to:

- approve the final accounts 2016, including Audit Book;
- vote on the proposed budget for 2018, noting that the national contributions have already been decided;
- vote on the 2019 national contributions, adjusted with the Danish inflation rate.
- discuss a long-term strategy for achieving increases in the national contributions.

### 3.2 New Clients and MoUs

Council will be informed about the status of negotiations with Member Countries wishing to also be recognized as “Advice requesters”.

### 3.3 Project update

The Council will be provided an update on the status of ICES involvement in projects and the outcome of considerations on how ICES can be more proactively involved in projects.

## 4 Report from the Council Strategic Initiative on the Marine Strategy Framework Directive and Ecosystem Approach (CSIMSFDEA)

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Meeting participants will be provided with an update on the group’s activities.

## 5 Reports from the Council Strategic Initiative on Maritime Trans-Atlantic Cooperation (CSIMTC)

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Fritz Köster, First Vice-President will report on the activities of CSIMTC.

Council will also be updated on, and invited to discuss, on the ICES contribution to the Atlantic Ocean Research Alliance.

## 6 Elections and Appointments

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### 6.1 Vice-Presidents

Council is invited to nominate and elect three new Vice-presidents. Vice-President Tammo Bult (NL), Pierre Petitgas (FR), and Kai Myrberg (FI) have completed their 3-year terms.

To facilitate the election process, nominations will occur on the first day of the meeting. If nominated and willing to stand, potential candidates are encouraged to introduce themselves and give a short introduction to how they will contribute to the work of Bureau. The election procedure will then be completed on the second day of the meeting.

#### Rules of Procedure

##### Rule 11

*i) The First Vice-President shall be elected for a period of three years and shall not be eligible for re-election for the immediately succeeding term;*

*ii) Any other Vice-President shall be elected for a period of three years and shall not be eligible for re-election for the immediately succeeding term;*

*iii) Any Vice-President may resign at any time and shall vacate office on ceasing to be a Delegate;*

*iv) In the event of an office of any Vice-President falling vacant the Council shall elect a new Vice-President at its next meeting.*

#### **Rule 5 (iv)**

*At any time not more than one member of the Bureau shall be from the same member country. (Currently Bureau consists of President Cornelius Hammer, Germany, First-Vice President Fritz Köster, Denmark, Bill Karp, USA, Piotr Margonski, Poland).*

## **7 ICES Science**

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### **7.1 Report from the SCICOM Chair**

#### **7.1.1 Annual Progress Report**

The Chair of SCICOM, Simon Jennings, is invited to give a report on the activities of SCICOM, with a specific focus on activities carried out to further the implementation of the ICES Strategic Plan as well as issues for which support is needed in order ensure progress towards the ICES Strategic Plan.

#### **7.1.2 Aquaculture**

The Council will be updated on latest developments within Aquaculture, and invited to discuss how to further ICES role.

#### **7.1.3 Arctic**

The Council will be updated on latest developments within the Arctic, including ICES participation in various meetings under the Arctic Council and the Scientific Experts on Fish Stocks in the Central Arctic Ocean, and invited to discuss how to develop ICES role, including the different potentials for how new Member Countries/scientist from these countries can take part in the work of ICES.

### **7.2 2017 and forthcoming Annual Science Conferences**

The 2018 Annual Science Conference will be hosted by the Germany. The 2019 Annual Science Conference will be hosted by Sweden. Invitations to host the 2020 (and future) conferences will be welcomed.

## **8 ICES Advisory Services**

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### **8.1 Report from the ACOM Chair**

#### **8.1.1 Annual Progress Report**

The Chair of the Advisory Committee, Eskild Kirkegaard, is invited to give a report on the activities of ACOM, with a specific focus on activities carried out to further the implementation of the ICES Strategic Plan as well as issues for which support is required to ensure continued progress.

### **8.1.2 Progress on the pilot project on update assessments**

Council will be provided an update on the project: Transparent Assessment Framework.

### **8.1.3 Quality assurance in the Advisory Process**

Meeting participants will be invited to discuss quality assurance in the advisory process, and how to avoid similar issues as those errors related to, e.g., the 2016/2017 North East Atlantic Mackerel assessment.

### **8.1.4 Industry and NGO Expert Participation**

Council Delegates will be invited to discuss Industry Expert Participation in the Advisory process.

## **8.2 Modernization of ICES work processes**

Meeting participants will be invited to review and discuss strategies for reduction of workload, the technical fixes underway, and the implementation schedule.

## **9 Data and Information Services**

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The Head of Data and Information, Neil Holdsworth will provide a 2017 status report on the activities and deliverables by Data and Information Group and the Data and Information Centre.

## **10 Secretariat**

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The General Secretary, Anne Christine Brusendorff will provide a 2017 status report on the activities and deliverables by the Secretariat.

### **10.1.1 Resource Coordination Tool (RCT) and Content Administration for Reports and Advice (CARA)**

Information will be submitted for consideration by Council regarding the further progress on the development of the tools for streamlining working procedures.

## **11 Any other Business**

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### **11.1 Rules of Procedure**

Council delegates will be invited to approve the proposed changes to the Rules of Procedure, following the establishment of full-time positions for the SCICOM and ACOM chairs, and their recruitment procedures.

### **11.2 Conflict of Interest**

Council delegates will be updated on the implementation of the Code of Conduct and Conflict of Interest (CoI) policy for ICES.

### **11.3 Date of the next meeting**

The next statutory meeting will take place 17–18 October 2018.

# COUNCIL OCTOBER 2017

ICES CM 2017/COUNCIL

REF COUNCIL

## Minutes from the ICES Council Meeting

17-18 October 2017

Copenhagen, Denmark



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ICES 105<sup>th</sup> Statutory Meeting Minutes  
Copenhagen, Denmark  
Chair: Cornelius Hammer  
18-19 October 2017

## **1 Opening**

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The President welcomed meeting participants, new Council delegates, as well as first time participants at the meeting. A full participants list is available in section 11.4 of this report. Meeting participants adopted the agenda with no additions.

### **1.1 President's review**

Council delegates reviewed the follow-up, in relation to actions decided at the 2016 Council meeting as described in the document **CM 2017 Del-1.1**.

## **2 ICES Strategic Plan and Implementation plans**

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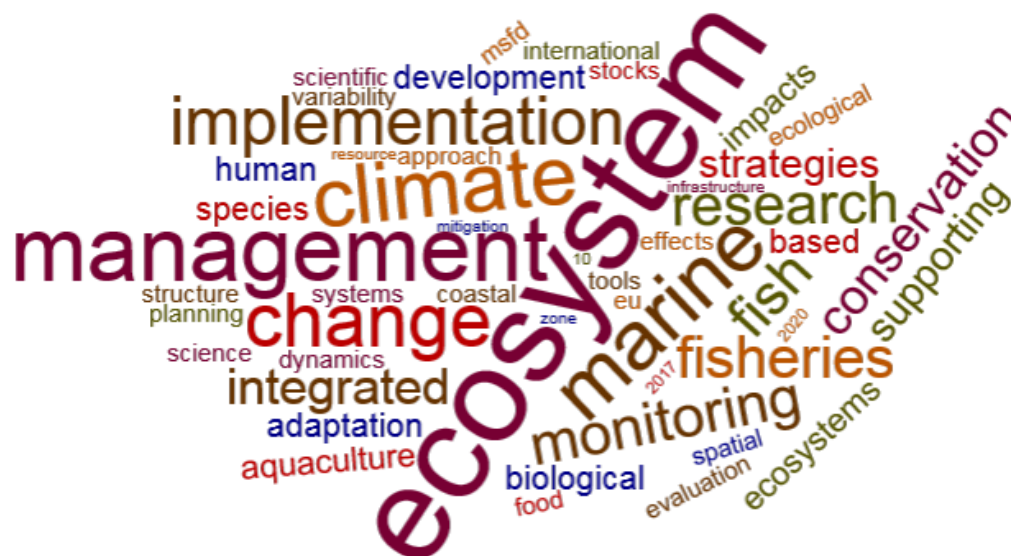
### **2.1 ICES Strategic Plan and implementation plans**

The General Secretary presented the development of a rolling strategic plan based on four to five year outlook, with an annual review of progress to identify needs for adjustments or resources in relation to goals (as described in **CM\_2017\_Del-2.1**). The new strategic plan will be a 3 component plan, and will comprise a top-level plan aimed at communicating the ICES vision and mission externally, a second level of objectives and sub-objectives common to all pillars of the organization, and a third level that will link operational tasks to the upper level goals and objectives.

The strategic planning process will be run as an iterative process with feedback from member countries. The process aims to be aspirational but also to use a bottom-up approach trying to link activities to the resources available and to anchor the process in the organization to ensure buy-in at all levels. This coordinated approach aims to facilitate monitoring of progress and reporting on results in a common way among the ICES pillars.

Council Delegates were requested to submit a shortlist of national science priorities (3-5) for discussion and to ensure that these are considered in the preparation of the objectives and implementation plan starting in 2019. Given the short response time, some Delegates were unable to provide a response in advance of the meeting. Feedback from Delegates not only about national science priorities, but also member country expectations for ICES could also be solicited as input to the process. Further synthesis of the priorities submitted is needed. The process being run at the Council level is complimentary and coordinated with the SCICOM process (through the Coordination group).

Tammo Bult led a special session to get further input from Council members on priorities using interactive software from mmeet.net. Participants were able to add additional priorities and then rank them. A wordle generated by the software based on participants input showed ecosystem as an important component. There were a lot of commonalities in the responses provided. International and North Atlantic priorities will also be identified and considered as part of the strategic planning process.



The Conclusion from the session was that;

- Member countries are challenged by implementing an ecosystem approach in the context of climate change;
- ICES is tackling the important issues faced in the Advisory side of the organization, although there is also a need to discuss how to continuously improve;
- Stakeholder and client engagement is needed, and the strategic planning process and developments should be shared during the Meeting between ICES and Recipients of ICES Advice (MIRIA) and the Meeting between ICES, Advisory Councils, and official observers (MIACO) beginning 2018;
- Further consideration about how to link the operational objectives and thematic priorities identified by Council is needed, in order to ensure buy-in from the member countries;
- Delegates and SCICOM national representatives need to engage.

Action: The strategic planning process will continue to be developed during 2018, with a final draft to be presented at the 2018 Council meeting. Further consideration of how to reflect national science priorities into the process will be done. Council will be updated by email correspondence, and will be requested to provide input to the development of the strategic plan and the process throughout 2018, following the Bureau meetings.

### 3 Finance

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#### 3.1 Finance Committee Report

The Chair of Finance Committee, Piotr Margonski presented the annual report of the group as provided in **CM\_2017\_Del-3.1**. Council **approved** the report from the Finance Committee, as well as:

- the final accounts 2016, including Audit Book; and
- the proposed budget for 2018, noting that the national contributions have already been decided.

Given the expected deficit in coming years, Finance Committee recommended, and Bureau supported a new strategy for securing regular increases in national contributions by requesting Member Countries commit to an automatic annual increase equivalent to the Danish inflation rate. This proposal was not approved by Council.

For some countries an automatic increase could not be accepted and could jeopardize their continuing participation in the organization.

It was agreed that Council should agree on the national contributions for 2019 by electronic voting by the end of 2017.

Action: The Secretariat will, with contribution from the Chair of the Finance Committee, prepare a letter to be sent to member countries requesting an increase in contributions for 2019 by 1.3%, derived from the Danish inflation rate.

#### 3.2 New Clients and MoUs

The General Secretary informed Council about the status of negotiations with Member Countries wishing to also be recognized as “Advice requesters” as described in the document **CM 2017 Del-Doc 3.2**.

ICES and Norway have now established an MoU for providing advice that recognizes Norway as an advice requester and helps ICES to move towards full cost recovery of the advisory system. Negotiations with other member countries that receive advice have started or are under development.

#### 3.3 Project update

Wojciech Wawrzynski, Head of Science Support, provided an update of projects as described in **CM 2017 Del-Doc-3.3**. ICES Secretariat continues to facilitate engagement on relevant project calls according to ICES project policy. Projects that include or allow for participation of all ICES Member Countries (i.e. North American participation in EU projects) are preferred.

### 4 Report from the Council Strategic Initiative on the Marine Strategy Framework Directive and Ecosystem Approach (CSIMSFDEA)

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The General Secretary provided an update on the CSIMSFDEA as outlined in CM\_2017\_Del-4 as well as highlighting the ecosystem approach work on-going in ICES.



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Council supported the continuation of the group, recognizing that the ecosystem approach work is broader than the EU's MSFD and should be reflected with an appropriate group name, that integrated monitoring should be a focus of the work, and that a new Chair with revised Terms of Reference are needed.

Tammo Bult expressed conditional interest to Chair the initiative. He would like to explore if he can create a situation where explicit ecosystem advice be requested from ICES.

The United Kingdom, France, and the US all supported continuation of the group and expressed interest to engage on taking the initiative forward.

**Action:** Tammo Bult conditionally agreed to Chair the group pending discussions with the Dutch Ministry, if the appropriate conditions are met, revised terms of reference will be circulated for Council approval early in 2018.

## 5 Reports from the Council Strategic Initiative on Maritime Trans-Atlantic Cooperation (CSIMTC)

Fritz Köster, First Vice-President and Co-Chair of CSIMTC reported on the 2017 activities of the group as described in **CM 2017 Del-5**.

Transatlantic Cooperation through the Atlantic Ocean Research Alliance (AORA) continues to develop. ICES and the Ocean Frontier Institute (OFI) are continuing to discuss ways to work together to promote trans-Atlantic cooperation. The EU has also expanded its research and innovation cooperation in the South Atlantic through an agreement with Brazil and South Africa. This provides an opportunity for ICES to contribute to the Coordination and Support Action for this new agreement.

There is a potential opportunity for ICES (members) to contribute to the ocean mapping component of [AORA](#) and member states are encouraged to flag their interest.

Further opportunities and strategies for facilitating Canadian and US engagement in EU projects continues to be explored, and are expected to improve in specific funding instruments in future, both in H2020 and in FP9.

ICES participation in Coordination and Support Actions (CSAs) is a good fit for the organization and positions ICES to ensure trans-Atlantic cooperation through greater involvement of CA and US, by providing feedback on how the EU framework can be implemented for greatest impact and engagement with all Atlantic partners.

CSIMTC also supported the idea to create a list of trans-Atlantic reviewers, to be used as a trans-Atlantic service, to facilitate independent review. The ICES Resource Coordination Tool could be helpful and used in this regard.

**Action:** CSIMTC will continue to work on its Terms of Reference during 2018 and will support ICES engagement and response on appropriate CSA project calls, specifically referring to BG1 and BG 8A in the H2020, 2018-2020 programme.

Member Countries, interested in participating in seabed mapping activities in the Northern part of the North Atlantic should contact the two co-chairs, Fritz Köster or Alain Vezina.

## 6 Elections and Appointments

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Vice-Presidents Tammo Bult (NL), Pierre Petitgas (FR), and Kai Myrberg (FI) completed their 3-year terms (Terms ending 31 October 2017).

In accordance with the relevant rules of procedure, following a nomination procedure on the first day of Council, and an electronic voting procedure on the second day, three new Vice-Presidents were elected: Manuela Azevedo (PT), Per Sandberg (NO), and Carl O'Brien (UK) will serve on Bureau from 1 November 2017 – 31 October 2020.

Council thanked the three outgoing Vice-presidents for their valuable contributions and dedication to ICES work.

## 7 ICES Science

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### 7.1 Report from the SCICOM Chair

#### 7.1.1 Annual Progress Report

The Chair of the Science Committee (SCICOM), Simon Jennings, provided a summary report on the 2017 activities of SCICOM as outlined in **CM 2017 Del-7.1.1**.

The presentation highlighted SCICOM and network news in 2017:

- New Steering Group Chairs bedding successfully into roles
- Collective and urgent focus on identifying future science priorities
- EG linked to SCICOM attended by 1035 scientists in 2017 (to date)
- Outputs including books and papers from Expert Groups
- Filling remaining small gaps in delivery of Science Plan
- Four co-sponsored symposia: 2 to come
- ASC 556 attendees from 33 countries, 264 presentations
- ASC 18 Theme Sessions, 14 Open Sessions and 30 business meetings
- ICES published six CRR, two TIMES and three ID leaflets
- Five training courses: 2 to come
- Growing focus on identifying and highlighting strong science in the network
- More active links are being supported between science, advice and data

SCICOM and ACOM are also discussing a plan to bring ACOM expert groups under a new steering group to promote integration between committees. The implementation of a full-time SCICOM Chair is helping to move initiatives forward to embed integration and cooperation with ACOM.

ICES Viewpoints are being developed in three areas: Fish production in the arctic; Consequences of large fish stocks; and vectors and management of invasive species.

Council commended the report from SCICOM, noting the importance of the science priorities work and ensuring coordination between on-going processes at the Council level. The importance of including regional as well as national priorities was also highlighted.



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### 7.1.2 Aquaculture

Wojciech Wawrzynski, Head of Science Support provided Council an update on latest developments within Aquaculture as described in **CM 2017 Del-7.1.2**. The Terms of reference for the Aquaculture Steering Group have been approved by SCICOM and Mike Rust (US) was elected Chair. Council was requested to nominate potential Chairs and members to contribute to the Aquaculture working groups. The UK, Norway, and Ireland all committed to nominating experts to relevant aquaculture working groups.

### 7.1.3 Arctic

The General Secretary provided Council with an update on the latest developments within the Arctic as outlined in **CM 2017 Del-7.1.3.2**, including ICES participation in various meetings under the Arctic Council and the Scientific Experts on Fish Stocks in the Central Arctic Ocean.

Council was requested to help ensure ICES receives an invitation to participate in the 2nd Arctic Science Ministerial meeting, scheduled to take place in Berlin, 25-26 October 2018.

A proposal was developed (**CM 2017 Del-7.1.3.1**) in order to provide Eskild Kirkegaard, ACOM Chair, with a basis to offer the ICES platform for supporting any future joint programme of scientific research and monitoring that may result from the Fifth meeting of the Scientific Fisheries Experts on Fish Stocks in the Central Arctic Ocean (FiSCAO), 24-26 October, Ottawa, Canada. Council supported the revised version of the proposal.

Council agreed with the approach of working within existing structures for supporting science in the Arctic, building on existing cooperation with PICES to include Asian countries to ICES work. The suggestion to investigate the potential of arranging an ICES–PICES meeting with representatives from Asian countries responsible for Arctic issues was also supported. Such a meeting could be planned back to back with the 4th ICES/PICES/IOC/FAO Symposium on Climate Change and Impacts on the World's Oceans, 4–8 June 2018, Washington D.C., USA.

**Action:** Council endorsed the proposal to support Arctic research and/or monitoring programme with an offer of the ICES platform for presentation by Eskild Kirkegaard, ACOM Chair at the 5th FiSCAO meeting, 24-26 October 2017.

The General Secretary will investigate the potential to organize a joint ICES–PICES Arctic meeting inviting representatives from Asian countries.

## 7.2 2017 and forthcoming Annual Science Conferences

The Annual Science Conference in Fort Lauderdale attracted 556 attendees from 33 countries. There was wide engagement of attendees in the meeting with 264 platform presentations in 18 Theme Sessions, as well as 14 open sessions and 30 ICES business and related meetings.

The 2018 Annual Science Conference will be hosted by Germany in Hamburg. The 2019 Annual Science Conference will be hosted by Sweden.

Council discussed the potential to accept invitations to host future ASCs from non-member countries, concluding this could be possible provided it would not limit the potential for scientists and technical staff from member countries to attend.



Potential hosts of future ASCs from non-member countries should be encouraged to participate in ICES activities including the ASC to establish links to the network.

**Action:** Council welcomed:

- The invitation from United Kingdom to host the 2021 Annual Science Conference in Belfast, Northern Ireland.
- The indication by Portugal of its intention to host the ASC in 2020 in Lisbon. This initial indication will be confirmed in advance of the 2018 Council meeting.

## 8 ICES Advisory Services

### 8.1 Report from the ACOM Chair

#### 8.1.1 Annual Progress Report

The Chair of the Advisory Committee, Eskild Kirkegaard, provided a report on the activities of ACOM, with a specific focus on challenges and work plan of the committee as described in **CM 2017 Del-8.1.1**.

Advice issued during 2017 (until September):

Recurrent Advice:

- Advice on fishing opportunities for 207 stocks;
- 3 advice on ecosystem impacts of fishing activities;
- 2 ecosystem and 2 fisheries overviews

Special Requests:

- 22 special requests on impact of fisheries, in-year advice of fishing opportunities, Fmsy ranges, MSFD guidance, pressures and impact on seafloor, evaluation of fisheries management strategies, impacts of climate change on salmon;

Advisory Services:

- 2 technical services.

In order to ensure better support from the community for ecosystem advice, as well as the developing ecosystem and fisheries overviews, the Advisory Committee is looking to make changes to working procedures within the current structure.

Council discussed how they could help support and strengthen the work of the Advisory Committee, the following points were noted:

- ICES is already responding to requests for ecosystem advice, it should build on its reputation for providing ecosystem advice, this will also help to attract the necessary experts to participate in ICES work.
- The source of the problem of lack of engagement within ACOM from alternates/non-fisheries experts is unclear, if related to communication this should be investigated and resolved.
- Professionalization of ACOM leadership may be part of the problem contributing to lack of engagement and buy-in from national representatives on ACOM.
- The role of ACOM member may not be fully understood when they are appointed. A part of the solution will be to try to develop a task list and describe the role and expectations.



- Strengthening the fisheries advice is also important.
- For some countries, the relevant expertise needed is not available/present.
- Support for the approach of avoiding creating additional organizational structures.
- Should consider if the model used for fisheries advice is equally appropriate for non-fisheries advice.
- Special requests provide important financial resources to the organization and cannot simply be refused.
- The business model for the environmental advice should be strengthened by linking to prioritized projects (also as alternative to special requests); consequences of structural changes or changes in work procedure would have influence on the outcomes.

Action: The ACOM Chair will work with ACOM, and engage Council Delegates as necessary to develop job descriptions for Advisory Committee members. Following the meeting the ACOM and SCICOM chairs agreed to provide these position descriptions for review by Bureau at the February 2018 meeting.

Delegates are to help nominate and orient the necessary expertise to support the advisory process for fisheries and ecosystem requests.

Delegates should discuss with national ACOM members about how to ensure ACOM is capable to address fisheries and non-fisheries requests.

### **8.1.2 Progress on the pilot project on update assessments**

Neil Holdsworth, Head of Data and Information reported on the progress of the Transparent Assessment Framework project as described in **CM 2017 Del-9**. The system will make all ICES stock assessment input data, analyses, and results available online. TAF will pipeline the data flow, starting from the ICES fisheries and survey databases and ending by submitting the results to the ICES stock assessment graphs database. By making the analysis open and reproducible, TAF will also make it easier to prepare and run update assessments with a new year of data.

### **8.1.3 Quality assurance in the Advisory Process**

Eskild Kirkegaard, ACOM Chair provided a presentation about the advisory process and how it supports the quality of the advice produced. Several initiatives have been undertaken recently to help support all parts of the advisory process that are within ICES influence.

Model methods sometimes do not reflect the stock status, however ICES continues to make improvements to the system through initiatives like TAF, training, benchmarks, and method groups. The change to a transparent framework for advice has changed the system making it more rigid.

Tammo Bult chaired another interactive session using the mmeet.net software to get feedback from Council on how to improve advice quality.

A majority of participants indicated they were in position that could help steer the quality of the data delivered to ICES as well as the participation in ICES expert groups.

The main concern identified during the session was with problem identification, finding out where/why things went wrong. Errors are increasingly acceptable to discuss, they present an opportunity to improve, ICES should foster this culture to help ensure the advice continues to improve.

During the discussion the following points were noted:

- Errors help us to identify ways to improve. But we should also be able to define when things are going to plan.
- Greater attention to communication is needed. ICES should make a release about the improvements in the system, it would be helpful for Member Countries dealing with specific issues related to errors in the advice.
- Sometimes there is a change in the perception without a change in the biology, further consideration about how to communicate when there is a change in the advice when there is no change in the system is needed.
- The external perception of the Advice is very important and linked to effective communication. The role of an independent external review of advice could be helpful.
- The ICES Cooperative Research Report ([CRR 327](#)) on MSP Quality Management may have relevant reflections.
- Ecosystem issues are not covered by the responses. Model developers should be included in the benchmark process.
- ICES could use the EU Data Collection Framework to influence data quality through the regional coordination groups.

Conclusion of the session:

- Council comprises members able to steer some of the issues of quality within the ICES system
- The potential for a more formalized quality check should be investigated (ISO or similar standard)
- Direction is needed on how to make impact and to communicate with the Delegates on quality improvements.

Action: ACOM will further discuss advice quality and ways to improve at their meeting in November. Bureau will consider the Council discussion and ACOM deliberations and outline specific actions at the June 2018 Bureau meeting.

ACOM, and the Secretariat will issue a communication on improvements in the ICES system in order to ensure quality controlled advice, and the role of the member countries herein by 30 November.

#### 8.1.4 Industry and NGO Expert Participation

At the request of Norway, Council engaged in a discussion regarding the existing ICES observer rules, industry expert participation in the advisory process, and the code of conduct and conflict of interest policy. A background document including a summary of current procedures and issues was submitted in **CM 2017 Del-8.1.4**.

Council discussed the issues and the following points were noted:

- Participation should not be based on “knowing” specific experts or due to a lack of resources.
- The definition of an expert and roles are important in this discussion.

- ICES reputation is paramount. The issues should be addressed noting the strength in the responsibility of Delegates for nominating experts.
- If ICES aims to include the best possible experts, a system is needed that outlines the associated affiliation (who is getting paid by who).
- The current code of conduct should be reviewed and amended as necessary to outline the expectations of behaviour for experts participating in ICES work.
- The existing guidelines have been very helpful when situations have arisen, but it is important for these guidelines to be known to the community and to the Chairs.
- Allowing NGO and industry expert participation makes it harder for them to criticize the outcomes/advice if they have been part of the process.
- The present system was decided by informed decisions. Participation in their capability as scientist should be possible, but should be supported by a transparent process and appropriate handling of CoI. The burden is then on the Chair. Inappropriate behaviour can originate from any scientist.
- The Canadian science advisory process allows industry experts based on that all relevant experts should be included, through a transparent process.
- Chairs need to be informed of the rules.

**Action:** Council established a Working Group on ICES Code of Conduct (CWGCODE) to engage primarily by correspondence during 2017/2018 to review and evaluate ICES procedures related to experts in the advisory process, code of conduct, and conflict of interest. The group will use the existing code of conduct as a starting point.

CWGCODE will provide an update on progress to the February and June Bureau meetings, with the aim to present a proposal for Council decision at the 2018 meeting.

Tammo Bult (NL) will Chair the group with participants: Per Sandberg, Olafur Astthorsson, Pierre Petitgas, Alain Vezina, Chris Zimmermann, Carl O'Brien and/or Matt Gubbins, Eskild Kirkegaard, Simon Jennings, Anne Christine Brusendorff.

## 8.2 Modernization of ICES work processes

The meeting document **CM 2017 Del-8.2** outlines initiatives and investments taken to help modernize working procedures and reduce manual work. The document provided part of the background information for the discussion under AI 8.1.

## 9 Data and Information Services

The Head of Data and Information, Neil Holdsworth provided a 2017 status report on the activities and deliverables by the Data and Information Group and the Data and Information Centre as described in **CM 2017 Del-9**. Reporting that ICES has progressed a significant way along the path to a fully connected and transparent framework for data coming into, and going out of ICES. We are still carrying risk in whether we will be able to deliver all that has been anticipated in the strategic plan, and with Council investment. However, based on the progress outlined in the report, things are currently on track.

Council commended the work conducted, requested clarification on the governance of data and how the quality is assessed and managed. ICES has a continual feedback on the use of the data through the working groups. With feedback received from both formal and informal channels.

The importance of disaggregated data and the need to ensure the data is fit for purpose for assessments and advice was highlighted.

The time consuming data preparation process for the VME database is a work in progress, and the Data and Information Centre together with WGDEC will look into how to improve the process.

## 10 Secretariat

The General Secretary, Anne Christine Brusendorff provided Council with a 2017 status report on the activities and deliverables by the Secretariat as outlined in **CM 2017 Del-10**.

Council was requested to provide feedback on information/report needs related to national participation in ICES activities (to assist with the design of reports to be generated from the Resource Coordination Tool (RCT)).

Volunteers are needed to participate in a pilot project testing a new portal for the nomination of experts in the RCT during 2018.

Council commended the work of the Secretariat towards automation of routine tasks. A report was requested on the development of the staff at the Secretariat over the past 5-10 years to see how the departments and profiles have developed.

### Action:

The Secretariat will present information to Council at the next meeting on the development of the staff at the Secretariat over the past 5-10 years to show the development of the departments and profiles over time.

Delegates from Ireland, Poland, Portugal, UK, and US volunteered to provide feedback on reports from the Resource coordination tool, and the nominations portal, during 2018.

## 11 Any other Business

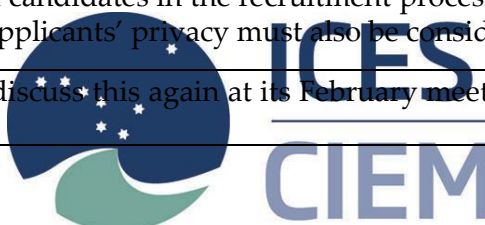
### 11.1 Rules of Procedure

Council delegates discussed a proposal to update the Rules of Procedure, as outlined in **CM 2017 Del-11.1** following the establishment of full-time positions for the SCICOM and ACOM chairs, and their recruitment procedures.

One member country objected to the change citing that the proposed removal of the step in the recruitment process may not provide sufficient “buy-in” from the committees to the process.

Given feedback from candidates in the recruitment process, further consideration of the protection of applicants’ privacy must also be considered.

Action: Bureau will discuss this again at its February meeting, and report back to Council in 2018.



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## 11.2 Conflict of Interest

A new Council working Group on the ICES code of conduct was established (See section 8.1.4 of this report).

## 11.3 Date of the next meeting

The next statutory meeting will take place 17–18 October 2018.

## 11.4 Participants list

Alain Vezina	Canada
Fritz W. Köster	Denmark
Robert Aps	Estonia
Kai Myrberg	Finland
Ari Leskelä	Finland
Pierre Petitgas	France
Christopher Zimmermann	Germany
Gerd Kraus	Germany
Olafur S. Astthorsson	Iceland
Sigurdur Gudjonsson	Iceland
Jeffrey Fisher	Ireland
Michael Gillooly	Ireland
Didzis Ustups	Latvia
Joost Backx	Netherlands
Tammo Bult	Netherlands
Sissel Rogne	Norway
Per Sandberg	Norway
Piotr Margonski	Poland
Maria Ana Martins	Portugal
Manuela Azevedo	Portugal
Cornelius Hammer	President
Oleg Bulatov	Russia
Konstantin Drevetnyak	Russia
Karin Victorin	Sweden
Staffan Danielsson	Sweden
Matthew J. Gubbins	United Kingdom

Carl O'Brien	United Kingdom
William Karp	United States
Jonathan A. Hare	United States
Eskild Kirkegaard	ACOM Chair
Simon Jennings	SCICOM Chair
Anne Christine Brusendorff	ICES Secretariat
Lotte Worsøe Clausen	ICES Secretariat
Neil Holdsworth	ICES Secretariat
Wojciech Wawrzynski	ICES Secretariat
Ellen Johannesen	ICES Secretariat



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### Follow-up from Council meeting 2016

*The Council will be invited to take note that the actions decided at the 2016 Council meeting have been followed-up.*

Item # (from the Council minutes)	Description/Action	Follow-up (Agenda Item # (AI), refer to the Council Agenda)
2.1	Action: Council supported the development of a joint implementation plan for the next strategic planning cycle. In 2017 Council will be requested to consider how to move forward with the ICES strategic plan renewal based on the outcome of the group working on the revision starting January 2017. The group will be led by Fritz Köster, and comprise the Coordination Group. The group will report to the June Bureau meeting.	Progress to be reported under Agenda item 2.1
2.2	<p>Action: Council agreed to the Bureau recommendations:</p> <ul style="list-style-type: none"> <li>- to support the SCICOM proposal to use 500,000 DKK (core funding/annually) for supporting the work of SSG Chairs, and to request SCICOM under the incoming SCICOM Chair to elaborate a work plan and framework administrative guidelines;</li> <li>- to support the SCICOM proposal to use 50,000 DKK (core funding/annually) for a Science Working Group Chairs meeting;</li> <li>- to respond to the SCICOM request for funding of Strategic Initiatives, action areas, and cooperation with scientific partners with a total of 350,000 DKK (from equity) for three years, 2017, 2018, and 2019; and</li> <li>- to discontinue the Science Fund.</li> </ul>	Further update/information on the use of these funds to be provided under 4.3.1.
3.1	<p>Delegates are requested to provide the General Secretary with a feedback via email on the proposal for an increase in national contributions for approval by Council</p> <p>The General Secretary is requested to tailor-make letters in dialogue with the national delegates for their respective ministries in order to help them to convince their minis-tries to agree to the increase in national contributions.</p>	All Member Countries received a personalised letter 30 November 2016.
3.1	<p>Council approved the following investments from equity:</p> <ul style="list-style-type: none"> <li>- Training; awaiting the arrangements for an online course on how to conduct a technical</li> </ul>	<p>Further information to be provided under the related agenda items:</p> <p>Agenda item 10</p>



	<p>meeting, and following feed-back from a number of Expert Working Group Chairs, condensed, digested and more accessible material has been requested. This will be led by the Secretariat Communications department, and will require no additional finances.</p> <p>- ICES coordinated survey data; 300,000 DKK (of the requested 660,000 DKK) were allocated for specific tasks to ensure more comprehensive availability of data and data products including biodiversity related issues (e.g., Large Fish Indicator) in the DATRAS data portal.</p> <p>- Regional Database (RDB) for Commercial Catches; 1,000,000 DKK for ICES use in its strategy to provide quality assured and documented data in the stock assessment work (as outlined in CM 2016 Del-9.2).</p> <p>- The request for investment in Aquaculture; to provide the support needed to further the development of aquaculture as a priority area within ICES, as described in CM Doc 2012 Del-7.1.2, including the support to concrete deliverables (e.g., Aquaculture Over-views) was postponed. The request may be resubmitted following the development of the long-term strategy for ICES Aquaculture work and further specification of the plan.</p>	<p>Agenda item 9</p> <p>Agenda item 9</p> <p>Agenda item 7.1.2</p>
3.2	<p>Action: Council mandated the General Secretary to discuss with DGMARE how to revise the MoU to ensure realization of the full cost recovery principle. Council also mandated the President to sign the 2017 MoU with the EU. Furthermore, the Council mandated the General Secretary to begin negotiations with member countries receiving advice based on recurrent requests.</p>	To be considered under agenda item 3.2.
3.3	<p>Action: The Council approved, based on the current project policy, that ICES proactively seeks the lead on Coordinated Support Action (CSA) projects.</p>	Further updates to be provided under agenda item 3.3.
4	<p>Action: A new Chair for CSIMSFDEA must be identified. Council thanked Eugene Nixon for his contribution.</p>	To be discussed under agenda item 4.
5	<p>Action: CSIMTC will meet in spring 2017 to address its ToRs with focus on how CSIMTC</p>	To be discussed under agenda item 5

	could provide input to the design of a potential common pot of transatlantic research funding (addressing CSIMTC ToR 5). This will include a mapping exercise of current transatlantic research including time frame (addressing CSIMTC ToR 2).	
6.3	Required changes to the Rules of Procedure related to new recruitment procedure for the fulltime ACOM and SCICOM chairs.	To be noted under agenda item 11.1
7.1.2	Action: SCICOM will continue to lead the process on developing a long-term strategy for ICES Aquaculture work and will keep Bureau informed on progress throughout 2017.	To be discussed under agenda item 7.1.2
7.1.3	Action: Council mandated the General Secretary to contact relevant countries to determine if and how they would see the potential for closer collaboration on Arctic issues.	To be discussed under agenda item 7.1.3
8.1.1	Action: The ACOM Chair will with the ACOM leadership consider the current structure of the advisory process and system and consider how it can be more flexible, while ensuring the same scrutiny in the approval process regardless of topic.	To be discussed under Agenda item 8
9.1	Action: Council will reflect on the revised Data Policy and approve the updates by e-voting procedure at the end of November 2016.	The revised Data policy was approved by e-voting procedure.
11.1	Action: The Council adopted the Code of Conduct and Conflict of interest policy as outlined in CM 2016 Del-11.1. The General Secretary and Bureau will consider how to deal with declaration of interests.	An update on implementation will be provided under agenda item 11.2



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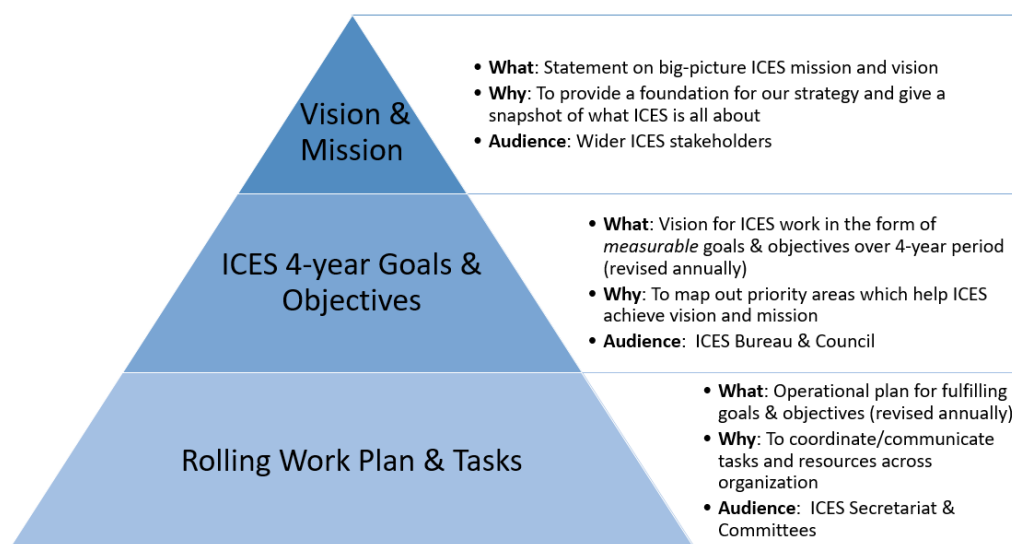
CM 2017 Del-2.1

Agenda item 2.1

## ICES Strategic Plan and implementation plan

*Council delegates will be invited to provide feedback on the objectives and sub-objectives and to consider this in connection with the national science priorities (to be submitted).*

### Components of the Running Strategic Plan



### Main objectives and sub-objectives have been defined:

1. **Strengthen, support, & build capacity in the ICES community** to deliver data, science, and advice related to ecosystem pressures & impacts, processes & dynamics, assessment, observation & monitoring, fisheries, aquaculture, climate change, & society & the sea
  - 1.1 Strengthen the ICES community through cooperation with member countries and engagement with strategic partners
  - 1.2 Support and build capacity in the ICES community - tools, work processes, product delivery, resource planning, and coordination
  - 1.3 Develop and run an engaging training programme
  - 1.4 Develop high-quality actual and virtual meeting facilities and tools
2. Further **develop the ICES data, science, and advisory frameworks** to increase relevance, scope and efficiency, responding to societal and client needs.
  - 2.1 Identify and promote science priorities - national and international
  - 2.2 ICES Action areas - Arctic - Transatlantic
  - 2.3 Develop ICES viewpoints

- 2.4 ICES outputs accessible, interrogatable, metrics of impact
- 2.5 Optimize the efficiency of the advisory system
- 2.6 Develop the advisory framework - facilitate stakeholder engagement
- 2.7 Develop data management frameworks supporting client and network needs
- 2.8 Collaborate with clients and network to define future data needs
- 2.9 Promote science activity and collaboration in support of ICES advice
- 2.10 Strengthen quality assurance, reproducibility, and transparency of science, data, and advice
- 3. Provide and improve **core/recurrent products and services** within advice, data, science, and secretariat.
  - 3.1 Develop topical and engaging ASC programme
  - 3.2 Provide a responsive and stable data platform for enabling seamless access to data and information
  - 3.3 Engage through planning the annual cycle of meetings and workshops
  - 3.4 Provide salient, credible, and legitimate science based advice in response to requests
  - 3.5 Manage the budget to balance available resources and work plans
  - 3.6 Support ICES work force
  - 3.7 Increase ICES impact through communication and publication
  - 3.8 Services at ICES HQ

### Tasks

Coordination Group is now working to allocate tasks under the sub-objectives.

### Proposed Timeline

1. Oct-Dec 2017: Review of 'opportunities' for ICES (Responsible: Secretariat, SCICOM (incl DIG and OG), ACOM, Council)
2. Oct-Dec 2017: Review of science priorities in member countries (Responsible: Secretariat, SCICOM, Council)
3. Jan 2018: Amalgamate outcomes of existing SCICOM review with outputs from network (Responsible: SCICOM, subgroup likely SG Chairs and Secretariat)
4. Jan-Mar 2018: Draft list of priorities, justification, costings with SCICOM 'sign-off' (Responsible: SCICOM)
5. Feb-June 2018: amalgamate Science Priorities into wider planning process (Responsible: Bureau, Council), propose EG and ToR and processes/structures to support delivery of science content of plan (Responsible: SCICOM)
6. Sept 2018: ASC – Present ICES draft strategic plan (Responsible: Bureau, ACOM, SCICOM)
7. Oct 2018: Formal adoption of ICES strategic plan by Council



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Council Meeting

October 2017

CM 2017 Del-3.1

Agenda item 3.1

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## Finance Committee

Finance Committee met 19 June. Bureau reviewed and commented on the report of the Finance Committee at their 20-21 June meeting.

*Council is requested to:*

- ***Approve*** the final accounts 2016, including Audit Book;
- ***Vote*** on the proposed budget for 2018, noting that the national contributions have already been decided; **(CM 2016 Del-3.1.2)**
- ***Vote*** on the proposal to annually inflation regulate national contributions according to the Danish inflation rate.

This compilation includes:

- Forecast Budget 2019
- Final accounts 2016 including:
  - Letter of Representation
  - Statement on the Final Accounts for 2016
  - Final Accounts 2016
  - Audit Book Comments on the Final Accounts 2016
- Report of Finance Committee
- Status Report 30 April 2017
- Proposed Budget 2018 and Forecast Budget 2019 as initially discussed at Finance Committee
- Programme Budgets
- Projects
- Capital Reserve Fund
- Long-term strategy for increases in national contributions
- Development of equity

# Forecast Budget 2019

	Forecast Budget 2019 with 0% increase	Forecast Budget 2019 incl. 2% (based on 2018 0%)	Forecast Budget 2019 incl. 1.3% (based on 2018 inflation rate)
National Contribution	22,363,000	22,791,000	22,657,250
Faroe Islands & Greenland	418,000	426,000	423,500
<b>National Contribution</b>	<b>22,781,000</b>	<b>23,217,000</b>	<b>23,080,750</b>
NEAFC Contribution (Advice)	2,400,525	2,400,525	2,400,525
OSPAR Contribution (Advice and Data)	1,200,000	1,200,000	1,200,000
HELCOM Contribution (Data)	480,000	480,000	480,000
NASCO Contribution (Advice)	549,514	549,514	549,514
Special requests	1,200,000	1,200,000	1,200,000
EC Contribution (Advice)	10,400,000	10,400,000	10,400,000
Norway MoU	844,500	844,500	844,500
<b>Income from Commissions</b>	<b>17,074,539</b>	<b>17,074,539</b>	<b>17,074,539</b>
Project income - hours incl. overhead	2,800,000	2,800,000	2,800,000
ASC income	490,000	490,000	490,000
Income from ICES Journal	1,600,000	1,600,000	1,600,000
Sale of Publications	5,000	5,000	5,000
Income Eurofish	200,000	200,000	200,000
Income Training courses	700,000	700,000	700,000
Miscellaneous income	20,000	20,000	20,000
<b>Other Income</b>	<b>5,815,000</b>	<b>5,815,000</b>	<b>5,815,000</b>
<b>TOTAL INCOME</b>	<b>45,670,539</b>	<b>46,106,539</b>	<b>45,970,289</b>
Salaries - Management and Administration	5,117,497	5,117,497	5,117,497
Salaries - Communications	582,986	582,986	582,986
Salaries - Advisory Programme	7,993,000	7,993,000	7,993,000
Salaries - Science Programme	4,521,697	4,521,697	4,521,697
Salaries - Publications	1,839,343	1,839,343	1,839,343
Salaries - IT	1,931,133	1,931,133	1,931,133
Salaries - Data Centre	10,174,579	10,174,579	10,174,579
<b>Salaries - Total</b>	<b>32,160,235</b>	<b>32,160,235</b>	<b>32,160,235</b>
Fees for External Consultants	250,000	250,000	250,000
Overtime for Gen. Staff	15,000	15,000	15,000
Social activities Cond. /Cond.	65,000	65,000	65,000
Education, Training, Team building	200,000	200,000	200,000
Honorarium ACOM Chair and Vice Chairs	2,279,368	2,279,368	2,279,368
Honorarium SCICOM Chair	1,106,451	1,106,451	1,106,451
ATP Pensions ICES 2/3 share	130,000	130,000	130,000
<b>Salaries</b>	<b>36,206,053</b>	<b>36,206,053</b>	<b>36,206,053</b>
Electricity	200,000	200,000	200,000

Heating	236,000	236,000	236,000
Safety and Security	191,000	191,000	191,000
Cleaning	167,000	167,000	167,000
Stationery	31,000	31,000	31,000
Photocopy and Printer paper	5,000	5,000	5,000
Paper (Letterhead, envelopes etc.)	2,000	2,000	2,000
Postage	50,000	50,000	50,000
		<b>Forecast</b>	<b>Forecast</b>
		<b>Budget 2019</b>	<b>Budget 2019</b>
Telephone, Fax, Etc	0	0	0
Office Equipment (Workplace furniture)	112,000	112,000	112,000
Insurance	288,000	288,000	288,000
Miscellaneous Expenses	121,000	121,000	121,000
Office Maintenance	221,885	221,885	221,885
Facility improvements	223,000	223,000	223,000
Library: Books, Subscriptions	30,000	30,000	30,000
Public Relations (Including souvenir shop)	47,000	47,000	47,000
Accounting and Auditing	91,000	91,000	91,000
Legal Assistance	20,000	20,000	20,000
<b>Office Expenses</b>	<b>2,035,885</b>	<b>2,035,885</b>	<b>2,035,885</b>
Leasing Contracts	1,140,183	1,140,183	1,140,183
Hardware Support Contracts	451,200	451,200	451,200
Software Support Contracts	280,000	280,000	280,000
Software License Contracts	363,000	363,000	363,000
Hardware non-contract	140,000	140,000	140,000
Software non-contract	45,000	45,000	45,000
Outsourcing			
Remote/cloud services	296,000	296,000	296,000
Communication	266,180	266,180	266,180
Domains/certificates	8,000	8,000	8,000
IT-investments			
Consultancies	40,000	40,000	40,000
Other costs	67,700	67,700	67,700
<b>IT Expenses</b>	<b>3,097,263</b>	<b>3,097,263</b>	<b>3,097,263</b>
General Expenses: Transport, Handbooks, Gifts	300,000	300,000	300,000
Travel: Secretariat Staff and Chairs	450,000	450,000	450,000
Host Country Share	160,000	160,000	160,000
Enhance Science/Keynote Speakers	60,000	60,000	60,000
Promotion for Young Scientists	110,000	110,000	110,000
<b>Expenses for ASC</b>	<b>1,080,000</b>	<b>1,080,000</b>	<b>1,080,000</b>
Statutory meeting	15,000	15,000	15,000
President, Bureau + sub Groups	320,000	320,000	320,000
Secretariat travel per Cost Center	685,000	685,000	685,000
External reviewing of assessments/benchmarking	500,000	500,000	500,000
Travel costs for RAC	60,000	60,000	60,000

ACOM travel and meeting costs	311,000	311,000	311,000
ACOM Chairs and vice chairs travel	480,000	480,000	480,000
Advice Drafting Groups travel	1,200,000	1,200,000	1,200,000
SCICOM travel and meeting costs	400,000	400,000	400,000
ICES co-sponsored Symposia	150,000	150,000	150,000
Young scientist conferece			
SCICOM strategic activities			
Leadership/structual changes of Science Travel	550,000	550,000	550,000
Training support for DG MAREs officials	100,000	100,000	100,000
Course income/expenses	620,000	620,000	620,000
<b>Travel and meetings</b>	<b>5,391,000</b>	<b>5,391,000</b>	<b>5,391,000</b>
	<b>Forecast</b>	<b>Forecast</b>	<b>Forecast</b>
	<b>Budget 2019</b>	<b>Budget 2019</b>	<b>Budget 2019</b>
ICES Marine science Symposia	150,000	150,000	150,000
Publications general	97,000	97,000	97,000
ICES Annual Report	90,000	90,000	90,000
ICES Cooperative Research Reports	97,000	97,000	97,000
ICES Leaflets for Plankton and Diseases	12,000	12,000	12,000
ICES Times	11,000	11,000	11,000
ICES Newsletters	0	0	0
ICES Advice Publications	0	0	0
Editor in Chief ICES JMS reimbursement of expenses	50,000	50,000	50,000
ICES Communications	200,000	200,000	200,000
<b>Publications</b>	<b>707,000</b>	<b>707,000</b>	<b>707,000</b>
<b>TOTAL EXPENSES</b>	<b>48,517,201</b>	<b>48,517,201</b>	<b>48,517,201</b>
<b>Operating Result</b>	<b>-2,846,662</b>	<b>-2,410,662</b>	<b>-2,546,912</b>
Interest	-200,000	-200,000	-200,000
Transfer from Equity	-1,275,000	-1,275,000	-1,275,000
<b>Result</b>	<b>-1,371,662</b>	<b>-935,662</b>	<b>-1,071,912</b>
<b>Transferred from Equity:</b>			
<b>RDB</b>			
ACOM assessments workload issue (1.275.000)	-1,275,000	-1,275,000	-1,275,000



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## **Letter of representation on the Final Accounts for 2016**

We submit this letter of representation in connection with your audit of the Final Accounts 2015. The Final Accounts shows a profit of DKK 2.114k, total assets of DKK 50.410k, and equity of DKK 25.381k, and we confirm to the best of our knowledge:

1. That we are aware that Management is responsible for preparing the Final Accounts in accordance with the Rules of Procedures as described in the Summary of significant accounting policies, and for the Final Accounts giving a true and fair view of the organisation's financial position and the results of its activities, and for the General Secretary's review containing a fair review of the affairs and conditions referred to therein.
2. That the Organisation's capital resources, including its financial position, and its future prospects support the application of the principle of going concern.
3. That the management commentary contains all the required information, also for the purpose of evaluating the profit/loss for the year and the financial position.
4. That the General Secretary's review and the Final Accounts comprise the required disclosures about any unusual or uncertain circumstances.
5. That we are aware of Management's responsibility for the design and implementation of internal controls to prevent and detect fraud.
6. That we have disclosed the results of our assessment of the risk that the Final Accounts and the General Secretary's review may be materially misstated as a result of fraud.
7. That we have disclosed all information on known, alleged or suspected fraud that may have involved Management, employees who have significant roles in internal control, or others where the fraud could have a material effect on the annual report.
8. That the Final Accounts does not contain material misstatements.
9. That we have made available all accounting records and supporting documentation up to this date.
10. That the disclosures provided to Deloitte on related parties are correct and complete.

11. That we have provided information about all existing or possible violations of law or other regulations of relevance to the Final Accounts.
12. That the Organisation has complied with all aspects of contractual agreements that could have a material effect on the Final Accounts in the event of non-compliance.
13. That all assets have been recognised in the balance sheet, that these assets exist and belong to the Organisation, and that they have been measured reliably, and also that any impairment losses, etc are adequate to match the risk associated with the assets.
14. That there are no liens or encumbrances etc on the Organisation's assets other than what is disclosed in the Final Accounts.
15. That all existing liabilities and contingent liabilities incumbent on the Organisation have been recognised or disclosed in the Final Accounts, and that these items have been measured reliably.
16. That there are no pending or threatening claims for damages, lawsuits, tax cases, etc or contingent liabilities such as pension, recourse and non-recourse guarantee commitments or financial obligations, including currency exposure and lease commitments, other than those disclosed in the Final Accounts which could have a material influence on the evaluation of the Organisation's financial position.
17. That we have no plans or intentions that may materially alter the carrying value or classification of the assets and liabilities reflected in the Final Accounts.
18. That such insurance policies have been taken out as are considered sufficient in the Organisation's circumstances to cover any situations of loss which the Organisation might experience.
19. That all transactions carried out in the financial year under review have been carried out on an arm's length basis.
20. That no events have occurred after the balance sheet date to this date which influence the evaluation of the Final Accounts, and which require adjustment of or disclosure in the General Secretary's review or notes to the Final Accounts.

Copenhagen, 19 June 2017

International Council for the Exploration of the Sea



Anne Christine Brusendorff, General Secretary



Kirsten Gudmandsen, Finance Officer

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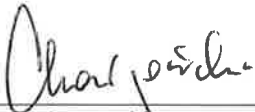
## Statement on the Final Accounts for 2016

This statement is given in connection with the audit of the Final Accounts for 2016. On behalf of the Finance Committee, I confirm the following to the best of my knowledge:

1. That the Finance Committee is aware of Management's responsibility for designing and implementing internal controls to mitigate and detect fraud.
2. That the Finance Committee does not consider a specific risk of fraud to exist and that the organisation has an efficient control environment mitigating the risk of material misstatement in the Final Accounts, including misstatements in the Final Accounts as a result of fraudulent financial reporting or misappropriation of the organisations assets.
3. That the Finance Committee has no knowledge of information about actual, presumed or alleged fraud which may have involved Management or staff and which may be material for the Final Accounts.

Copenhagen, 19 June 2017

International Council for the Exploration of the Sea (ICES)

  
\_\_\_\_\_  
Piotr Margonski  
Chairman of Finance Committee

**International Council for the  
Exploration of the Sea**

H.C. Andersens Boulevard 44 - 46  
1553 København V  
Central Business Registration No  
12063814

**Final Accounts 2016**

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## **Organisation details**

### **Organisation**

International Council for the Exploration of the Sea

Central Business Registration No: 12063814

Registered in: H.C. Andersens Boulevard 44-46, 1553 Copenhagen V, DK

Phone: 0045 3338 6700

Fax: 0045 3393 4215

Internet: [www.ices.dk](http://www.ices.dk)

E-mail: [info@ices.dk](mailto:info@ices.dk)

### **General Secretary**

Anne Christine Brusendorff

### **Finance Committee**

Chair: Piotr Margonski, Poland

Members: Alain Vezina, Canada; Fritz Köster, Denmark; Ari Leskelä, Finland; Tomas Zolubas, Lithuania.

### **Organisation auditors**

Deloitte Statsautoriseret Revisionspartnerselskab

Weidekampsgade 6

Postboks 1600

0900 København C

## **General Secretary's and Finance Committee's statement**

The General Secretary and the Finance Committee have today considered and approved the Final Accounts of International Council for the Exploration of the Sea (hereafter "the Council" or "ICES") for 2016.

The Final Accounts have been prepared in accordance with the Rules of Procedures as described in the Summary of significant accounting policies.

We consider the accounting policies applied appropriate and the accounting estimates made reasonable. Therefore, in our opinion, the Final Accounts give a true and fair view of the financial position at 31 December 2016 of the International Council for the Exploration of the Sea and of the result of its operations for the financial year 1 January to 31 December 2016.

We believe that the General Secretary's review contains a fair review of the affairs and conditions referred to therein.

We recommend that the Final Accounts be adopted.

Copenhagen, 19 June 2017

### **General Secretary**

Anne Christine Brusendorff

Having examined the Final Accounts, we recommend that the Bureau submit the document to the Members of the Council for approval.

### **Finance Committee**

Chair: Piotr Margonski, Poland

Members: Alain Vezina, Canada; Fritz Köster, Denmark; Ari Leskelä, Finland; Tomas Zolubas, Lithuania.

## **Independent auditor's report**

### **To the members of International Council for the Exploration of the Sea Opinion**

We have audited the financial statements of International Council for the Exploration of the Sea for the financial year 01.01.2016 - 31.12.2016, which comprise the income statement, balance sheet, including a summary of significant accounting policies. The financial statements are prepared in accordance with the Rules of Procedures, 22 October 2008, as described in the Summary of significant accounting policies.

In our opinion, the financial statements give a true and fair view of the Entity's financial position at 31.12.2016 and of the results of its operations for the financial year 01.01.2016 - 31.12.2016 in accordance with the Rules of Procedures, 22 October 2008, as described in the Summary of significant accounting policies.

#### **Basis for opinion**

We conducted our audit in accordance with International Standards on Auditing (ISAs) and additional requirements applicable in Denmark. Our responsibilities under those standards and requirements are further described in the Auditor's responsibilities for the audit of the financial statements section of this auditor's report. We are independent of the Entity in accordance with the International Ethics Standards Board of Accountants' Code of Ethics for Professional Accountants (IESBA Code) and the additional requirements applicable in Denmark, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

#### **General Secretary's and Finance Committee's responsibility for the Final Accounts**

The General Secretary and Finance Committees (Management) is responsible for the preparation of Final Accounts that give a true and fair view in accordance with the Rules of Procedures, 22 October 2008, as described in the Summary of significant accounting policies, and for such internal control as Management determines is necessary to enable the preparation of final accounts that are free from material misstatement, whether due to fraud or error.

In preparing the final accounts, Management is responsible for assessing the Entity's ability to continue as a going concern, for disclosing, as applicable, matters related to going concern, and for using the going concern basis of accounting in preparing the final accounts unless Management either intends to liquidate the Entity or to cease operations, or has no realistic alternative but to do so.

#### **Auditor's responsibility**

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Rules of Procedures, 22 October 2008, ISAs and the additional require-



ments applicable in Denmark will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit conducted in accordance with the Rules of Procedures, 22 October 2008, ISAs and the additional requirements applicable in Denmark, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Entity's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by Management.
- Conclude on the appropriateness of Management's use of the going concern basis of accounting in preparing the financial statements, and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Entity to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures in the notes, and whether the financial statements represent the underlying transactions and events in a manner that gives a true and fair view.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

## **Independent auditor's report**

### **Statement on the General Secretary's review**

Management is responsible for the General Secretary's review.

Our opinion on the financial statements does not cover the General Secretary's review, and we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the General Secretary's review and, in doing so, consider whether the General Secretary's review is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated.

Moreover, it is our responsibility to consider whether the General Secretary's review provides the information required under the Rules of Procedures, 22 October 2008.

Copenhagen, 19 June 2017

### **Deloitte**

Statsautoriseret Revisionspartnerselskab  
Central Business Registration No: 33963556

Peter Z. Skanborg  
State Authorised Public Accountant

## General Secretary's review

### General Operating Principles

The operations of the International Council for the Explorations of the Sea (hereafter ICES) are governed by the 1964 Convention agreed among the 20 Contracting Parties<sup>1</sup> and entered into force on 22 July 1968.

According to Article 2 of the Convention ICES shall be concerned with the Atlantic Ocean and its adjacent seas and primarily concerned with the North Atlantic, with the main goal:

- (a) to promote and encourage research and investigations for the study of the sea particularly those related to the living resources thereof;
- (b) to draw up programmes required for this purpose and to organize, in agreement with the Contracting Parties, such research and investigations as may appear necessary;
- (c) to publish or otherwise disseminate the results of research and investigations carried out under its auspices or to encourage the publication thereof.

In addition, the 2002 Copenhagen Declaration stresses the need for ICES to strengthen working relationships with users of scientific information on living marine resources and marine ecosystems, including fisheries management organizations, environmental commissions, as well as with stakeholders that are affected by or have an interest in ICES work, thus requiring that ICES:

- apply a quality assurance scheme for its advisory function;
- adopt procedures to include the full consideration of data from a wide range of stakeholders;
- be flexible and timely in providing scientific advice to meet the needs of decision makers responsible for the stewardship of living marine resources and marine ecosystems without compromising the quality or reliability of the advice;
- ensure that ecosystem considerations, including the effects of human activities and climatic and oceanographic conditions are taken into account; and
- frame advice in relation to fisheries management, giving full consideration to the ecosystem context.

The ICES Secretariat is located in Copenhagen, Denmark. A Host Agreement between the Government of Denmark and ICES on the office and the privileges and immunities entered into force on 24 July 1968.

The Council is an international legal entity with the capacity to enter into contracts, to acquire and dispose of immovable and movable property, and institute legal proceedings. The Council and its property, income and expenditures are also exempt from all national direct and other taxes or duties.

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<sup>1</sup> Belgium, Canada, Denmark, Estonia, Finland, France, Germany, Iceland, Ireland, Latvia, Lithuania, the Netherlands, Norway, Poland, Portugal, Russia, Spain, Sweden, United Kingdom, and the United States of America.

## **General Secretary's review**

### **Primary activities**

The Final Accounts for the year 2016 show total revenue for ICES of 46,345,187 DKK, of which 22,363,000 DKK was from national contributions. Another major component was income received from recipients of scientific advice in the amount of 15,814,970 DKK.

The difference between revenue and expenditures for 2016 resulted in a surplus of 2,114,188 DKK, which will be transferred to Equity. There are a few factors that contributed to this unexpected surplus:

- 1) the new MoU between ICES and Norway, was signed at the end of August, and which generated a new annual income of 831,000 DKK for recurrent advice, and includes a payment scheme for special requests, including aquaculture requests;
- 2) the projects, with final accounting of hours resulting in a greater number of hours billable to projects than predicted in earlier forecasts;
- 3) special requests, e.g. the special request from Norway on the MAREANO Project, special requests from DG ENV, and the data requests from OSPAR. These special requests, including Secretariat time, were not accounted for in the forecast budget and invoices were only received at the end of 2016.

National contributions to ICES are due in advance, or by the end of January of the budget year. By the end of 2016, all national contributions due for budget year 2016 were received, as was the case in the budget year 2015. There are no outstanding contributions from previous years.

### **Development in activities and finances**

In a nine-year period (2009-2017), increases in national contributions were agreed in 2011 (2%) and 2016 (1.9%), in the other years national contributions remained stable. The relative share of national contributions in 2016 was 48%.

On the expenditure side, salaries increased with the cost of living (based on the Danish inflation rate) and with the step increases. The secretariat salary cost in 2016 was 33,393,077 DKK including honorarium for ACOM Chair, ACOM Vice-Chairs, and SCICOM Chair. Following the Council's directions to achieve full cost recovery for the advisory services, an increasing share of the salary costs are covered by MoUs. However, this increases the risk for future budgets in case the renegotiations of the MoUs result in fewer advisory tasks for ICES and lower contributions from the recipients of advice. The current threat category of this risk is consistent with the 20% CRF level.

### **Events after the balance sheet date**

The ICES–EU Administrative Arrangement (MoU) for 2017 was signed 27 February 2017.

**Income statement for 2016**

	<b>Notes</b>	<b>2016 DKK</b>	<b>2015 DKK'000</b>
Contributions from member countries	1	22.363.000	21.935
Contribution from Faeroe Island and Greenland		418.000	410
Recipients of Scientific Advice	2	15.814.970	15.027
Income from Projects		3.412.668	2.631
Other income	3	4.327.222	2.983
Sales of publications		<u>9.327</u>	<u>3</u>
<b>Total revenue</b>		<b><u>46.345.187</u></b>	<b><u>42.989</u></b>
Salaries	4	-33.393.077	-32.286
Office expenses		-1.925.835	-1.217
IT expenses		-2.776.124	-3.077
Expenses for Council and ASC		-1.023.926	-2.212
Travelling and meeting expenses		-4.635.159	-4.538
Publications		<u>-596.142</u>	<u>-250</u>
<b>Total expenditure</b>		<b><u>-44.350.263</u></b>	<b><u>-43.580</u></b>
<b>Result of revenue and expenditure</b>		<b><u>1.994.924</u></b>	<b><u>-591</u></b>
Financial income	5	268.959	92
Financial expenses	6	<u>-149.695</u>	<u>-76</u>
<b>Income over expenditure</b>		<b><u>2.114.188</u></b>	<b><u>-575</u></b>
The years income over expenditure is distributed as follows			
Capital Reserve Fund (equity)		675.500	115
Use of fund "Strategic Investment Fund (equity)		-95.130	-505
Accumulated income over expenditure (equity)		<u>1.533.818</u>	<u>-185</u>
<b>Total</b>		<b><u>2.114.188</u></b>	<b><u>-575</u></b>

**Balance sheet at 31 December 2016**

	<b>Notes</b>	<b>2016 DKK</b>	<b>2015 DKK'000</b>
Capital Reserve Fund – Investment & cash at bank	10	<u>8.577.550</u>	<u>8.475</u>
<b>Non-current assets</b>		<b><u>8.577.550</u></b>	<b><u>8.475</u></b>
Receivable member contribution	7	10.032.000	10.868
Other receivables	8	7.202.245	4.557
Prepayments and accrued income	9	<u>297.972</u>	<u>394</u>
<b>Receivables</b>		<b><u>17.532.217</u></b>	<b><u>15.819</u></b>
<b>Investments</b>	10	<b><u>22.180.579</u></b>	<b><u>22.350</u></b>
<b>Cash at bank and in hand</b>		<b><u>2.119.644</u></b>	<b><u>2.147</u></b>
<b>Current assets</b>		<b><u>41.832.440</u></b>	<b><u>40.316</u></b>
<b>Assets</b>		<b><u>50.409.990</u></b>	<b><u>48.791</u></b>

**Balance sheet at 31 December 2016**

	<b>Notes</b>	<b>2016 DKK</b>	<b>2015 DKK'000</b>
Capital Reserve Fund (CRF)		9.269.060	8.598
Strategic Investment Fund (SIF)		0	95
Accumulated income over expenditure		<u>16.112.111</u>	<u>14.796</u>
<b>Equity</b>	<b>11</b>	<b><u>25.381.171</u></b>	<b><u>23.489</u></b>
Prepaid/pre-invoiced contributions		22.363.000	22.363
Prepaid projects funded by third parties		819.030	2.460
Other payables	<b>12</b>	<u>1.846.789</u>	<u>479</u>
<b>Total short-term liabilities</b>		<b><u>25.028.819</u></b>	<b><u>25.302</u></b>
<b>Equity and liabilities</b>		<b><u>50.409.990</u></b>	<b><u>48.791</u></b>
Additional information			
Lease of IT equipment	<b>13</b>		

## Notes

	<b>2016 DKK</b>	<b>2015 DKK'000</b>
<b>1. Contributions from member countries (shares)</b>		
Belgium (2)	836.000	820
Canada (3)	1.254.000	1.230
Denmark (3)	1.254.000	1.230
Estonia (1)	418.000	410
Finland (1,5)	627.000	615
France (4)	1.672.000	1.640
Germany (4)	1.672.000	1.640
Iceland (3)	1.254.000	1.230
Ireland (2)	836.000	820
Latvia (1)	418.000	410
Lithuania (1)	418.000	410
The Netherlands (3)	1.254.000	1.230
Norway (4)	1.672.000	1.640
Poland (3)	1.254.000	1.230
Portugal (2)	836.000	820
Russia (3)	1.254.000	1.230
Spain (3)	1.254.000	1.230
Sweden (3)	1.254.000	1.230
United Kingdom (4)	1.672.000	1.640
The USA (3)	<u>1.254.000</u>	<u>1.230</u>
	<b><u>22.363.000</u></b>	<b><u>21.935</u></b>
<b>2. Recipients of Scientific Advice</b>		
European Commission	10.446.660	10.447
NEAFC	2.352.063	2.340
OSPAR	1.169.265	1.169
HELCOM	477.562	535
NASCO	538.420	536
Norway	<u>831.000</u>	<u>0</u>
	<b><u>15.814.970</u></b>	<b><u>15.027</u></b>



## Notes

	<b>2016 DKK</b>	<b>2015 DKK'000</b>
<b>3. Other income</b>		
Income from ICES Journal	1.491.650	1.469
Income from Training courses	663.789	447
ASC Fees	652.890	688
Miscellaneous	237.544	84
Special request	<u>1.281.349</u>	<u>295</u>
	<b><u>4.327.222</u></b>	<b><u>2.983</u></b>
<b>4. Salaries</b>		
Salaries are divided as follows:		
Salaries Secretariat	-29.847.244	-29.277
Other salaries relating costs	<u>-778.355</u>	<u>-413</u>
	<b><u>-30.625.599</u></b>	<b><u>-29.690</u></b>
 Honorarium to external Chairs	 <u>-2.767.478</u>	 <u>-2.596</u>
	<b><u>-33.393.077</u></b>	<b><u>-32.286</u></b>
<b>5. Financial income</b>		
Interest	268.802	87
Exchange gains	<u>157</u>	<u>5</u>
	<b><u>268.959</u></b>	<b><u>92</u></b>
<b>6. Financial expenses</b>		
Exchange losses	-45.476	-22
Bank charges	<u>-104.219</u>	<u>-54</u>
	<b><u>-149.695</u></b>	<b><u>-76</u></b>

## Notes

	<b>2016 DKK</b>	<b>2015 DKK'000</b>
<b>7. Receivable member contributions</b>		
Belgium	836.000	836
Denmark	1.254.000	1.254
France	0	1.672
Estonia	418.000	418
Iceland	0	836
Ireland	836.000	0
Latvia	418.000	0
Poland	0	1.254
Portugal	836.000	836
Russia	1.254.000	1.254
Sweden	1.254.000	1.254
Spain	1.254.000	1.254
United Kingdom	1.672.000	0
<b>Related to the following year</b>	<b><u>10.032.000</u></b>	<b><u>10.868</u></b>
<b>8. Other Receivables</b>		
European Commission	4.582.922	3.860
VAT due from the Ministry of Foreign Affairs	645.968	412
Deposits due from parking spaces	6.180	8
Miscellaneous receivables	1.967.175	277
	<b><u>7.202.245</u></b>	<b><u>4.557</u></b>
<b>9. Prepayments and accrued income</b>		
Prepaid pensions	<b><u>297.972</u></b>	<b><u>394</u></b>
<b>10. Investments</b>		

General investment and Capital Reserve Funds are invested in Danish short-term bonds listed on the Copenhagen Stock Exchange.

## Notes

### 11. Equity

	<b>Capital Reserve Fund DKK</b>	<b>Strategic Investment Fund DKK</b>	<b>Accumulated income over Expenditure etc. DKK</b>	<b>Total equity DKK</b>
Equity at 1 January 2016	8.597.818	95.130	14.795.859	23.488.807
Unrealised fair value of bonds	-4.258	0	-217.566	-221.824
Profit/loss for the year	<u>675.500</u>	<u>-95.130</u>	<u>1.533.818</u>	<u>2.114.188</u>
<b>Equity at 31 December 2016</b>	<b><u>9.269.060</u></b>	<b><u>0</u></b>	<b><u>16.112.111</u></b>	<b><u>25.381.171</u></b>

	<b>2016 DKK</b>	<b>2015 DKK'000</b>
<b>12. Other Payables</b>		
Accounts payable	1.749.093	391
Danish State Pension (ATP)	<u>97.696</u>	<u>88</u>
	<b><u>1.846.789</u></b>	<b><u>479</u></b>

### 13. Lease commitments

Lease obligations falling due within:

0-1 years	1.112.788	1.191
1-5 years	1.336.242	2.106
> 5 years	<u>0</u>	<u>0</u>
	<b><u>2.449.030</u></b>	<b><u>3.297</u></b>

## **Accounting policies**

The Final Accounts have been prepared in accordance with Rule 18 of the Rules of Procedures.

The Final Accounts have been presented applying the accounting policies consistently with last year.

## **Recognition and measurement**

Assets are recognised in the balance sheet when future economic benefits are probable and the value of the asset can be measured reliably.

Liabilities are recognised in the balance sheet when it is probable that economic benefits will flow out of the Organisation and when the value of the liability can be measured reliably.

In recognising and measuring assets and liabilities, any gains, losses and risks occurring prior to the presentation of the Final Accounts that evidence conditions existing at balance sheet date are taken into account.

## **Income statement**

### **Contributions and Costs**

Contributions are booked as revenue in the financial year to which they relate. Equally, costs incurred to generate the earnings of the year are recognised in the income statement.

### **Financial income and expenses**

Financial income and expenses comprise interest income and expenses. Realised gains and losses on bonds classified as investments are recognised in the financial year to which they relate. Unrealised gains and losses on bonds classified as investments are recognised directly on equity.

### **Projects funded by third parties**

Revenue from projects funded by third parties is recognised as income at the same time as costs related to the project are incurred as expenses.

Profit or loss on projects funded by third parties is recognised in the income statement when the project is finalised.

## **Accounting policies**

### **Balance sheet**

#### **Non-current assets**

Non-current assets comprise investments and cash at bank dedicated to Capital Reserve Fund.

#### **Investments**

Investments comprising listed bonds are measured at fair value at the balance sheet date, however, at a maximum price of 100, corresponding to the redemption price. Gains and losses on investments from the Capital Reserve Fund and General Fund are recorded in the associated equity accounts. All other gains and losses are recorded in the income statement, except for unrealised fair value adjustments of investments, which are recognised directly on equity.

#### **Receivables**

Receivables are measured at cost. Provisions are made for bad debts.

#### **Unpaid contributions from projects funded by third parties (assets)**

Unpaid contributions from ongoing projects comprise costs related to work performed on projects during which funding is not yet received from third party.

Unpaid contributions are measured at cost.

#### **Prepayments from projects funded by third parties (liabilities)**

Prepayments from projects funded by third parties comprise funds received from third parties regarding projects, which are not finished at the end of the year.

Prepayments from projects funded by third parties are recognised as funds received from third parties.

## **International Council for the Exploration of the Sea**

### **Audit book comments on the Final Accounts 2016**

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## Audit book comments on the Final Accounts for 2016

### 1. Our audit of the Final Accounts

#### 1.1 Final Accounts

We have finalised our audit of the Final Accounts of International Council for the Exploration of the Sea for 2016 presented by the General Secretary and the Finance Committee. The Final Accounts show the following:

	<u>2016</u> <u>TDKK</u>	<u>2015</u> <u>TDKK</u>
Income over expenditure (minus is deficit)	2.114	-575
Assets	50.410	48.791
Equity	25.381	23.489

#### 1.2 Affairs and conditions materially influencing the evaluation of the Final Accounts

Based on our audit, we point out the following particular affairs and conditions of relevance for Management's evaluation of the Final Accounts:

##### 1.2.1 Segregation of duties

As mentioned in our audit book comments of 8 July 2013 issued upon acceptance of the audit, the possibility of preventing material misstatements in the Final Accounts, including misstatements caused by fraud, primarily depends on the extent to which sound internal control is ensured in the organisation of the recording systems and business processes.

We draw attention to the size of ICES's administration and limited resources. Smaller administrations increase the risk of misstatements in the Final Accounts as a result of intentional or unintentional actions or omissions. Any misstatements in the Final Accounts that result from fraud may not necessarily be detected during our audit since misstatement of this nature are usually concealed or hidden.

We point out that these comments should not be taken to mean that our audit revealed specific matters that could indicate irregularities or fraud, but they are intended to emphasise that segregation of duties is usually a material element in the internal control. We also point out that during our audit we did not find any misstatements caused by fraud.

##### 1.2.2. Inquiries of the Executive Board and the Board of Directors about the risk of fraud

We have made inquiries of the General Secretary and the Chairman of the Finance Committee about the Organisation's risk of fraud as well as the internal controls implemented by the Finance Committee



to mitigate such risk. They have informed us that the Finance Committee and the General Secretary do not have any knowledge of actual, presumed or alleged fraud and that no particular risk of material misstatement is estimated to exist in the Organisation's Final Accounts as a result of fraudulent financial reporting or misappropriation of organisation assets. We should point out that, during our audit, we did not identify any misstatements in the Final Accounts caused by fraud.

## **2. Comments on the Final Accounts**

### **2.1 Income statement**

The individual items of the income statement have been reviewed and analysed based on specifications, vouchers and other reconciliation records prepared by ICES. We have taken a number of test samples, made analyses and reconciliations to verify the reliability of the registrations.

We have checked that contributions from member countries are recognized in accordance with agreed amounts at ICES Council. A total of 22,363k have been recognized as income, according to agreement, and has not given rise to any comments.

Recipients of Scientific Advice are recognized in accordance with memorandum of understanding (MoU) between ICES and the donor. A sample of contracts have been reviewed and has not given rise to any comments.

The audit of the revenue did not give rise to any comments.

We have examined costs, and checked against invoices, contracts or other basis. We have compared salary costs to contracts and general agreement.

The audit of expenditure did not give rise to any comments.

### **2.2 Balance sheet**

The 31 December 2016 the Capital Reserve Fund amounts to 9,269 TDKK, corresponding to 20% of total income.

We have compared ICES' investments to confirmation from the bank, which have not given rise to comment.

We have made unannounced cash count on 7<sup>th</sup> of October 2016. The audit did not give rise to any comments.

When auditing cash and cash equivalents we obtained lists of accounts from the organisation's bankers, and we checked the cash at bank as of 31 December.

We have analyzed or reconciled receivables with supporting documentation for 17,532 TDKK recognized in the Final Accounts. The receivables consist primarily of member contribution (10.032 TDKK) and other receivables (7.202 TDKK)

The individual items of the income statement have been reviewed and analysed based on specifications and decisions from the Council, regarding contributions from member countries.

Liabilities have been reconciled to contracts; agreements etc. and consist primarily of pre-invoiced member contributions for the following year.

The audit of the balance sheet did not give rise to any comments.

### **3. Other comments**

#### **3.1 Letter of representation and unadjusted misstatements in the Final Accounts**

As part of our audit of complex areas, the General Secretary has issued a letter of representation to us on the Final Accounts for 2016.

The audit did not give rise to any comments, and no misstatements were found during the audit.

#### **3.2 Insurance**

Our audit did not include insurance taken out by the Organisation. We recommend that the Organisation's insurance cover be reviewed with the insurance organisation or insurance broker at least once a year in order to assess the cover taken out etc., including whether the cover provided by the insurance taken out is adequate, and whether the Organisation may need to take out insurance in special areas.

In connection with the closing of accounts, we asked the General Secretary to confirm that the insurance taken out is considered adequate in view of the Organisation's circumstances to cover potential loss or damage arising in the Organisation.

#### **3.3 General IT controls**

We have not reviewed the Organisation's general IT controls as any weaknesses or inadequacies therein will not in our view cause the Final Accounts to be materially misstated. We recommend that the

Organisation assess whether its back-up procedures are appropriate to ensure restoration of the books of account, if lost.

#### **4. Conclusion**

If the Finance Committee approves the Final Accounts 2016 in its present form, we will provide the Final Accounts with an unqualified auditor's report without emphasis of matter.

#### **5. Objective and scope of the audit, including definition of responsibilities**

Our audit book comments of 19 May 2011 issued upon acceptance of our appointment as auditors contain a description of the objective, scope and performance of our audit, our reporting as well as a definition of the responsibilities of Management and auditors. Please refer to those audit book comments. We recommend that a copy thereof be handed out to any new members of the Finance Committee.

Our audit did not include the General Secretary's review. However, we read the General Secretary's review to ensure that the disclosures in this report are consistent with the financial statements and with the information that came to our knowledge during our audit. Having read the General Secretary's review, we are to issue a statement on whether or not the General Secretary's review is consistent with the Final Accounts. Our statement on the General Secretary's review has to be placed immediately after our auditor's opinion on the Final Accounts.

#### **6. Auditor's declaration**

Pursuant to Danish law, we declare that we comply with the legal requirements of independence and that we have received all the information requested during our audit.

Copenhagen, 19 June 2017

**Deloitte**

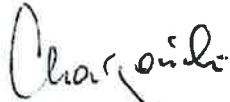
Statsautoriseret Revisionspartnerselskab



Peter Z. Skanborg  
State Authorised Public Accountant

Presented at the Finance Committee' meeting on 19 June 2017

**Finance Committee**



**Piotr Margonski**  
Chair



**Alain Vezina**



**Fritz Köster**



**Ari Leskelä**



**Tomas Zelubas**



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## Report of Finance Committee

Chair: Piotr Margonski

### **1 Approval of Agenda**

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The agenda was approved. (FC\_2017-06 Doc 1)

### **2 Final Accounts 2016, Audit book comments on the Final Accounts 2016, and report**

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(FC\_2017-06 Doc 02)

The Final Accounts 2016 were audited by Deloitte. The members of the Finance Committee reviewed, approved, and signed the Final Accounts 2016 and the Audit book comments on the Final Accounts 2016.

### **3 Status Report as of 30 April 2017**

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Finance Committee noted the status report related to the status of accounts as of 30 April 2017. (FC\_2017-06 Doc 03) The following points were noted:

- Discussed the potential to charge for ICES participation in Advisory boards for projects.
- Income from training is now shown (based on a change advised by the auditors) but the costs are nearly equivalent to the income.
- SCICOM is currently in negotiations around how to use the 550,000 DKK they have been allocated from the core budget to support the science leadership.
- Need to adjust the document – to reflect the reimbursement of the EiC IJMS decided recently (change from 0 to the amount agreed in the contract with Howard Browman; DKK 50.000).
- Discussed the needed input from Finance Committee in advance of the Council meeting and the only change that could significantly alter the current prognosis is an MoU with Iceland.

### **4 Proposed Budget for 2018 and Forecast Budget for 2019**

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#### **4.1 Proposed Budget 2018 and Forecast budget 2019**

(FC\_2017-06 Doc 4.1)

The proposed budget for 2018 was not voted on by Council in October 2016. It was agreed that Delegates would provide the General Secretary with feedback on what strategy would be likely to achieve a “yes” vote for their country by correspondence. The vote on national contributions for 2018 was conducted by e-

voting procedure February 2018. All countries voted, however, the process failed to achieve the 2/3 majority required, resulting in stable contributions for 2018.

Finance Committee discussed various scenarios, in order to balance the proposed 2018 budget.

For the 2019 Forecast Budget a 2% increase is recommended and a fall-back option with no (0%) increase is to be prepared for Council, but again stressing the financial implications of a stable budget, and that ICES has already had a substantial decrease in income, due to stable national contributions in 2010, 2012– 2015, 2017, and 2018.

Action: Finance Committee agreed to submit the forecast budget showing the projected deficit to communicate the growing uncertainty in the budget for 2018 and especially for 2019. Council should be provided some information on the implications, especially given the projection of a 2019 deficit.

## **4.2 Programme/departmental budgets**

(FC\_2017-06 Doc 4.2)

Finance Committee reviewed the programme and departmental budgets.

Noting that some updates were needed to the figures in the document related to the cost recovery percentages. The cost key of share values between recipients of advice needs to be updated to help show what percentage of costs is being recovered, costing of special requests to help improve cost recovery is also underway.

## **4.3 Overview of on-going external projects and external projects in the pipeline.**

(FC\_2017-06 Doc 4.3)

Finance Committee noted the current and planned ICES project participation, highlighting the difficulties in forecasting project income. The COST project is not a traditional project, and it could be considered to report this activity in another way, related to training or capacity improvements in the Secretariat.

## **5 Development of the Capital Reserve Fund (CRF)**

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Finance Committee noted the development of the Capital Reserve Fund. (FC\_2017-06 Doc 5)

At the 2016 Council meeting it was reaffirmed that the level of the Capital Reserve Fund should remain at 20% of income.

## **6 Development of the Strategic Investment Fund (SIF)**

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Finance Committee noted that SIF has been exhausted.

## 7 Strategic Financial Issues

At the 2015 Council meeting it was decided that Finance Committee should take ownership of the ICES Business Model (IBM)<sup>1</sup>, follow the issues, and update as necessary.

### 7.1 Longer-term strategy for achieving increases of National Contributions (FC\_2017-06 Doc 7.1)

Finance Committee discussed options for either annual or other periodical increases with the aim to achieve a longer term strategy for securing increases of National Contributions.

Projections for the budget for 2020 and 2021 begin to show a deficit, assuming that:

- National contributions are stable;
- Income from projects and special requests is the same as in 2019
- The same level of expenditure as in 2019 with an inflation regulation and step increases of the salaries

The Secretariat is pursuing multiple strategies to try to fill the gap, including:

- Negotiating cost recovery for special requests under the EU MoU;
- A new MoU with Iceland.

However, without increased national contributions, ICES will soon be faced with deficit and must have a strategy to solve the problem.

Finance Committee discussed various options that should be further discussed by Bureau:

The Secretariat should engage with Council in advance of the October meeting to urge Council delegates to come equipped with a mandate to vote on the budget. Delegates will be provided with a prognosis showing the coming deficit. The aim being to try to secure the 2% increase in national contributions.

An alternate option could be to add an inflation regulation to the invoice and then either explicitly or implicitly gaining approval for a new strategy that would at least secure an annual increase albeit lower than the 2% increase (better than the record over the past years where we have only secured increases in two years).

### 7.2 Development of Equity

Finance Committee noted the development of equity as described in the document FC\_2017-06 Doc 7.2. No requests for investments from equity have been received, however, strategic initiatives, aquaculture, and strategic plan renewal are areas where further investment may be needed.

Action: Given the importance of ensuring Member country input to the renewal of the strategic plan, Council Delegates will be requested to come to the Council

<sup>1</sup> [https://community.ices.dk/Committees/Council/2015\\_Meeting\\_Docs/Meeting\\_Documents/CM\\_2015\\_Del-3.1\\_CWGIBM.pdf](https://community.ices.dk/Committees/Council/2015_Meeting_Docs/Meeting_Documents/CM_2015_Del-3.1_CWGIBM.pdf)

meeting prepared with a list of high-level priorities (3-5). The Canadian priorities were provided as an example: Marine Protected areas and underwater noise/cumulative effects of shipping on marine mammals.

### 7.3 Participants list

Piotr Margonski

Fritz Köster

Ari Leskelä

Alain Vezina

Anne Christine Brusendorff

Helle Falck

Kirsten Gudmandsen

Ellen Johannesen

**Regrets:** Tomas Zolubas



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## Status Report as of 30 April 2017 (FC 2017-06 Doc 3)

Council approved the final Budget for 2017 by e-voting in 2016. It is the working budget for the Secretariat in 2017. Important activities that result in income and expenditures such as the Annual Science Conference (ASC), Training Programme, Travel and meetings, and project hours are still to come, and a full accounting is only possible at the end of the financial year.

### Comments to the Status of Accounts:

- 1) Income from the European Union is expected to be 10,400,000 DKK in accordance with the signed MoU. The invoice for the first semester will be issued in July. During the annual meeting with the DG MARE Director-General the work load issue related to special requests (currently outside the MoU) was discussed, and the possibility for DGMARE to begin to pay for these requests. No firm agreement was made, but the ICES Secretariat has started costing the special requests, and will issue an invoice to stimulate further discussions.
- 2) Project income for the period January–April is approximately DKK 945,000 based on time recording for on-going projects. The revised project budget income for the whole year 2,880,650 DKK is considered realistic. This figure includes overhead. Doc 4.4 Info on External Projects contains a higher projected project income. Several of the projects payments to ICES are lump sums covering salary and other costs (e.g. travel). The status of the project income will be monitored throughout the year.
- 3) Income from Eurofish represents 10% of certain office expenses.
- 4) Use of equity is in accordance with decisions taken by Council in 2014-2016, and to support:
  - investments in the development of the Regional Fisheries Database;
  - the Early Career Scientists Conference
  - investments in the development of a Transparent Assessment Framework;
  - training courses, and development of on-line course component
  - SCICOM Strategic Initiatives.

	Realised	Forecast	Estimate	Revised
	Jan - Apr 2017	Budget 2017 (CM 2015 DEL-3.4)	2017 with 0% increase	Budget 2017 with 0% increase
National Contribution	22,363,000	22,791,000	22,363,000	22,363,000
Faroe Islands & Greenland	418,000	426,000	418,000	418,000
National Contribution	22,781,000	23,217,000	22,781,000	22,781,000
NEAFC Contribution (Advice)	2,373,937	2,400,000	2,373,937	2,356,743
OSPAR Contribution (Advice and Data)	232,946	1,190,000	1,250,000	1,250,000
HELCOM Contribution (Data)	240,646	470,000	470,000	470,000
NASCO Contribution (Advice)	543,427	550,000	543,427	539,492
Special requests	246,883	250,000	1,221,379	250,000
EC Contribution (Advice)		10,400,000	10,400,000	10,400,000
MoU Norway		0	840,000	840,000
Income from Commissions	3,637,839	15,260,000	17,098,743	16,106,235
Project income - hours incl. overhead	945,285	3,007,953	3,302,789	2,880,650
Project income - Projects in Pipeline	0	1,074,400	0	0
ASC income	1,126	490,000	490,000	490,000
Income from ICES Journal	545,624	1,000,000	1,386,000	1,400,000
Sale of Publications	112	5,000	5,000	5,000
Income Eurofish	69,654	200,000	200,000	200,000
Income Training courses	80,215	700,000	575,000	860,000
Miscellaneous income	18,710	20,000	20,000	20,000
Other Income	1,660,728	6,497,353	5,978,789	5,855,650
<b>TOTAL INCOME</b>	<b>28,079,566</b>	<b>44,974,353</b>	<b>45,858,532</b>	<b>44,742,885</b>
Salaries - Management and Adm. (incl. project assistant in 2017)	1,380,078	6,731,227	5,089,449	5,200,000
Salaries - Communications	175,694	540,000	527,091	529,500
Salaries - Advisory Programme	2,809,967	6,770,125	8,013,178	8,071,000
Salaries - Science Programme	1,198,340	4,600,000	3,969,773	3,535,000
Salaries - Publications	643,048	1,700,000	1,825,804	1,772,000
Salaries - IT	600,673	1,800,000	1,763,075	1,800,000
Salaries - Data Centre	3,285,328	8,400,000	10,175,668	9,624,000
Salaries - Total	10,093,128	30,541,353	31,364,038	30,531,500
Fees for External Consultants	9,797	250,000	250,000	250,000
Overtime for Gen. Staff		15,000	15,000	15,000
Social activities Cond. /Cond.	244	65,000	65,000	65,000
Education, Training, Team building	46,526	200,000	200,000	200,000
Honorarium ACOM Chair and Vice Chairs	741,757	2,200,000	2,200,000	2,200,000
Honorarium SCICOM Chair	325,929	455,000	1,118,610	1,063,500
ATP Pensions ICES 2/3 share	43,298	115,000	115,000	115,000
Salaries	11,260,680	33,841,353	35,327,647	34,440,000
Electricity	-6,812	132,000	180,000	132,000
Heating	49,569	236,000	236,000	236,000
Safety and Security	88,206	191,000	191,000	191,000
Cleaning	53,318	167,000	167,000	167,000
Stationery	5,573	31,000	31,000	31,000
Photocopy and Printer paper		5,000	5,000	5,000
Paper (Letterhead, envelopes etc.)	219	2,000	2,000	2,000
Postage	6,579	100,000	30,000	100,000

Telephone, Fax, Etc	13,607	63,000	56,000	0
Office Equipment (Workplace furniture)	5,602	112,000	112,000	112,000
Insurance	213,800	288,000	288,000	288,000
Miscellaneous Expenses	27,461	121,000	121,000	121,000
Office Maintenance	11,223	81,000	221,885	221,885
Facility improvements	2,830	223,000	223,000	223,000
Library: Books, Subscriptions	2,979	30,000	30,000	30,000
Public Relations (Including souvenir shop)	15,922	47,000	47,000	47,000
Agresso update			120,000	
Accounting and Auditing		91,000	60,000	91,000
Legal Assistance	7,500	20,000	20,000	20,000
<b>Office Expenses</b>	<b>497,575</b>	<b>1,940,000</b>	<b>2,140,885</b>	<b>2,017,885</b>
Leasing Contracts	306,155	1,010,000	1,010,000	1,010,000
Hardware Support Contracts	162,868	470,000	470,000	470,000
Software Support Contracts	126,288	334,000	334,000	334,000
Software License Contracts	5,608	453,000	453,000	453,000
Hardware non-contract	31,846	189,000	189,000	189,000
Software non-contract	2,207	58,000	58,000	58,000
Outsourcing		0	0	0
Remote/cloud services	70,323	80,000	80,000	80,000
Communication	145,894	161,000	161,000	161,000
Domains/certificates	45	8,000	8,000	8,000
IT-investments		0	0	0
Consultancies	16,045	50,000	50,000	50,000
Other costs	20,269	80,000	80,000	80,000
<b>IT Expenses</b>	<b>887,549</b>	<b>2,893,000</b>	<b>2,893,000</b>	<b>2,893,000</b>
General Expenses: Transport, Handbooks, Gifts	8,202	300,000	300,000	300,000
Travel: Secretariat Staff and Chairs	100,282	450,000	450,000	450,000
Host Country Share	0	160,000	160,000	160,000
Enhance Science/Keynote Speakers	0	50,000	50,000	50,000
Promotion for Young Scientists	0	110,000	110,000	110,000
<b>Expenses for ASC</b>	<b>108,484</b>	<b>1,070,000</b>	<b>1,070,000</b>	<b>1,070,000</b>
Statutory meeting	0	15,000	15,000	15,000
President, Bureau + sub Groups	99,253	320,000	320,000	320,000
Secretariat travel per Cost Center	190,758	685,000	685,000	685,000
External reviewing of assessments/benchmarking	626,359	500,000	650,000	500,000
Travel costs for RAC	0	60,000	60,000	60,000
ACOM travel and meeting costs	10,642	300,000	300,000	300,000
ACOM Chairs and vice chairs travel	198,494	480,000	480,000	480,000
Advice Drafting Groups travel	337,084	1,100,000	1,100,000	1,100,000
SCICOM travel and meeting costs	214,370	400,000	400,000	400,000
Strengthening the Science Leadership (travel)	71,507		550,000	550,000
ICES co-sponsored Symposia (per Symposia)	0	75,000	180,000	150,000
Young scientist conference	3,462	450,000	450,000	450,000
SCICOM strategic activities [awaiting SCICOM input]	0	0	0	0
Science Fund [awaiting SCICOM input]		0	0	0
Training support for DG MAREs officials	0	100,000	100,000	100,000
Course income/expenses	66,178	620,000	795,000	620,000
<b>Travel and meetings</b>	<b>1,818,107</b>	<b>5,105,000</b>	<b>6,085,000</b>	<b>5,730,000</b>

ICES Marine science Symposia	0	160,000	160,000	160,000
Publications general	0	80,000	80,000	80,000
ICES Annual Report	2,485	80,000	80,000	80,000
ICES Cooperative Research Reports		82,000	82,000	82,000
ICES Leaflets for Plankton and Diseases	5,000	21,000	21,000	21,000
ICES Times	10,000	12,000	12,000	12,000
ICES Newsletters	0	40,000	40,000	40,000
ICES Advice Publications	0	0	0	0
Editor in Chief ICES JMS reimbursement of expenses	3,984	0	50,000	0
ICES Communications	27,683	200,000	200,000	200,000
Publications	49,152	675,000	725,000	675,000
<b>TOTAL EXPENSES</b>	<b>14,621,547</b>	<b>45,524,353</b>	<b>48,241,532</b>	<b>46,825,885</b>
<b>Operating Result</b>	<b>13,458,020</b>	<b>-550,000</b>	<b>-2,383,000</b>	<b>-2,083,000</b>
Interest	-55,431	-100,000	-100,000	-100,000
Transfer from Equity		-450,000	-2,283,000	-1,983,000
<b>Result</b>	<b>13,513,450</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Transferred from Equity:</b>				
Training courses e-voting July/August 2015			-300,000	
Regional database			-258,000	-258,000
Young Scientists Conference		-450,000	-450,000	-450,000
Assessments workload issue - data and advice (1.275.000 - salary and relocation/two P2_I's in Secretariat) Allocated 5.100.622			-1,275,000	-1,275,000

## Proposed Budget 2018 and Forecast budget 2019

### Proposed budget 2018

Following the e- voting on national contributions in February 2017, which led to 0% (stable contributions) again in 2018, the proposed budget for 2018 have been prepared.

The following is worth noting:

#### INCOME:

- From special requests have been estimated to 1,250,000, the major part of which stems from DGMARE payment for special requests (outside the MoU)
- From projects, is based on estimated hours that secretariat staff will be involved in projects. Additionally, 400,000 DKK has been estimated from projects in the pipeline.

#### EXPENSES

- Have overall been kept at the same level, apart from a small increase in IT expenses, an increase from one to two symposia, and an increase in the office expenses

#### OPERATING RESULT

- The two unknowns, the size of income from projects and special requests, makes it difficult to ensure a neutral operating result (balanced budget).
- While it could be possible to revise the proposed budget to reflect a neutral operating result, the actual budget result will depend on how much of the estimated project and special requests income will be realized.

### Draft forecast budget 2019

In the draft forecast budget for 2019 a 2% increase in the national contributions has been assumed.

Comments, similar to the proposed budget 2018, apply to the draft forecast budget 2019. Specifically for the income it is though worth noting:

#### INCOME:

- The same preconditions apply for special requests and projects, although for projects we only have knowledge about income of around 1.3 million DKK, but assume that we will reach around 2.8 million DKK

Leaving aside the uncertainties regarding project and special request income, it becomes harder to balance the budget, especially if a 2% increase in the national contributions is not secured.

	Forecast	Revised	Forecast
	Budget 2018 incl 2%	Budget 2018 incl 0%	Budget 2019 incl. 2% (based on 2018 0%)
National Contribution	23,272,500	22,363,000	22,791,000
Faroe Islands & Greenland	435,000	418,000	426,000
National Contribution	23,707,500	22,781,000	23,217,000
NEAFC Contribution (Advice)	2,424,000	2,400,525	2,400,525
OSPAR Contribution (Advice and Data)	1,200,000	1,200,000	1,200,000
HELCOM Contribution (Data)	470,000	480,000	480,000
NASCO Contribution (Advice)	555,000	549,514	549,514
Special requests	250,000	1,200,000	1,200,000
EC Contribution (Advice)	10,400,000	10,400,000	10,400,000
Norway MoU	844,500	844,500	844,500
Income from Commissions	16,143,500	17,074,539	17,074,539
Project income - hours incl. overhead	2,697,000	2,875,774	2,800,000
ASC income	490,000	490,000	490,000
Income from ICES Journal	1,600,000	1,600,000	1,600,000
Sale of Publications	5,000	5,000	5,000
Income Eurofish	200,000	200,000	200,000
Income Training courses	700,000	700,000	700,000
Miscellaneous income	20,000	20,000	20,000
Other Income	5,712,000	5,890,774	5,815,000
<b>TOTAL INCOME</b>	<b>45,563,000</b>	<b>45,746,313</b>	<b>46,106,539</b>
Salaries - Management and Administration	5,261,000	4,976,529	5,117,497
Salaries - Communications	578,000	555,806	582,986
Salaries - Advisory Programme	8,227,000	7,634,423	7,993,000
Salaries - Science Programme	3,835,000	4,310,308	4,521,697
Salaries - Publications	1,835,600	1,765,158	1,839,343
Salaries - IT	1,915,741	1,842,005	1,931,133
Salaries - Data Centre	9,709,000	10,790,982	10,174,579
Salaries - Total	31,361,340	31,875,211	32,160,235
Fees for External Consultants	250,000	250,000	250,000
Overtime for Gen. Staff	15,000	15,000	15,000
Social activities Cond. /Cond.	65,000	65,000	65,000
Education, Training, Team building	200,000	200,000	200,000
Honorarium ACOM Chair and Vice Chairs	2,324,000	2,234,570	2,279,368
Honorarium SCICOM Chair	1,128,200	1,084,705	1,106,451
ATP Pensions ICES 2/3 share	115,000	130,000	130,000
Salaries	35,458,540	35,854,486	36,206,053
Electricity	165,000	200,000	200,000
Heating	236,000	236,000	236,000
Safety and Security	191,000	191,000	191,000
Cleaning	167,000	167,000	167,000
Stationery	31,000	31,000	31,000
Photocopy and Printer paper	5,000	5,000	5,000
Paper (Letterhead, envelopes etc.)	2,000	2,000	2,000
Postage	100,000	50,000	50,000

	Forecast Budget 2018 incl 2%	Revised Budget 2018	Forecast Budget 2019
Telephone, Fax, Etc	0	0	0
Office Equipment (Workplace furniture)	112,000	112,000	112,000
Insurance	288,000	288,000	288,000
Miscellaneous Expenses	121,000	121,000	121,000
Office Maintenance	101,259	221,885	221,885
Facility improvements	10,400	223,000	223,000
Library: Books, Subscriptions	30,000	30,000	30,000
Public Relations (Including souvenir shop)	47,000	47,000	47,000
Accounting and Auditing	91,000	91,000	91,000
Legal Assistance	20,000	20,000	20,000
<b>Office Expenses</b>	<b>1,717,659</b>	<b>2,035,885</b>	<b>2,035,885</b>
Leasing Contracts	1,095,000	1,139,041	1,140,183
Hardware Support Contracts	342,600	451,200	451,200
Software Support Contracts	333,000	280,000	280,000
Software License Contracts	412,000	352,000	363,000
Hardware non-contract	185,000	140,000	140,000
Software non-contract	52,000	45,000	45,000
Outsourcing	0		
Remote/cloud services	112,600	292,000	296,000
Communication	239,000	265,180	266,180
Domains/certificates	8,000	8,000	8,000
IT-investments	0		
Consultancies	50,000	40,000	40,000
Other costs	72,600	66,300	67,700
<b>IT Expenses</b>	<b>2,901,800</b>	<b>3,078,721</b>	<b>3,097,263</b>
General Expenses: Transport, Handbooks, Gifts	300,000	300,000	300,000
Travel: Secretariat Staff and Chairs	450,000	450,000	450,000
Host Country Share	160,000	160,000	160,000
Enhance Science/Keynote Speakers	60,000	60,000	60,000
Promotion for Young Scientists	110,000	110,000	110,000
<b>Expenses for ASC</b>	<b>1,080,000</b>	<b>1,080,000</b>	<b>1,080,000</b>
Statutory meeting	15,000	15,000	15,000
President, Bureau + sub Groups	320,000	320,000	320,000
Secretariat travel per Cost Center	685,000	685,000	685,000
External reviewing of assessments/benchmarking	500,000	500,000	500,000
Travel costs for RAC	60,000	60,000	60,000
ACOM travel and meeting costs	300,000	300,000	311,000
ACOM Chairs and vice chairs travel	480,000	480,000	480,000
Advice Drafting Groups travel	1,100,000	1,100,000	1,200,000
SCICOM travel and meeting costs	400,000	400,000	400,000
ICES co-sponsored Symposia	75,000	150,000	150,000
Young scientist conference			
SCICOM strategic activities			
Leadership/structural changes of Science Travel	550,000	550,000	550,000

Training support for DG MAREs officials	100,000	100,000	100,000
Course income/expenses	620,000	620,000	620,000
Travel and meetings	5,205,000	5,280,000	5,391,000
	<b>Forecast Budget 2018 incl 2%</b>	<b>Revised Budget 2018</b>	<b>Forecast Budget 2019</b>
ICES Marine science Symposia	160,000	160,000	150,000
Publications general	80,000	80,000	97,000
ICES Annual Report	80,000	80,000	90,000
ICES Cooperative Research Reports	82,000	82,000	97,000
ICES Leaflets for Plankton and Diseases	21,000	21,000	12,000
ICES Times	12,000	12,000	11,000
ICES Newsletters	40,000	0	0
ICES Advice Publications	0	0	0
Editor in Chief ICES JMS reimbursement of expenses	0	50,000	50,000
ICES Communications	200,000	200,000	200,000
Publications	675,000	685,000	707,000
<b>TOTAL EXPENSES</b>	<b>47,037,999</b>	<b>48,014,092</b>	<b>48,517,201</b>
<b>Operating Result</b>	<b>-1,474,999</b>	<b>-2,267,779</b>	<b>-2,410,662</b>
Interest	-200,000	-200,000	-200,000
Transfer from Equity	-1,275,000	-1,736,030	-1,275,000
<b>Result</b>	<b>0</b>	<b>-331,749</b>	<b>-935,662</b>
<b>Transferred from Equity:</b>			
<b>RDB</b>		-461,030	
ACOM assessments workload issue (1.275.000)	-1,275,000	-1,275,000	-1,275,000



## Programme/Departmental Budgets

### Overall costs and realized income for the ICES Advisory system

The tables below shows the realized income and the actual cost for the delivery of recurrent advisory products (2015 and 2016 figures), including data services, as well as the estimated figures for 2017.

**Table 1 Overview of realized income and costs for recurrent advice, in million DKK – for 2015**

Client	Income	Direct costs	Indirect costs	Total costs	Balance
EU	10,4	12,0	2,5	14,5	- 3,9
NEAFC and NASCO	2,9	2,5	0,6	3,1	-0,2
Total	13,3	14,5	3,1	17,6	-4,1

**Table 2 Overview of realized income and costs for recurrent advice, in million DKK – for 2016**

Client	Income	Direct costs	Indirect costs	Total costs	Balance
EU	10,4	12,3	2,2	14,5	-4,1
NEAFC, NASCO and Norway	3,7	2,9	0,7	3,6	+0,1
Total	14,1	15,2	2,9	18,1	-4,0

**Table 3 Overview of estimated income and costs for recurrent advice, in million DKK – for 2017**

Client	Income	Direct costs	Indirect costs	Total costs	Balance
EU	10,4	10,9	2,3	13,2	-2,8
NEAFC, NASCO and Norway	3,8	2,8	0,7	3,5	+0,3
Total	14,2	13,7	3,0	16,7	-2,5

	INCOME	COST	INCOME	COST	INCOME	COST	INCOME	COST
	2016	2016	2017	2017	2018	2018	2019	2019
<b>ADVISORY PROGRAMME</b>								
Contribution from NEAFC	2,352,063		2,373,937		2,400,525		2,400,525	
Contribution from OSPAR (Advice)	608,018		643,000		612,000		612,000	
Contribution from HELCOM (Advice)	0		0		0		0	
Contribution from NASCO	538,420		543,427		549,514		549,514	
Contribution from EC	10,446,660		10,400,000		10,400,000		10,400,000	
Income from Projects	0		195,000		0		0	
Special requests	951,996		1,221,379		1,200,000		1,200,000	
Norway MoU	831,000		840,000		844,500		844,500	
<b>Direct Advisory income</b>	<b>15,728,157</b>		<b>16,216,743</b>		<b>16,006,539</b>		<b>16,006,539</b>	
Secretariat travel for advice		311,798		390,000		390,000		390,000
External reviewing of Assessment		508,774		650,000		500,000		500,000
Travel cost for RAC		32,452		60,000		60,000		60,000
ACOM TRAVEL		268,396		300,000		300,000		311,000
ACOM Chairs and vice chairs Travel		421,792		480,000		480,000		480,000
Advice drafting Groups Travel		1,249,228		1,100,000		1,100,000		1,200,000
ICES Advice Publications		0				0		0
Training support to DG MARE's officials		83,590		100,000		100,000		100,000
Budgeted salaries		7,629,118		8,013,178		7,634,423		7,993,000
ACOM Chair and vice-chairs honorarium		2,169,888		2,200,000		2,234,570		2,279,368
Demonstration advice								
External Contracts		42,279		250,000		250,000		250,000
<b>Direct advisory cost</b>		<b>12,717,315</b>		<b>13,543,178</b>		<b>13,048,993</b>		<b>13,563,367</b>
<b>Total Advisory cost</b>		<b>15,136,645</b>		<b>16,087,432</b>		<b>15,618,709</b>		<b>16,179,281</b>
<b>SCIENCE PROGRAMME</b>	<b>INCOME</b>	<b>COST</b>	<b>INCOME</b>	<b>COST</b>	<b>INCOME</b>	<b>COST</b>	<b>INCOME</b>	<b>COST</b>
	<b>2016</b>	<b>2016</b>	<b>2,017</b>	<b>2,017</b>	<b>2018</b>	<b>2018</b>	<b>2019</b>	<b>2019</b>
Income from Projects	1,337,354		1,751,000		1,649,066		916,317	
Income Training courses	663,789		575,000		700,000		700,000	
ASC Income (Fees)	652,890		490,000		490,000		490,000	
<b>Direct Science income</b>	<b>2,654,033</b>		<b>2,816,000</b>		<b>2,839,066</b>		<b>2,106,317</b>	
ASC General expenses		156,626		300,000		300,000		300,000
Secretariat travel		146,035		100,000		100,000		100,000
Travel ASC		292,705		450,000		450,000		450,000
ASC Keynote Speakers		100,443		50,000		60,000		60,000
Host Country of ASC Fee		351,864		160,000		160,000		160,000
Young Scientists at ASC		122,288		110,000		110,000		110,000
Symposia		180,238		180,000		150,000		150,000
SCICOM travel and meeting		320,360		400,000		400,000		400,000

Strengthening Science Leadership travel				550,000		550,000		550,000
Training Programme		670,827		795,000		620,000		620,000
Science Fund		0						
SCICOM strategic initiatives		123,601						
Young Scientist Conference				450,000		0		0
Internal/External review of ICES Science travel								
Leadership/structural changes of Science Travel								
Budgeted Salaries		4,142,187		3,969,773		4,310,308		4,521,697
Chair of SCICOM		597,590		1,118,610		1,084,705		1,106,451
<b>Direct Science cost</b>		<b>7,204,764</b>		<b>8,633,383</b>		<b>8,295,013</b>		<b>8,528,148</b>
<b>Total Science cost</b>		<b>8,414,429</b>		<b>9,830,679</b>		<b>9,693,241</b>		<b>9,951,512</b>
<b>PUBLICATIONS AND COMMUNICATIONS</b>	<b>INCOME</b>	<b>COST</b>	<b>INCOME</b>	<b>COST</b>	<b>INCOME</b>	<b>COST</b>	<b>INCOME</b>	<b>COST</b>
	<b>2016</b>	<b>2016</b>	<b>2017 0%</b>	<b>2017 0%</b>	<b>2018</b>	<b>2018</b>	<b>2019</b>	<b>2019</b>
Income from <i>ICES Journal of Marine Science</i>	1,491,650		1,386,000		1,600,000		1,600,000	
Sale of Publications	9,327		5,000		5,000		5,000	
<b>Direct publication and communication income</b>	<b>1,500,977</b>		<b>1,391,000</b>		<b>1,605,000</b>		<b>1,605,000</b>	
Library		34,176		30,000		30,000		30,000
ICES Marine Science Symposia Publications				160,000		160,000		150,000
Publications general		39,837		80,000		80,000		97,000
ICES Annual Report		52,691		80,000		80,000		90,000
ICES Cooperative Research Reports		67,743		82,000		82,000		97,000
ICES Leaflets for Plankton and Diseases		12,335		21,000		21,000		12,000
ICES TIMES		10,000		12,000		12,000		11,000
ICES Newsletters INSIGHT				40,000		0		0
ICES Communications		413,533		200,000		200,000		200,000
Secretariat travel		15,902		18,000		18,000		18,000
Editor in Chief ICES JMS				50,000		50,000		50,000
Budgeted Salaries		2,549,849		2,352,895		2,320,964		2,422,329
<b>Total Publication and communication cost</b>		<b>3,196,066</b>		<b>3,125,895</b>		<b>3,053,964</b>		<b>3,177,329</b>
<b>Total Publication cost</b>		<b>3,800,899</b>		<b>4,061,283</b>		<b>3,998,713</b>		<b>4,139,062</b>

DATA CENTRE	INCOME	COST	INCOME	COST	INCOME	COST	INCOME	COST
	2016	2016	2017 0%	2017 0%	2018	2018	2019	2019
Contribution from OSPAR	561,247		607,000		588,000		588,000	
Contribution from HELCOM	477,562		470,000		480,000		480,000	
Income from Projects	2,075,313		1,356,789		1,226,708		1,883,683	
Special request	329,353							
<b>Direct Data Centre income</b>	<b>3,443,475</b>		<b>2,433,789</b>		<b>2,294,708</b>		<b>2,951,683</b>	
Secretariat travel		35,518		63,000		63,000		63,000
Budgeted salaries		9,743,512		10,175,668		10,790,982		10,174,579
<b>Total Data Centre cost</b>		<b>9,779,030</b>		<b>10,238,668</b>		<b>10,853,982</b>		<b>10,237,579</b>
<b>Total Data Centre cost</b>		<b>12,198,360</b>		<b>13,231,909</b>		<b>13,499,278</b>		<b>12,930,431</b>
IT INFRASTRUCTURE	INCOME	COST	INCOME	COST	INCOME	COST	INCOME	COST
	2016	2016	2017 0%	2017 0%	2018	2018	2019	2019
<b>Direct income IT</b>	<b>0</b>				<b>0</b>		<b>0</b>	
Hardware Leasing		966,130		1,010,000		1,139,041		1,140,183
Software licenses, external support contracts		884,496		1,257,000		1,083,200		1,094,200
Purchase of soft and hardware		333,432		247,000		185,000		185,000
Consultancies		112,315		50,000		40,000		40,000
Various expense		479,746		329,000		631,480		637,880
IT-investment		0				0		0
Budgeted salaries		1,721,385		1,763,075		1,842,005		1,931,133
<b>Total IT cost</b>		<b>4,497,504</b>		<b>4,656,075</b>		<b>4,920,726</b>		<b>5,028,396</b>
<b>Total IT cost</b>		<b>4,799,920</b>		<b>5,030,230</b>		<b>5,298,625</b>		<b>5,413,089</b>
SECRETARIAT, COUNCIL, BUREAU	INCOME	COST	INCOME	COST	INCOME	COST	INCOME	COST
	2016	2016	2017 0%	2017 0%	2018	2018	2019	2019
National contributions	22,363,000		22,363,000		22,363,000		22,791,000	
Faroe and Greenland	418,000		418,000		418,000		426,000	
Income Eurofish	205,304		200,000		200,000		200,000	
Miscellaneous income	32,240		20,000		20,000		20,000	

Income from projects								
<b>Total general income</b>	<b>23,018,544</b>		<b>23,001,000</b>		<b>23,001,000</b>		<b>23,437,000</b>	
Office expenses		1,891,661		2,110,885		2,005,885		2,005,885
Statutory meeting		11,606		15,000		15,000		15,000
Travel Bur., Pres.,		278,537		320,000		320,000		320,000
Secretariat travel		60,094		114,000		114,000		114,000
<b>General direct cost</b>		<b>2,241,898</b>		<b>2,559,885</b>		<b>2,454,885</b>		<b>2,454,885</b>
Budgeted salaries		4,370,067		5,089,449		4,976,529		5,117,497
Overtime (all programs)		4,187		15,000		15,000		15,000
Education and training (all)		211,422		265,000		265,000		265,000
Danish state pension (all)		128,000		115,000		130,000		130,000
<b>Total general cost</b>		<b>6,955,574</b>		<b>8,044,334</b>		<b>7,841,414</b>		<b>7,982,382</b>



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## Overview of on-going external projects and projects in the pipeline

*Finance Committee is invited to take note of current and planned ICES project participation.*

ESTIMATED PROJECT INCOME 2017, 2018, 2019

	Project	Est. Personnel & Overhead Costs 2017	Est. Personnel & Overhead Costs 2018	Est. Personnel & Overhead Costs 2019	Est. Personnel & Overhead Costs 2020
Hours Dependent Projects	2016-ETC ICM	835.648	669.068		
	2024-COFASP	42.718			
	2032-MAREFRAME	42.582			
	2033-AORAC	661.467	694.797	721.317	307.166
	2034-AtlantOS	405.343	209.572	108.358	
	2035-COLUMBUS	49.524	55.199		
	2036-BlueBridge	757.660	304.069		
	2038-TaPaS	10.343			
	2039-ClimeFish	195.000	195.000	195.000	
Lump Sum 1	2040-EMODIng	57.263	84.680	0	
	2042-SeaDataCloud	78.199	79.972	81.792	
	2043-EMODnet Biology III	59.765	69.839	71.204	
	2044-EMODnet Chemistry III	107.277	113.577	120.041	
<b>TOTAL</b>		3,302,789	2,475,774	1,297,711	307,166

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1 Lump sum indicates that ICES receives a lump sum for the work to cover travel and salary costs.



PROJECTS WITH NO ELIGIBLE COSTS				
Project Name	Project Period	ICES Stakeholders	Max Lifetime Grant	Est. Hours per year
COST Machine learning ( <i>Machine learning and intelligent systems for the marine sciences</i> )	Late 2016 - 2020	SCICOM ( 'Big Data'/'Machine learning) EWGs Training courses	none	ICES would plan to contribute from its working time ca. 200 hours per year to this project
LME LEARN	October 2016 - March 2019		888,269	Only "Other Costs (training courses, travel, meeting rooms)" - no income

PROJECTS IN PIPELINE				
Project Name	Project Period	ICES Stakeholders	Max Lifetime Grant	Est. Year Hours
H2020 IMPROFISH 'Improving biological knowledge and management in European fisheries' SFS-21	2018-2021	Wojciech	Unknown at this stage	
H2020 PANDORA 'Paradigm for Novel Dynamic Oceanic Resource Assessments' SFS-21	2018-2021	Mark	Unknown at this stage	
H2020 NEW OCEANIDES 'A multi-stakeholder strategy for underpinning research and innovation on interactions between oceans and human health'	2018-2021	Wojciech	80k EUR	

## Capital Reserve Fund

The Capital Reserve Fund (CRF) was established in the early 1970s to balance short-term liquidity matters, to meet budgetary appropriations and unforeseen, or other authorised, purposes. According to a 2010 Council decision, reaffirmed in 2016, its size is targeted to be 20% of **total income**. The development of the CRF is presented in the table below.

By the end of 2016, the CRF was at 9,269,060 DKK and invested in Danish short-term bonds listed on the Copenhagen Stock Exchange.

Development of the CRF Fund:

Date	CRF	% of Salaries	% of Natl Contrib. and MoU	% of/Total Income
31-Dec-00	2,014,176	12%	9%	7%
31-Dec-01	2,049,523	12%	9%	7%
31-Dec-02	2,094,547	12%	9%	8%
31-Dec-03	2,544,466	13%	11%	9%
31-Dec-04	2,644,505	14%	10%	9%
31-Dec-05	3,128,999	17%	12%	10%
31-Dec-06	3,783,990	20%	14%	11%
31-Dec-07	3,891,756	19%	13%	11%
31-Dec-08	5,358,686	25%	17%	15%
31-Dec-09	5,815,970	26%	18%	16%
31-Dec-10	7,992,824	36%	25%	20%
31-Dec-11	8,181,711	32%	23%	20%
31-Dec-12	8,410,096	30%	23%	20%
31-Dec-13	5,392,023	17%	15%	13% <sup>1</sup>
31-Dec-14	8,400,909	26%	23%	20%
31-Dec-15	8,597,818	27%	23%	20%
31-Dec-16	9,269,060	28%	24%	20%

<sup>1</sup> Due to late payment of national contributions, money was borrowed, with security in bonds in the Capital Reserve Fund (repo), in order to maintain normal operations. The money was repaid in March 2014.



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## Long-term strategy for achieving increases of national contribution

The overview below is based on the following assumptions for 2020 and 2021:

- Stable national contributions
- The same level of income, meaning specifically the same assumptions for income from projects and special requests as in 2019
- The same level of expenditure as in 2019 with an inflation regulation and step increases of the salaries
- Increasing deficit due to non-coverage of expenses from equity

Revised Budget 2017 with 0% increase	Forecast Budget 2018 with 0% increase	Forecast Budget 2019 with 2% increase	Forecast Budget 2020 with 0% increase	Forecast Budget 2021 with % increase
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National Contribution	22,781,000	22,781,000	23,217,000	23,217,000	23,217,000
Income from Commissions	16,106,235	17,074,539	17,074,539	17,074,539	17,074,539
Other Income	5,855,650	5,890,774	5,815,000	5,815,000	5,815,000
<b>TOTAL INCOME</b>	<b>44,742,885</b>	<b>45,746,313</b>	<b>46,106,539</b>	<b>46,106,539</b>	<b>46,106,539</b>

Salaries	34,440,000	35,854,486	36,206,053	35,811,065	36,391,318
Office Expenses	2,017,885	2,035,885	2,035,885	2,035,885	2,035,885
IT Expenses	2,893,000	3,078,721	3,097,263	3,097,263	3,097,263
Expenses for ASC	1,070,000	1,080,000	1,080,000	1,080,000	1,080,000
Travel and meetings	5,730,000	5,280,000	5,391,000	5,391,000	5,391,000
Publications	675,000	685,000	707,000	707,000	707,000
<b>TOTAL EXPENSES</b>	<b>46,825,885</b>	<b>48,014,092</b>	<b>48,517,201</b>	<b>48,122,213</b>	<b>48,702,466</b>

<b>Operating result</b>	<b>-2,083,000</b>	<b>-2,267,779</b>	<b>-2,410,662</b>	<b>-2,015,674</b>	<b>-2,595,927</b>
Interest	-100,000	-200,000	-200,000	-200,000	-200,000
Transfer from Equity	-1,983,000	-1,736,030	-1,275,000	-318,750	0
<b>Result</b>	<b>0</b>	<b>-331,749</b>	<b>-935,662</b>	<b>-1,496,924</b>	<b>-2,395,927</b>

## Development of Equity

The table below shows the status of equity, following the auditing of the 2016 accounts, as of 1.1. 2017.

The table furthermore shows how Council has decided to allocate funds from equity in the coming years, and the resulting status of equity.

<b>Equity 1/1-2017</b>	<b>16,112,111</b>
Transparent Assessment Framework 2017	-1,275,000
SCICOM strategic activities	-115,000
Development of Regional Database	-747,630
Promotion of Training Courses	-300,000
Early Career Scientists Conference	-450,000
Development of DATRAS	-300,000
Transparent Assessment Framework 2018	-1,275,000
Transparent Assessment Framework 2019	-1,275,000
Transparent Assessment Framework 2020	-319,372
	10,055,109



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### New Clients and MoUs

On 1 July 2016 the Memorandum of Understanding between ICES and Norway<sup>1</sup> entered into force, detailing the deliverables, process, and general administrative arrangements, including financing. The MoU establishes the platform for communication between Norway and ICES on the advisory process. The MoU follows the principle of full cost recovery for ICES advisory services as agreed by ICES delegates, in order to ensure that the Secretariat costs for facilitating the Advisory process is covered by the member country or intergovernmental organization submitting the request.

The MoU covers recurrent advice, and provides a framework for the provision of special request advice, with additional costs calculated accordingly.

Similar deliberations/initial contacts have started with other member countries (Iceland, the Russian Federation, and the Kingdom of Denmark/Greenland and the Faroe Islands).

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<sup>1</sup> <http://www.ices.dk/explore-us/how-we-work/Pages/Cooperation-agreements.aspx>



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## Projects

Council members will be invited to discuss possibilities of ICES involvement in the Horizon 2020 work programme. As well as to take note of the current status of ICES involvement in projects.

### Main running and recently ended projects

Name of project	Main task	No of partners per ICES member country	ICES relevance
FP7 <b>COFASP ERA-NET</b> 'Coordination in Fisheries, Aquaculture and Seafood Processing' (2013-2017)	Elaboration on the contents of COFASP calls; compilation of emerging capacity building needs in the fisheries, aquaculture and seafood processing sectors; participation in COFASP Case studies.	BE: 1; DE: 2; DK: 4; ES: 2; FI: 1; FR: 2; IE: 1; IS: 2; NL: 1; NO: 2; PT: 1; UK: 2	Results of COFASP case studies and foresight (research priorities and private sector demand for aquaculture, fisheries and seafood processing). Formulated recommendations in the COFASP Strategic Research Agenda.  Results from the COFASP international research projects (under the three COFASP project calls).  Setting the scene for the H2020 ERA-NET co-fund on blue bioeconomy.
FP7 <b>MAREFRAME</b> 'Co-creating Ecosystem-based Fisheries Management Solutions' (2014-2017)	Contribution to fisheries management decision support framework; roundtables on ecosystem based fisheries management; regional / thematic case studies (performance of developed ecosystem models).	CA: 1; DK: 3; ES: 3; FI: 1; IE: 1; IS: 3; NL: 1; NO: 2; PL: 1; SE: 2; UK: 6	Consortium recommendations on how to improve EBFM advice within the EU CFP.  Integration /adaptation of models into fisheries management.  Decision support tools showing trade-offs between various management options with a roadmap for its integration into regional fisheries management.
EEA <b>ETC-ICM</b> 'The European Topic Centre	Data flows in support to the MSFD. Supporting the publication of marine	DE: 3; DK: 2; FI: 1; NL: 2; NO: 1; UK: 2	Extended use of ICES data in the publication of marine indicators (Nutrients and chlorophyll in seawater, contaminants in biota, and changes



Name of project	Main task	No of partners per ICES member country	ICES relevance
on Inland, Coastal and Marine waters' (2014-2018)	indicators and assessment in the European Seas.		in fish distribution) and assessment (Hazardous substances and eutrophication).
H2020 <b>BlueBRIDGE</b> 'Building Research environments for fostering Innovation, Decision making, Governance and Education to support Blue growth' (2015-2018)	Support for stock assessments and training.  Knowledge bridging, education and capacity building for the management of marine living resources through virtual research environments (VREs).	DK: 1; FR: 4; NO: 1; UK: 1	IT support to training courses.  Development of on-line training options.  Integration of models and IT tools into stock assessment.
H2020 <b>COLUMBUS</b> 'Monitoring, Managing and Transferring Marine and Maritime Knowledge for Sustainable Blue Growth' (2015-2018)	ICES works with partners to ensure uptake of useable knowledge within the ICES network.	BE: 4; DE: 2; DK: 3; ES: 3; FR: 2; IE: 3; NO: 1; PT: 1; UK: 5	Collection of research knowledge outputs from international research projects.  Assessment and applicability of knowledge outputs: knowledge output tables with shortlisted results to be made available via the on-line EurOcean Knowledge Gate.  Examples of applicability: knowledge output pathways with impact measurement, dissemination and exploitation plans.
H2020 <b>AtlantOS</b> 'Optimizing and Enhancing the	Improving fish survey acoustic and biotic data availability through ICES	BE: 3; CA: 2; DE: 8; DK: 3; ES: 3; FR: 12; IE: 3; NL: 2; NO: 3;	Enabled ICES to build the acoustic data portal (WP2), and support the steering and expert groups behind acoustic data. This is a key input to the transparent assessment framework, and the portal has helped develop

Name of project	Main task	No of partners per ICES member country	ICES relevance
Integrated Atlantic Ocean Observing System' (2015-2019)	Data Centre for three key pelagic fisheries surveys. Standards and harmonization to information aggregator portals for fisheries via ICES DATRAS and ICES ACOUSTIC.	PL: 1; PT: 3; UK: 10; USA: 1	standards, protocols and increased access to these data. <a href="http://ices.dk/marine-data/data-portals/Pages/acoustic.aspx">http://ices.dk/marine-data/data-portals/Pages/acoustic.aspx</a> . The networking and contribution to the Atlantic Observing system architecture under WP1 has put ICES together with other international networks to help define a blueprint (IOC, GOOS).
H2020 AORA- CSA 'Atlantic Ocean Research Alliance Coordination and Support Action' (2015-2020)	Participation in the project's High Level Operational Board (WP1) as well as leading three work packages: Ecosystem Approach/Ocean Stressors (WP4), Aquaculture (WP7), Knowledge Sharing Platform (WP11).	CA: 1; DK: 1; ES: 1; FR: 2; IE: 1; IS: 1; NO: 1; PT: 1; UK: 1	Inventories of international collaborations / projects / applicable research results in the AORA thematic areas (ocean stressors, aquaculture, ocean literacy, seabed mapping); Online access to the findings via the online AORA Knowledge Sharing Platform.  Trilateral WGs on AORA thematic areas; Action roadmaps with staff exchanges, project twinning, joint publications, resource sharing and coupling of research funding.
LIFE TAPAS 'Development of HELCOM tools and approaches for the Second Holistic Assessment of the Ecosystem Health of the Baltic Sea'	Coordinate and monitor all technical developments through the Technical Working Group.	DK: 2; EE: 2; FI: 2	There was a small technical role in this project to support HELCOM on the redesign of their assessment and map portal.

Name of project	Main task	No of partners per ICES member country	ICES relevance
(2016-2017)			
H2020 <b>ClimeFish</b> 'Co-creating a decision support framework to ensure sustainable fish production in Europe under climate change' (2016-2019)	In ClimeFish, ICES will contribute to debates and dissemination activities within its European arenas to ensure science for sustainable use of the sea, especially within the fishery sector.	CA: 1; DE: 1; DK: 1; ES: 2; FR: 1; IS: 1; NO: 3; SE: 1; UK: 2	Fishdish workshop  EDF/ClimeFish workshop on governance and management of European fisheries in changing climate scenarios.
EMFF <b>EMODnet INGESTION</b> 'European Marine Observation and Data Network' (2016-2019)	ICES serves as a point of contact for biological and environmental data.	BE: 2; DE: 1; DK: 3; ES: 2; FI: 2; FR: 2; IE: 1; NL: 2; NO: 1; PT: 1; SE: 1; UK: 1	Influence and staying in line with current metadata standard developments used for submitting data. Potential source of new data from providers not currently in established data collecting frameworks leading into EMODnet data portals as well as ICES.
GEF <b>LME LEARN</b> 'Strengthening Global Governance of Large Marine Ecosystems and Their Coasts through Enhanced Sharing and Application of LME/ICM/MPA	ICES leadership in the LME-LEARN Ocean Governance WG; organization of training courses for LME practitioners and managers within the ICES Training Programme.	USA: 1; Intergovernmental: 7	LME-LEARN toolkits to be made available (on ocean governance; LMEs and stakeholder participation; maritime spatial planning; environmental economics);  Thematic / geographical boost to the ICES Training Programme.  ICES gateway to the partner agencies implementing the UN SDG14.

Name of project	Main task	No of partners per ICES member country	ICES relevance
Knowledge and Information Tools' (2016-2019)			
H2020 <b>SeaDataCloud</b> 'Further developing the pan-European infrastructure for marine and ocean data management' (2016-2020)	Project network coordination (WP2); Expansion and governance of metadata and data content (WP5); Governance of standards and development of common services (WP8); Developments of upstream services (WP9); Developments of downstream services (WP10); Development, update and publication of data products for European sea regions (WP11).	BE: 5; DE: 5; DK: 2; EE: 1; ES: 2; FI: 3; FR: 3; IE: 1; IS: 1; LV: 1; NL: 3; NO: 1; PL: 2; PT: 1; SE: 1; UK: 2	SeaDataCloud is the 3rd iteration of SeaDataNet, the ICES Data Centre is a key player in the steering of the development and ensures the development of standardisation and governance. The infrastructure service that ICES supply as part of the SeaDataCloud backbone is a core (and demanding) part of the ICES data work, and subsidised by this activity.
EMFF EASME <b>EMODnet Biology III</b> 'Operation, development and maintenance of a	Major provider of biological observations (presence/absence). Collaborating on data products i.e. the ICES OOPS derived via this project. Also	BE: 3; DK: 2; ES: 1; FI: 1; FR: 1; NL: 3; NO: 1; PT: 1; SE: 1; UK: 5	The OOPS Zooplankton product <a href="http://ices.dk/news-and-events/news-archive/news/Pages/Zoom-in-on-zooplankton-data.aspx">http://ices.dk/news-and-events/news-archive/news/Pages/Zoom-in-on-zooplankton-data.aspx</a> was developed via this cooperation.

Name of project	Main task	No of partners per ICES member country	ICES relevance
European Marine Observation and Data Network' (2017-2019)	contributing to data standards and harmonization.		
EMFF EASME <b>EMODnet Chemistry III</b> 'Operation, development and maintenance of a European Marine Observation and Data Network' (2017-2019)	Work package lead on user feedback, especially linking MSFD into the data product development of EMODnet Chemistry. Also contributing to data standards and harmonization.	BE: 2; DE: 1; DK: 2; EE: 1; ES: 1; FI: 2; FR: 1; IE: 1; LV: 1; NL: 2; NO: 1; PT: 1; SE: 1	ICES is ensuring synergy between existing dataflows and the EMODnet portal to avoid duplication of data (and effort). ICES also acts as the main conduit from the OSPAR and HELCOM data product needs into EMODnet Chemistry.

### Projects in pipeline – not yet evaluated

Name of project	Main task
H2020 <b>IMPROFISH</b> 'Improving biological knowledge and management in European fisheries' (2018-2021)	Organizing training courses in fisheries management and promoting the uptake by communicating the findings through ICES Communications. Organizing stakeholder panel discussions or workshops.
H2020 <b>PANDORA</b> 'Paradigm for Novel Dynamic Oceanic Resource Assessments' (2018-2021)	Training, integration of new knowledge into operational advice, incorporation new data collection methods. Enabling conversations between research scientists and ICES advisory working groups.
<b>MaxFish</b>	Involved in WP3 'Decision support framework' and WP6 'Stakeholders, dissemination and exploitation' to help organise training courses, implement the results of MaxFish into management and help disseminate them. Enable conversations between research scientists and ICES advisory working groups.

### Project opportunities

- H2020 WP 2018-2020 (2018 selected, unofficial, based on the draft work programme):
- DT-BG-04-2018-2019 Sustainable EU aquaculture 2.0: Breeding and Feeding - BG-08-2018-2020
- The Future of Seas and Oceans Flagship Initiative (Blue cloud services; Observations and forecasting; Technologies for observations)
- BG-08-2018-2019 All Atlantic Ocean Research Alliance Flagship
  - Coordination of marine and maritime research and innovation activities in the Atlantic Ocean – CSA;
  - Assessing the status of Atlantic marine ecosystems – RIA;
  - New value chains for aquaculture production – RIA.

## Council Strategic Initiative on the Marine Strategy Framework directive and Ecosystem Approach (CSIMSFD-EA)

The Council Strategic Initiative on the Marine Strategy Framework Directive and Ecosystem Approach (CSIMSFD-EA) has proven to be a useful fora for highlighting the important ICES contributions in the Ecosystem Approach field, such as responding to the science needs for the EU's Marine Strategy Framework Directive. The group has been able to engage across the ICES community and engage on issues such as seafloor integrity and integrated monitoring.

During 2017 CSIMSFD-EA has been without a Chair. Simon Jennings, SCICOM Chair, and Mark Dickey-Collas, Ecosystem Approach Coordinator have been supporting relevant work in the absence of a Council delegate Chair.

With ICES having established itself as a player within the field of Ecosystem Approach, there is a need for the CSIMSFD-EA to also consider issues such as involvement of new expertise, and linkages at national and international levels with relevant activities.

*Action: Council is requested to agree on a chair for the CSIMSFD-EA. The first task of the chair will be to update the ToRs, for submission to Council delegates for approval.*

Council delegates are invited to express their interest to engage with the CSIMSFD-EA.

### Existing Terms of Reference

1. To identify the principal elements of ICES work that are relevant to the implementation of the MSFD, and to consider how best to achieve the internal coordination of these elements.
2. Maintain strategic oversight of how current or new working arrangements with strategic cooperation partners, principally the European Commission, OSPAR, and HELCOM, may be best used to link the ICES Science and Advice structures to those of the Regional Seas Conventions so that ICES can provide appropriate input to the continuing MSFD process.
3. To consider how ICES can best contribute to the development of (a) integrated surveys and monitoring in support of the MSFD, (b) programmes of measures, c) integration across indicators, and d) cumulative effects.

4. Develop a strategy that encourages expert working groups under both the advisory and science committees to contribute to producing high-quality MSFD advice products.
5. . To create the opportunity to co-convene an MSFD related symposium in 2014/2015 with recipients of ICES advice and interested collaborative partners.

## Background Information

In 2015, Council agreed to rebrand and broaden the mandate of the CSG MSFD as a Council Strategic Initiative on the MSFD-Ecosystem Approach (CSIMSFD-EA).

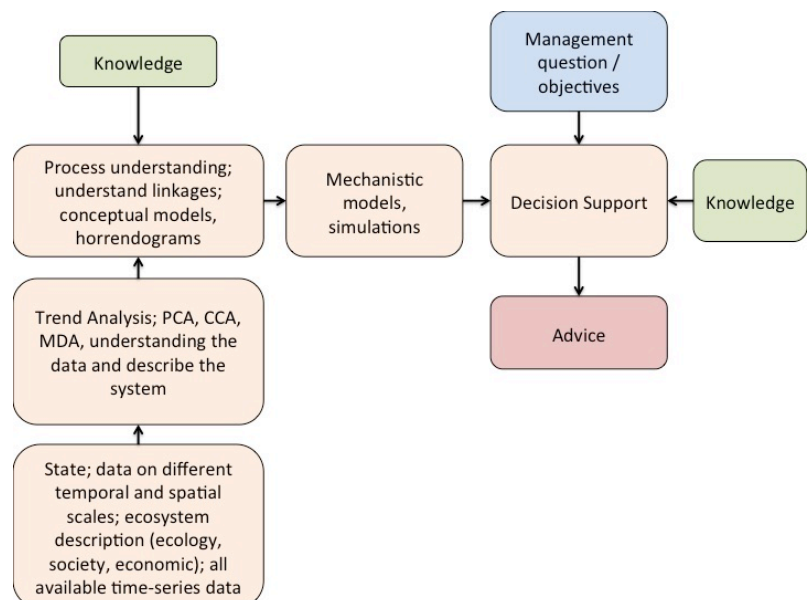
### ICES work on the MSFD and Ecosystem Approach:

#### a) Atlantic Ocean research alliance (AORA), ecosystem approach to ocean health & stressors working group

The ICES secretariat supports this working group. The working group has produced a road map of activities required over the next 18 months to create a vision document on research needs for EBM (see Annex 1). It will run a strategic open session at the ICES 2017 ASC on transatlantic cooperation on the ecosystem approach. <https://www.atlanticresource.org/aora/site-area/aora-cooperation-areas/ocean-health-stressors-working-group/aora-ocean-health-stressors>

#### b) WKIDEA

Workshop on integrated ecosystem assessment methods (WKIDEA) found that the methods and processes across the IEA groups (integrated ecosystem assessments) are beginning to converge.

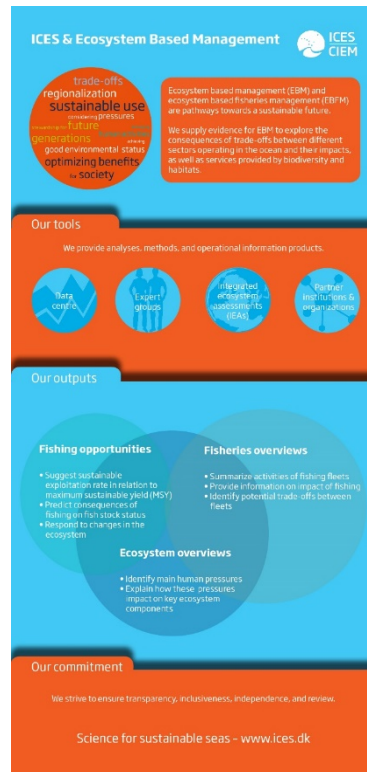




### c) Communication ICES and Ecosystem Based Management

ICES has produced a document on its approach to providing the knowledge base for the ecosystem based management. This has been used to create a flyer for circulation.

<http://www.ices.dk/news-and-events/news-archive/news/Pages/Explaining-ICES-approach-to-ecosystem-based-management.aspx>



### d) MSFD roadmap and advice

DGENV has asked ICES to prepare a roadmap of potential research for the next 2 years to support the development and implementation of the MSFD. The work should focus on aggregation methods, testing indices and considerations of Good Environmental Status (GES). ICES has been asked to lead on commercial fisheries (D3), foodwebs (D4), seafloor integrity (D6) and assist with data management for underwater noise (D11). ICES is expected to work closely with JRC (EU Joint Research Centre) and this includes making a substantial contribution to the work on biodiversity of species and habitats (D1). All work flows into the Common Implementation Strategy (CIS) of the MSFD through WGGES.

ICES is currently answering requests on the demography of fish populations (D3C3) and seafloor integrity and catch (D3 and D6).

#### Examples of ICES MSFD Advice provided to date:

- Guidance on operational methods for the evaluation of the MSFD criterion D3C3 (second stage 2017)

[http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/Special\\_requests/eu.2017.07.pdf](http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/Special_requests/eu.2017.07.pdf)

- Guidance on the most appropriate method to aggregate species within species groups for the assessment of good environmental status for MSFD Descriptor 1  
[http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/Special\\_Requests/EU\\_Guidance\\_on\\_method\\_to\\_aggregate\\_species\\_within\\_species\\_groups\\_D1.pdf](http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/Special_Requests/EU_Guidance_on_method_to_aggregate_species_within_species_groups_D1.pdf)
- Guidance on the practical methodology for delivering an MSFD GES assessment on D3 for an MSFD region/subregion  
[http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/Special\\_Requests/EU\\_Guidance\\_on%20MSFD\\_D3\\_assessment.pdf](http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/Special_Requests/EU_Guidance_on%20MSFD_D3_assessment.pdf)

#### **e) PAME and ICES**

ICES took part in the Arctic council PAME/CAFF/AMAP conference on ecosystem approach to management in the Arctic in August 2016. There will be follow on workshop centring on best practice for integrated ecosystem assessment of the Arctic Ocean, in winter/spring 2018. ICES has been invited by PAME to formally join the workshop.

#### **f) Automated products**

The first fisheries overviews are now close to publication and Council funding is currently being used to develop automated community indicators (e.g. large fish indicator) for various ICES ecoregions. The first products are expected in late 2017.

#### **g) WKIrish**

A series of workshops, initiated in 2015, focussing on improving single-species stock assessments (principally cod, haddock, whiting, plaice, herring), incorporating a mixed fisheries model, and developing the integration of ecosystem aspects and working towards an integrated assessment and advice.  
<http://ices.dk/community/groups/Pages/WKIrish.aspx>

#### **h) ICES advice for an ecosystem approach to fisheries management in the European Union**

A new article in the ICES Journal of Marine Science provides a useful contribution and analysis of ecosystem approach to fisheries management in Europe and the ICES role in the process. Published by the MAREFRAME project.  
<https://academic.oup.com/icesjms/article-abstract/doi/10.1093/icesjms/fsx181/4344803/Do-not-shoot-the-messenger-ICES-advice-for-an?redirectedFrom=fulltext>

## Annex 1. Selected information from the AORA Working Group on the Ecosystem Approach to Ocean Health and Stressors.

The working group proposes an 8-step roadmap for the following 18 months as a forward looking opportunity. The steps cover vocabulary, stakeholders, mandates, linking sectors and ecosystem, identifying gaps in knowledge and take up of science, tools for EBM, communication and research priorities.

### Overview of tools available for EBM trade-off analysis.

Tool	Use Level	Data requirements	Strengths
Mental Modelling	Heuristic	Low	Developing a shared understanding among stakeholders of key ecosystem interactions
Ecosystem Indicators	Heuristic to Tactical	Medium	Provide context on the status of the ecosystem and information on how management actions might affect ecosystem structure and productivity.
Systemic Reference Points	Strategic to Tactical	Medium to High	Support decision making on a wide range of human actions that influence the ecosystem structure.
Risk Analysis	Strategic	Medium	If developed in a way that incorporates stakeholders, this can be useful for understanding risk-tolerance levels of stakeholder groups, which may inform managers on the acceptability of management actions.
Spatial Planning	Strategic and Tactical	Medium High	Helps to inform where resource conflicts may arise. For resources that are not highly spatially variable, this may be appropriate for tactical decisions.
Trait based and size based modelling	Strategic	Low	Individual and size based ecosystem theoretical models are used to challenge management questions. They are useful to explore future scenarios using different underlying assumptions compared to end to end models. They often result in evidence of alternative stable states and counter intuitive outcomes due to the impact of density dependence.
Models of Intermediate Complexity	Tactical	Medium	Used to make single sector or single species decisions cognizant and inclusive of broader ecosystem considerations
End-to-end models	Strategic	High	Useful for developing a quantitative understanding of the spatial and temporal dynamics of the interactions between biological, physical, and socioeconomic components.

Visualization tools	Heuristic	Variables	Better way to communicate information from which to make decisions
Management Strategy Evaluation	Strategic and Tactical	High	Provides a formal framework for testing management actions and understanding relative changes in biological and socioeconomic components of the ecosystem for given actions.

### **Annex 1 cont. Priority research areas emerging from work of the working group to date**

The working group recognized that several research themes to advance the implementation of EBM emerged. Consistent with common prioritization criteria and national research plans, a suggested list is offered here to indicate probable important research areas in the Galway member states.

- Cumulative effects (relevance of stressor scale will be important)
- Carrying capacity (broadly defined)
- Tipping points/thresholds/non-linear responses
- How to improve the transfer of research to advice to policy and management
- Multi scale adaptive capacity (change is coming, how may society, organisms, ecosystems adapt?)
- Furthering decision-support science to evaluate trade-offs particularly for emerging or non-traditional sectors ex. Biotech
- Best approaches to characterize, quantify and assess the "invisible connections". These are attempts to understand and characterize the invisible fabric of connections among species, physics, process, and human systems of marine ecosystems.
- Stressors caused by distant activities (far field effects)



## Council Strategic Initiative on Maritime Transatlantic Cooperation

*Council is invited to take note of the activities of CSIMTC.*

CSIMTC met in May in Halifax, Canada. The report is attached.

### Highlights:

- *Transatlantic Cooperation through the Atlantic Ocean Research Alliance (AORA) continues to develop. ICES and the Ocean Frontier Institute (OFI) are continuing to discuss ways to work together to promote transatlantic cooperation. The EU has also expanded its research and innovation cooperation in the South Atlantic through an agreement<sup>1</sup> with Brazil and South Africa. This provides an opportunity for ICES to contribute to the Coordination and Support Action for this new agreement.*
- *There is a potential opportunity for ICES (members) to contribute to the ocean mapping component of AORA (link to a webpage) and member states are encouraged to flag their interest.*
- *Further opportunities and strategies for facilitating Canadian and US engagement in EU projects continues to be explored, and are expected to improve in specific funding instruments in future, both in H2020 and in FP9.*

CSIMTC convened an open session at the Annual Science Conference in Fort Lauderdale, Florida: *Trans-Atlantic science to do ecosystem-based management*. The Report is attached.

Report of the  
Council Strategic Initiative on Maritime Transatlantic Cooperation  
(CSIMTC),  
24-25 May 2017  
Steele Ocean Sciences Building, Halifax, Nova Scotia, Canada

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## 1 Introduction

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The Co-Chairs of the ICES Council Strategic Initiative on Trans-Atlantic Cooperation ICES (CSIMTC), Fritz Köster and Alain Vezina, welcomed the participants and introduced the work of the ICES CSIMTC. It was explained that this meeting had a specific focus on

- *ToR 1: ... to ensure cooperation and complementarity to ongoing and planned activities of member countries and international organisations in the North Atlantic and relevant bordering sea areas, such as the Arctic,*
- *ToR 2: ... a continuous update and extension of mapping research, monitoring and advisory efforts in relation to the Galway Statement, the Atlantic Ocean Research Alliance, and other relevant collaboration agreements, and*
- *ToR 5: Provide strategic guidance ... on research needs, programming to meet these needs and potential models for joint research and funding mechanisms in the North Atlantic.*

## 2 ICES North Atlantic Strategy and contribution to AORA (ToR 1)

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The ICES President, Cornelius Hammer, gave a presentation on ICES North-Atlantic Strategy, focusing on the work in the eco-regions, including the Northwest Atlantic Regional Sea, and the Arctic Ocean.

The General Secretary, Anne Christine Brusendorff, summarized ICES contribution to the Atlantic Ocean Research Alliance, focusing on ICES institutional set-up, and building on existing services and products delivered by ICES.

Wendy Watson welcomed these presentations and mentioned that at the AORA Steering Committee meeting held in Washington a potential for a year of the North Atlantic in 2019 (or 2020) was discussed, and OFI would be interested in working together with ICES on that. OFI has also committed to a biannual state of the Ocean /state of the Atlantic conference series and this could be a potential area for cooperation with ICES and AORA.

## 3 Ocean Frontier Institute (OFI) – cooperation with ICES and contribution to AORA

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Wendy Watson-Wright introduced the strategy, structure and funding of the Ocean Frontier Institute.

The [Ocean Tracking Network](#) – a large global acoustics network to track species ranging from the Arctic to West Africa – was introduced by Blendal Townsend, Senior Project Manager, Dalhousie University, Canada.

The [Marine Environmental Observation Prediction and Response \(MEOPAR\)](#) network was introduced by Stefan Leslie, MEOPAR Executive Director. MEOPAR is now into its second five-year cycle. Core funding is provided in areas linked to marine risk, where there is already work going on.

<b>Action:</b>
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Several areas of potential cooperation between OFI and ICES were identified, and it was decided to follow-up with a small working group to map those out, from single events (joint conferences/symposia) to more long-term cooperation (training/education, infrastructure, data handling/information products). This working group could also highlight scientific areas of common interest, with a potential to develop common strategic initiatives. The first step could be appointing focal points – persons per thematic areas of interest, responsible for developing cooperation and updating the other parties.

The remit of ICES, and its legal basis, makes it possible for Member Countries through their Council delegates and nationally appointed representatives in the Science and Advisory Committees to guide and direct the trans-Atlantic cooperation, relaying scientific priorities, and building on existing services and products.

#### 4 Regional Strategies

Alain Vezina, Canadian Council delegate, and Terry Schaefer, NOAA/AORA Implementation Team, presented the AORA and associated scientific activities, setting the stage for both expectations, e.g. in relation to infrastructure, and for progress in specific areas. Jason Link, NOAA, presented US trans-Atlantic science initiatives, *inter alia* focusing on management strategies under future climate change conditions.

##### **Action:**

ICES was asked to try to contribute to the ocean mapping in AORA, including covering the northern part of the North Atlantic (Denmark, Iceland, and Norway).

It was decided to as a start raise this issue at the Council meeting, including a more general session on Trans-Atlantic Maritime Cooperation. This could then be followed up by a more specific meeting with interested countries, including USA and Canada

The Project Manager, Margaret Rae gave an overview on the Atlantic Ocean Research Alliance Coordination and Support Action (AORA-CSA), Objectives and Status, covering also priority areas not led by ICES.

This was followed by Jason Link reporting on progress in WP4 Ecosystem Approach to Ocean Health and Stressors.

Wojciech Wawrzynski reported on WP7 Aquaculture with a brief analysis of thematic and action overlaps among the AORA aquaculture group, ICES aquaculture groups, and the OFI four thematic modules under the 'sustainable aquaculture' theme block.

WP 11 Knowledge Sharing Platform was presented by Anne Christine Brusendorff.



**Action:**

It was decided to use the European Catalogue under WP11 Knowledge Sharing Platform as the basis for a mapping of the landscape in relation to marine infrastructure coordination between US/CA/EU.

Based on the European Catalogue specific marine infrastructure initiatives should be identified with the potential to launch an initiative to the EU opening funding under the program Excellence Science, European Research Infrastructures, similar to other longer-term FP7, H2020 projects already running with involvement of Canada/USA.

This work could be carried out as part of WP11.

## **5 Open Session at 2017 ASC: Trans-Atlantic Science to do Ecosystem-Based Management**

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Jason Link, NOAA gave an outline of the concept and preparations for the Open Session at 2017 Annual Science Conference: Trans-Atlantic Science to do Ecosystem-Based Management.

**Action:**

It was suggested to include also a social scientist to the group of conveners.

## **6 Horizon 2020, and how to involve US and Canada in the upcoming work programme 2018–2020**

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Fritz Köster, ICES First-Vice President, gave an introduction to the current involvement of US and Canada in the Horizon 2020 programme, concluding that there is:

- a relatively high Canadian and US involvement under the Societal Challenges Component; Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research; Bioeconomy; and Blue Growth, and through Blue Growth also in the Societal Challenges Pillar; Climate action, resource efficiency and raw materials. However, direct funding from the EU is limited, as so far this required expertise is not available in Europe. This prerequisite may fall away in relation to the renewal of the EU/US Agreement for Scientific and Technological Cooperation.
- a limited/no involvement of Canada and USA in other relevant components, such as European Research Infrastructures (cf. action above on mapping of research infrastructure involvement) and an apparent absence of cooperation under the Industrial Leadership Component; *Space*.

The coming Horizon 2020 work programme 2018–2020 has substantial funding under the calls dealing with Blue Growth (BG), with a substantial focus on the Atlantic Ocean Research Alliance. Topics are in general broader, less prescriptive allowing funding of several projects.

There is a tendency to phase out relevant Sustainable Food Security (SFS) topics and include them under BG calls, to make BG topics less cross-sectorial and more focused on bioeconomy, and move Arctic topics from BG to the component dealing with Societal Challenges 5 to the call *Climate action, resource efficiency and raw materials*. It was noted that topics on Climate actions address both terrestrial, marine, and atmospheric aspects.

**Action:**

It was decided to map existing Can/EU/US cooperation under the Industrial Leadership Component *Space*, specifically the Copernicus programme, for further discussion with Canada and the US. (Lead: AORAC WP11)

Canada and the US will look into the participation of scientists in the H2020 projects, and the possibility to obtain funding for their participation as direct beneficiary under the bilateral agreements between EU and Canada. It was noted that recent Implementing Arrangements amending the bilateral agreements between US and EU had made participation of US scientists, with own funding, possible in Horizon 2020 projects, without signing of legal partnership agreements. Similarly, the Implementing Arrangement between Canada and the EU has made participation of Canadian scientists in ERC grants easier.

The ICES Science Committee (SCICOM) and AORA-CSA should, once the H2020/2018-2020 programme has been finalized, map the topics of trans-Atlantic interest, with due regard to the North Atlantic-Arctic Coupled System Science Plan. Especially as regards the USA this is an important component for the National Science Foundation (NSF), in their project considerations. The list of specific topics could then serve as a motivation and guidance for the scientific community.

The short deadline for submission of project proposals in 2018 was noted; February 2018. More time would be available for submission of proposals in 2019, and 2020.

## 7 CSA and Era-Net Cofund

In addition to the participation in Horizon 2020 projects, the meeting discussed:

- The importance of direct participation, as opposed to mere involvement of US and Canada in Coordination and Support Action Projects (CSAs), to allow for more long-term, and strategic planning. The CSAs with the most developed and sufficient US and Canadian involvement are the AORA-CSA and the PolarNet, while in other relevant CSA's, e.g. supporting JPI Oceans, the involvement is more limited.
- The importance of direct participation of US and Canada in Era-Net CoFunds, where funding organizations/ministerial agencies define common calls, with a limited contribution of the EU (ca. 25–33%). This makes it possible to jointly program and fund coordinated research.

Mike St. John, Denmark, made a presentation of JPI Oceans, an example of funding agencies and ministries jointly programming, and funding coordinated research.

**Action:**

US and Canada to consider direct participation in CSAs, and Era-Net CoFunds.

Specifically for Era-Net CoFunds, reference was made to a topic on Blue Bioeconomy in the Work Programme 2018, initiated by JPI Oceans and two Era\_Nets in the marine areas, and the opportunity for US/CA participation.

## 8 Art. 185 and other Cofunds

Fritz Köster, ICES First-Vice president and co-chair, presented BONUS; Art 185 an example of current EU instruments enabling long-term planning and integration of research efforts by defining and committing to a joint research programme, including integration of scientific, managerial, and financial aspects.

The meeting discussed instruments enabling long-term planning, such as European Joint Programme Cofunds (EJP Cofunds), and Article 185 (the latter presently being under evaluation by the EU). Compared to Art 185, the EJP Cofund is a new, more flexible, less heavy administratively instrument, which does not require commitment at the level of countries. EJP Cofunds still allow integration of research efforts through elaboration of a joint research programme, and joint funding. EJP Cofund partners are agencies with research funding and/or management responsibilities issuing calls over a 5–10 year periods, with up to 50% financing by the EU.

As an alternative, and potential bridge between Art. 185 and EJP Cofund, it was suggested to analyse the Mediterranean Programme Prima on food and water security, that includes major involvement of third countries and may thus be a template for an intensified North Atlantic cooperation.

### Action:

The meeting concluded that the more long-term cooperation needs also longer planning. For EJP Cofunds or Art. 185 this will only be realistic for the upcoming FP9 programme, while new Era-Net Cofunds could possibly be launched within H2020, realistically for the year 2020. The latter needs to be done with AORAC as a development platform and in cooperation with JPI Oceans.

Fritz Köster will map the landscape and report back on the long-term EU funding mechanism for transatlantic research with EU, Canada and US as partners.

This should be presented at the next meeting of the CSIMTC (end of 2017 or early 2018) and should also be discussed within the trilateral AORA implementation committee.

ICES will arrange a thematic session during its Council meeting in October, focussing on trans-Atlantic Maritime Cooperation, with invited guests as appropriate.

## 9 Trans-Atlantic reviewers

Bill Karp, US and US ICES Council delegate suggested to draw up a list of trans-Atlantic reviewers, to be used as a trans-Atlantic service. The ICES Resource Coordination Tool could be helpful and used in this regard.

This issue was suggested in connection with an EFARO (the European Fisheries and Aquaculture Research Organisations) meeting discussing reviews of fish stock assessment and ecosystem monitoring surveys and how/to which extent data

collected are being used for assessment purposes. Bill Karp also explained how this could be beneficial in the annual reviews of the US science programme, including a panel of external reviewers.

**Action:**

The meeting agreed on the benefits of a list of trans-Atlantic reviewers. The ICES Resource Coordination Tool will be useful in this exercise.

It was suggested, that a side-effect of a review of European fish stock and ecosystem monitoring surveys using trans-Atlantic reviewers could be interoperability between some EU/CA/US surveys

## 10 Participants

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## Open session

### *Trans-Atlantic science to do ecosystem-based management (EBM)*

*Conveners: Jason Link (USA), Mark Dickey-Collas (ICES), Fritz Köster (Denmark)  
Alain Vezina (Canada), Marloes Kraan (The Netherlands)*

There is an array of trans-Atlantic marine science throughout ICES. Several bilateral and multilateral agreements facilitate these trans-Atlantic exchanges, including the Galway Agreement and Atlantic Ocean Research Alliance.

The ICES network of scientists provides relevant and evidence-based information for sustainable management of the Atlantic Ocean area; providing a platform for knowledge exchange and best practice development on important marine science issues. In this context, many organizations are exploring strategic plans for the next decade of ocean science priorities. Science needs to be conducted to not only better understand marine ecosystems and to delineate good environmental status of marine ecosystems, but have relevance for the management of the ecosystem goods and services that marine ecosystems provide.

This session was an exploration of the science needs to implement EBM. It emphasized the needs, context and goals of EBM, the trans-Atlantic nature of this science, and the vision that the discipline needs to achieve these science goals in the coming decade. It followed on from the Atlantic Ocean Research Alliance January 2017 report. The session centred on a Kahoot poll, which participants answered through their mobile phones and laptops. The session participants (30, mostly experienced natural scientists that had worked in the applied arena, paraphrased as ‘frontrunners’ of EBM rather than ‘backbenchers’) were polled on a variety of aspects related to the operationalisation of EBM and what that requires. The purpose of the Kahoot was mainly to spur discussion as well as to gather some instant insight on how the participants thought about the issues presented.

Following the responses to the Kahoot, the participants felt that the mandate for EBM was unclear, although EBM was currently being partially and incrementally executed in the North Atlantic. EBM was seen as a process towards better management with key impediments being institutional/governance issues and poor translation of knowledge to management. The participants had limited experience of working with trade-offs. There was agreement that trans-disciplinary approaches were required, and despite the expectation of the conveners, the participants felt that there were incentives for natural scientists to engage with stakeholders, outreach and scoping for objectives.

During the broader discussion, facilitating change to increase EBM was highlighted as a challenge. It could be difficult for a researcher to engage in trade-off exploration as they will mix their researcher role with that of being a citizen. We should accept that there may not always be win-win situations for trade-offs. Scale is an important issue (both spatial and temporal) when providing the evidence for trade-off explorations.



Figure 8.2.1.1. Example questions from the Kahoot poll (pink edging shows most popular answers).

The main impediments to EBM are

- the lack of flexibility in existing institutional structures,
- no location to resolve cross sector issues,
- scientists, business and managers in sector silos,
- scientists have as yet not found an approach to deliver evidence for EBM, and are being limited by their single sector approaches.

The summing up concluded that there was a large degree of consensus in the session. All agree that EBM is happening incrementally across the many jurisdictions in the North Atlantic. There was a positive attitude in the room. It could be that the people coming to this session were more of the 'frontrunners' of EBM (biased group), and perhaps also the question & answer sets of the kahoot were a bit leading (as they were meant to spur debate, being aimed also at the backbenchers). Through the poll, the participants had offered support to the AORA approach that the challenges to EBM were not only centred on improving the science and scientists need to be aware of the management arena to which they are contributing. The issues of complexity, dynamics, and impact of scales were not raised and the timing of change was not highlighted. There is a need for AORA as it is still unclear how to get to strategic alignment across the Atlantic.

The session was aimed at awareness raising about AORA, challenges for operational EBM and examining the ideas and concepts of providing the knowledge for EBM being developed by the AORA working group on ecosystem approach to ocean health and stressors. The answers given to the Kahoot and the discussion showed that the ideas the organisers had on what is needed to operationalise EBM were broadly supported. This suggests that the AORA working group and ICES community are aligned on the concepts of providing the knowledge base for EBM.

# SCICOM REPORT 2017

ICES SCIENCE COMMITTEE

ICES CM 2017 Del 7.1.1/ SCICOM:03

REF. COUNCIL

## SCICOM Report 2017

An annual report to the ICES Council to describe the scope, scale and impact of ICES science and plans for future science delivery



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the Exploration of the Sea

Conseil International pour  
l'Exploration de la Mer



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## 1 Summary

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This annual report to the ICES Council summarises the scope, scale and impact of ICES science in 2017 and SCICOM plans for future science delivery.

To date, 2017 has been a successful year for SCICOM and for ICES science. A new Aquaculture Steering Group has been established, bringing to five the number of SCICOM Steering Groups which address broad and enduring areas of science and advice and currently 'parent' 98 Expert Groups. Four of these Steering Groups, including Aquaculture, gained new Chairs in 2017. These Chairs are working successfully in their new roles and there has been a growing focus on highlighting strong science in the network. Outputs during 2017 include reports, books and papers from the 98 SCICOM Expert Groups, attended to date by 1035 scientists, a successful Annual Science Conference attended by 556 attendees from 33 countries, and more active and visible links between science, data and advice. Four ICES co-sponsored symposia were run in 2017 and two further symposia will take place before the end of the year. Our Strategic Initiatives on Climate Change effects on Marine Ecosystems and the Human Dimension have also been actively running and supporting workshops and symposia. Five ICES training courses were run in 2017, with two more to be completed. ICES has published six Co-operative Research Reports (CRR), two ICES Techniques in Marine Environmental Science (TIMES) and three Identification Leaflets in 2017.

Descriptions of progress in relation to the Science Plan in 2017, as well as an in-depth analysis of SCICOM activity in 2017 are presented in this report. These focus on activity in the Steering Groups, Expert Groups, Strategic Initiatives and Operational Groups and outcomes from the Annual Science Conference. Consequently, this report also serves as a compiled reference document for the use of SCICOM members and the Secretariat.

SCICOM continues to strive to increase the scope, scale and impact of ICES science. Our general objectives for 2017 and beyond are to keep the ICES science programme dynamic, internationally relevant, and impactful; to ensure seamless links between science, data and advice and to engage with scientists in ICES member countries and beyond by planning an annual cycle of meetings and workshops as well as the Annual Science Conference. In 2018, in addition to recurrent delivery of science and the annual programme of work, SCICOM will focus on setting clear science priorities to inform the development of the next ICES Strategic Plan.

The science prioritisation process, as described in detail in the report, is currently being informed by three elements; (1) an ongoing review of emerging marine 'opportunities' for ICES, (2) a review of marine science priorities in member countries and an assessment of where ICES can 'add value' and (3) an existing draft list of SCICOM science priorities, along with further bottom-up input from ASC Sessions and discussions. The emerging science priorities are intended to (1) support the ICES vision and mission; (2) increase the scale, scope and impact of our science and ensure ICES science is valued and influential; (3) address emerging opportunities and issues for member countries and provide clear added value to national science and advice; (4) increase capacity to address contemporary and future issues in marine science and to maintain and build strong and enduring links with regional and global partners; (5) build stronger and enduring links between science, data and advice; (6) prepare ICES to address future challenges for users of marine ecosystems that resonate as relevant with member countries, and current and future clients for advice; and (7) to inspire our network, by balancing elements of vision and discovery with delivery of excellent applied science.



## **2 Introduction**

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### **2.1 Structure of the report**

This report summarises the scope, scale and impact of ICES science in 2017 and Science Committee (SCICOM) plans for future science delivery.

The review of scope, scale and impact describes the delivery of science and supporting activity in the SCICOM Steering Groups, Expert Groups, Strategic Initiatives and Operational Groups and outcomes of the Annual Science Conference (ASC).

The plans for future science delivery describe the process SCICOM is running to develop science priorities that will inform the next ICES Strategic Planning cycle.

The main forward looking and strategic issues for discussion with Council at the October 2017 meeting are covered in Sections 1 to 4 of this report, but detailed summaries of the activity of Steering Groups, Expert Groups, Strategic Initiatives and Operational Groups in 2017, as well as other topics of interest, can be accessed directly from the contents list.

To date, 2017 has been a successful year for SCICOM. But despite this good progress (Section 2.3), there is, of course, more to be done to increase the scope, scale and impact of ICES science. Section 3 describes key SCICOM priorities and the SCICOM workplan for 2018 and beyond.

Descriptions of progress in relation to the Science Plan in 2017, and a deeper analysis of SCICOM activity in 2017, are provided in Sections 5-10 of this report. These focus on activity in the Steering Groups, Expert Groups, Strategic Initiatives and Operational Groups and the outcomes from the ASC. Sections 5 to 10 and the Annexes of this report will also serve as a compiled reference document for the use of SCICOM members, the Secretariat and the ICES network more widely.

To minimise the overall length of this report the texts of Theme Sessions and Open Session summaries from the 2017 ASC have been placed on the ICES website. But, for convenience, they are linked directly from Sections 9.1. and 9.2. respectively.

### **2.2 Requests to Council**

Council are invited to review this report, with a focus on Sections 1-4 and, in addition to any matters they wish to raise:

To comment on opportunities for ICES which should be considered when identifying science priorities (Section 3.1.)

To comment on approaches to developing science priorities that maximise the value of ICES engagement for member countries (Section 3.1.)

To consider how Delegates will work most effectively with SCICOM members to guide and support SCICOM efforts to identify science priorities (Section 3.1.)

To review the completeness of the SCICOM work plan for 2018 and to recommend any modifications or additions for consideration by SCICOM (Section 3.2.)

## 2.3 Role of the Science Committee

The Science Committee (SCICOM) is working to increase the scope, scale and impact of ICES science.

The general objectives of SCICOM are:

- (1) to keep the science programme dynamic, internationally relevant, and impactful
- (2) to ensure seamless links between science, data and advice
- (3) to engage with scientists in ICES member countries and beyond by planning an annual cycle of meetings and workshops as well as the Annual Science Conference

The current priorities for SCICOM are to:

- (1) Identify and promote science priorities within a science programme that is dynamic, internationally relevant and impactful, while fully taking account of national needs and providing added value to national programmes.
- (2) Collate information on ICES science outputs in accessible and interrogatable formats and develop and publicise metrics of impact. Ensure Expert Group (EG) outputs acknowledge ICES contributions.
- (3) Develop and regularly update website text relating to Science, SCICOM, Steering Groups (SG) and personnel to increase awareness, visibility and impact of our people and work
- (4) Develop and run an engaging training programme that achieves cost recovery and enables participants to develop their careers, broaden their knowledge base, widen their professional network and add value nationally
- (5) Promote and support frequent and effective communication between EG, SG, SCICOM and SCICOM Chair to increase network engagement and efficiency in all activities relevant to SCICOM
- (6) Promote science activity and collaboration within and beyond the ICES network in ICES Action Areas
- (7) Ensure effective communication and seamless links between science, data collection, storage and processing, and advice
- (8) Lead development of ICES viewpoints to highlight ICES capacity to advise on new and emerging issues and to capitalize on the science done in ICES (2017-18: large fish stocks, Arctic fish production, invasive species).

It is a continuing role of SCICOM to ensure that science conducted by EG and other operational structures aligns with the Science Plan. Progress in relation to the Science Plan was evaluated in detail by SCICOM in 2016. This evaluation was performed by the (then) SSG chairs for the 31 priority areas in the Science Plan and, in general, this evaluation suggested a strong mapping of activity onto the priorities identified in the Science Plan. Section 5 of this report describes, in detail, the ongoing work of Steering Groups in support of the Science Plan. In relation to the main areas of weakness identified in 2016 (Science Plan Areas 2, 7, 8, 12, 14, 21, 23, 27) additional actions have been taken to address them. Area 7 (Develop end to end modelling capability to fully integrate natural and anthropogenic forcing factors affecting ecosystem functioning) has seen least direct progress, but SICCME have markedly increased engagement with projects where these topics are being addressed, so ICES is linked into a network with appropriate expertise even if not leading on the development of such models.

## 2.4 Summary of SCICOM science and operational structures in 2017

To date, 2017 has been a successful year for SCICOM, with four new Steering Group Chairs bedding successfully into their roles and a growing focus on highlighting strong science in the network, impressive outputs including books and papers from the Expert Groups (EG), a successful ASC, more active links between science, data and advice and an increasingly engaged, collective and urgent focus on identifying our future science priorities.

There are currently five SCICOM Steering Groups (SG) each of which addresses a broad and enduring area of science and advice. Collectively they currently 'parent' 98 EG. These EG were attended by 1035 scientists in 2017 (to date; for full details see Annex 2).

The Aquaculture Steering Group is responsible for guiding and supporting EG that are working on science and advisory topics contributing to the sustainable development of aquaculture.

The Human Activities, Pressures and Impacts Steering Group is responsible for guiding and supporting EG that seek to describe the diversity of pressures affecting marine ecosystems and the impacts that follow.

The Ecosystem Processes and Dynamics Steering Group is responsible for guiding and supporting EG that study the state and resilience of marine ecosystems and food webs, as well as the life histories, diversity and interactions of component biota.

The Integrated Ecosystem Assessments Steering Group is responsible for guiding and supporting EG that develop ecosystem modelling and assessment methods, contribute to state of the environment reporting and underpin guidance on meeting ecological, social and economic objectives.

The Ecosystem Observation Steering Group is responsible for guiding and supporting EG that are meeting the immediate data demands of ICES and are contributing to the running and further development of effectively co-ordinated, integrated, quality assured and cost-effective monitoring in the ICES region and beyond.

In 2017, SCICOM agreed a common set of Terms of Reference (ToR) for all Steering Groups, to try to harmonise their approaches and thus increase opportunities for co-ordination of work. In addition to these common ToR, the Groups also have additional ToR specific to their subject remit.

Some high priority, dynamic and topical science areas, often those involving collaboration outside our member countries, are developed and co-ordinated by the Strategic Initiatives, currently the ICES/PICES Strategic Initiative on Climate Change effects on Marine Ecosystems (SICCME) and the Strategic Initiative on the Human Dimension (SIHD). SICCME has catalysed and led a wide-range of international activity and contributed to organising a range of workshops and conferences in 2017.

SCICOM oversees three Operational Groups: the Data and Information Group, the Training Group and the Science Impact and Publication Group.

The Data and Information Group (DIG) exchanges data-related knowledge and advice between the ICES network and the ICES Data Centre and, in 2017, DIG has focused on raising awareness of, and communicating information on, the data held by ICES and also on the governance of data.

The Training Group (TG) oversees the ICES Training Programme which was founded to build capacity in ICES and to support the scientists involved in the advisory process.

Five courses have been run in 2017, with an additional two to be completed. The Training Group also developed a roadmap outlining the directions and goals for the training programme until 2022, which included plans to increase online training.

The Science Impact and Publication Group (SIPG) was formed this year and will be charged with monitoring ICES science output and impact, developing and recommending policies on publication, reviewing Category 1 resolutions and providing guidance on the evolution of science publication and communication and the opportunities and risks it presents for ICES.

Four ICES co-sponsored symposia were run in 2017 (ICES/PICES Symposium on *Drivers of Dynamics of Small Pelagic Fish Resources*, Victoria; *Oceans Past VI*, Sesimbra; *3rd ICES/PICES Early Career Scientist Conference*, Busan and *Ecosystem Studies of Subarctic and Arctic Seas Program International Open Science Meeting*, Tromsø) and two further symposia will take place before the end of the year (*Science delivery for sustainable use of the Baltic Sea living resources*, Tallinn and *Ten International Flatfish Symposia and more than 30 years of advanced research: flatfish ecology in 2017*, St Malo).

The Annual Science Conference in Fort Lauderdale attracted 556 attendees from 33 countries. There was wide engagement of attendees in the meeting with 264 platform presentations in 18 Theme Sessions, as well as 14 open sessions and 30 ICES business and related meetings. Planning of Theme Sessions and keynotes for the 2018 ASC in Hamburg is well advanced with Theme Sessions selected and keynote speakers identified.

ICES published six Co-operative Research Reports (CRR), two ICES Techniques in Marine Environmental Science (TIMES) and three Identification Leaflets in 2017. In addition to the standard Expert Group reports, EG also provided a focus for the writing of at least three books and numerous peer reviewed publications. The new Science Impact and Publication Group will be trying to get gather much more comprehensive data on the outputs catalysed by collaborations in ICES EG in coming years.

### 3 SCICOM priorities

#### 3.1 Setting science priorities

Setting clear science priorities that can inform the development of the next ICES Strategic Plan is the top priority for SCICOM in 2017-2018. The purpose of setting the Science Priorities will be to guide ICES science in a direction which:

- (1) Supports the ICES vision and mission
- (2) Substantially increases the scale, scope and impact of our science, ensuring ICES science is valued and influential in 5 years, 10 years and beyond
- (3) Ensures our science addresses emerging opportunities and issues for member countries and provides clear added value to their own marine science and advisory programmes
- (4) Increases capacity to address contemporary and future issues in marine science and to maintain and build strong and enduring links with regional and global partners
- (5) Further builds strong and enduring links between science, data and advice
- (6) Prepares us to address future challenges for users of marine ecosystems and resonates as relevant with member countries, and current and future clients for advice
- (7) Inspires our network, by balancing elements of vision and discovery with delivery of excellent applied science

SCICOM began to work on the development of science priorities at the March 2017 meeting, informed by an opening presentation from the First Vice-President. Members were asked to consult nationally prior to the meeting and to bring forward priorities which were discussed and developed by SCICOM. SCICOM generated a list of priorities as an output of this exercise and this was revisited in the September 2017 SCICOM ASC meeting. A short summary is provided below and the full analysis is on the Sharepoint [here](#).

Advanced genetic methods
Big data and their uses
Biotechnology
Climate change: forecasting changes and impacts
Climate change: impacts and mitigation
Connectivity, dispersal and movement of organisms
Design, implementation and evaluation of ecosystem monitoring
Dynamic habitat modelling
Ecosystem forecasting and primary production: links to food webs and fishery yields
Emerging human pressures and their interactions
Future scenarios for the sea and society
Implications of more abundant fish stocks
Linking pressure and state
Monitoring of the future
Sensitivity and role of seabed ecosystems
Sensors: development and application
Tools to support integrated advice

SCICOM continues with an active science prioritisation process, which will be informed by three elements

(1) A review of emerging marine 'opportunities' for ICES (action from SCICOM meeting at 2017 ASC)

(2) A review of marine science priorities in member countries and an assessment of where ICES can 'add value' (action from SCICOM meeting at 2017 ASC)

(3) The existing draft list of SCICOM science priorities, along with further bottom-up input (e.g. recent outputs from ASC 2017 Theme and Open Sessions)

Going forward from the ASC meeting and into 2018, we are encouraging SCICOM members to represent national science priorities in the SCICOM process and to work with their ICES Delegates to do this.

### Timetable

The SCICOM timetable for this work will be as follows (with tentative links to the timing of the wider ICES Strategic Planning Process also proposed)

**Oct-Dec 2017:** Review of 'opportunities' for ICES (Responsible: Secretariat, SCICOM (incl DIG and OG), ACOM, Council)

**Oct-Dec 2017:** Review of high-level science priorities in member countries (Responsible: Secretariat, SCICOM, Council)

**Jan 2018:** Amalgamate outcomes of existing SCICOM review, the review of 'opportunities' and 'national priorities' with outputs from network to define preliminary areas of ICES science priorities (Responsible: SCICOM, initially led by subgroup, likely SG Chairs and Secretariat)

**Feb-Mar 2018:** Move towards finalising priorities, justification, costings with SCICOM 'sign-off' at spring meeting (Responsible: SCICOM)

**Mar-May 2018:** Amalgamate Science Priorities into wider planning process (Responsible: Bureau, Council)

**Mar-May 2018:** Start to identify and propose EG and ToR and processes/ structures to support delivery of science priorities (Responsible: SCICOM, ACOM)

**Sept 2018:** ASC. Present ICES draft Strategic Plan (Responsible: Bureau, SCICOM, ACOM)

**Oct 2018:** Formal adoption of ICES Strategic Plan by Council (Responsible: Council)

### Further considerations

SCICOM are also taking account of some wider issues when developing science priorities. A preliminary listing of these issues includes the need to:

(1) Develop the profile and use of regional science, expertise and kudos as an approach to add significant value to marine science at national and global scales;

(2) Recognise and address interconnectedness of systems, both natural and social;

(3) Create links between our ongoing science and advice and a vibrant training culture and strong network for early career scientists;

(4) Contribute to technological developments in marine science and make best use of emerging and available technologies;

(5) Maintain and increase quality, transparency and high ethical standards in our approach to science.

### 3.2 SCICOM work plans for 2018

In addition to the recurrent work of SCICOM, our actions for the coming year (including the setting of science priorities) are summarised in the following table. Several of these will focus on how to measure science delivery in terms of impact and output, to develop mechanisms to capture metrics of output and impact in a more consistent way and to show how ICES science is adding value for member countries. Although these actions are led by SCICOM, they will be delivered jointly with the ACOM, Secretariat, Science Programme, Advice Programme and DATA.

Table. Science actions for delivery in 2017-18 to be led by SCICOM.

Action	Delivery date
Evaluate and develop a strategy for the ICES Training Programme, including assessment of training needs, online training courses, considerations of alternative training initiatives (courses arranged by Ph.D/Post.doc, and exploring options for accreditation of the ICES Training Programme)	Q3 2018 (with Secretariat, Science Programme)
Update and make available revised Guidance for EG Chairs	Q1 2018 (with ACOM, Secretariat, Science Programme, Advice Programme)
Evaluate with strategic partners (PICES, UN agencies, Regional Sea Conventions and Programmes, LME governing bodies) possibilities of scientific input by the ICES science community to on-going international processes like: the World Ocean Assessment, SDG14 implementation, IOC Decade of Ocean Science, International Year of the Salmon, UN instruments for law of the sea of marine conservation	Ongoing (with ACOM, Secretariat, Science Programme, Advice Programme)
Identify and promote science priorities for post 2018 planning cycle	Q1 2018 (with Secretariat, Science Programme)
Bibliographic analysis of ICES publication output and impact	Q3 2018 (with Secretariat, Science Programme)
Adopt topic focused SG names approved by SCICOM on web and in working practices	Q4 2017 (with Secretariat, Science Programme)
Conduct annual analyses of ICES science impact for reporting to SCICOM ASC meeting and October Council meeting	Q3 2018 (with Secretariat, Science Programme)
Publish ICES viewpoints on three topics	Q3 2018 (with ACOM, Secretariat, Science Programme, Advice Programme)
Develop and publish web text highlighting SCICOM role and personnel, including front page link into Science	Q1 2018 (with DATA, Secretariat, Science Programme)

## **4 Updates to SCICOM structures and processes**

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This section summarises some of the main changes to SCICOM structures and processes in 2017. This is complemented by a complete review of changes at the Expert Group level in Annex 1.

### **Steering Groups**

SCICOM founded a new 'Aquaculture' Steering Group in 2017.

'Steering Group' or SG is the name that has now been proposed and adopted by SCICOM to replace 'Science Steering Groups' or SSG; with the topic of each group preceding this designation.

SCICOM members also recommended, and SCICOM approved, changes to the subject-related names of these SG to better describe the range of science they conduct.

The name changes are already in use during day to day operation of the SG and the description of the SG on the website has been updated. The name changes will be fully implemented on ICES systems by the end of 2017. These changes are a step towards increasing the transparency and subject-oriented focus of ICES scientific activity.

The current Steering Groups, their Chairs and the numbers of EG they 'parent' are:

- Aquaculture SG (Chair: Mike Rust; 3 EG)
- Human Activities, Pressures and Impacts SG (Chair: Henn Ojaveer; 25 EG)
- Ecosystem Processes and Dynamics SG (Chair: Silvana Birchenough; 17 EG)
- Integrated Ecosystem Assessments SG (Chair: Mette Skerne-Mauritzen; 16 EG)
- Ecosystem Observation SG (Chair: Sven Kupschus; 37 EG)

### **Benchmark Steering Group**

Following a review of the Benchmark Steering Group, the ACOM and SCICOM Chairs proposed to the March 2017 SCICOM meeting that the group should be dissolved. This was agreed by SCICOM at the March meeting and by ACOM via the Forum. The functions of the group have been passed to the ACOM and SCICOM leadership to provide ongoing management of the benchmarking process: with approaches adopted to suit circumstances.

### **Publication and Communications Group**

This Operational Group was dissolved in 2017.

### **Science Impact and Publication Group**

The Science Impact and Publication Group was formed following the March 2017 meeting of SCICOM and Terms of Reference have also been developed and agreed by SCICOM. Three members have been now been appointed by SCICOM and a call for Chair nominations is live on the SCICOM Forum (for decision by 10 November 2017).



The SIPG will monitor publication output and provide advice to SCICOM, ACOM, the ICES Secretariat and network on increasing the reach and impact of ICES publications and science, including grey literature. It will also develop and recommend policies governing scientific publications as requested by SCICOM, review and provide guidance on the evolution of science publication and communication, and review and provide recommendations on Category 1 requests for ICES publications.

### **Proposals for future improvements**

The SCICOM and ACOM Chairs are continuing to pursue a proposal to allocate all EG in ICES to a Steering Group. This approach would ensure that all EG would be effectively represented at the SCICOM Business Group/ACOM Leadership meetings and create more active links between science and advice. This will mainly affect the Expert Groups currently referring to ACOM and will require the establishment of another Steering Group.

The proposal to parent all EG with a Steering Group was supported by the SCICOM Business Group/ACOM Leadership meeting. SCICOM are supportive but ACOM require further information. Consequently, a more comprehensive paper on the topic than was originally circulated is now being developed.

As part of developing this proposal, the SCICOM and ACOM Chairs will also consult on an approach that does not constrain the affiliation of SG and hence EG to SCICOM or ACOM. This would involve linking individual ToR to SCICOM or ACOM rather than the SG. For any group with only SCICOM ToR, approval would be sought from SCICOM, for any group with SCICOM and ACOM ToR approval would be sought from both Committees and for any group with ACOM ToR approval would be sought solely from ACOM: but all ToR would be visible to both Committees for comment. This more flexible approach would simplify the allocation of advisory requests to the wider network, better engage both Committees in the process of developing ToR and ensure they were better sighted on them as well as helping create more equitable roles for SG Chairs. Group membership rules could still be linked to the EG with ToR linked to ACOM as required.

## 5 Steering Groups

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This Section presents progress reports from the five SCICOM Steering Groups.

The current Steering Groups are:

- Aquaculture SG (Chair: Mike Rust)
- Human Activities, Pressures and Impacts SG (Chair: Henn Ojaveer)
- Ecosystem Processes and Dynamics SG (Chair: Silvana Birchenough)
- Integrated Ecosystem Assessments SG (Chair: Mette Skerne-Mauritzen)
- Ecosystem Observation SG (Chair: Sven Kupschus)

### 5.1 Aquaculture SG (Mike Rust, USA, term started in June 2017)

#### 5.1.1 Introduction

Aquaculture is making an increasing contribution to global fish and shellfish production and is a growing and visible industry in many ICES countries. The Aquaculture Steering Group is responsible for guiding and supporting Expert Groups that are working on science and advisory topics contributing to the sustainable development of aquaculture.

Topics covered include:

- evaluating the social and economic consequences of aquaculture operations;
- types, transmission and prevalence of diseases affecting cultured species and actions that can be taken to address them;
- environmental impacts of aquaculture, approaches to monitor and mitigate them and methods of aquaculture risk assessment;
- carrying capacity and relative efficiencies of alternate aquaculture systems;
- genetics of cultured species;
- projecting the future development of aquaculture and its implications for the food system and food security.

### 5.1.2 Summary of progress in relation to Terms of Reference

Initial set of ToR from recommendations by CSIAQUA scoping meeting in Gdynia

Terms of reference	Progress (From June 2017)
1. Help establish the three EG proposed by CSIAQUA and assess whether the remits of the proposed EGs will effectively support delivery of aquaculture science in ICES and whether any additional EGs or splits of proposed EGs would improve delivery (e.g. fish vs shellfish splits in relation to environmental interactions)	Prior to and during the ASM, contacted CSIAQUA Chair and other EG members to determine motivation for recommendations, issues and general understanding of aquaculture science at ICES and needs for science advice by member states. ASG is formulating revised ToR for three proposed working groups from CSIAQUA based on background information from Gdynia. The SG Chair is working with current EG Chairs in the Aquaculture SG to refine ToR.
2. Build effective interactions with those existing EGs which address ToR related to aquaculture	All EG Chairs have been contacted by the SG Chair and are onboard
3. Consider the viability of establishing EGs focusing primarily on freshwater fish aquaculture (aquaculture of freshwater fishes was considered within ICES scope at the CSIAQUA scoping meeting in Gdynia)	Not yet addressed. Brief discussion with interested attendees at the 2017 ASC.
4. Identify Chairs for the proposed EGs	Not yet addressed.
5. Finalize the ToR of the proposed EGs	Not yet addressed.

Terms of Reference approved by SCICOM.

Terms of Reference	Progress
ToR a) Engage with and work with Chairs of EG to ensure that EG work supports and meets the science objectives and advisory needs of ICES	All existing EG Chairs have been contacted. The SG Chair is working with them to establish additional recommended EGs and other deliverables
ToR b) Help EG formulate and prepare their draft terms of reference and resolutions	EG ToR were already formulated prior to establishment of SG. The process of drafting ToR's for additional EGs is underway and EG Chairs will be engaged in the development of all new ToR.
ToR c) Review and report on the science being undertaken within EG to SCICOM, with a focus on identifying science highlights and priorities and demonstrating the impact of their science	First meeting at 2017 ASC, September 2017.
ToR d) Review scientific products/deliverables of the EG and provide feedback on ways to improve the impact and influence of their work	Not yet addressed. Going forward, SG Chair will work with EG Chairs to identify highlights and other opportunities to create impactful science products
ToR e) Provide feedback to SCICOM on research priorities and implementation of ICES strategy	SG Chair is completing due diligence to understand needs of ICES, appropriate ways to work within ICES structure and potentials for EGs to support strategy
ToR f) Identify shortfalls in skills and knowledge needed to achieve ICES objectives within the SGs area and work	On-going. Follows ToR g.

within the SG and through SCICOM and operational groups to develop capability	
ToR g) Identify gaps and overlaps in the work of EG, and propose consolidation, rationalization or forming of new EG to SCICOM as appropriate	SG Chair is working on formulation of three new EGs in the short term, and strategy for ICES aquaculture science and advice longer term.
ToR h) Help EG Chairs to adopt practices which ensure scientific information generated by EG is receiving adequate quality control consistent with scientific norms	Not yet addressed.
ToR i) Facilitate active horizontal and vertical communication, collaboration and co-ordination between EG and all other relevant ICES groups and identify, in cooperation with EG Chairs, opportunities for internal and external collaboration	SG Chair held aquaculture “office hours” at ASC 2017 to begin communication within SG and among others interested in topic. Held one on one conversations with two other SG Chairs and other SCICOM members.
ToR j) Represent the SG at SCICOM meetings and SCICOM/ACOM leadership meetings in spring and at the ASC	SG Chair attended meetings at ASC 2017.
ToR k) Establish a core group of ASG Expert Group Chairs who, together with the ASG Chair, will share responsibility for implementing the work of ASG;	SG Chair opened communication with and among current EG Chairs. As above, the SG Chair is also building additional EGs who will contribute to the core group.
ToR l) Generate a position paper on the contribution of ASG to ICES science, data and advice;	Still in conceptual stage. SG Chair will work with SG members to crystalize.

### 5.1.3 List of EGs

A full list of expert groups under this Steering Group is provided in Annex 2.

Following discussions among the Aquaculture SG Chair, the SCICOM Chair and the Chairs of three existing EGs, all EGs elected to take the Aquaculture SG as their parent. The change was supported by Henn Ojaveer as Chair of the Human Activities, Pressures and Impacts Steering Group, which previously provided support for the three Expert Groups. The relevant changes to accommodate the change of parentage have now been completed in the Secretariat. The Expert Groups moved to the Aquaculture SG are:

- Working Group on Application of Genetics in Fisheries and Mariculture (WGAGFM) (Chair: Gary Carvalho transitioning to Jann Martinsohn)
- Working Group on Pathology and Diseases of Marine Organisms (WGPDMO; Chair: Ryan Carnegie)
- Working Group on Social and Economic Dimensions of Aquaculture (WGS-EDA; Chair: Gesche Krause)

#### 5.1.4 Science highlights

None to report for ASG. The SG are in the process of identifying and listing specific work products related to aquaculture from all ICES EG.

#### 5.1.5 Communication with EG

The SG Chair has contacted each EG Chair and begun the dialogue needed to focus EG ToR on issues of greatest potential impact for ICES countries. EG Chairs are all supportive of developing an aquaculture science capacity focused on key needs for science based development and management of north Atlantic aquaculture. The next steps will be to get all EG Chairs and the SG Chair together electronically to develop action items followed by an in-person meeting (tentatively in January 2018 in Copenhagen) to sharpen strategic vision and identify tactics to set ICES aquaculture research on a productive and sustainable path.

#### 5.1.6 Summary of new EG proposals and EG closing

This overview is complemented by a complete review of changes as tabulated in Annex 1.

None of the three existing EGs are closing however there are some changes. The Genetics working group (WGAGFM) has recently submitted a proposal for an ICES training course, to consider the role and impact of genomics in fisheries and aquaculture. Such an opportunity will hopefully foster improved integration of their ideas and approaches. This working group also put forward a recommendation from their meeting in Faro in May 2017, to change the name of the group, to *Working Group on the Application of Genetics in Fisheries and Aquaculture* (WGAGFA). This has been approved. The Chair of this EG has transitioned from Gary Carvalho to Jann Martinsohn.

At the March 2017 SCICOM meeting, the Committee supported the proposal by CSIA-QUA to establish three new working groups under the Aquaculture SG to take on:

- Scenario foresight, future projections / eco-forecasting
- Environmental interactions, risk assessment, data collection, methodologies
- Aspects of carrying capacity, efficiencies, IMTA, modelling

The Aquaculture SG will be keeping the intent of these three groups but modifying the ToR and names to align with ICES vision and goals, and to enhance team building. The ASG will also attempt to focus ToR on management needs and target peer reviewed publications, management tools (e.g. models, synthesis documents) and “Viewpoints” as deliverables.

The future projections group will have ToR to include identification of current advice needs by member countries (including identifying the process for permitting and management of aquaculture by governments and key information needs for informed decision making), current social and economic drivers of ICES country aquaculture industries, and current science capabilities in the ICES region that will impact future growth and development of the aquaculture sector in a north Atlantic context. It is important to understand the current state prior to any futurecasting activities. It is desirable to have all SG members (Chair and EG Chairs) participate in this EG due to its anticipated central role in developing a vision and tactical approach to aquaculture science in ICES going forward.

The environmental interactions group will have minimal modifications to the proposed ToR but the focus will be in both improving ecosystem services as well as mitigation of impacts.

The proposed ToR of the carrying capacity group will be modified to include marine space analysis of aspects of carrying capacity, modeling, trophic interactions, and risk. This is because location is the key driver in determining the relevance, size of impact, and potential of the other ToR. An additional ToR linking sustainable aquaculture development in a defined location to economic and social impacts will be added.

A resolution(s) to establish these groups will be forthcoming quickly so that a EG Chairs can be chosen and can join the SG meetings this fall and winter.

#### **5.1.7 Forward look (actions for SG and SCICOM/ ACOM)**

Approval of resolutions to form aquaculture focused Expert Groups.

Development of the Aquaculture Theme Session which has been proposed and accepted for the ASC 2018 in Hamburg.

## **5.2 Human Activities, Pressures and Impacts SG (Henn Ojaveer, term started in January 2015)**

### **5.2.1 Introduction**

The Human Activities, Pressures and Impacts Steering Group is responsible for guiding and supporting Expert Groups that seek to describe the diversity of pressures affecting marine ecosystems and the impacts that follow.

Topics covered include:

- describing and projecting trends in human pressures and impacts on marine ecosystems, including analysis of historical change;
- understanding and quantifying multiple impacts of human activity on populations and ecosystems, and proposing options for mitigation;
- prevalence and effects of contaminants, invasive species, shipping, noise, renewable energy, fishing, climate, acidification and habitat loss;
- estimating the vulnerability of marine ecosystems to pressures and impacts, including risk assessment and identification of limits and thresholds;
- developing indicators of pressure and impact and testing their role in management systems;
- assessing human impacts on ecosystem goods and services and developing approaches to mitigate undesirable impacts.

### 5.2.2 Summary of progress in relation to Terms of Reference

Terms of Reference	Progress
ToR a) Engage with and work with Chairs of EG to ensure that EG work supports and meets the science objectives and advisory needs of ICES	Work conducted on routine basis.
ToR b) Help EG formulate and prepare their draft terms of reference and resolutions	None of the EG finishing their 3-years terms in 2017 have submitted their draft resolutions (two of them will hold their last meetings in Autumn), so the related work will be mostly undertaken towards the end of this year. Reviewed draft resolutions for two newly proposed workshops (WKVCSA, WKCSMP) and assisted WGSFD in formulating additional ToR.
ToR c) Review and report on the science being undertaken within EG to SCICOM, with a focus on identifying science highlights and priorities and demonstrating the impact of their science	Communicated with selected EG Chairs and encouraging them to submit candidate ideas for viewpoints (as discussed at SCICOM/ACOM leadership meeting in March 2017). The proposed topics included: i) bioinvasions, ii) potential impacts of deep sea mining, iii) microplastics and marine litter, iv) passive sampling, v) moving towards information rich monitoring of marine renewable energy environmental impacts. Reviewed EG reports and proposed candidate science highlights as requested by SCICOM chair
ToR d) Review scientific products/deliverables of the EG and provide feedback on ways to improve the impact and influence of their work	This ToR was achieved through communication with EG Chairs during finalisation of EG resolutions and with the aim to have “manuscripts submitted to peer-reviewed scientific journals” as outputs linked to as many ToR as possible.
ToR e) Provide feedback to SCICOM on research priorities and implementation of ICES strategy	Feedback provided as requested.
ToR f) Identify shortfalls in skills and knowledge needed to achieve ICES objectives within the SGs area and work within the SG and through SCICOM and operational groups to develop capability	Examples included: i) encouraging all EG Chairs to add ToR on cumulative impacts of at least two pressures in EG new Resolutions: ii) assisting WGMABS Chairs to design the work (geographic coverage, methodological aspects) for the next 3-years, and iii) discussions with WGHIST Chairs on arranging the previously planned modelling workshop (likely in 2018).
ToR g) Identify gaps and overlaps in the work of EG, and propose consolidation, rationalization or forming of new EG to SCICOM as appropriate	No overlaps detected. Information on new EG provided in 4.1.6. and Annex. In connection with forming the new Aquaculture SG, three EG were moved from EPISG to ASG.

ToR h) Help EG Chairs to adopt practices which ensure scientific information generated by EG is receiving adequate quality control consistent with scientific norms	The mechanisms to achieve this still need to be developed.
ToR i) Facilitate active horizontal and vertical communication, collaboration and co-ordination between EG and all other relevant ICES groups and identify, in cooperation with EG Chairs, opportunities for internal and external collaboration	Related activities undertaken include: invitation of EGs under EPISG working on broadly similar topics (e.g., bioinvasions; chemistry/pollution, renewable energy) to jointly submit candidate items for ICES viewpoints; arranging/proposing (2017/2018) open sessions at ASC jointly with EPDSG.
ToR j) Represent the SG at SCICOM meetings and SCICOM/ACOM leadership meetings in spring and at the ASC	Physical attendance at all SCICOM and SCICOM/ACOM meetings.

### 5.2.3 List of Expert Groups under Human Activities, Pressures and Impacts SG

A full list of expert groups under this Steering Group is provided in Annex 2.

### 5.2.4 Science highlights

**Book: Stock Identification Methods** (2nd Ed): Applications in Fishery Science (Steven Cadrin, Lisa A. Kerr and Stefano Mariani)

Provides a comprehensive review of the various disciplines used to study the population structure of fishery resources;

Represents the worldwide experience and perspectives of experts on each method;

Describes 18 distinct approaches to stock identification grouped into sections on life history traits, environmental signals, genetic analyses, and applied marks;

Features experts' reviews of benchmark case studies, general protocols, and the strengths and weaknesses of each identification method;

Reviews statistical techniques for exploring stock patterns, testing for differences among putative stocks, stock discrimination, and stock composition analysis;

Focuses on the challenges of interpreting data and managing mixed-stock fisheries.

**Book: Perspectives on Oceans Past** (Editors: Kathleen Schwerdtner Máñez, Bo Poulsen)

First book dealing with theoretical backgrounds of marine environmental history;

Analyses the changing relationships between human societies and marine natural resources over time;

Seeks to encapsulate some of the major novelties of this fascinating new discipline and its contribution to the management, conservation and restoration of marine and coastal



ecosystems as well as the cultural heritages of coastal communities in different parts of the world;

Equips readers with broad understanding of the major concepts and methods from science and history used in and applied to marine environmental history

Includes and summarizes topics on modelling approaches, gendered perspectives, and more;

Looks at possible future developments in marine environmental history.

**Special issue in Marine Environmental Research** on 'The ICON Project (the trans-European research project on field studies related to a large-scale sampling and monitoring)', edited by Ketil Hylland and Matt Gubbins.

This special issue comprises a series of studies, describing how environmental chemistry and a range of health-related responses in mussels, gastropods and different fish species may be usefully combined in an assessing contaminant impacts in coastal and offshore areas.

#### **5.2.5 Communication with EG**

Communication with EG Chairs over e-mail, phone and Skype/Webex has proven sufficient and efficient. As most EG Chairs are extremely time-limited, the content of most e-mail communications initiated by the EPISG Chair is to encourage submission of reports/resolutions.

#### **5.2.6 Summary of new EG proposals and EG closing**

This overview is complemented by a complete review of changes as tabulated in Annex 1.

New EGs:

Working Group on Fisheries Benthic Impact and Trade-offs (WGFBIT)

Working Group on Methods for Estimating Discards Survival (WGMEDS)

Workshop on Vulnerabilities and Risks to Culturally Significant Areas (WKVCSA)

Workshop on Co-existence and Synergies in Marine Spatial Planning (WKCSMP)

Workshop on Microplastics in the Marine Environment (WKMP)

Working Group on Marine Litter (to be submitted after ASC)

EG with changes of SG affiliation:

2015/MA2/SSGEPI01	Working Group on Pathology and Diseases of Marine Organisms (WGPDMO)	Transferred to Aquaculture Steering Group (ASG)
2014/MA2/SSGEPI07	Working Group on Social and Economic Dimensions of Aquaculture (WGSEDA)	Transferred to Aquaculture Steering Group (ASG)
2014/MA2/SSGEPI08	Working Group on Application of Genetics in Fisheries and Mariculture (WGAGFM)	Transferred to Aquaculture Steering Group (ASG)

### 5.2.7 Forward look (actions for SG and SCICOM/ ACOM)

For the SG (in addition to the routine work): to i) continue efforts to draft/finalise resolutions for historical fisheries modelling (relates to WGHIST) and microplastics workshops, ii) assist Chairs of EGs, which end their 3-years period in 2017, to draft/finalise new Resolutions (relates to WGMS, WGMHM, WGHIST and WGMABS).

For SCICOM/ACOM: continue to organise required competence/expertise on hazardous substances in relation to the 2017 OSPAR request on this matter (relates to WGMS and MCWG)

Embed the name change for this EG as agreed by SCICOM 10 October 2017, with changeover completed by 1 January 2018. From this date this SG will be known as the "Human activities, pressures and impacts" SG.

## 5.3 Ecosystem Processes and Dynamics SG (Silvana Birchenough, term started January 2017)

### 5.3.1 Introduction

The Ecosystem Processes and Dynamics Steering Group is responsible for guiding and supporting Expert Groups that study the state and resilience of marine ecosystems and food webs, as well as the life histories, diversity and interactions of component biota.

Topics covered include:

- oceanographic characteristics of marine systems and their influences on population, food web and ecosystem dynamics;
- origins and transformations of matter in biogeochemical and production cycles;
- measuring, understanding, reporting and forecasting the dynamics of populations, food webs and ecosystems;
- life histories, diversity and ecology of microbes, phytoplankton, zooplankton, benthic invertebrates, crustaceans and fish;
- ecosystem services;
- ecosystem resilience.

### 5.3.2 Summary of progress in relation to Terms of Reference

Terms of Reference	Progress
ToR a) Engage with and work with Chairs of EG to ensure that EG work supports and meets the science objectives and advisory needs of ICES	On track: regular e-mails correspondence with EG Chairs to discuss and support production of deliverables (e.g. dealines and production of annual reports, self-evaluations documents, setting new ToR) and agreeing work priorities.
ToR b) Help EG formulate and prepare their draft terms of reference and resolutions	On track: regular e-mail discussions with EG Chairs on ToR and deliverables associated with ICES priorities.
ToR c) Review and report on the science being undertaken within EG to SCICOM, with a focus on identifying science highlights and priorities and demonstrating the impact of their science	Ongoing: regular correspondence with EG Chairs to alert, inform on the recent products and highlights. SG Chair has communicated with EG Chairs, mainly to inform and encourage the use of ICES Communication department, Twitter and press releases for wider publicity of scientific outputs.
ToR d) Review scientific products/deliverables of the EG and provide feedback on ways to improve the impact and influence of their work	Ongoing: regular feedback provided on annual reports, ToR and self-evaluation documents to improve visibility, influence, realistic delivery and products.
ToR e) Provide feedback to SCICOM on research priorities and implementation of ICES strategy	Attended the SCICOM meeting in March and on-line e-mail and Skype discussions with SCICOM Chair on potential strategies for integration between and within EGs.
ToR f) Identify shortfalls in skills and knowledge needed to achieve ICES objectives within the SGs area and work within the SG and through SCICOM and operational groups to develop capability	Ongoing: there are clearly more opportunities for integration between EGs across ongoing initiatives ( e.g. ecosystems overviews), joint open sessions and viewpoints and dedicated.
ToR g) Identify gaps and overlaps in the work of EG, and propose consolidation, rationalization or forming of new EG to SCICOM as appropriate	Ongoing: new ideas for working with Aquaculture SG and EPDSG will be discussed. Several ideas were provided from EGs Chairs on 'potential topics for "viewpoints" but these were not selected during the first round.
ToR h) Help EG Chairs to adopt practices which ensure scientific information generated by EG is receiving adequate quality control consistent with scientific norms	As requested by EGs: several queries have been dealt with among EGs (e.g. contributions to external meetings, proposal participation and development).
ToR i) Facilitate active horizontal and vertical communication, collaboration and co-ordination between EG and all other relevant ICES groups and identify, in cooperation with EG Chairs, opportunities for internal and external collaboration	Several meetings have been planned for 2017 and 2018 and included in the budget of the EPD SG Chair to support EGs and represent ICES across several activities.
ToR j) Represent the SG at SCICOM meetings and SCICOM/ACOM leadership meetings in spring and at the ASC	Completed at the March and September meetings in 2017.
ToR k) Establish a core group of EPDSG Expert Group Chairs who, together with the EPDSG Chair, will share	On track: there is a core of 5-6 EG Chairs that are always supportive, active and engage on dedicated requests, correspondence and feedback.

responsibility for implementing the work of EPDSG	
ToR I) Generate a position paper on the contribution of EPD to ICES science, data and advice	Task not started yet, but may be developed and scoped following discussion during the joint EPI and EPD Open Session during ASC 2017.

### 5.3.3 List of Expert Groups under Ecosystem Processes and Dynamics SG

A full list of expert groups under this Steering Group is provided in Annex 2.

### 5.3.4 Science highlights

All EGs have been working towards their ToR and have successfully generated several products or catalysed new activities in addition to the standard reports. Some examples of highlights are summarised (e.g. peer reviewed publications, organising and chairing symposiums and external invitations to several scientific events). A summary of key outputs are provided below:

#### WGREMS:

A very active group, working closely on EU projects. Several doctoral students supervised and post-docs, EU proposals and papers. The most recent contributions are highlighted below:

Carpenter, G., Villasante S., O'Leary B. 2016. Europe: Keep allowable fish catches sustainable. *Nature* 531 (7595): 448.

Rivero-Rodriguez, S., Villasante, S. 2016. What are the research priorities for marine ecosystem services. *Marine Policy* 66: 104–113.

Selig, E., Kleisner, K., Ahoobim, O., Arocha, F., Cruz-Trinidad, A., Fujita, R., Hara, M., Laure Katz, McConney, P., Ratner, B., Saavedra-Díaz, L., Schwarz, AM., Thiao, D., Torell, E., Troëng, S., Villasante, S. 2016. A typology of fisheries management tools: using experience to catalyse greater success. *Fish and Fisheries*. DOI: 10.1111/faf.12192.

Villasante, S., Pita, C., Pierce, G., Pazos Guimeráns, C., Garcia Rodrigues, J., Antelo, M., Da Rocha, JM., García Cutrín, J., Hastie, L., Sumaila, R., Coll, M. 2016. To land or not to land: How do stakeholders perceive the zero discard policy in European small-scale fisheries? *Marine Policy* 71: 166–174.

Villasante, S., Pazos Guimerans, C., Rodrigues, J., Antelo, M., Rivero Rodríguez, S., Pita, C., Pierce, G., Lee, H., Garcia, D., Da Rocha, J.M., Sumaila, R., Coll, M. 2016. Fishers' perceptions about the EU discards policy and its economic impact on small-scale fisheries in Galicia (North West Spain). *Ecological Economics* 130: 130–138.

#### WGCRAB:

A very active group which concentrates on evaluating assessment methodologies, the use of indicators and reference points for management. A peer-review paper was produced:

Haig, J. A., S. Bakke, M. C. Bell, I. S. M. Bloor, M. Cohen, M. Coleman, S. Dignan, M. J. Kaiser, J. R. Pantin, M. Roach, H. Salomonsen and O. Tully (2016). "Reproductive traits and factors affecting the size at maturity of *Cancer pagurus* across Northern Europe." *ICES Journal of Marine Science* 73 (10): 2572–2585, <https://doi.org/10.1093/icesjms/fsw081>

### ICES-IOC WGHABD:

Clear progress with development of the IOC-ICES-PICES Harmful Algal Event (HAE-DAT) database which holds data about harmful algal events across the globe. ICES-IOC WGHABD delegates enter data from the countries on an annual basis. The first ICES HAB status report to be produced during 2018 and will be based on the HAE-DAT data. This report will form the ICES contribution to the IOC Global HAB Status Report which is in preparation.

A paper was also published by this group:

Berdalet, E., R. Kudela, E. Urban, H. Enevoldsen, N.S. Banas, E. Bresnan, M. Burford, K. Davidson, C.J. Gobler, B. Karlson, P.T. Lim, L. Mackenzie, M. Montresor, V.L. Trainer, G. Usup, and K. Yin. 2017. GlobalHAB: A new program to promote international research, observations, and modeling of harmful algal blooms in aquatic systems. *Oceanography* 30(1): 70–81.

Pablo Diaz (early career scientist and member of the WGHABD) submitted in 2015, a proposal entitled “Can pelagic gastropods be used to assess the impacts of ocean acidification?” This work was supported by the ICES Science Fund. The work showed promising results, the work was then invited to be presented at a workshop sponsored by the California Ocean Protection Council, to develop biologically-relevant management thresholds to help to interpret the monitoring and modelling data on ocean acidification on the US west coast.

### WGZE:

Contribution to the ICES/PICES 6th Zooplankton Production Symposium (9–13 May 2016, Bergen, Norway) resulting from close collaboration between by WGZE/WGIMT members

Contribution to the North Atlantic time-series in the IOC/UNESCO International Group for Marine Ecological Time-series (IGMETS) global analysis and status report (<http://igmets.net/report>). IGMETS has compiled a global collection of over 300 time-series, covering the open-ocean, coastal areas, and estuaries. Of all the oceanographic regions, the best coverage within IGMETS is for the North Atlantic, with the WGZE and WGPME time-series being the largest contributor to this region.

A book led by a WGZE member Claudia Castellanni; the book is entitled “Marine Plankton: A practical guide to ecology, methodology, and taxonomy” (Castellani & Edwards, Oxford University Press) published in 2017. The book is a modern plankton identification and reference manual.

A [workshop](#) is planned by PME and WGZE groups in November, entitled Symposium: high throughput methods for application in marine biodiversity time series: Addressing their challenges to fulfil their promises.

### WGREF:

Several papers in production and submitted. Some examples are included below:

Johnson, K.F., E. Councill, J.T. Thorson, E.N. Brooks, R.D. Methot, A.E. Punt. 2016. Can autocorrelation be estimated using integrated assessment models and how does it affect population forecasts? *Fisheries Research* 183: 222–232.

Paper submitted to *Journal of Mathematical Biology* on ‘Emergent properties of a multi-stage population dynamic model’, Ute A. Schaarschmidt; Sam Subbey; Richard D.M. Nash; Anna S. Frank.

### 5.3.5 Communication with EG

The EGs under EPD have been actively working and achieving their proposed ToR. There are no major issues relating to the work delivered by the EGs. Some aspects to consider are associated with the numbers of attendees, although this has only been flagged by some EGs. The following EGs have completed their 3-year cycle, therefore self-evaluations, annual reports and new multi-annual ToR for SCICOM consideration are being discussed. These EGs are:

- BEWG: The EG is progressing well, according to the set ToR. There are several case studies and advisory requests delivered. Members of the EG have group have chaired and participated at drafting advisory workshop and organised and chaired several ICES Theme sessions. Several draft papers are in preparation. The group shows a large number of attendees and new members have joined the EG.
- WGZE: A very active EG. All the multi-annual ToR were completed. The group encompasses a wide range of topics including zooplankton taxonomy, spatial and temporal distribution dynamics, knowledge of marine ecosystem structure and function, zooplankton community response to climate change and impact of microlitter on zooplankton, addressing numerous priorities of the ICES Science Plan. This EG has a very strong dissemination strategy via papers, symposiums and books.
- WGHABD: Progress on track with all ToR. Excellent progress against the proposed plan of work. Clear input to the HAE-DAT data base, participated at several advisory meetings and published in reports and documents.
- WGOH: Progress on track with all ToR. This EGs contributes to the objective 1 of the Science Plan, mainly with oceanographic and climatic data. The main WGOH contribution was the production of the Ocean Climate Report in September 2017. Members contribute to national and international climate advice (via IROC).
- WGREF: The work has covered all ToR. The EG produced several products (e.g. papers, collaborations and proposals). The Chairs have requested 1-year extension into 2017, but after this period this EG will not continue.
- WGRMES: Four ToR are being tackled by the group will each lead to a publication. The group is active in dissemination, production of papers, joint supervision of doctoral and post-doctoral students and collaboration in production of research proposals.
- WGScallop: This group was allocated to EPDSG and SCICOM from ACOM. Changes to expected ways of reporting (e.g. multi-annual ToR) will be discussed in the next cycle.
- WGRECORDS: The last meeting of this EG was during the ASC 2017. Thus self-evaluation + new Draft ToR were postponed for presentation on the SCICOM Forum.
- WGEVO: This EG submitted a Resolution for an ICES Internal Publication and it was approved at the 2017 ASC (see Section 5.3.3.). The CRR will be edited by members of WGEVO and other colleagues, comprising a comprehensive survey of evidence for the incidence and consequence of fisheries-induced evolution across a wide range of fish stocks, and will be published in the ICES Cooperative Research Report series. The editors (Ulf

Dieckmann, Bruno Ernande, and Mikko Heino) agree to submit the final draft of the proposed publication by 31 December 2018.

- **WKSICCME-CVA:** The Workshop on “Regional climate change vulnerability assessment for the large marine ecosystems of the northern hemisphere”, chaired by Myron Peck (Germany, ICES SICCME), Elliott Hazen (USA, PICES: (S-MBM, co-Chair SG-CERP)) and Kathy Mills (USA, ICES) was hosted at ICES HQ, Denmark, 19–21 July 2017. The report is being compiled at present. The verbal feedback received by attendees highlighted the excellent quality of the event. Myron Peck provided feedback to SCICOM during the 2017 ASC.
- **WGCEPH:** The annual report was delayed due to H2020 application deadline. Some initial feedback was provided by e-mail and work now progressing as agreed.
- **WGCRAB:** This EG doesn’t contribute to advisory requests, but has conducted analysis on existing data sets (mostly brown crab and European lobster), contributing to Aim 2 of the Science plan.
- **WGOOFE:** Combined their 2015 and 2016 annual meeting into a single annual report.

### 5.3.6 Summary of new EG proposals and EG closing

This overview is complemented by a complete review of changes as tabulated in Annex 1.

The Working Group on Recruitment and Forecasting in a Variable Environment (WGRFE) has met its ToR and will not pursue a new 3 year term.

### 5.3.7 Forward look (actions for SG and SCICOM/ ACOM)

There are several activities planned to support EGs under EPD, for the SG Chair to represent ICES and to strengthen links between EG and SG Chairs. These activities were submitted for approval using the budget available for 2017, these are:

- **Workshop** on ‘*Novel approaches to determining benthic community dynamics at different scales*’. The EPD Chair represented ICES at this meeting chairing a dedicated topic session. This workshop helped to foster integration of EGs (e.g. WGMRED and BEWG) working across topics on ecological scales and variability of benthic systems (24-27th September hosted at Cape Eleuthera Institute, Rock Salt Bahamas);
- **Symposium** on “*High throughput methods in marine long-term observations*”. The EPD Chair attended on behalf of ICES. This workshop is organised by WGPME and WGZE (11-13 October at Schloß Herrenhausen near Hannover);
- **Meeting** on “*Global ecological and economic connections in Arctic and sub-Arctic crab fisheries*”? The EPD Chair will represent ICES at the workshop, helping to set the scene by presenting ICES priorities on Arctic research and help to foster further collaboration on Arctic fisheries research (8-12 December at ICES HQ Copenhagen);
- **EG Chairs and EPD Chair get together.** The aim of this activity is to foster integration and discuss avenues for better integration across EPD EGs, the data centre and SCICOM. The meeting will be at ICES HQ (~6 experts attending and others via WebEx) (TBC, likely to be in January 2018);

- **EMODNET Biology Annual Meeting.** The EPD Chair attended and helped to develop products in support research and advice on behalf of ICES (9-10th October in London);
- **Joint Open Session for the 2018 ASC** was submitted with EPI SG Chair entitled: *"Methodological advances to evaluate ecosystem impacts of human activities"*;
- **ICES-PICES Workshop** on "Political, Economic, Social, Technological, Legal and Environmental scenarios used in climate projection modelling (WKPESTLE)". A workshop associated with the 4<sup>th</sup> International Climate Change Symposium in Washington D.C. (4-8<sup>th</sup> June, 2018) proposed by jointly by SICCME and SIHD, (John Pinnegar, UK; Jörn Schmidt, Germany; Alan Haynie, USA; and Tyler Eddy, Canada);
- **Further collaborations** discussion to explore potential integration opportunities with Aquaculture SG Chair and EPD EGs (still to be organised with Mike Rust via Skype).

## 5.4 Integrated Ecosystem Assessments SG (Mette Skern-Mauritzen, term started January 2017)

### 5.4.1 Introduction

This Steering Group is responsible for guiding and supporting Expert Groups that develop ecosystem modelling and assessment methods, contribute to state of the environment reporting and underpin guidance on meeting ecological, social and economic objectives.

Topics covered include:

- Development of integrated ecosystem assessments for the Arctic, Baltic, Barents, Celtic, North, northwest Atlantic and Norwegian seas;
- Comparative analyses of marine ecosystems;
- Ecosystem modelling;
- Methods and application of ecosystem-based management and risk assessment;
- Linking ecological, economic and social models and analyses to understand interactions and trade-offs between management objectives;
- Defining data needs to support integrated ecosystem assessment;
- Development of integrated advice to support ecosystem-based management.

Over the last years the focus of the IEA EG work have expanded, and together the IEA EGs now cover all elements in the IEA process from scoping, identifying indicators, assessing ecosystem state, running Management Strategy Evaluations and defining frameworks for providing integrated advice. The toolbox used in the IEAs is increasing, but there is still a limited use of ecosystem models, socioeconomic models and socioeconomic indicators. There is much cross-fertilization among EGs, and among EGs and the Strategic Initiative for Human Dimension.



### 5.4.2 Summary of progress in relation to Terms of Reference

Terms of Reference	Progress
ToR a) Engage with and work with Chairs of EG to ensure that EG work supports and meets the science objectives and advisory needs of ICES	The IEASG Chair has engaged in defining EG ToR, participated in EG meetings, and discussed EG output and reports with EG Chairs and ICES Secretariat. The SG Chair was also involved in arranging 2 open sessions at the 2017 ASC focusing on science objectives and monitoring needs, and has also been engaged in the development of one session for the 2018 ASC on IEA objectives and inclusion of the human dimension in IEA.
ToR b) Help EG formulate and prepare their draft terms of reference and resolutions	The IEASG Chair has been engaged in the drafting ToR for one EG to be approved in 2017.
ToR c) Review and report on the science being undertaken within EG to SCICOM, with a focus on identifying science highlights and priorities and demonstrating the impact of their science	The IEASG Chair has communicated with EG Chairs regarding science highlights, and discussed these with both EG Chairs and the ICES Secretariat, and presented some of these in an opening keynote presentation at the Ecosystem Studies of Sub-Arctic and Arctic Seas (ESSAS) Open Science Meeting.
ToR d) Review scientific products/deliverables of the EG and provide feedback on ways to improve the impact and influence of their work	The SG Chair organised an Open Session on IEASG EGs achievements, future plans and challenges during the ASC 2017. This has helped to facilitate interactions between the SG Chair and EG Chairs
ToR e) Provide feedback to SCICOM on research priorities and implementation of ICES strategy	The IEASG Chair has engaged in several discussions with the ICES Ecosystem Approach Coordinator and SCICOM Chair on both research priorities and scientific and management objectives relevant for the work in IEASG EGs
ToR f) Identify shortfalls in skills and knowledge needed to achieve ICES objectives within the SGs area and work within the SG and through SCICOM and operational groups to develop capability	This ToR was addressed during two open sessions at the ASC 2017; on the challenges for the IEASG groups, and on the data and monitoring needs and how to support them (shared session with EOSG).
ToR g) Identify gaps and overlaps in the work of EG, and propose consolidation, rationalization or forming of new EG to SCICOM as appropriate	This ToR was addressed in the IEA Open Session at ASC 2017.
ToR h) Help EG Chairs to adopt practices which ensure scientific information generated by EG is receiving adequate quality control consistent with scientific norms	The IEASG Chair participated in WKIDEA on IEA approaches and will take part in writing a CRR on best practices of IEA analyses.
ToR i) Facilitate active horizontal and vertical communication, collaboration and co-ordination between EG and all other relevant ICES groups and identify, in cooperation with EG Chairs, opportunities for internal and external collaboration	This ToR is addressed more or less continuously in discussions with EG Chairs, and was also be addressed more specifically by the IEA Open Session at the ASC 2017.
ToR j) Represent the SG at SCICOM meetings and SCICOM/ACOM leadership meetings in spring and at the ASC	The IEASG Chair participated in the 2017 SCICOM and leadership meeting in spring, and in the SCICOM meeting during the 2017 ASC.

ToR k) Map the EGs and their ToR against the information and data that ICES needs to deliver the Science Plan and its advisory work, suitably prioritized	A mapping exercise will be performed that takes into consideration planned activity, suggestions for collaboration between EG, and challenges raised by EG.
ToR l) Promote the development of the Regional Ecosystem Descriptions in standardized formats along the lines proposed by WKECOVER, and WKDECOVER. Propose additions and improvements to those guidelines in collaboration with constituent EG	The IEASG Chairs have discussed the engagement of IEA groups in the development of Ecosystem Overviews, both with the ICES Secretariat and with EG Chairs. The IEASG Chair will assist in identifying persons in the IEA network to assist the development of the Ecosystem Overviews
ToR m) Promote the development of outline Integrated Ecosystem Assessments with the IEA EG. It is recognized that a variety of approaches to IEA exist, and different approaches will be appropriate to the different IEA EG based on skill sets and local conditions. IEASG will promote innovative approaches including using partial component based analyses, and use of combination quantitative and expert judgement approaches	The planned CRR on best practices of IEA analyses will serve as a reference document for currently used analyses. Several of the IEASG groups are now focusing on scoping and identifying management objectives, trade-offs among sectors and cumulative impacts, as well as indicators reflecting system vulnerability and resilience. It is anticipated that a focus on these objectives will require the use of new qualitative and quantitative approaches. This development is also supported by the collaboration between SIHD and IEASG groups, strengthening the focus on inclusion of the human dimension in the IEA. Several IEASG groups are in the process of developing indicators relevant for IEA, and including multispecies and ecosystem modelling in the assessments, to e.g. test indicators, address climate change scenarios and impact on ecosystem vulnerability and resilience. The IEASG Chair is strongly supporting these developments.
ToR n) Maintain a watching brief over initiatives in IEA in the wider community beyond ICES. This should include new approaches or methods for IEA, and broadening of the IEA concept to potentially include economic and social drivers and impacts	The IEASG Chair will participate in a planned ICES/PICES/PAME (Arctic Council) workshop on developing guidelines for EA and IEA of the Arctic, based on experiences on IEAs from ICES regions and other regions.
ToR o) Promote the development within EGs of standards and guidelines for good practice and Quality Assurance in the collation and use of data. This should extend to the maintenance of archived data used in the IEAs, and documentation of all the steps taken to arrive at a conclusion for a given IEA, and the possible involvement of the ICES Data centre	The IEASG Chair has discussed the use of ICES Data Center with some of the IEA groups. This will be further discussed during the IEA Open Session at the 2017 ASC to address some of the data related challenges. The CRR on IEA methods will be important in securing the quality of IEA analyses and conclusions. Also, the IEASG Chair has reviewed EG reports before publication.

#### 5.4.3 List of Expert Groups under Integrated Ecosystem Assessments SG

A full list of expert groups under this Steering Group is provided in Annex 2.

#### 5.4.4 Science highlights

These highlights are a limited selection of publications from the EGs in IEASG and in no way diminish the importance and value of all the work not mentioned here.

De Piper et al. (2017, references below) describe how physical and social scientists have engaged in the transdisciplinary and collaborative process in the Working Group on the Northwest Atlantic Regional Sea (WGNARS) to develop IEA. Much effort was put into scoping and defining objectives by reviewing existing regulations and policies spanning the region. A semi-quantitative conceptual model of the ecosystem was constructed, representing a transdisciplinary representation of the system, efficiently allowing cross-disciplinary integration and standardization of expert knowledge and data into one, unifying framework. Importantly, the focus on objectives from an external source, helped the EG to effectively bridging disciplines by overcoming barriers related to individual discipline's priorities, communication and culture, bringing the group dynamics from negotiation to considering how collective disciplines contribute to solving the problem. The same approaches are now being tested for the North Sea IEA.

Voss et al. (2017) introduce a new way of estimating fisheries management advice referred to as an “ecologically-constrained Maximum Economic Yield” (eMEY) strategy, which takes into account ecological criteria as well as short- to medium-term economic costs. Using an age-structured optimization model parameterized for the Eastern Baltic cod, they found that application of eMEY advice results in more stability in catch advice. Also, quantification and visualization of the costs of deviating from eMEY advice offers a transparent basis for evaluating decision-making outcomes. The paper is based on work performed in the Workshop on DEveloping Integrated AdvICE for the Baltic Sea (WKDEICE).

Nielsen et al. (2017) report on a global review of 35 integrated ecological–economic fisheries models, performed by the Working Group for Integrated Management Modelling (WGIMM). Integrated ecological–economic fisheries models of marine systems are needed to evaluate impacts and sustainability of potential management actions and understand, and anticipate ecological, economic and social dynamics at a range of scales from local to national and regional. The paper identifies the characteristics that determine their usefulness, effectiveness and implementation.

Pecuchet et al. (2017) and the Working Group on Comparative Analyses between European Atlantic and Mediterranean Marine Ecosystems to Move Towards an Ecosystem-based Approach to Fisheries (WGCOMEDA) investigate whether the composition of marine fish communities can be understood in terms of a set of life-history strategies and whether the prevalence of the strategies follows specific spatial patterns that can be related to the environment. Their results support a theoretical framework outlining three dominant life-history strategies of fish, and that the life-history strategies provide a suitable approach for monitoring and understanding community changes in response to natural and anthropogenic stressors, including fishing and climate change. Such trait-based and life-history approaches are now being implemented in the Baltic and Barents Sea IEAs.

## References

De Piper et al. (2017) Operationalizing integrated ecosystem assessments within a multidisciplinary team: lessons learned from a worked example. *ICES Journal of Marine Science*, doi:10.1093/icesjms/fsx038.

Voss et al. (2017) Ecological-Economic Fisheries Management Advice—Quantification of Potential Benefits for the Case of the Eastern Baltic COD Fishery. *Frontiers in marine Science*, doi:10.3389/fmars.2017.00209

Nielsen et al. (2017) Integrated ecological–economic fisheries models—Evaluation, review and challenges for implementation. *Fish and Fisheries*, doi: 10.1111/faf.12232

Pecuhcet et al. (2017) From traits to life-history strategies: Deconstructing fish community composition across European seas. *Global Ecology and Biogeography*, doi: 10.1111/geb.12587.

### 5.4.5 Communication with EG

The IEASG Chair has communicated with EG Chairs on defining ToR, reviewing and commenting on EG reports. She has also held discussions on the formation of new EGs, to develop a session for ASC 2018, and on inviting EG Chairs and EG members to two Open Sessions on the ICES ASC 2017 on (a) IEA and monitoring and (b) IEA EGs achievements, future plans and challenges.

### 5.4.6 Summary of new EG proposals and EG closing

This overview is complemented by a complete review of changes as tabulated in Annex 1.

Dissolved EG in 2017

WKDEICE2 - Workshop on Developing Integrated Advice for Baltic Sea Ecosystem-Based Fisheries Management 2. This EG has explored how multispecies interactions and advice can be added to single species advice to fisheries management and has expanded on the ecological and economic context of the single species advice.

WGMASFDemo - Working Group to Demonstrate a Celtic Seas wide approach to the application of fisheries related science to the implementation of the Marine Strategy Framework Directive. The EG focused on monitoring and research requirements to follow up the MSFD in Celtic waters.

WKINWA – Workshop on IEA in the Northwest Atlantic. The focus of WKINWA was to review and analyse the IEA work in the Northwest Atlantic; particularly with regards to the process employed to identify management objectives and to use conceptual modelling as a tool address objectives.

WKINTERACT – Workshop on “Integrated assessment of socio- ecological interactions of two North Sea strata using Bayesian belief networks”. The workshop was cancelled.

### 5.4.7 New EGs in 2017

WKSIED-BESIO: SIHD Workshop on Balancing Economic, Social, and Institutional Objectives in Integrated Assessments. This interdisciplinary workshop will summarize and synthesize a list of strategic and operational social/cultural, economic, and institutional marine management objectives for the North Sea, derived from existing legal texts and relevant project reports. The output of the workshop will feed into a WGMARS-WGINOSE stakeholder meeting scheduled for February 2018.

#### **5.4.8 Forward look (actions for SG and SCICOM/ ACOM)**

The current focus among IEA EGs on scoping and identifying management objectives, and on identifying approaches and indicators to assess community and ecosystem vulnerability, is expected to result in development of both qualitative and quantitative approaches relevant for IEAs.

Several IEASG groups are also in the process of including quantitative multispecies and ecosystem modelling in ecosystem assessments, to test e.g. multispecies harvesting strategies, indicators, address climate change scenarios and impact on ecosystem vulnerability and resilience. A stronger collaboration between IEA EGs and modelling EGs may facilitate this development.

### **5.5 Ecosystem Observation SG (Sven Kupschus, UK, term started January 2017)**

#### **5.5.1 Introduction**

The Ecosystem Observation Steering Group is responsible for guiding and supporting Expert Groups that are meeting immediate data demands and contributing to the running and further development of effectively co-ordinated, integrated, quality assured and cost-effective monitoring in the ICES region and beyond.

Topics covered include:

- Evaluating and optimising survey design to meet the needs of member countries and support advisory requests;
- Design, planning and co-ordination of egg and larval, acoustic and trawl surveys;
- Identifying and evaluating new technologies for observation and monitoring;
- Advising on the design, deployment and efficiency of sampling methods and gears and the use of resulting data for assessment and advice;
- Aging and estimating life history parameters of sampled fauna;
- Developing monitoring to meet emerging data, science and advisory needs, with a focus on integrated ecosystem assessment and ecosystem-based management.

The EG in the steering group have been satisfactorily conducting their routine tasks (Topics 2–5) in support of the Science Plan, while continuing to improve the data quality assurance and transparency of process (WGBEAM, IBTSWG, WGBITS, WGMEGS, WGIDEEPS). Progress in topic areas 1 and 6 has been made and could be further improved by supporting communication among EG within EOSG and other SGs. The EGs are developing methods to evaluate the effects of potential improvements to survey designs in line with the broader scope of advisory data needs. Once there is greater clarity on future ecosystem data requirements such tools can be used to improve data collection efficiency (WGISUR, WGISDAA, WGCATCH). Groups are also examining advances in technology to collect information on processes more efficiently or to collect information relevant on processes not currently assessed (WGFTFB, WGIBTS, WGFAST).

### 5.5.2 Summary of progress in relation to Terms of Reference

Terms of Reference	Progress
ToR a) Engage with and work with Chairs of EG to ensure that EG work supports and meets the science objectives and advisory needs of ICES	Several webex meetings were conducted and open to all EG Chairs under EOSG. The meetings concluded that there was significant enthusiasm for improving communication. The opportunity has been recognised previously but implementation is complex, with both structural and resource issues needing consideration. The SG is investigating some new initiatives related to both issues.
ToR b) Help EG formulate and prepare their draft terms of reference and resolutions	EG have been developing their own draft ToR relatively independently based on their interests (although a number of groups have struggled with this procedurally). The SG Chair has tried to make connections between EG and to generalise ToR. He has ensured better communication between groups, by identifying areas of common interest and topics consistent with the science plan. Delivering to the science plan is important, but the SG Chair is now developing a strategy that better ensures delivery of the science plan.
ToR c) Review and report on the science being undertaken within EG to SCICOM, with a focus on identifying science highlights and priorities and demonstrating the impact of their science	<p>WGFTFB and WGFASST had another joint meeting in 2017, based on a symposium style session. WGIDEEPS developed a new method for the estimation of abundance and biomass in the Irminger Sea. WGEAGS2, though not its primary task, discussed a short presentation on marine litter sampling for the Danish MIK survey. WGNEPS carried out a review of the latest developments on video enhancement, video mosaicking, and automatic burrow detection. WGBIOP forged links with WKIDEA to develop more useful products for IEAs. WGIPS harmonized the abundance estimation methods for herring surveys in the North Sea and adjacent waters adopting design and analysis methods common to other internationally coordinated WGIPS surveys. WGELECTRA reported on the differences in environmental impact between tickler and pulse beam trawls. WGACEGG reported that accounting for egg mortality provided a more reasonable representation of the biomass trajectories of Atlanto-Iberian Sardine. WGALES hosted presentation sessions focused on sampling methods and results concerning ichthyoplankton spatial and temporal distribution estimates.</p> <p>Looking through the reports and speaking to Chairs suggests that a substantial proportion of the WGs view themselves purely as data collectors, despite the fact that much of ICES science is based on those very collections. Not only the collections, but the knowledge and experience that went into survey design and sampling methodology is important in making scientific progress. At present, it seems that the integration</p>

	<p>of knowledge occurs at the institute level and there is a desire for a more regional integration at the ICES level. The SG intends to support the EOSG EGs in developing a broader approach, developing their own analytical skills and providing them with additional opportunities to feed into the advisory process.</p>
<p>ToR d) Review scientific products/deliverables of the EG and provide feedback on ways to improve the impact and influence of their work</p>	<p>A critical deliverable for survey EGs is the development and update of survey manuals (SISP). Since March 2017, two manuals have been externally reviewed (SISP 8 IBAS and SISP 7 BITS from WGBIFS) and one with minor revisions internally (SISP 13 MIKeyM from WGEGBS). Two further manuals have recently been submitted for review (SISP 10 NeAtl IBTS North Eastern Atlantic Surveys and SISP 14 Offshore Beam Trawl Surveys from WGBEAM). Two draft revisions for WGNPS (SISP 12) and WGMES (SISP 6) are yet to be received.</p> <p>All survey WGs with deliverable data products have quality checked and provided these to the relevant data user groups (where the data were available from National Laboratories) and ensured the data is available on the respective survey databases.</p> <p>The “USA-Norway EK80 Workshop Report: Evaluation of a wideband echosounder for fisheries and marine ecosystem science” has been published as a CRR.</p> <p>The “WGTC Report on the Target Classification” is under external review to be published as a CRR.</p> <p>Three further CRRs on surveys are currently awaiting completion by the end of the year.</p>
<p>ToR e) Provide feedback to SCICOM on research priorities and implementation of ICES strategy</p>	<p>EG have provided feedback on research priorities directly through their ToR and when setting up workshops. There have also been Webex meetings and the outcomes of these have fed through to the strategy sessions at the SCICOM meetings.</p>
<p>ToR f) Identify shortfalls in skills and knowledge needed to achieve ICES objectives within the SGs area and work within the SG and through SCICOM and operational groups to develop capability</p>	<p>In practice, it has been difficult to distinguish skills shortfall from resource shortfall in many EGs. Among the demersal survey EG there is a shortfall of analytical skills, as these EG are being asked more and more to do their own data evaluation. Comments from EG Chairs suggest that shortages are obscured by the large number of nominated members that rarely or never participate.</p>
<p>ToR g) Identify gaps and overlaps in the work of EG, and propose consolidation, rationalization or forming of new EG to SCICOM as appropriate</p>	<p>For data EG there is relatively little overlap because surveys / catch / recreational sampling etc are usually overseen by single EGs. In the cases of methodological elements there is also independent development. It is difficult to judge whether the difference in methods is inherent to the particular</p>

	<p>data source or linked to the skills available to the EG.</p> <p>For the other EG there are frequently overlaps in data use, usually because these data are being used for different purposes. Better communication would help to make better use of the data for these different purposes. The need for better communication applies to EG within EOSG as well as to the wider ICES community. Several suggestions have been made for joint sessions at the 2018 ASC, where a similar topic could be considered from several perspectives.</p>
ToR h) Help EG Chairs to adopt practices which ensure scientific information generated by EG is receiving adequate quality control consistent with scientific norms	<p>This is an area where the SG has made significant progress under the previous Chair and the new SG Chair has sought to maintain and improve those procedures. A significant part of this work, the documentation of survey protocols, is reported under ToR 'd'. Quality assurance of data post national data checks is also provided in the form of database upload checks and scrutinizing outputs for EG reports.</p>
ToR i) Facilitate active horizontal and vertical communication, collaboration and co-ordination between EG and all other relevant ICES groups and identify, in cooperation with EG Chairs, opportunities for internal and external collaboration	<p>Horizontal and vertical communication has been facilitated by the SG Chair by communicating directly with the EG Chairs and representing their opinions at SCICOM. He has found this time intensive and not necessarily desirable when there are many perspectives on a single issue. The SG Chair plans to 'naturally grow' a communication structure within the SG but without the additional layers of authority which were suggested by PGDATA at the March meeting.</p> <p>The SG strategy aims to achieve communication by active bottom up information flow from the EG and coordinating these information streams. This process has been initiated by advocating and suggesting joint WK and deliverables.</p> <p>The Chair attended the RCG to identify how support and opportunities within and between working groups can be provided, with an aim to improve cost efficiency of data collections.</p>
ToR j) Represent the SG at SCICOM meetings and SCICOM/ACOM leadership meetings in spring and at the ASC	<p>The SG Chair attended both meetings and chaired a joint open session with IEASG to effect better information flow and a wider understanding of the data collection and application. The open session identified the key elements that are preventing more rapid progress towards developing aspects of the ICES science plan linked to monitoring.</p>
ToR k) Map the EGs and their ToR against the information and data that ICES needs to deliver the Science Plan and its advisory work, suitably prioritised (SP1.1).	<p>All EOSG EG work is currently assigned to topics in the ICES Science Plan. What is less clear is which bits of work in the plan are not progressing and what impacts this has on the overall delivery of the Science Plan. This work is beyond the scope of the individual SG and has been raised at SCICOM.</p>



ToR l) Promote continued improvements and innovation in the design and technology of surveys and other data collection schemes implemented in support of stock assessments and ecosystem studies, leading to gains in survey efficiency, increased diversity and resolution of data collected, and improvements in the interpretation, quality, utility and impact of the data in ICES advice (SP2.1, 2.2).	The SG is supporting a number of WK this year that are looking at improving efficiency of data collection analytically as well as technologically, and also improving ease of access of data or data products.
ToR m) Determine how at-sea surveys can be adapted in the most cost-effective way to collect key information on ecosystem states and processes in support of the EAM, whilst maintaining the integrity of existing time-series of abundance estimates or indices used for stock assessments and advice." (SP1.2,SP3.1)	WGISUR and WGISDAA have been highly active in this area, developing options and making suggestions. Both groups have proposed new 3-year ToR that attempt to get better feedback from data users at joint annual workshops with data user groups. Although this does require extra resources it is intended that the benefits will outweigh the costs.
ToR n) Evaluate methods to mitigate the impacts of fishing on marine ecosystems through innovative gear design and technology, with a particular focus on by-catch reduction and development of fishing and survey gears which minimise fuel consumption and habitat damage; (SP2.1)	WGFTFB and WGELECTRA primarily deal with this topic. In most instances, the gear developments are guided by national requirements / policy needs complicating the comparison. Impacts considered are the direct impacts on fisheries, sometimes qualitative evaluation of habitat impacts and rarely recovery or indirect impacts. Closer collaboration of these groups with WGCATCH and the multispecies fisheries modelers will be encouraged in future: to evaluate the impact of potential changes. A joint WK and an ASC Theme Session has been proposed to achieve this.
ToR o) Encourage cooperation and collaboration with the fishing industry and other stakeholders in addressing ToR l), m), and n) and develop specific ToR as appropriate	WGFTFB is currently the only EG that interacts directly with the fishing industry. They are considering how to get industry further involved with the scientific process (WK proposal). There are other groups (WGCATCH) that could likely improve data outputs and efficiency by interacting more with industry. The main problem is that it is frequently at the industry expense (a resource issue). WGBITS has attempted to work with industry and WGFTFB to examine the potential to develop a standard gear that would allow better quantification of acoustic data.
ToR p) Promote the development within EGs of standards and guidelines for good practice in data collection covering the design and implementation of surveys, fishery and other related data collection programmes, the archiving and interpretation of data and samples, the analysis of data, provision of data quality indicators, and the documentation of procedures." (SP3.1)	This is covered under ToR 'd' and 'h'.
ToR q) Organize SG meetings which will take place during the ASC and WebEx's, as appropriate, to discuss EG accomplishments and plans, with a focus on the overarching ToR specified above.	The SG Chair attended WGCHAIRS alongside EG Chairs from the data collection groups. The SG Chair organised several cross SG Webex and is attempting to arrange a physical SG meeting.

### **5.5.3 List of Expert Groups under Ecosystem Observation SG**

A full list of EG under this Steering Group is provided in Annex 2.

### **5.5.4 Science highlights**

WGFAST published a CRR setting the standards for the use of the new EK80 echo sounder in order to maintain time series consistency for acoustic surveys traditionally operating the now obsolete EK60. The workshop to complete the CRR was co-sponsored by NOAA.

Having caused a bit of a storm last year by reducing tow duration in one of the tows in each rectangle in the NS, the IBTSWG and WGISDAA spent some time reviewing the results of the experiment. It seems that there are pros and cons in terms of bias and variance and these depended on the objectives, (ecosystem / fisheries). It was concluded that there was no fundamental reason to assume 15-minute tows were worse than 30-minute ones. Their analysis highlights the complexity and challenges of multi-objective monitoring and a greater need for prioritisation of objectives.

### **5.5.5 Communication with EG**

Communication with EG Chairs regarding their specific EGs has been fluent. But it has also become apparent that we need to establish a common approach to this communication to ensure that nothing is overlooked (e.g. because information is sent to the wrong individual). Also, we need clarification on the responsibility of co-Chairs and responsibility of incoming and outgoing Chairs. To achieve this, the SG aims to set up a sharepoint to keep track of proposed changes to ToR, deliverables and SISP as well as links to forms and revised instructions to EG Chairs.

Several webexes were held for EG Chairs but it is difficult to get large number of Chairs to attend at any one time. Consequently, it was not straight forward to develop a clear strategy for developing the community feeling among the EOSG EG Chairs. This question is being addressed by the SG Chair and EG Chairs and the SG Chair intends to run an EOSG session at the WGCHAIRS meeting in 2018 to discuss how we can develop an informal internal support structure for EG within EOSG.

### **5.5.6 Summary of new EG proposals and EG closing**

This overview is complemented by a complete review of changes as tabulated in Annex 1.

WGISDAA, PGDATA, WGBIFS, WGMEGS and WGACEGG proposed further multi-annual ToR this year. A number of EGs also submitted proposals for workshops to deal with specific topics.

No EGs were closed this year.

### **5.5.7 Forward look (actions for SG and SCICOM/ ACOM)**

It is encouraging that there is significant enthusiasm amongst EG Chairs to make progress both in terms of the science and the communication within EOSG. The group has started to consider some of the necessary tasks (see Section 5.5.5.) and will start to implement some changes going forward. If adopted, the proposal to allocate ACOM EG to the SG structure will provide an important opportunity for EOSG to link up with the advisory and benchmark processes more easily and to initiate joint activities which will improve the science and increase the scientific credentials of the monitoring EG.

The ASC 2017 Open Session on linking ecosystem monitoring and assessment demonstrated there was still a very wide range of perception as to what integration was in ICES and how one might achieve it. This means coherent objectives for designing monitoring programs are not going to come from the wider community without clear scientific guidance as to what different sorts of monitoring can and cannot support advice. There is a clear role for EOSG, and the wider ICES community, in establishing a sound scientific basis for future monitoring recommendations.

Input is needed from the SG to the Datras governance group to ensure scientific rigour of the data products being delivered, including the need to specify metadata and caveats to report. SCICOM assigned an action to the SG Chair to report back to the 2018 spring SCICOM meeting on this topic.

## 5.6 Steering Group Budgets

The primary purposes of the annual budgets allocated to SG are (1) to help SG Chairs to engage more actively with each other and with the EG network to identify synergies and reduce duplication in ICES science and (2) to help SG Chairs engage with the wider marine science community to increase the impact of ICES science.

Experience in 2017 demonstrated that it was not possible to agree detailed allocation of SG budgets in advance for the full year, with some meetings and other activities of high relevance to the SG being planned within year and uncertainty about advance costs.

When seeking to develop budgets there were also many case by case questions from SG Chairs, to SCICOM and the Secretariat, about legitimate allocation of funds. This is because there were no agreed guidelines for SG spend. These case by case discussions were time-consuming for all concerned and, in some cases, led to missed opportunities.

In dealing with case by case requests SCICOM and the Secretariat identified risks of inequitable treatment of EG attendees and Chairs if SG budgets were allocated by different SG in different ways. In an EG network where input is based primarily on goodwill, the provision of funding to some individuals and not others in the network was seen as potentially divisive. This is especially the case when funds are proposed to support one or two individual members in EG where other members attending the same EG are not supported.

Given these challenges, SCICOM proposed that SG would be provided with some general guidelines for future SG spend, and a cap on total spend, but do not require detailed budgets at the start of each year.

It is proposed that SG budgets are allocated to SG Chairs to contribute to their own travel and subsistence costs in support of activity that:

- (1) helps SG Chairs to engage more actively with each other and with the EG network to identify synergies and reduce duplication in ICES science
- (2) helps SG Chairs to engage with the wider marine science community to increase the impact of ICES science.

The maximum budget available in 2018 will be 80,000 DKK per SG Chair.

As a guide this would support at least four 4-5 day regional trips (e.g. within Europe, North America) and one trans-regional trip per year.

In practice, SG Chairs can identify the best balance of regional and trans-regional trips, provided their total costs remain within budget.

SG Chairs would then seek approval for each individual trip, in advance, from the SCICOM Chair and Head of Science Support (with a response from one or other assumed to be sufficient to authorise the trip). A short email to show purpose is consistent with the stated rationales (1) or (2) would be required.

SG Chairs would receive economy-class travel and (if requested) per-diem at the standard ICES rates for the location of the meetings.

Each expense will be reimbursed after the mission is completed, based on a reimbursement request submitted to the secretariat . Once the 80,000 DKK limit is reached then further travel would be at national expense.

SG Chairs would not need to draw on their SG budgets for attendance at the March SCICOM meeting, as this attendance is supported from another budget.

At year-end SG Chairs would be expected to provide a short 1-2 page report on their use of the budget for the attention of SCICOM. This should highlight the contribution of the meetings they attended to the work of the SG and the ICES network. This document would be included in SG reports to the ASC and to Council.

## 6 Operational Groups

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### 6.1 Data and Information Group (DIG; Jens Rasmussen, UK)

The Data and Information Group meets in ICES headquarters once per year to exchange knowledge and advice between members and the ICES Data Centre. The full report from the DIG 2017 meeting is available.

The key issues that DIG is addressing this year, and likely in coming years, centre on the general awareness and communication of data held in ICES, and the governance mechanisms that surround these data collections. The two issues are not mutually exclusive, and will overlap with each other and more generic data management discussions.

#### 6.1.1 Awareness and outreach

The overarching aim is related to the ICES strategic plan to “Catalyse best practises in marine data management and promote ICES data nodes as a global resource”

DIG has already engaged in awareness raising around ICES data before by establishing a LinkedIn Group. In the meantime, ICES communications have become much wider and enabled on Social media platforms, so there is now much more open and wide dissemination around a wide range of topics.

The next stages of awareness and promotion proposed by DIG are to reach different audiences in terms of technical insights and capabilities. In particular, two DIG activities seek to target the engaged user community (scientists and advisors) and the more technically involved user base of developers and data managers.

To achieve this DIG has submitted a proposal for a session at the 2018 ASC. The proposed format is looser than formal presentations and is proposed to include rapid pitches of ideas for new or enhanced data products. It is suggested as an informal session in the format of the TV programme “Dragons Den” where a panel receives pitches and asks follow up questions.

The second proposal is a resolution to address a more technical audience in a Workshop (Resolution for WKINVITED). The proposal is a 2 day workshop that takes the format of a hackathon, presenting tools and services from the ICES data nodes to create graphical presentations of data that makes analyses more immediately accessible and understandable to scientists.

The two proposed activities are complementary and expose the ICES data solutions to a wider audience with interests in utilising or improving the data and access to it.

Summary of these activities:

- DIG proposal for an ASC Open Session to open a dialogue on data and data products. If accepted, the session would benefit from a panel member from SCICOM (and ideally ACOM also).
- DIG has sought approval of a resolution to host the WKINVITED workshop in the format of a hackathon. This is accepted by SCICOM pending minor changes.

#### 6.1.2 Governance mechanisms

The most basic definition of governance is to define expectations and measure progress. This is in part done with the ICES request system, but there is not currently a

method for gathering and aligning requests for data nodes although there is often commonality among requests. Further, a pure request based system runs the risk of only addressing specific pressure points rather than any underlying root causes.

DIG is working on defining and trialling a governance framework whereby both specific requests and broader issues can be mapped out for data nodes. This allows a comparable structure for each data node/collection and provides an overview of the key actions and issues associated with certain products. It is still the job of the ICES Data Centre to prioritise and evaluate the work to be done, but putting it into a broader governance context allows a more structured discussion and overview.

This year, DIG trialled discussions on two data nodes/products (Fisheries – mainly DATRAS, and environmental data). The ability to structure the issues into a set of governance categories was overall found to be productive and allowed for some broader issues and questions to emerge.

Some data nodes cover a huge range of activities and data, and it was recognised that it is not feasible for DIG to cover all aspects of governance for each data product. So it has been decided to establish an interim governance group for fisheries, chaired by Ingeborg de Boois. The group will elaborate the governance framework for DATRAS as well as collate experts and representatives from the expert and advice groups that are the most invested users. The group will only meet via Webex and will report to DIG to allow collation of findings.

DIG will subsequently focus on fine tuning categories and the presentation of the “measure progress” part of governance in collaboration with the ICES data Centre. This is intended to provide a dashboard style approach to reporting data activities and issues to science and advisory bodies.

Summary of these activities:

- DIG is establishing a standardised framework for governance that can be applied to each data node/product in ICES. It can be used to gather requirements, shape discussions, and present progress in a structured and compatible way for different data products.
- DIG is establishing an interim Governance group for DATRAS to start applying this approach (Annex 9 of the DIG report for all aims and tasks)

During the September meeting in SCICOM, comments were received that consultation with SG Chair on the membership and ToR was requested. DIG will follow this up before the spring 2018 SCICOM meeting as inter sessional work.

### **6.1.3 Future challenges of Marine Data Management**

A document on the future challenges for marine data management in ICES will be drafted in collaboration between DIG and the data centre for the spring 2018 SCICOM meeting. The document will be drafted by Jens Rasmussen and Neil Holdsworth, and circulated to DIG for comment before submission.

## **6.2 ICES Training Programme (Daniel Duplisea, Canada)**

The ICES Training Programme was initiated in 2009 to help build capacity in ICES and to support the scientists involved in the advisory process. ICES offers training courses by high-profile scientists and instructors to ensure that scientists whose work is related

to the advisory process, have the necessary skills. The objective of ICES training is quality assurance in the advisory process.

The ICES Training Programme has been successful in meeting its objectives of increasing the scientific capacity of the ICES community and promoting best practices in marine science. Thirty-five ICES courses and several co-sponsored courses have been offered on a wide diversity of skills, including stock assessment (introductory and advanced), ecosystem modelling, model building, management strategy evaluation, Bayesian inference, fisheries advice, trawl survey design and evaluation, integrated ecosystem assessment, analysing and visualization of Vessel Monitoring Systems, communication of science and advice, and how to lead an effective technical meeting. Each course was taught within the context of the ICES science and advisory system to demonstrate best practices as well as state-of-the-art technical skills. More than 800 students have attended ICES courses from over 30 countries. Most students have been from ICES member countries, representing all member countries but one. Many students and several instructors are from other countries and cooperating organizations.

### **6.2.1 Training courses in 2017**

In 2017, the ICES Training Programme offered 7 courses (two still to be completed at time of reporting):

- ICES methods for setting proxy MSY reference points, 25–26 January 2017 and 14–15 February.
- Introduction to stock assessment, 5 - 9 June 2017.
- Introduction to abundance estimation from fisheries acoustic surveys. 12–16 June 2017.
- Introduction to the R environment, 21–25 August 2017.
- Introduction to Management Strategy Evaluation, 28 August–1 September 2017.
- Bayesian network analysis including the socio-cultural dimension, 27 November–1 December
- Principles and methods of Broadband/wideband technologies, 8–12 December 2017.

Completed course reports are available on the ICES website

### **6.2.2 Training courses in 2018**

Proposals for new and repeated courses are being considered:

- Stock assessment introduction
- Introduction to the R environment
- Uses of Genomics and Genetics in Fisheries
- Agent based modelling
- Online course in oceanography (in conjunction with DTU)

Several of the courses being considered for 2018 are new courses. If accepted, these would broaden the ICES training program. Proposals for these courses are currently under consideration so the 2018 program is not yet finalised.

### **6.2.3 Online Training Initiatives**

In response to SCICOM encouragement to develop online training, several initiatives were undertaken. The Training Group recognizes that participation in courses has decreased, and online training could provide a cost-effective method for reaching a wider audience and for meeting the programme objectives.

ICES has recently hired staff who are adept at the technicalities of organising online training. The TG is now fully involved in an online training course in Oceanography in conjunction with DTU. The course is planned to be of the Massive Open Online Course (MOOC) type. This course could be offered on some of the common MOOC providers such as Coursera. The present course is the first full attempt to offer online training by ICES and the TG considers it an excellent precursor to further offerings. With lessons learned from this training, the TG hopes to offer some of its core courses this way in the future.

#### **6.2.4 Budget and roadmap**

The TG looks to be cost neutral in 2017. This follows two years of surplus in the training program. The overall goal for the training program is to be cost neutral over say a five year period. A roadmap has been developed for the training program for the next five years and was presented to SCICOM in September 2017. This roadmap outlines the tactical and strategic directions and goals for the training program until 2022 as well as the tools available to the TG in order to achieve these goals with an overall cost neutral objective.

### **6.3 Science Impact and Publication Group (Secretariat)**

#### **6.3.1 Update on status of Science Impact and Publication Group**

The Science Impact and Publication Group was formed following the March 2017 meeting of SCICOM and Terms of Reference (below) have also been developed and agreed by SCICOM. Three members have been now been appointed by SCICOM and a call for Chair nominations is live on the SCICOM Forum (for decision by 10 November 2017).

SIPG Terms of Reference

- a) Monitor publication output and provide advice to SCICOM, ACOM, the ICES Secretariat and network on increasing the reach and impact of ICES publications and science, including grey literature (EG reports).
  - Catalogue and report on the types and quantity of published outputs facilitated by the ICES network
  - Develop and apply methods to assess the impact of all types of publications generated by the ICES network
  - Develop descriptions of the societal impact of ICES science for reporting and outreach
  - Propose approaches for increasing the impact of ICES publications and identify target audiences for communicating science, advice, data and training products
- b) Develop and recommend policies governing scientific publications as requested by SCICOM.
- c) Review and provide recommendations on Category 1 requests for ICES publications prior to SCICOM meetings and intersessionally.
- d) Review and provide guidance (to SCICOM, ACOM, the ICES Secretariat and network) on the evolution of Science publication and communication and the opportunities and risks it presents for ICES.



### 6.3.2 Review of ICES publications

Six CRRs were published in the past 12 months:

- 2013/1/SSGEF05 No. 331 ICES Report on Ocean Climate
- 20152012/1/SSGHIE03 No. 333 Multidisciplinary perspectives in the use (and misuse) of science and scientific advice in marine spatial planning
- 2011/1/ACOM04 No. 334 Status of introductions of non-indigenous marine species to the North Atlantic and adjacent waters 2003–2007
- 2014/1/SSGEPI05 No. 335 Alien species alert: *Didemnum vexillum* Kott, 2002: Invasion, impact, and control
- 2016/1/SSGIEOM03 No. 336 USA–Norway EK80 Workshop Report: Evaluation of a wideband echosounder for fisheries and marine ecosystem science
- 2013/1/SSGHIE06 No. 337 New Trends in Important Diseases Affecting the Culture of Fish and Molluscs in the ICES Area 2002–2015

Two TIMES were published in the past 12 months:

- 2012/1/SSGHIE08 TIMES 58 Biological effects of contaminants: Assessing DNA damage in marine species through single-cell alkaline gel electrophoresis (comet) assay
- 2012/1/SSGHIE09 TIMES 60 Supporting variables for biological effects measurements in fish and blue mussel

Three new ID leaflets were published:

- No. 65: Brown ring disease: a vibriosis affecting clams *Ruditapes philippinarum* and *R. decussatus*
- No. 66: Bonamiosis of oysters caused by *Bonamia exitiosa*
- No. 67: Disseminated neoplasms in bivalves

One leaflet was revised and published:

- No. 42: Infection with *Exophiala salmonis*

A full report from each of the Series Editors can be found on SharePoint in the [Background documents](#) folder for the September 2017 SCICOM meeting.

### 6.3.3 Review of Category 1 resolutions

Due to the dissolution of PUBCOM and the proposed start date for the Science Impact and Publications Group (SIPG) not being until 10 November 2017, the Series Editors reviewed this year's proposed Category 1 resolutions through correspondence. Their comments were presented to [SCICOM](#).

Three Category 1 resolutions for CRRs were submitted (2017/1/EPISG01 Passive sampling for the monitoring of contaminants in sediments, 2017/1/EPDSG02 Report on Fisheries-Induced Evolution, and 2017/1/EOSG03 The SONAR-netCDF4 file format for omni-sonar data).

The CRR Series Editor questioned the inclusion of the CRR on passive sampling when there were also two proposed TIMES on the subject. However, the TIMES Series Editor pointed out that the proposed CRR differed in that it would be an updated discussion on the utility of passive sampling and its relevance to the purpose of monitoring contaminants in sediments as a measure of environmental health. He pointed out that it

could be used to make a case for the use of passive sampling as part of the MSFD monitoring and assessment protocols.

A discussion on 2017/1/EOSG03, which questioned whether its multidimensional content qualified it to be published as a CRR, led to SCICOM asking DIG if it could investigate ways of documenting data in the future. It was noted that this proposed CRR is a promotional tool and not a data product.

The Series Editors recommended SCICOM to accept all three Category 1 resolutions for CRRs.

Three Category 1 resolutions for TIMES were submitted (2017/1/EPISG04 Paper on Chlorophyll analysis and reporting, 2017/1/EPISG05 Paper on Passive sampling for the determination of hydrophobic organic contaminants in sediments, and 2017/1/EPISG06 Paper on Passive sampling for the determination of metals in sediments).

The Series Editors recommended SCICOM to accept all three Category 1 resolutions for TIMES.

There was one request for a resolution to be cancelled (2015/1/SSGEPI01). This has been resubmitted as a joint TIMES between MCWG and WGPME (2017/1/EPISG04).

All proposals were approved.

#### **6.3.4 Update on Series Editors contracts**

Due to a lack of clear guidelines on reappointment, three Series Editors contracts were awarded a one-year extension in 2016. Bureau updated the guidelines on the appointment/reappointment of Series editors in 2017 (Bureau Document 2049 February 2017). The new guidelines state that an initial contract is awarded for three years. Successful applicants can be reappointed twice, and following that must reapply through an open and competitive recruitment process. A recruitment process has now been put in place for the position of CRR Series Editor, TIMES Series Editor and Identifications Leaflets Series Editor with an application deadline of October 20.

## 7 Strategic Initiatives

### 7.1 ICES/PICES Strategic Initiative on Climate Change effects on Marine Ecosystems (SICCME; Myron Peck, Germany, John Pinnegar, UK, Anne Hollowed, USA, PICES, and Shin-ichi Ito, Japan, PICES)

SICCME activities are contributing significantly to both the ICES and PICES Science Plans. This strategic initiative is co-chaired by Drs. Anne Hollowed (USA, PICES), Shin-ichi Ito (Japan, PICES), Myron Peck (DE, ICES) and John Pinnegar (UK, ICES). A detailed, 3-year (Phase 3 – 2018–2020) plan was submitted at the end of March 2017. The plan included modifications and additions to the SICCME mission and activities in light of the success of Phase 2 (2015–2017) including identifying and aligning (to the fullest extent possible) climate change research activities in regional nodes across the northern hemisphere and elsewhere.

#### 7.1.1 Activities 2016/17 (since March 2016)

- March 2017: The International Symposium “Drivers of Dynamics of Small Pelagic Fish Resources” SICCME contributed two workshops; Workshop 4 “Modeling migratory fish behavior and distribution” convened by Shin-ichi Ito (Japan) and Enrique Curchitser (USA) and Workshop 5 “Recent advances in the life stage ecophysiology of small pelagic fish: Linking laboratory, field and modeling studies” convened by Myron Peck (Germany), Kirstin Holsman (USA), Shin-ichi Ito (Japan) and Laure Pecquerie (France). In addition, a SICCME side-event (March 5th) was organized to allow ICES and PICES participants to review accomplishments, and to discuss and update the ongoing SICCME implementation plan.
- May 2017: Wakefield Symposium. ‘Impacts of a Changing Environment on the Dynamics of High-latitude Fish and Fisheries’. This symposium examined the impacts of change and variability on the dynamics of arctic and subarctic species of commercial, subsistence, and ecological importance. SICCME were represented on the steering committee (Anne Hollowed (USA); Mark Payne (Denmark); Franz Mueter (USA)).
- 11–15 June 2017: ESSAS Open Science Meeting (OSM) was held in Tromsø, Norway. The Ecosystem Studies of Subarctic and Arctic Seas (ESSAS) programme is a regional initiative of the Integrated Marine Biogeochemistry and Ecosystem Research (IMBER) project. Its objectives are to understand how climate variability and climate change affect the marine ecosystems, and in turn, how changes in these marine ecosystems affect humans. The title of the OSM was “Moving in, out and across the Subarctic and Arctic marine ecosystems: shifting boundaries of water, ice, flora, fauna, people and institutions”. SICCME was represented on the steering committee (Ken Drinkwater (Norway), Alan Haynie (USA), Shin-ichi Ito (Japan), Franz Mueter (USA)).
- 28–29 June 2017: SICCME was requested to participate in Planning Meeting to update an FAO Fisheries and Aquaculture Technical Paper on “Climate change implications for fisheries and aquaculture. Overview of current knowledge and responses”, held in Rome, Italy. John Pinnegar (UK) and Myron Peck (Germany) attended the meeting and were requested to draft the section on ‘North Atlantic and Atlantic-Arctic Fisheries’, Anne Hollowed, Kirstin Holsman (USA) and Shin-ichi Ito (Japan) were requested to draft the section on ‘North Pacific and Pacific-Arctic Fisheries’.

- 19–21 July 2017: Three-day SICCME workshop on regional climate change vulnerability assessment for the large marine ecosystems of the northern hemisphere (WKSICCME-CVA) held at ICES HQ, Copenhagen. Workshop specially requested by ICES secretariat. Attended by 19 experts from 8 nations around the world (USA, Canada, Australia, Germany, UK, Faroe Islands, Denmark, Spain). The workshop comprised a mixture of short presentations, small group discussions and writing. An additional task (ToRe) involved drafting short statements for inclusion as part of 'ICES Ecosystem Overviews'. The final report for this workshop is currently being completed.
- 30–31 August 2017: SICCME co-chairs were invited by the European Defense Fund (EDF) to participate in a workshop on "Climate-related impacts on fisheries governance" hosted at ICES Headquarters in Copenhagen. The workshop discussed changes to fish stock distribution and abundance, and present current trends from recent research and literature the North East Atlantic region (or FAO area 27). Myron Peck (UoH) attended the meeting on behalf of SICCME, where he reported back on recent SICCME activities.

#### **7.1.2 SICCME Activities at the ICES ASC 2017**

- SICCME organised an open session (Tuesday, 19 September) to discuss progress on modelling nodes and to get general updates from both ICES and PICES partners. Another important element was the development of a common set of political, social and economic scenarios based on the IPCC Shared Socio-economic Pathways (SSP) approach, that can be tested alongside Representative Concentration Pathways (RCPs) in various modelling programs around the world.
- Theme session A "Projected impacts of climate change on marine ecosystems, wild captured and cultured fisheries, and fishery dependent communities" Conveners: Jon Hare (USA); John Pinnegar (UK), Shin-ichi Ito (Japan) and Myron Peck (Germany). 33 oral contributions were selected, for presentation on Wednesday 20 September (16:00–17:00), Thursday 21 September (10:30–12:00 and 14:00–16:00).

#### **7.1.3 Planned Activities (looking forward)**

- September 2017: PICES ASC Topic session (S6: POC/FIS), Vladivostok, Russia. "Can short-term forecasts inform long-term climate projections and visa-versa?" This session sought to explore two aspects of inter-annual scale variability. First, the mechanisms responsible for year-to-year variability in marine ecosystems including fisheries. Second, to engage the climate, ocean and ecosystem modeling communities that are working on inter-annual to decadal-scales to (1) provide the empirical evidence underlying the assumptions for mechanisms of functional linkages between climate variability and ecosystem response at these temporal scales, (2) to assess the retrospective skill of coupled bio-physical models at multiple temporal scales, and (3) to identify how parameter uncertainty can be transferred from shorter forecasting frameworks to longer term projection models. Jackie King (Canada) co-convened from SICCME.
- 4–8 June 2018: The "Fourth International Symposium on the Effects of climate change on the world's oceans" will be held in Washington D.C. (USA) (2013/3/SSGHIE04) with the support of IOC, FAO, PICES and ICES. Jason Link, USA (ICES), Shin-Ichi Ito, Japan (PICES - SICCME), Manuel Barange (FAO), and Veronique Garcon (CNRS) are lead conveners. SICCME is

represented on the scientific steering committee including Anne Hollowed (USA), Myron Peck (Germany), John Pinnegar (UK), Angelica Pena (USA), Kirstin Holsman (USA). The deadline for submitting proposals for Session and Workshop topics was June 23, 2017. 95 submissions were received for theme sessions, plus 20 suggestions for associated workshops. These suggestions were fully assessed by the scientific steering committee and 18 theme sessions were subsequently selected, as well as 10 workshops.

- An ICES-PICES SICCME and ICES SIHD 'Workshop on Political, Economic, Social, Technological, Legal and Environmental (PESTLE) scenarios to be used in climate projection modelling will take place on June 9th in Washington D.C., USA directly proceeding the 4th International Symposium on the Effects of Climate Change on the World's Oceans. The workshop will be chaired by John Pinnegar (UK), Jörn Schmidt (Germany), Alan Haynie (USA) and Tyler Eddy (Canada).

## **7.2 Strategic Initiative on the Human Dimension (SIHD; Jörn Schmidt, Germany, Eva-Lotta Sundberg, Sweden, Alan Haynie, USA)**

SIHD had its inaugural meeting at the ASC 2015. Eight concrete actions were agreed upon at the Workshop on Activity Planning of SIHD (WKAPSIHD) in Ijmuiden, January 2016. A ninth action was added in June 2016 in Brest (at the MSEAS meeting). SIHD also met at the ASC on Riga 2016.

In July 2017 Alan Haynie, NOAA, was officially selected by SCICOM to replace David Goldsborough who had resigned as co-Chair.

### **7.2.1 Update on the activities during this second year of the Strategic Initiative**

#### **Integration in the context of Integrated Ecosystem Assessments (SIHD Action 3) and Demonstration advice (SIHD Action 8)**

The ACOM/SCICOM Workshop on Integrated Ecosystem Assessment methods, WKIDEA in October 2016 reported strong convergence of process and methods used in IEA groups. Although the workshop did not discuss the human dimension in detail, one major outcome was the conclusion that network, mental and conceptual models are a good way to develop a holistic system understanding including social, economic and institutional components.

In May 2017, the Working Group on Maritime Systems (WGMARS) and the Working Group on the Northwest Atlantic Regional Sea (WGNARS) held the Workshop on IEA in the Northwest Atlantic (WKINWA). A major outcome of the workshop was that objectives embedded within the conceptual model as done by WGNARS can be a good way to set the context for the IEA and acknowledge the needs of stakeholders. In addition, it showed that there is a clear need to have feedback loops explicitly incorporated into the modelling process to understand relationships between system components.

SIHD has continued to work with WGMARS (Working Groups on Maritime Systems) and drafted the proposal for the Workshop on Balancing Economic, Social, and Institutional Objectives in Integrated Assessments (WKSIED-BESIO).

#### **Outreach to other organisations (SIHD Action 5)**

- The MSEAS conference in Brest May/June 2016, to which SIHD contributed, was very successful and led to many new collaborations during 2017 among both individuals and organizations.
- The Centre for Marine Research (MARE) held its biannual social science conference in July 2017 in Amsterdam, The Netherlands. SIHD used this occasion to interact with the international marine oriented community from various social science disciplines. Two sessions were held:
  - Linking Ecosystem Service Assessments and Fisheries Management – How to modify current fisheries advice taking ecosystem services into account. One major outcome of this session was that the idea of ecosystem services (ES) as a conceptual tool is very helpful to contextualize and visualize potential trade-offs and that ES can facilitate communication between different science disciplines and ecosystem actors.
  - Transdisciplinary Research to assess marine socio-ecological systems. This session was a round-table discussion including participants from disciplines ranging from natural sciences, arts, linguistics, economics and anthropology, including early career scientists and senior scientists. One major outcome was that the concept of transdisciplinarity is not necessarily well defined and often action research is the actual approach of doing the research. The role of art, specifically in engagement and communication was emphasized. A challenge for early career scientists in engaging in inter- and transdisciplinarity is that they often feel without a (disciplinary) home and future careers are not easy to define (missing acceptance of expertise in universities and institutes).

#### **Network of networks (SIHD Action 9)**

Based on the success of MSEAS 2016 a second symposium is planned for 2020. To keep the momentum and increase collaboration, an “MSEAS network” has been proposed and will be set up between core partners of the MSEAS 2016 symposium with active participation from the SIHD.

#### **7.2.2 Activities planned from now until the 2018 ICES ASC**

- WKSIED-BESIO (Workshop on Balancing Economic, Social, and institutional objectives in Integrated Assessments) in November 2017.
- ASLO/AGU/TOS Ocean Sciences Meeting 2018 Portland: SIHD co-Chair Jörn Schmidt is chair of the session ‘Transdisciplinary research to assess marine socio-ecological systems’.
- IIFET (International Institute of Fisheries Economics & Trade) 2018 Seattle: SIHD co-Chair Alan Haynie is a conference organizer and a major focus will be making the conference valuable to other marine scientists and building new connections between fisheries economists and researchers from other disciplines.
- ICES/PICES Climate and Oceans meeting 2018, Washington, D.C.: Several sessions have been proposed with SIHD Chairs as co-conveners and there will be significant interdisciplinary interactions at the core of this meeting.
- ICES ASC 2018, Hamburg: SIHD co-Chairs are proposing a session based on WKSIED-BESIO.

Working independently and as part of the SIHD community, over the next year SIHD will integrate a better understanding of diverse policy objectives with the available

data and tools that will help address these questions. This will be an ongoing and challenging process where some of the answers from the work will present new questions and challenges that will need to be addressed over coming years.

## 8 ICES Viewpoints

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An outcome of the ACOM-SCICOM meeting on 15 March 2017 and subsequently agreed by SCICOM was a decision to develop a few examples of advice that ICES could give on topics where paid advice has not previously been requested.

This advice would be developed through the normal ICES process to ensure quality control, and would be relevant to a known or potential management issue of potentially high importance to managers and society. However, it would not be referred to as ICES advice, as it was not requested directly by a client, but would be given the title of an “ICES Viewpoint”.

It was agreed that an ideal topic would meet many of the following criteria:

- a. Relevant to a known or potential management issue of potentially high importance to managers and society
- b. Not replicative of a topic for which we already give advice
- c. Based on maturing science and data (ie. science not narrow, speculative or lacking peer and expert group review)
- d. Be linked to a point of contact in the ICES network who would be keen to engage in the process of developing advice
- e. Linked to an ICES action area, such as the Arctic or ecosystem overviews
- f. Based on a topic of likely interest to potential clients
- g. Based on a topic sufficiently focused that it can be succinctly and unambiguously described

SCICOM and ACOM developed a call for proposals and selected three topics following a review of the proposals received (May 2017). One of these topics was dropped in September 2017 because the authors could not progress the work and a new topic was substituted.

Viewpoints are currently (October 2017) being developed on the following topics:

### **Future fish production in the Arctic** (lead Hein Rune Skjoldal)

What are the expected trends in potential fish production in Arctic waters over the next 10-20 years and how are these influenced by physical, chemical and biological changes in the Arctic ecosystem?

What are the expected sustainable yields from any fisheries that develop for these species and what is the likely distribution of the productive area?

### **Consequences of large fish stocks** (lead Anna Rindorf)

Which stocks are at or close to their highest recorded biomass levels in the ICES region and what changes have been observed in biology (e.g. growth, maturity, role of density dependence) and ecology (e.g. interactions with other species, distribution)?

What are the implications of observed and predicted increases in biomass for the stock assessment process and setting of reference points?

### **Vectors and management of invasive species** (lead Cynthia McKenzie, Bella Galil, provisionally with PICES and CIESM)

The provisional questions to be addressed in this viewpoint are:

What are the risks of unregulated biofouled vessels?

What causes and drives these vectors and how will they change in the next 20 years?



What actions can be recommended to prevent/minimize biofouling on vessels to control this vector of introduction and spread?

But the details are still being refined.

SCICOM are also considering development of a Viewpoint of an Aquaculture topic.

Several other Viewpoint proposals were put forward and these are being retained on a 'long list' for future development if the first tranche can be progressed successfully. Topics on this list include: micro-plastics and marine litter, metagenetic biodiversity, passive sampling and monitoring marine renewable energy impacts.

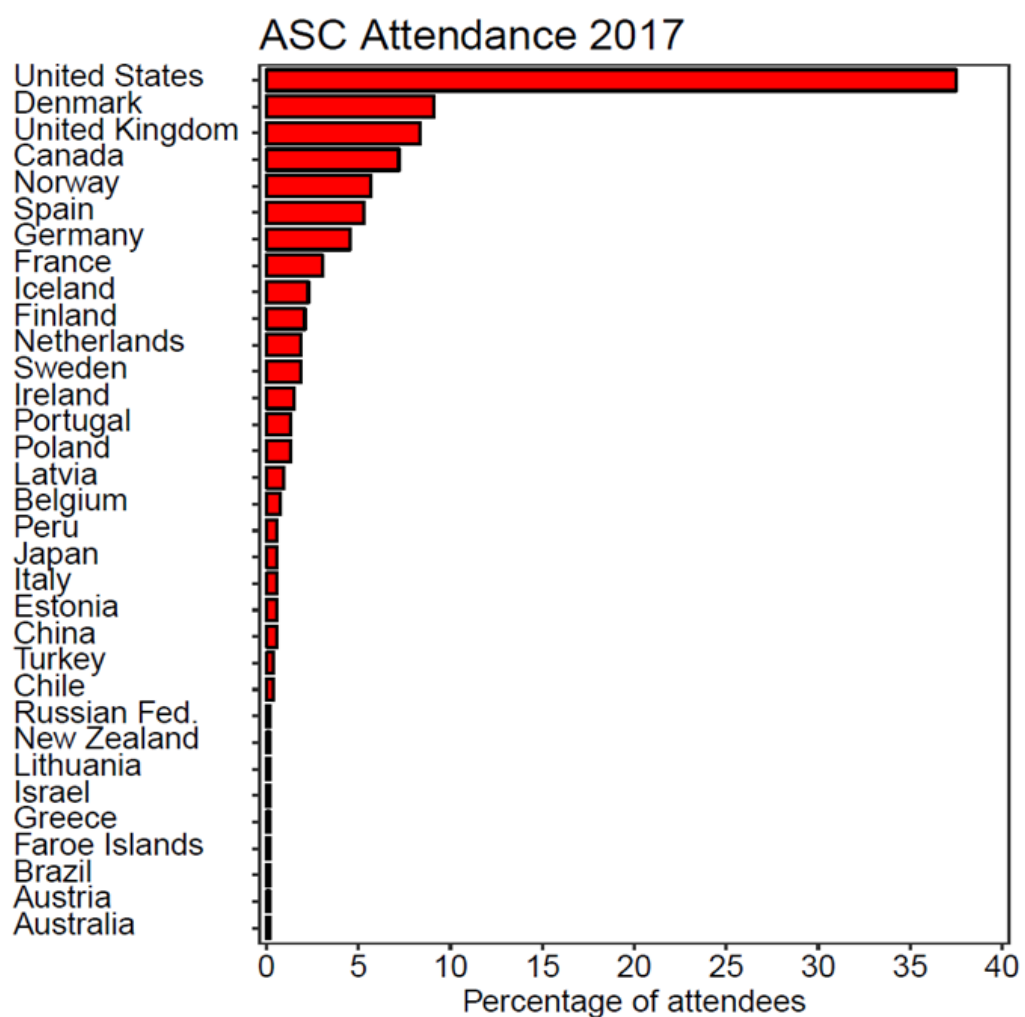
## 9 Annual Science Conference

### Participants

By 13 September, 525 participants had registered for the 2017 ASC (611 at the same date in 2016). On the last day of the conference, the final registration count was 556 registered participants with 38 having registered on-site. Thirty-two countries were represented and there were ~78 cancellations/ no-shows. The early registration fee had been closed on 1 August to encourage participants to register early.

Our NOAA colleagues were not granted travel approvals until Thursday 14 September, and consequently 39 NOAA employees registered after this date.

The following Figure indicates the percentage of attendees from different locations.



## Oral and poster presentations

In May ICES had received 521 abstracts, submitted to 19 theme sessions. One theme session was cancelled, due to meeting dates colliding with a PICES meeting in Russia. For comparison, there were 616 submissions in 2016.

### Theme session A

**ICES - PICES session: Projected impacts of climate change on marine ecosystems, wild captured and cultured fisheries, and fishery dependent communities**

Conveners:

Jon Hare (USA)

John Pinnegar (UK)

Myron Peck (Germany)

Shin-ichi Ito (Japan)

**23 oral + 7 posters**

### Theme session B

**ICES-PICES-CIESM session: Bioinvasion trajectories and impacts in contrasting marine environments**

Conveners:

Henn Ojaveer (Estonia)

Cynthia McKenzie (Canada)

Thomas Therriault (Canada)

**10 oral + 7 posters**

### Theme session C

**Microbes to mammals: metabarcoding of the marine pelagic assemblage**

Conveners:

Ann Bucklin (USA)

Rowena Stern (UK)

Katja Metfies (Germany)

**11 oral**

### Theme session D

**From iconic to overlooked species: How (electronic) tags improve our understanding of marine ecosystems and their inhabitants**

Conveners:

Matthias Schaber (Germany)

Derke Snodgrass (USA)

**13 oral + 2 posters**

### Theme session E

**Poleward shifts and ecological changes of Arctic and Subarctic zooplankton and fish in response to climate variability and global climate change**

Conveners:

Hein Rune Skjoldal (Norway)

Carin Ashijan (USA)

Louis Forter (Canada)

**5 oral + 1 poster**

### Theme session F

**Linkages between spatial ecology and sustainable fisheries**

Conveners:

Susan Lowerre-Barbieri (USA)

Christian Jørgensen (Norway)

Ignacio Catalán (Spain)

Anders Opdal (Norway)

**20 oral + 29 posters**

### Theme session G

**Marine foodwebs from end-to-end and back again, a theme session in honor of John Steele**

Conveners:

Jeremy Collie (USA)

Manuel Barange (Italy)

Mariano Koen-Alonso (Canada)

**11 oral + 2 posters**

### Theme session H

**The practical use of ecosystem indicators for decision-making**

Conveners:

Jamie C. Tam (Canada)

Alida Bundy (Canada)

Annukka Lehtikoinen (Finland)

Laura Uusitalo (Finland)

**12 oral + 3 posters**

**Theme session I**

ICES - PICES session: Anthropogenic effects on biogeochemical processes, carbon export and sequestration: Impact on ocean ecosystem services

**(cancelled)**

**Theme session J**

**Assessing and promoting the survival of re-leased catches and the implications of modified survival rates on aquatic systems**

Conveners:

Mike Breen (Norway)

Tom Catchpole (UK)

Steven Cooke (Canada)

**10 oral + 3 posters**

**Theme session K**

**Introducing man-made structures in marine systems: assessing ecological effects, knowledge gaps and management implications**

Conveners:

Silvana Birchenough (UK)

Jennifer Dannheim (Germany)

Furu Mienis (the Netherlands)

**12 oral + 9 posters**

**Theme session L**

**Ecosystem monitoring in practice**

Conveners:

Sophie Pitois (UK)

Mark Benfield (USA)

Christopher Zimmermann (Germany)

**13 oral + 10 posters**

**Theme session M**

**Modelling social-ecological systems: methods and tools for scenario development and prediction**

Conveners:

Olivier Thebaud (France)

Jan Jaap Poos (the Netherlands)

Jörn Schmidt (Germany)

**18 oral + 6 poster**

**Theme session N**

**Population status, life histories, ecology, assessment, and management of diadromous fishes**

Conveners:

Karen Wilson (USA)

Lari Veneranta (Finland)

**14 oral + 8 poster**

**Theme session O**

**Patterns, sources, and consequences of intra-specific variation in responses of marine fauna to environmental stressors**

Conveners:

R Christopher Chambers (USA)

Hannes Baumann (USA)

Ian Bradbury (Canada)

**9 oral + 4 poster**

**Theme session P**

**Recruitment dynamics in a changing environment: integrating spatial and temporal variability into stock assessment and management strategies**

Conveners:

Fabian Zimmermann (Norway)

LaTrese Denson (USA)

Katja Enberg (Norway)

**19 oral + 8 poster**

**Theme session Q****Integrating economic and social sciences in marine ecosystem services research****Conveners:**

Cristina Pita (Portugal)  
 Tony Charles (Canada)  
 Maria Grazia Pennino (Spain)  
 Sebastian Villasante (Spain)

**14 oral + 8 poster**

**Theme session R****Addressing social and ecological challenges to advance marine aquaculture in rapidly changing environments****Conveners:**

Gesche Krause (Germany)  
 Thomas Noji (USA)  
 Robert Rheault (USA)  
 Wojciech Wawrzynski (ICES)

**9 oral + 8 poster**

**Theme session S****Stock assessment methods, model complexity, and uncertainty****Conveners:**

Arni Magnusson (ICES)  
 Patrick Lynch (USA)  
 Erik Olsen (Norway)

**46 oral + 10 poster**

**Registration**

The registration fee included morning and afternoon coffee. Lunches were not included. This model was tested and has been deemed successful since 2014.

This year, the standard registration fee was 190 EUR (260 EUR after 1 August). Student registration remained at 70 EUR.

**Travel funds**

20 successful candidates received travel funds of 500 EUR each from ICES. Most of them were first time participants. In total, funds amounting to 10,000 EUR were distributed this year.

**Conference programme**

The conference opened with the Opening ceremony. This is a change from previous years, where Monday morning was reserved for Open sessions.

Delegates were welcomed by ICES General Secretary Anne Christine Brusendorff, and ICES President, Cornelius Hammer. Cisco Werner, NOAA Fisheries Director of Scientific Programs and Chief Science Advisor, provided a welcome address. This was followed by an exceptional piece of music, composed especially for the ICES ASC by Zachary Friedland.

The Outstanding Achievement Award was awarded by Carl O'Brien to Christian Möllmann, and the Prix D' Excellence was awarded to William Cheung.

There were three keynote speakers, presenting the following keynotes in the plenary sessions:

Multi-disciplinary team science and engaged stakeholders: two often neglected aspects of coupled human-natural systems, Kenneth Rose, University of Maryland, Center for Environmental Science, Horn Point Laboratory

Promoting uptake of marine science in management both on the supply and demand side, Tundi Agardy, Forest Trends

The planktonic social network of the biological carbon pump, Lionel Guidi, Sorbonne Universités, UPMC Université Paris We had an extra open session on “what do we mean by ICES science”, on Tuesday lunchtime, chaired by Tammo Bult and Pierre Petitgas.

Fourteen Open Sessions were primarily held in the two hour lunch time slots:

Monday 18 September

- Open plenary: Marine science in 2017 and beyond
- Trans-Atlantic science to do ecosystem-based management
- Processes for the peer review of science products that support fisheries management advice
- Functional links between pressure and state indicators

Tuesday 19 September

- What does integration mean for ICES? Current practices and new ideas towards a philosophy of integrated evidence-based advice
- Physical, economic and societal impacts of climate change: testing common scenarios for future impact
- Marine litter and the role of fisheries surveys: Current practices and new ideas for marine litter monitoring

Wednesday 20 September

- Ecosystem data collection, integrated assessments and advice, can we make it one coherent process?
- Emerging science topics relevant for ICES
- Transition from ICES Strategic Initiative on Stock Assessment Methods to a more global expert group

Thursday 21 September

- Integrated Ecosystem Assessments: highlights, challenges and ambitions
- Everything you ever wanted to know about FLR but were afraid to ask
- Help plan the future of ICES – what do you want your organisation to be?
- A sea change for ICES: integrating human dimensions

30 meetings were held throughout the week, including those Business Meetings on the Saturday and Sunday before/after the main conference.

### **Social arrangements**

The hosts kindly invited all conference participants to a lavish conference opening reception on the evening of Monday, 18 September. Two drinks tickets per person, and cash bar were available.

Tuesday night was a big success, with the “Beer game” systems dynamics board game, producing and shipping beer in a dynamic supply chain system.

The poster session was held on Wednesday 20 September, in the Floridian ballroom of the conference centre. There were 135 posters on the programme. Two drinks tickets per person were distributed, and cash bar was available.

The poster session was combined with a social reception, with food, drinks and fantastic musical entertainment by the Florida Atlantic University Wind Symphony, as well as the addition of the ICES choir.

#### **Conference material**

The ASC information booklet was available at the conference registration desk. The ASC website has been remodeled to be 100% mobile friendly, and includes the programme, theme session timetables and practical information. Given the mobile friendliness of the site, it was decided not to invest in an app this year.

Abstracts will be made available online, to the public, with ISBN numbers, in a few weeks. Presentations are not made available publicly.

#### **Hotel Accommodation**

Lists of hotels in various price categories were published early in the year on the conference website and participants were urged to make their bookings as early as possible. ICES officials and Secretariat staff had room reservations at Hilton Fort Lauderdale Marina, not far from the convention centre.

Following Hurricane Irma, several hotels had delays in reopening and communications with their guests. Most hotels were able to open on time for the start of the ASC. However Hyatt Pier 66 has still not opened, and approximately 50 ASC participants were rebooked into other hotels, by the Greater Fort Lauderdale Visitors

Bureau housing service. An additional shuttle bus was also arranged, to transport participants the further distance.

## 9.1 ASC Theme Session Reports

Theme Session reports are linked to the titles listed below:

9.1.1 [Theme session A: ICES - PICES session: Projected impacts of climate change on marine ecosystems, wild captured and cultured fisheries, and fishery dependent communities](#)

9.1.2 [Theme session B: ICES-PICES-CIESM session: Bioinvasion trajectories and impacts in contrasting marine environments](#)

9.1.3 [Theme session C: Microbes to mammals: metabarcoding of the marine pelagic assemblage](#)

9.1.4 [Theme session D: From iconic to overlooked species: How \(electronic\) tags improve our understanding of marine ecosystems and their inhabitants](#)

9.1.5 [Theme session E: Poleward shifts and ecological changes of Arctic and Subarctic zooplankton and fish in response to climate variability and global climate change](#)

9.1.6 [Theme session F: Linkages between spatial ecology and sustainable fisheries](#)

9.1.7 [Theme session G: Marine foodwebs from end-to-end and back again, a theme session in honor of John Steele](#)

9.1.8 [Theme session H: The practical use of ecosystem indicators for decision-making](#)

9.1.9 [Theme session J: Assessing and promoting the survival of released catches and the implications of modified survival rates on aquatic systems](#)

9.1.10 [Theme session K: Introducing man-made structures in marine systems: assessing ecological effects, knowledge gaps and management implications](#)

9.1.11 [Theme session L: Ecosystem monitoring in practice](#)

9.1.12 [Theme session M: Modelling social-ecological systems: methods and tools for scenario development and prediction](#)

9.1.13 [Theme session N: Population status, life histories, ecology, assessment, and management of diadromous fishes](#)

9.1.14 [Theme session O: Patterns, sources, and consequences of intra-specific variation in responses of marine fauna to environmental stressors](#)

9.1.15 [Theme session P: Recruitment dynamics in a changing environment: integrating spatial and temporal variability into stock assessment and management strategies](#)

9.1.16 [Theme session Q: Integrating economic and social sciences in marine ecosystem services research](#)

9.1.17 [Theme session R: Addressing social and ecological challenges to advance marine aquaculture in rapidly changing environments](#)

9.1.18 [Theme session S: Stock assessment methods, model complexity, and uncertainty](#)



## 9.2 ASC Open Session Reports

Open Session reports are linked to the titles listed below:

- 9.2.1 [Marine science in 2017 and beyond](#)
- 9.2.2 [Trans-Atlantic science to do ecosystem-based management](#)
- 9.2.3 [Processes for the peer review of science products that support fisheries management advice](#)
- 9.2.4 [Functional links between pressure and state indicators](#)
- 9.2.5 [What does integration mean for ICES? Current practices and new ideas towards a philosophy of integrated evidence-based advice](#)
- 9.2.6 [Physical, economic and societal impacts of climate change: testing common scenarios for future impact](#)
- 9.2.7 [Marine litter and the role of fisheries surveys: Current practices and new ideas for marine litter monitoring](#)
- 9.2.8 [Ecosystem data collection, integrated assessments and advice, can we make it one coherent process?](#)
- 9.2.9 [Emerging science topics relevant for ICES](#)
- 9.2.10 [Transition from ICES Strategic Initiative on Stock Assessment Methods to a more global expert group](#)
- 9.2.11 [Integrated Ecosystem Assessments: highlights, challenges and ambitions](#)
- 9.2.12 [Everything you ever wanted to know about FLR but were afraid to ask](#)
- 9.2.13 [Help plan the future of ICES – what do you want your organisation to be?](#)
- 9.2.14 [A sea change for ICES: integrating human dimensions](#)

### **9.3 ASC 2018 Hamburg, Germany**

The 2018 Annual Science Conference will be held at Hamburg University, in Hamburg Germany, Monday 24 September to Thursday 28 September.

A site visit took place in July 2017 with participation from ICES Secretariat (Anna Davies) and German representatives, Jörn Schmidt, Chris Zimmermann and Gerd Kraus. A contract for the venue has been finalised.

The conference centre is located very close to the centre of Hamburg, in a very green, lush part of the city, surrounded by grand university buildings.

When the university students are away for summer holidays, the building is used for conferences and meetings.

Transport to Hamburg is very easy. There is an international airport, with flights coming in from all over the world. Train and bus connections are excellent from all over Europe, and the conference center is very close to a central train station.

The opening ceremony for the conference will be held in the large lecture theatre, and four parallel theme sessions in the smaller lecture theatres surrounding. There is a definite limitation of space for the poster exhibit, so a variety of options are being explored to present these (a SCICOM sub-group has been identified to help the local organisers with this). Final decisions on the location of the social events are still pending.

Hamburg is a wonderful, lively city (even in the pouring rain!). There is a wide variety of accommodation, for all budgets, and eating and drinking for all tastes.

## 10 Symposia

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### ICES co-sponsored symposia held in 2017

- 'ICES/PICES Symposium on Drivers of Dynamics of Small Pelagic Fish Resources', Victoria, Canada, 6–11 March 2017
- 'Oceans Past VI', Sesimbra, Portugal, 16–18 May 2017
- '3rd ICES/PICES Early Career Scientist Conference', Busan, Korea, 30 May – 2 June 2017
- 'ESSAS International Open Science Meeting', Tromsø, Norway, 11–15 June 2017

The [Symposia Report for 2017](#) is available on the ICES website. It will be updated in December to include the summary reports for the two remaining symposia to be held in 2017.

### ICES co-sponsored symposia still to be held in 2017

- 'Science delivery for sustainable use of the Baltic Sea living resources', 17–19 October, Tallinn, Estonia
- 'Ten International Flatfish Symposia and more than 30 years of advanced research: flatfish ecology in 2017', 11–16 November, St. Malo, France

### ICES co-sponsored symposia to be held in 2018:

- '4th ICES/PICES/IOC Symposium on Climate Change and Impacts on the World's Oceans', 4–8 June, Washington D.C.
- 'Conference on "Oceans Past VII", 22–26 October, Bremerhaven, Germany – approved by SCICOM in September
- 'Management tools and standards in support of Sustainable Development Goal 14', October 2018, Reykjavik, Iceland

### ICES co-sponsored symposia to be held in 2019

- 'The International Year of the Salmon Symposium' (running title, location uncertain), by NPAFC and NASCO
- 'Challenging the scientific legacy of Johan Hjort: Is it time for a new paradigm shift in marine research? symposium', 2–14 June 2019, Bergen, Norway
- 'Shell-fish - Resources and Invaders of the North' symposium, 4th quarter 2019, Tromsø, Norway – approved by SCICOM in September

### ICES co-sponsored symposia to be held in 2020

- Symposium on 'Marine Socio-Ecological Systems - MSEAS 2020: Navigating global change in the marine environment with socioecological knowledge', Yokohama, Japan

### **Annex 1: List of ICES SCICOM Expert Groups that were dissolved, established, changed committee or were renamed in 2017**

<i>Change of Chairs</i>	<i>Steering Groups (SG)/Operational Groups (OG)/Strategic Initiatives (SI)</i>	<i>Outgoing Chair</i>	<i>Incoming Chair</i>
SCICOM OG	Data and Information Group (DIG)	Ingeborg de Boois, the Netherlands	Jens Rasmussen, UK
SCICOM SI	Strategic Initiative on the Human Dimension in Integrated Ecosystem Assessments (SIHD)	David Goldsborough, the Netherlands	Alan Haynie, USA
SCICOM SI	Strategic Initiative on Climate Change (SICCME)	Anne Hollowed, USA, PICES	Jacquelynne R. King, Canada
<i>SG renamed</i>			
ACOM/SCICOM SG	Steering Group on Integrated Ecosystem Assessments (SSGIEA) has been renamed to Integrated Ecosystem Assessments Steering Group (IEASG)		
ACOM/SCICOM SG	Steering Group on Integrated Ecosystem Observation and Monitoring (SSGIEOM) Resolutions has been renamed Ecosystem Observation Steering Group (EOSG)		
SCICOM SG	Steering Group on Ecosystem Processes and Dynamics (SSGEPD) has been renamed Ecosystem Processes and Dynamics Steering Group (EPDSG)		
SCICOM SG	Steering Group on Ecosystem Pressures and Impacts (SSGEPI) has been renamed Human Activities, Pressures and Impacts Steering Group (HAPISG)		
<i>OG and SG established</i>			
SCICOM	Science Impact and Publication Group (SIPG)		To be decided (final resolution therefore pending)
ACOM/SCICOM	Aquaculture Steering Group (ASG)	-	Mike Rust, USA
<i>OG dissolved</i>			
	Publications and Communications Group (PUBCOM)		

<i>Change of affiliation</i>	<i>Expert Groups</i>	<i>Old parent Committee/ SSG</i>	<i>New parent Committee/ SG</i>
	Working Group on Pathology and Diseases of Marine Organisms (WGPDMO)	SSGEPI	ASG
	Working Group on Social and Economic Dimensions of Aquaculture (WGSEDA)	SSGEPI	ASG
	Working Group on Application of Genetics in Fisheries and Mariculture (WGAGFM)	SSGEPI	ASG
	Scallop Assessment Working Group (WGScallop)	ACOM	EPDSG
<i>Established</i>	<i>Expert Groups</i>		
EPISG	Working Group on Methods for Estimating Discard Survival (WGMEDS)		Tom Catchpole, UK, and Sebastian Uhlmann, Belgium
EPISG	Working Group on Fisheries Benthic Impact and Trade-offs (WGFBIT)		Tobias van Kooten, Netherlands; Ole Ritzau Eigaard, Denmark; and Gert van Hoeij, Belgium
EPISG	<b>Placeholder:</b> Working Group on Marine Litter ( <i>to be submitted</i> )		
<i>Change of Chairs</i>	<i>Expert Groups</i>	<i>Outgoing Chair</i>	<i>Incoming Chair</i>
ACOM	Herring Assessment Working Group for the Area South of 62°N (HAWG)	Niels Hintzen, NL	Valerio Bartolini, Sweden and Susan Mærsk Lusseau, UK,
ACOM	Joint ICES/OSPAR Expert Group on Sea-birds	Ian Mitchell, UK	TBD. JWGBIRD is meeting in October
ACOM	Working Group on Bycatch of Protected Species (WGBYC)	Marjorie C. Lyssikatos, USA	TBD.
ACOM	Working Group on the Celtic Sea Ecosystem (WGCSE)	Helen Dobby, UK (Co-Chair)	WGCSE is requesting that a new co-Chair is nominated
ACOM	Working Group on Marine Mammal Ecology (WGMME)	Begoña Santos (Spain) and Graham Pierce (UK)	Anders Galatius (Denmark) and Anita Gilles (Germany)
ACOM	Working Group on Southern Horse Mackerel, Anchovy, and Sardine (WGHANSA)	Lionel Pawlowski, France	Alexandra (Xana) Silva, Portugal,
ACOM	Working Group on North Atlantic Salmon (WGNAS)	Gérald Chaput, Canada	Martha Robertson, Canada,
EPDSG	Working Group on Zooplankton Ecology (WGZE)	Piotr Margonski, Poland	Sophie Pitois, UK, and Lidia Yebra, Spain,
EPDSG	Working Group on Oceanic Hydrography (WGOH)	Sarah Hughes, UK, and Karin M. Larsen, FO, Denmark	Paula Fratantoni, USA, and César González-Pola, Spain

<i>Change of Chairs</i>	<i>Expert Groups</i>	<i>Outgoing Chair</i>	<i>Incoming Chair</i>
EPDSG	Working Group on Integrated Morphological and Molecular Taxonomy (WGIMT)	Ann Bucklin, USA	Naiara Rodriguez-Ezpeleta, Spain, and Elaine Fileman, UK
EPISG	Working Group on Marine Sediments with respect to pollution (WGMS)	Celine Tixier, France, and Craig Robinson, UK	Els Monteyne, Belgium and Maria Belzunce, Spain
ASG	Working Group on the Application of Genetics in Fisheries and Aquaculture (WGAGFA)	Gary Carvalho, UK	Jann Martinsohn, Italy/ European Commission
IEASG	ICES/HELCOM Working Group on Integrated Assessments of the Baltic Sea	Laura Uusitalo, Finland, Lena Bergström, Sweden	Lauréne Pécuchet, Denmark, and Matilda Valman, Sweden (pending approval from HELCOM)
IEASG	ICES/PICES/PAME Working Group on Integrated Ecosystem Assessment (IEA) for the Central Arctic Ocean (WGICA)		Sei-Ichi Saitoh (PICES), Japan
IEASG	Working Group on Integrative, Physical-biological, and Ecosystem Modelling (WGIPEM)		Marie Maar, Denmark
IEASG	Working Group on Maritime Systems (WGMARS)		Patricia M. Clay, USA
EOSG	Working Group on Mackerel and Horse mackerel Egg Surveys (WGMEGS)	Finlay Burns, UK, Cindy van Damme, NL	Matthias Kloppmann, Germany, and Gersom Costas, Spain
EOSG	Baltic International Fish Survey Working Group (WGBIFS)	Włodzimierz Grygiel, Poland	Olavi Kaljuste, Sweden
EOSG	Working Group on Acoustic and Egg Surveys for Sardine and Anchovy in ICES areas VII, VIII and IX (WGACEGG)	Pablo Carrera, Spain, Maria Manuel Angelico, Portugal	Maria Santos, Spain and Mathieu Doray, France
EOSG	Working Group on Integrating Surveys for the Ecosystem Approach (WGISUR)	Ingeborg, de Boois, NL	Ralf van Hal, NL
EOSG	Working Group on Fishing Technology and Fish Behaviour (WGFTFB)	Petri Suuronen, FAO	FAO Chair (TBD)
EOSG	Working Group on Recreational Fisheries Surveys (WGRFS)	Harry V. Strehlow, Germany	Keno Ferter, Norway
EOSG	Working Group on Commercial Catches (WGCATCH)	Hans Gerritsen, Ireland	Ana Ribeiro Santos, United Kingdom
EOSG	Working Group on <i>Nephrops</i> Surveys (WGNEPS)	Ana Leocadio, UK	Adrian Weetman, Scotland, and Kai Wieland, Denmark
EOSG	Working Group on Biological Parameters (WGBIOP)	Loote Worsøe Clausen, Denmark	Francesca Vitale, Sweden

<i>Dissolved</i>	<i>Expert Groups</i>	<i>Outgoing Chair</i>
ACOM	Inter-benchmark process (IBP) on North-east Arctic cod (IBPArcticCod)	Daniel Howell, Norway
ACOM	Benchmark of Baltic Stocks (WKBALT)	External Chair Verena Trenkel, France and ICES Chairs Margit Eero, Denmark
ACOM	Benchmark of Baltic Salmon (WKBaltSalmon)	Tapani Pakarinen, Finland
ACOM	Benchmark on Sea Bass (WKBASS)	External Chair Vladlena Gertseva, USA and ICES Chair Massimiliano Cardinale, Sweden
ACOM	Benchmark of Faroese Stocks (WKFAROE)	Höskuldur Björnsson, Iceland
ACOM	Benchmark of North Sea Stocks (WKNSEA)	External Chair Liz Brooks, US and ICES Chair Jennifer Devine, Norway
ACOM	Benchmark of Pelagic Stocks (WKPELA)	External Chair Dankert Skagen, Norway and ICES Chair Andrés Uriarte, Spain
ACOM	Benchmark of Widely Distributed Stocks (WKWIDE)	External Chair Jon Deroba, US and ICES Chair Andrew Campbell, Ireland
ACOM	Workshop on Stock Identification and allocation of catches of herring to stocks (WKSIDAC) (in October 2017)	Martin Pastoors, NL, and Richard Nash, Norway
ACOM	Workshop to compile and refine catch and landings of elasmobranchs [WKSHARK3]	Pascal Lorange (France) and Jan Jaap Poos (Netherlands)
ACOM	Workshop on Potential Impacts of Climate Change on Atlantic Salmon Stock Dynamics (WKCCISAL),	Dennis Ensing, UK and James Irvine, Canada
ACOM	Workshop to evaluate regional benthic pressure and impact indicator(s) from bottom fishing (WKBENTH)	Adriaan Rijnsdorp, The Netherlands
ACOM	Workshop on scoping stakeholders on production of operational guidance on regional management and assessment of benthic pressure and impact from bottom fishing. (WKSTAKE)	Mark Dickey-Collas, ICES Secretariat
ACOM	Workshop to evaluate trade-offs between the proportion of impact on seafloor habitats and provisions of catch/value (WKTRADE)	Josefine Egekvist, Denmark and Adriaan Rijnsdorp, The Netherlands

<i>Dissolved</i>	<i>Expert Groups</i>	<i>Outgoing Chair</i>
ACOM	Workshop on the Development of Quantitative Assessment Methodologies based on Life-history traits, exploitation characteristics, and other relevant parameters for stocks in categories 3-6 (WKLIFE VII) (in October 2017)	Carl O'Brien (UK) and Manuela Azevedo (Portugal) will meet in Lisbon, Portugal
ACOM	Workshop to scope the ICES framework for ecosystem advice (WKECOFRAME)	Lisette Enserink (The Netherlands) and Carl O'Brien (UK)
ACOM	Workshop to review the ICES advisory framework for short lived species, including detailed exploration of the use of escapement strategies and forecast methods [WKMSYREF5]	Knut Korsbrekke, Norway, Jose De Oliveira, UK
ACOM	Workshop on the impact of marine catches on the recovery of eel (WKMAREEL)	Alan Walker, UK
ACOM	Inter-Benchmark Protocol for turbot in the North Sea (IBPTurbot4a)	Alexander Kempf, Germany
ACOM	Workshop on stakeholder input to and parameterization of, ecosystem and food web models in the Irish Sea aimed at a holistic approach to the management of the main fish stocks (WKIrish4) (in October 2017)	David Reid, and Francis O'Donnell (Ireland)
EPDSG	Working Group on Recruitment Forecasting in a Variable Environment (WGRFE)	Liz Brooks, USA, and Samuel Subbey, Norway
EPDSG	Workshop on Predator-prey Interactions between Grey Seals and other marine mammals (WKPIGS)	Andrew Brownlow, UK; Nora Hanson, UK; Jan Haelters, Belgium; and Abbo van Neer, Germany
EPDSG	Workshop on Biological Input to Eastern Baltic Cod Assessment (WKBEBCA)	Michele Casini, Sweden, and Margit Eero, Denmark
EPDSG	Workshop on Regional climate change vulnerability assessment for the large marine ecosystems of the northern hemisphere (WKSICCME-CVA)	Myron Peck (Germany, ICES SIC-CME), Elliott Hazen (USA, PICES) and Kathy Mills (USA, ICES)
EPDSG	Workshop on global ecological and economic connections in Arctic and sub-Arctic crab fisheries (WKCRAABCON) (in December 2017)	Brooks Kaiser (Denmark)
EOSG	Working Group on Target Classification (WGTC) (after CRR Publication)	Rolf Korneliussen, Norway
EOSG	WKSEATEC – Workshop on Technical Development to Support Fisheries Data Collection (WKSEATEC) (in October 2017)	Dave Stokes and Marcellus Rödiger, Germany



<i>Dissolved</i>	<i>Expert Groups</i>	<i>Outgoing Chair</i>
EOSG	Workshop on Collecting Quality Underwater Acoustic Data in Inclement Weather (WKQUAD)	Matthias Schaber, Germany, and Mike Jech, USA
EOSG	Joint Workshop of WGFTFB and WGFAST (JFATB)	Paul Winger, Canada, and Alex de Robertis, USA
EOSG	Workshop on monitoring technologies for the mesopelagic zone (WKMESO) (in December 2017&	Kristjan Kristinnsson, Iceland, Norway, and Dave Reid, Ireland
EOSG	Workshop on designing eel data call (WKEELDATA)	Caroline Durif, Norway
EOSG	Workshop on Optimization of Biological Sampling at Sample Level (WKBIOPTIM)	Ana Cláudia Fernandes, Portugal and Julie Coad Davies, Denmark
EOSG	Workshop on Sampling Design and Estimation of Commercial Catches: Cod.27.21 and sol.27.4 (WKSDECC I)	Katja Ringdahl, Sweden and Kirsten Håkansson, Denmark
EOSG	Workshop on Sexual Maturity staging from histological tools (WKMATHIS) (in October 2017)	Cindy Van Damme, The Netherlands and Maria Cristina Follesa, Italy
EOSG	Workshop on Elasmobranchs maturity (WKSEL3) (in October 2017)	Maria Cristina Follesa, Italy and Pierluigi Carbonara, Italy
EOSG	A Workshop on Ageing Validation methodology of <i>Mullus</i> species (WKVALMU)	Kélig Mahé, France, Pierluigi Carbonara, Italy and Chryssi Mytilineou, Greece
EOSG	Workshop on Age estimation of Blue Whiting ( <i>Micromesistius poutassou</i> ) (WKARBLUE2)	Patrícia Gonçalves, Portugal, and Jane A. Godiksen, Norway
EOSG	Workshop on Micro increment daily growth in European Anchovy ( <i>Engraulis encrasicolus</i> ) and Sardine ( <i>Sardina pilchardus</i> ) (WKMIAS2) (in November 2017)	Carmen Piñeiro, Spain
EOSG	Workshop on Sexual Maturity Staging of Herring ( <i>Clupea harengus</i> ) and Sprat ( <i>Sprattus sprattus</i> ) (WKMSHS2) (in November 2017)	Cindy van Damme, The Netherlands and Joanne Smith, United Kingdom
IEASG	Workshop on Spatial Analyses for the Baltic Sea 2 (WKSPATIAL2) (dissolves when report is published)	Michele Casini, Sweden, and Stefan Neuenfeldt, Denmark
IEASG	Workshop on IEA in the Northwest Atlantic (WKINWA)	David Goldsborough, the Netherlands

<i>Dissolved</i>	<i>Expert Groups</i>	<i>Outgoing Chair</i>
IEASG	Workshop on Developing Integrated Advice for Baltic Sea Ecosystem-Based Fisheries Management 2 (WKDEICE2)	Maciej Tomczak, Sweden, Rudi Voss, and Christian Möllmann, Germany
IEASG	Workshop on “Integrated assessment of socio- ecological interactions of two North Sea strata using Bayesian belief networks (WKINTERACT) (workshop was cancelled)	Vanessa Steltzenmuller and Rabea Diekmann, Germany
<i>New Workshops</i>		
ACOM	Inter-benchmark of Greenland cod (IBPGCod)	ICES Chair Marie Storr-Paulsen, Denmark, and external Chair Bjarki Elvarsson, Iceland
ACOM	Benchmark of Anglerfish (WKAanglerfish)	ICES Chair Lisa Readdy, UK, and External Chair Larry Alade, US
ACOM	Benchmark on pelagic stocks (WKPELA2018)	External Chair Katja Enberg*, Norway, and ICES Chair Pieter-Jan Schon*, UK
ACOM	Benchmark Workshop for North Sea Stocks (WKNSEA)	External Chair (tbc), and ICES Chair Jennifer Devine, Norway
ACOM	Benchmark of Redfish in NorthEast Arctic waters (WKREDFISH)	External Chair Paul Spencer, US, and ICES Chair Gudmundur Thordarson*, Iceland
ACOM	Benchmark of Sprat (WKSPRAT)	ICES Chair (tbc), and External (tbc)
ACOM	Workshop on Evaluation of Input data to Eastern Baltic Cod Assessment (WKIDEBCA)	Michele Casini*, Sweden
EPISG	Workshop on Vulnerabilities and Risks to Culturally Significant Areas (WKVCSA)	Andreas Kannen, Germany, and Kira Gee, Germany
EPISG	Workshop on Co-existence and Synergies in Marine Spatial Planning (WKCSMP)	Kira Gee, Germany, and Eirik Mikkelsen, Norway
EPISG	Workshop on Microplastics in the Marine Environment (WKMP)	Andy Booth, Norway
EPDSG	ICES-PICES Workshop on Political, Economic, Social, Technological, Legal and Environmental scenarios used in climate projection modelling (WKPESTLE)	John Pinnegar, UK; Jörn Schmidt, Germany; Alan Haynie, USA; and Tyler Eddy, Canada

<i>New Workshops</i>		
IEASG	SIHD Workshop on Balancing Economic, Social, and Institutional Objectives in Integrated Assessments (approved on ACOM-SCICOM Forum) (WKSIED-BESIO)	Christine Röckmann, The Netherlands, Alan Haynie, USA, and Jörn Schmidt, Germany
IEASG	PAME (Joint EA-EG) / ICES Workshop on the development of guidelines for Ecosystem Approach to management (EAM) in the Arctic (WKEAMA)	Hein Rune Skjoldal, Norway and Phil Mundy, USA
EOSG	Workshop on Impacts of planned changes in the North Sea IBTS (WKMSIMP)	Kai Wieland, Denmark
EOSG	WKNEPS – Workshop on Nephrops burrow counting (WKNEPS)	TBC
EOSG	Workshop on unavoidable survey effort reduction (WKUSER)	Stan Kotwicki, USA
EOSG	Workshop on evaluating survey information Celtic Sea gadoids (WKESIG)	David Stokes, Ireland
<i>EGs Renamed</i>		
ASG	Working Group on Application of Genetics in Fisheries and Mariculture (WGAGFM) will be renamed Working Group on Application of Genetics in Fisheries and Aquaculture (WGAGFA)	

## Annex 2: List of ICES Expert Groups by Steering Group

### Expert Groups under Aquaculture Steering Group

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
1	Working Group on Pathology and Diseases of Marine Organisms	WGPDMO	Ryan Carnegie, USA	2016	2018	7	7
2	Working Group on Social and Economic Dimensions of Aquaculture	WGSEDA	Gesche Krause, Germany	2015	2017	7	5
3	Working Group on Application of Genetics in Fisheries and Mariculture	WGAGFM	Gary R. Carvalho, UK	2015	2017	19	11

### Expert Groups under Human Activities, Pressures and Impacts Steering Group

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
1	Working Group on Biodiversity Science	WGBIODIV	W. Nikolaus Probst, Germany and Oscar Bos, the Netherlands	2016	2018	19	9
2	Working Group on Integrated Morphological and Molecular Taxonomy	WGIMT	Ann Bucklin, USA	2017	2019	19	12
3	Benthos Ecology Working Group	BEWG	Silvana Birchenough, UK	2015	2017	37	14
4	Working Group on Small Pelagic Fishes, their Ecosystems and Climate Impact	WGSPEC	Priscilla Licandro, UK, and Athanassios Tsikliras, Greece	2016	2018	16	3

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
5	Working Group on Phytoplankton and Microbial Ecology	WGPME	Alexandra Kraberg, Germany, and Marie Johansen, Sweden	2016	2018	15	9
6	Working Group on Crangon fisheries and life history	WGCRAN	Josien Steenbergen, the Netherlands	2016	2018		
7	Working Group on Zooplankton Ecology	WGZE	Piotr Margonski, Poland	2015	2017	29	12
8	Working Group on Oceanic Hydrography	WGOH	Sarah Hughes, UK, and Karin M. Larsen, FO	2015	2017	19	13
9	Working Group on the Biology and Life History of Crabs	WGCRAB	Martial Laurent, France	2017	2019		
10	Working Group on Resilience and Marine Ecosystem Services	WGRMES	Sebastian Villasante, Spain, and Gonzalo Macho Rivero, Spain	2015	2017	12	4
11	ICES IOC Working Group on Harmful Algal Bloom Dynamics	WGHABD	Eileen Bresnan, UK	2015	2017	21	12
12	Working Group on Cephalopod Biology and Life History	WGCEPH	Graham Pierce, Spain, and Jean-Paul Robin, France	2017	2019		
13	Working Group on Recruitment Forecasting in a Variable Environment	WGRFE	Samuel Subbey, Norway & Elizabeth Brooks, USA	2014	2017 (1-year ext.)		
14	ICES/PICES Working Group on Climate Change and Biologically-driven Ocean Carbon Sequestration	WGCCBOCS	Nianzhi Jiao, China, Louis Legendre, France, and Richard Rivkin, Canada	2016	2018		

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
15	Working Group on Fisheries-Induced Evolution	WGEVO	Bruno Ernande, France	2016	2018	9	7
16	Working Group on Operational Oceanographic Products for Fisheries and the Environment	WGOOFE	Dominique Obaton, France, and Rodney Forster, UK	2015	2017/2018		
17	Working Group on the Science Requirements to Support Conservation, Restoration and Management of Diadromous Species	WGRECORDS	Russell Poole, Ireland & Johan Dannewitz, Sweden	2015	2017		
18	Workshop on Predator-prey Interactions between Grey Seals and other marine mammals	WKPIGS	Andrew Brownlow, UK; Nora Hanson, UK; Jan Haelters, Belgium; and Abbo van Neer, Germ.				
19	Workshop on Biological Input to Eastern Baltic Cod Assessment	WKBEBCA	Michele Casini, Sweden, and Margit Eero, Denmark			26	7
20	Working Group on data poor diadromous fish	WGDAM	Lari Veneranta, Finland, and Karen Wilson, USA	2016	2018		
21	Working Group with the Aim to Develop Assessment Models and Establish Biological Reference Points for Sea Trout (Anadromous <i>Salmo trutta</i> ) Populations	WGTRUTTA	Johan Höjesjö, Sweden, and Alan Walker, UK	2017	2019		
22	Working Group on Seasonal-to-Decadal Prediction of Marine Ecosystems	WGS2D	Mark Payne, Denmark	2017	2019	4	2

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
23	Workshop on Regional climate change vulnerability assessment for the large marine ecosystems of the northern hemisphere	WKSICCME-CVA	Myron Peck (Germany, ICES SIC-CME), Elliott Hazen (USA, PICES) and Kathy Mills (USA, ICES)			18	7
24	Scallop Assessment Working Group	WGScallop	Kevin Stokesbury	2018 (annual in 2017)	2020		
25	Workshop on global ecological and economic connections in Arctic and sub-Arctic crab fisheries	WKCRAABCON	Brooks Kaiser, Denmark				

#### Expert Groups under Ecosystem Processes and Dynamics Steering Group

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
1	Working Group on Marine Benthic and Renewable Energy Developments	WGMBRED	Jennifer Dannheim, Germany, and Andrew B. Gill, UK	2016	2018	18	8
2	Working Group on Marine Renewable Energy	WGMRE	Finlay Bennet, UK	2017	2019	7	4
3	Working Group for Marine Planning and Coastal Zone Management	WGMPCCZM	Matthew Gubbins, UK, and Andrea Morf, Sweden	2017	2019		
4	Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem	WGEXT	Ad Stolk, The Netherlands	2017	2019		

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
5	Working Group on Biological Effect of Contaminants	WGBEC	Bjørn Einar Grøsvik, Norway, and Ketil Hylland, Norway	2016	2018	13	7
6	Marine Chemistry Working Group	MCWG	Koen Parmentier, Belgium	2016	2018		
7	Working Group on Marine Sediments in Relation to Pollution	WGMS	Celine Tixier, France, and Craig Robinson, UK	2015	2017		
8	ICES Working Group on Introduction and Transfers of Marine Organisms	WGITMO	Cynthia McKenzie, Canada	2017	2019	33	17
9	ICES/IOC/IMO Working Group on Ballast and Other Ship Vectors	WGBOSV	Sarah Bailey, Canada	2016	2018	30	13
10	Working Group on Risks of Maritime Activities in the Baltic Sea	WGMABS	Sakari Kuikka, Finland; and Robert Aps, Estonia	2015	2017		
11	Stock Identification Methods Working Group	SIMWG	Lisa Kerr, USA	2017	2019	10	5
12	Working Group on the value of Coastal Habitats for Exploited Species	WGVHES	Josianne Støttrup, Denmark, Rochelle Seitz, USA, and Karen van de Wolfshaar, the Netherlands	2016	2018	15	7
13	Working Group on Spatial Fisheries Data	WGSFD	Niels Hintzen, the Netherlands, and Christian von Dorrien, Germany	2016	2018	21	12
14	Working Group on Marine Habitat Mapping	WGMHM	James Strong, UK	2015	2017	10	6



	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
15	Methods Working Group	MGWG	Arni Magnusson, ICES	2017	2019		
16	Working Group on the History of Fish and Fisheries	WGHIST	Ruth Thurstan, Australia and Emily Klein, USA	2015	2017		
17	Working Group on Multispecies Assessment Methods	WGSAM	Sarah Gaichas, USA, and Alexander Kempf, Germany	2016	2018		

#### Expert Groups under Integrated Ecosystem Assessments Steering Group

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
1	Working Group on Comparative Analyses between European Atlantic and Mediterranean marine ecosystems to move towards an Ecosystem-based Approach to Fisheries	WGCOMEDA	Marta Coll, Spain, Manuel Hidalgo, Spain, Hilmar Hinz, Spain and Christian Mollmann, Germany	2017	2019	20	9
2	Working Group on Ecosystem Assessment of Western European Shelf Seas	WGEAWESS	Steven Beggs, UK and Eider Andon-egi, Spain	2017	2019	9	4
3	ICES/HELCOM Working Group on Integrated Assessments of the Baltic Sea	WGIAB	Laura Uusitalo, Finland, Lena Bergström, Saskia Otto, Germany and Martin Lindegren, Denmark	2016	2018	31	tbc

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
4	Working Group on the Integrated Assessments of the Barents Sea	WGIBAR	Elena Eriksen, Norway and Anatoly Filin, Russia	2017	2019	26	2
5	ICES/PICES/PAME Working Group on Integrated Ecosystem Assessment (IEA) for the Central Arctic Ocean	WGICA	John Bengtson (ICES), USA, Sei-Ichi Saitoh (PICES), Japan, and Hein Rune Skjoldal (PAME), Norway	2016	2018	23	4
6	Working Group on Integrating Ecological and Economic Models	WGIMM	Jörn Schmidt, Germany, J. Rasmus Nielsen, Denmark, and Eric Thunberg, USA	2015	2017		
7	Working Group on the Integrated Assessments of the Norwegian Sea	WGINOR	J. Óskarsson, Iceland, and Per Arneberg, Norway	2016	2018		
8	Working Group on Integrated Assessments of the North Sea	WGINOSE	Andy Kenny, UK and Erik Olsen, Norway	2017	2020	11	4
9	Working Group on Integrative, Physical-biological, and Ecosystem Modelling	WGIPEM	Morgane Travers-Trolet, France and Marie Maar, Denmark	2016	2018	11	6
10	Working Group on Large Marine Ecosystem Programme Best Practices	WGLMEBP	Hein Rune Skjoldal, Norway, and Rudolf Hermes, Thailand	2014	?		
11	Working Group on Maritime Systems	WGMARS	Christine Röckmann, the Netherlands, Patricia M. Clay, USA	2016	2018	13	5
12	Working Group to Demonstrate a Celtic Seas wide approach to the application of fisheries related science to the implementation of the Marine Strategy Framework Directive	WGMSFDemo	Dissolved				

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
13	Working Group on the Northwest Atlantic Regional Sea	WGNARS	Robert Gregory, Canada and Geret DePiper, USA	2017	2019	18	2
14	Workshop on Developing Integrated Advice for Baltic Sea Ecosystem-Based Fisheries Management 2	WKDEICE2	Maciej Tomczak, Sweden, Rudi Voss, and Christian Möllmann	2017	2017		
15	Workshop on IEA in the Northwest Atlantic	WKINWA	Christine Röckmann, the Netherlands and Geret De Piper, USA	2017	2017	19	5
16	Workshop on “Integrated assessment of socio- ecological interactions of two North Sea strata using Bayesian belief networks”	WKINTERACT	Vanessa Steltzenmuller, Rabea Diekmann, Germany	2017	2017	CANCELLED	

#### Expert Groups under Ecosystem Observation Steering Group

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
1	International Bottom Trawl Survey Working Group	IBTSWG	Kai Wieland, Denmark, Corina Chaves, Portugal	2016	2018	22	10
2	Joint Workshop of the ICES-FAO Working Group on Fishing Technology and Fish Behaviour [WGFTFB] and the Working Group on Fisheries Acoustics Science and Technology [WGFAST]	JFATB	Paul Winger, Canada, Alex de Robertis, USA	2017	2017	68	16

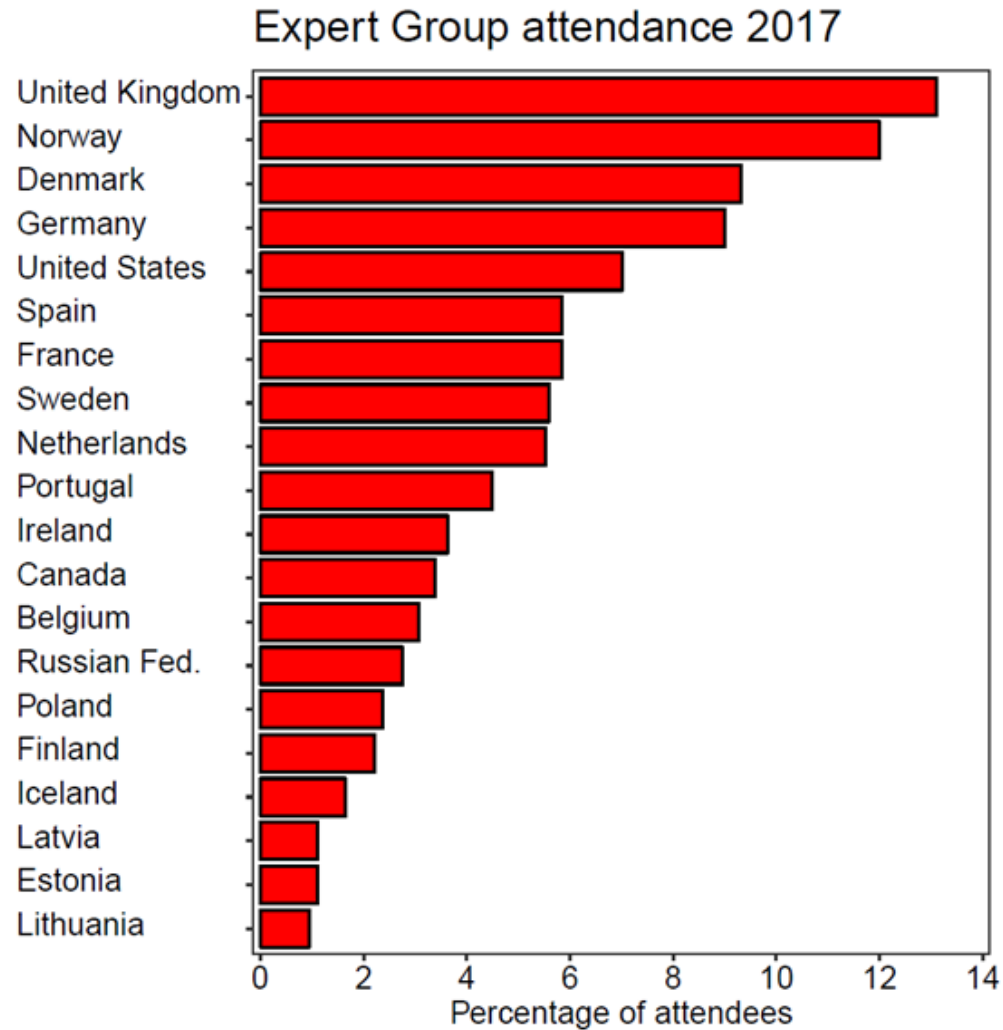
	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
3	Planning Group on Data Needs for Assessments and Advice	PGDATA	Joel Vigneau, France, Marie-Storr-Paulsen, DK	2015	2017		
4	Working Group on Acoustic and Egg Surveys for Sardine and Anchovy in ICES Areas VII, VIII and IX	WGACEGG	Maria Manuel Angelico, Portugal, Pablo Carrera, Spain	2014	2016		
5	Working Group on Atlantic Fish Larvae and Eggs Surveys	WGALES	Maria Manuel Angélico, Portugal, Richard D.M. Nash, Norway	2013	2018		
6	Working Group on Beam Trawl Surveys	WGBEAM	Holger Haslob, Germany	2017	2019		
7	Baltic International Fish Survey Working Group	WGBIFS	Wlodzimierz Grygiel, Poland (outgoing Chair)	2015	2017	25	11
8	Working Group on Biological Parameters	WGBIOP	Pedro Torres, Spain, Francesca Vitale, Sweden	2015	2017		
9	Working Group on Commercial Catches	WGCATCH	Ana Ribeiro Santos, UK, Nuno Prista, Portugal	2017	2019		
10	Working Group 2 on North Sea Cod and Plaice Egg Surveys in the North Sea	WGEGGS2	Matthias Kloppmann, Germany	2016	2018		
11	Working Group on Electrical Trawling	WGELECTRA	Adriaan Rijnsdorp, NL, Maarten Soetaert, Belgium	End 2017/2018	2020		
12	Working Group on Fisheries Acoustics, Science and Technology	WGFAST	Richard O'Driscoll, NZ	2017	2019	63	16

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
13	ICES-FAO Working Group on Fishing Technology and Fish Behaviour (WGFTFB)	WGFTFB	Haraldur A. Einarsson, Iceland, and FAO Chair (TBD),	2017	2019	73	15
14	Working Group on International Deep Pelagic Ecosystem Surveys	WGIDEEPS	Kristjan Kristinsson, Iceland and Benjamin Planque, Norway	2017	2019	5	3
15	Working Group of International Pelagic Surveys	WGIPS	Matthias Schaber, Germany	2016	2018	17	8
16	Working Group on Improving use of Survey Data for Assessment and Advice	WGISDAA	Sven Kupschus, UK	2015	2017		
17	Working Group on Integrating Surveys for the Ecosystem Approach	WGISUR	Ralf van Hal, NL	2018	2020	8	7
18	Working Group on Mackerel and Horse Mackerel Egg Surveys	WGMEGS	Cindy van Damme, NL & Finlay Burns, UK	2015	2017	19	9
19	Working Group on <i>Nephrops</i> Surveys	WGNEPS	Adrian Weetman, Scotland, and Kai WIELAND, Denmark (to be approved)	2016	2018		
20	Working Group on Recreational Fisheries Surveys	WGRFS	Harry Vincent Strehlow, Germany, Kieran Hyder, UK	2017	2019	31	17
21	Working Group on target classification	WGTC	Rolf Korneliussen, Norway	Extension until 2017			

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
22	Workshop on Age estimation of Blue Whiting ( <i>Micromesistius poutassou</i> )	WKARBLUE2	Patricia Gonçalves, Portugal, Jane A. Godiksen, Norway	2017	2017	21	9
23	Workshop on age estimation of Atlantic mackerel ( <i>Scomber scombrus</i> )	WKARMAC2	Mark Etherton, UK	2017	2017		
24	Workshop on Age estimation of Norwegian spring spawning herring ( <i>Clupea harengus</i> )	WKARNSSH	Jane A. Godiksen, Norway and TBD	2017	2017		
25	Workshop on monitoring technologies for the mesopelagic zone	WKMESO	Kristjan Kristinsson, Iceland, Dave Reid, Ireland	2017	2017		
26	Workshop on Micro increment daily growth in European anchovy ( <i>Engraulis encrasicolus</i> ) and Sardine ( <i>Sardina pilchardus</i> )	WKMIAS2	Carmen Piñeiro, Spain and TBD	2017	2017		
27	Workshop on Sexual maturity staging of herring ( <i>Clupea harengus</i> ) and sprat ( <i>Sprattus sprattus</i> )	WKMSHS2	Cindy van Damme, NL & Joanne Smith, UK	2017	2017		
28	Workshop on Collecting Quality Underwater Acoustic Data in Inclement Weather	WKQUAD	Matthias Schaber, Germany, and Mike Jech, USA	2017	2017	17	7
29	Workshop on Technical Development to Support Fisheries Data Collection	WKSEATEC	Dave Stokes and Marcellus Rodiger	2017	2017		

	EG name	EG Acronym	EG Chair	Year start	Year end	Number attending (2017)	Number of countries (2017)
30	Workshop on Designing an Eel Data Call	WKEELDATA	Caroline Durif, Norway	2017	2017	13	9
31	Workshop on Optimization of Biological Sampling at Sample Level	WKBIOPTIM	Cláudia Fernandes, Portugal and Julie Coad Davies, Denmark	2017	2017	22	12
32	Workshop on Sampling Design and Estimation of Commercial Catches: Cod.27.21 and sol.27.4	WKSDECC I	Katja Ringdahl, Sweden and Kirsten Håkansson, Denmark	2017	2017		
33	Workshop on Age Estimation Methods of Deep Water Species	WKAMDEEP2	Gróa Pétursdóttir, Iceland, and Kélig Mahé, France	2018	2018		
34	Workshop on Age reading of Horse Mackerel, Mediterranean Horse Mackerel and Blue Jack Mackerel	WKARHOM3	Alba Jurado, Spain and Kélig Mahé, France	2018	2018		
35	Workshop on Sexual Maturity staging from histological tools	WKMATHIS	Cindy Van Damme, The Netherlands, Maria Cristina Follesa, Italy	2017	2017		
36	Workshop on Elasmobranchs maturity	WKSEL3	Maria Cristina Follesa, Italy, Pierluigi Carbonara, Italy	2017	2017		
37	Workshop on Ageing Validation methodology of Mullus	WKVALMU	Kélig Mahé, France, Pierluigi Carbonara, Italy, Chryssi Mytilineou, Greece,	2017	2017	16	5

The proportions of EG attendees in 2017 (to date), by ICES member country, for all EG parented by a SCICOM SG, are shown in the Figure below.





## Aquaculture SG

### Introduction

Aquaculture is making an increasing contribution to global fish and shellfish production and a growing and visible industry in many ICES countries. The Aquaculture Steering Group is responsible for guiding and supporting Expert Groups.

### ASG Terms of Reference approved by SCICOM.

Terms of Reference	Progress
ToR a) Engage with and work with Chairs of EG to ensure that EG work supports and meets the science objectives and advisory needs of ICES	All existing EG Chairs have been contacted. In progress.
ToR b) Help EG formulate and prepare their draft terms of reference and resolutions	EG ToR were suggested by the Council Strategic Initiative on Aquaculture prior to establishment of the SG. In the process of drafting ToR's for additional EGs and will engage EG chairs on this for all new ToRs.
ToR c) Review and report on the science being undertaken within EGs to SCICOM, with a focus on identifying science highlights and priorities and demonstrating the impact of their science	First meeting at 2017 ASC, September 2017.
ToR d) Review scientific products/deliverables of the EG and provide feedback on ways to improve the impact and influence of their work	Not yet addressed. Will start to work with EG chairs to identify highlights and other opportunities to create impactful science products
ToR e) Provide feedback to SCICOM on research priorities and implementation of ICES strategy	Not yet addressed
ToR f) Identify shortfalls in skills and knowledge needed to achieve ICES objectives within the SGs area and work within the SG and through SCICOM and operational groups to develop capability	On-going. Follows ToR g.
ToR g) Identify gaps and overlaps in the work of EG, and propose consolidation, rationalization or forming of new EG to SCICOM as appropriate	Working on formulation of three new EGs in the short term, and strategy for ICES aquaculture science and advice longer term.
ToR h) Help EG Chairs to adopt practices which ensure scientific information generated by EGs is receiving adequate quality control consistent with scientific norms	Not yet Addressed
ToR i) Facilitate active horizontal and vertical communication, collaboration and co-ordination between EGs and all other relevant ICES groups and identify, in cooperation with EG Chairs, opportunities for internal and external collaboration	Communication within SG started at the 2017 ASC. Held one on one conversations with two other SG chairs and other SCICOM members

ToR j) Represent the SG at SCICOM meetings and SCICOM/ACOM leadership meetings in spring and at the ASC	First meeting at ASC 2017
ToR k) Establish a core group of ASG Expert Group chairs who, together with the ASG Chair, will share responsibility for implementing the work of ASG;	Opened communication with and among current EG chairs. Building additional EGs to help fill out SG.
ToR l) Generate a position paper on the contribution of ASG to ICES science, data and advice;	Still in conceptual stage. Will work with SG members to crystalize.

### List of existing aquaculture EGs

- Working Group on Application of Genetics in Fisheries and Mariculture (WGAGFM) (Chair: Gary Carvalho transitioning to Jann Martinsohn)
- Working Group on Pathology and Diseases of Marine Organisms (WGPDMO; Chair: Ryan Carnegie)
- Working Group on Social and Economic Dimensions of Aquaculture (WGSEDA; Chair: Gesche Krause)

### Science highlights

SCICOM chair and the ASG Chair in the process of identifying and listing specific work products related to aquaculture from all ICES expert groups.

### Communication with EGs

The SG chair has contacted each EG chair and begun the dialogue needed to focus EG ToRs on issues of greatest potential impact for ICES countries. EG chairs are all supportive of standing up an aquaculture science capacity focused on key needs for science based development and management of north Atlantic aquaculture. Next steps will be to get all EG chairs and SG chair together electronically to develop action items followed by an in-person meeting (tentatively in January 2018 in Copenhagen) to sharpen strategic vision and identify tactics to set ICES aquaculture research on a productive and sustainable path.

### Summary of new EG proposals and EG closing

None of the three existing EGs are closing however there are some changes. The Genetics working group (WGAGFM) has recently submitted a proposed new ICES training course, to consider the role and impact of genomics in fisheries and aquaculture. Such an opportunity will hopefully foster improved integration of ideas and approaches. This working group has also put forward a recommendation from their meeting in Faro in May 2017, to change the name of the group, to *Working Group on the Application of Genetics in Fisheries and Aquaculture* (WGAGFA). Chair of this group has transitioned from Gary Carvalho to Jann Martinsohn.

At the March 2017 SCICOM meeting, the Committee supported the proposal by CSIAQUA to establish three new working groups under the Aquaculture SG to take on:

- Scenario foresight, future projections / eco-forecasting

- **Environmental interactions, risk assessment, data collection, methodologies**
- **Aspects of carrying capacity, efficiencies, IMTA, modelling**

The Aquaculture SG will be keeping the intent of these three groups but modifying the ToRs and names to align with ICES vision and goals, and to enhance team building. Focus ToRs on management needs and target peer reviewed publications, management tools (models, synthesis documents, etc.) and Viewpoints as deliverables is envisaged.

The future projections group will have ToR to include identification of current advice needs by member countries (including identifying the process for permitting and management of aquaculture by governments and key information needs for informed decision making), current social and economic drivers of ICES country aquaculture industries, and current science capabilities in the ICES region that will impact future growth and development of the aquaculture sector in a north Atlantic context. It is important to understand the current state prior to any future activities. It is desirable to have all SG members (Chair and EG chairs) participate in this EG due to its anticipated central role in developing a vision and tactical approach to aquaculture science in ICES going forward.

The environmental interactions group will have minimal modifications to the proposed ToRs but the focus will be in both improving ecosystem services as well as mitigation of impacts.

The proposed ToRs of the carrying capacity group will be modified to include marine space analysis of aspects of carrying capacity, modelling, tropic interactions, and risk. This is because location is the key driver in determining the relevance, size of impact, and potential of the other ToRs. An additional ToR linking sustainable aquaculture development in a defined location to economic and social impacts will be added.

A resolution(s) to establish these groups will be forthcoming quickly so that a chair can be chosen and can join the SG meetings this fall and winter.

### **Forward look (actions for SG and SCICOM/ ACOM)**

SCICOM/ACOM has approved resolutions form aquaculture EGs.

Aquaculture actions under the H2020 Atlantic Ocean Alliance CSA project:

- The AORA Trilateral Aquaculture Working Group met in June 2017 to discuss progress and relations to the new ICES ASG (Mike Rust is the US Chair of the AORA Trilateral WG)
- An AORA workshop 'Genetic Interactions Modelling - Exploring IBSEM & POPMOD' was held in Scotland in October 2017
- A panel session '*Aligning Marine Aquaculture Perspectives with the Current State of Science: A Panel Discussion*' by Kimberly Thompson, Sebastian Belle, Halley Froehlich, Robert Jones, Mike. Rust, and Wojciech Wawrzynski will be held at Aquaculture America Conference, February 2018.

**Request to Council**

To suggest / encourage / support potential Chairs and members to contribute to the above listed emerging WGs.

## ICES proposal to be presented at the Fifth meeting of the Scientific Fisheries Experts on Fish Stocks in the Central Arctic Ocean

*Agreed by Council at its October 2017 meeting.*

### **1 ICES and the Arctic**

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All Coastal States to the Arctic are members of ICES and in response to their, as well as other Member Countries', interest ICES has adopted a strategy to work in the Arctic. The strategy is part of ICES Strategic Plan for the period 2014 to 2018, and includes commitment to further develop the science, advisory and data work on the Arctic.

ICES is already active on Arctic issues both in terms of coordinating and developing science and monitoring, and in providing advice on management of fisheries in the Arctic. In agreement with the Strategic Plan, ICES has obtained observer status in the Arctic Council, and is seeking input from strategic cooperation partners, such as the Arctic Council Working Groups on how to address information gaps and needs in a deliberate, well-planned manner to avoid duplication and add value to on-going processes. Specifically for the Central Arctic Ocean ICES is working with PICES and the Arctic Council to prepare an Integrated Ecosystem Assessment outline, including effects and vulnerability in relation to climate change, and human activities (potential future fisheries, and Arctic shipping).

### **2 Scientific Experts on Fish Stocks in the Central Arctic Ocean.**

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Future international management of potential fisheries in the central Arctic Ocean (CAO) has been addressed at a series of meetings of governments beginning with an initial meeting held in June 2010. Of particular relevance to these meetings has been the interest by the governments in the development of a joint program of scientific research and monitoring to inform future potential fisheries management in the CAO. This led to the first meeting of the Scientific Fisheries Experts on Fish Stocks in the Central Arctic Ocean held in 2011. The general conclusion of that meeting was that there was no urgency, but, given the limited scientific knowledge of the CAO, there was a need to establish baseline data. Additional scientific meetings were held in 2013, 2015, and 2016.

The five Arctic coastal states adopted the 2015 Oslo Declaration Concerning the Prevention of Unregulated High Seas Fishing in the Central Arctic Ocean. The declaration envisions a broader process and the coastal states met in 2015 with China, the European Union, Iceland, Japan, and the Republic of Korea. The ten parties agreed to develop a Joint Program of Research and Monitoring and the 4<sup>th</sup> Meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean was held in 2016 to develop the program with the participation of the ten parties and

observers from ICES, PICES, Arctic Council and the Pacific Arctic Group. The main focus of the 5<sup>th</sup> meeting is to elaborate the implementation plan of a joint program of scientific research and monitoring of the Central Arctic Ocean.

### **3 Fifth meeting of the Scientific Fisheries Experts on Fish Stocks in the Central Arctic Ocean**

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#### **3.1 Terms of Reference for the 5th Meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean**

1. Design a 1-3 year long mapping program:
  - 1.1. By defining the spatial and temporal scope for sampling
  - 1.2. By defining methods and the scientific approach (type of sampling and scales) for new CAO research cruises to fill gaps
  - 1.3. Such that the Program incorporates:
    - 1.3.1. Existing surveys by the 10 governments (use, to the extent possible, existing research and monitoring programs),
    - 1.3.2. Additional groups with existing research/monitoring programs, and
    - 1.3.3. Relevant indigenous and local knowledge
2. Design a monitoring program.
  - 2.1. By identifying and defining potential monitoring areas and indicators.
  - 2.2. Such that the Monitoring programs makes use of:
    - 2.2.1. Existing monitoring programs to the extent possible, including government, community-based and academic programs, and
    - 2.2.2. Relevant indigenous and local knowledge
3. Identify human, financial, vessel/equipment resources needed for mapping and monitoring
4. Develop data collection, sharing, and hosting protocols that outline the details of what and how data shall be collected, shared, and hosted for consideration by the Parties

#### **3.2 ICES Ongoing work**

The majority of the tasks associated with ToRs #1 and #2 are related with work in the Ecosystem Observation Steering Group. The Steering Group is responsible for guiding and supporting Expert Groups that are meeting immediate data demands and contributing to the running and further development of effectively co-ordinated, integrated, quality assured and cost-effective monitoring in the ICES region and beyond.

This work includes;

- Evaluate and optimise survey design to meet the needs of member countries and support advisory requests
- Design, plan and co-ordinate surveys (egg and larval, acoustic and trawl)

- Identify and evaluate new technologies for observation and monitoring
- Advise on the design, deployment and efficiency of sampling methods and gears and the use of resulting data for assessment and advice
- Aging and estimate life history parameters of sampled fauna
- Develop monitoring to meet emerging data, science and advisory needs, with a focus on integrated ecosystem assessment and ecosystem-based management

The tasks under ToR 4 are related to the work of the Data and Information Group, an operational group under the Science Committee, as well as the work of the ICES Data Centre

### **3.3 Proposal**

ICES offers its support to the work proposed in the ToRs, actively through coordination of input from experts in:

- statistical survey design (Refer to ToR 1.1, 1.2 & ToR 2)
- gear technologies (Refer to ToR 1.1, 1.2 & ToR 2)
- assessment methods (Refer to ToR 1.1, 1.2 & ToR 2)
- harmonized data streams (ToR 4)
- local knowledge

ICES is also prepared to assist with the coordination and facilitation of the proposed monitoring program.

An open invitation for discussions related to data collection and management issues with ICES Data Centre.

ICES aspires to cooperate with PICES and other relevant organizations identified by the 5+5 countries on Arctic issues.

Some of these actions could be achieved through workshops or (an) expert group.

### **3.4 Resources needed**

- nomination of experts
- data management



**ICES**  
**CIEM**

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

Council Meeting 2017

October 2017

Del Doc 7.1.3.2

Agenda item 7.1.3

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## Arctic

*Council is invited to take note of the following information related to ICES work in the Arctic, and to:*

- *Discuss how to establish links with scientific partners outside the ICES Member Countries, and especially China, Korea, and Japan – in relation to ICES work in the Arctic, e.g. invitations back-to-back with other events (Climate Change symposium jointly with PICES, July 2018, 2018 ASC in Hamburg, session during Council 2018, or other events)*
- *Decide to prepare a mandate in order for ICES to take part and contribute to the 2<sup>nd</sup> Arctic Science Ministerial, in Berlin on 25-26 October 2018 (the four themes from the 1st Arctic Science Conference should constitute the starting point).*
- *Agree that delegates take contact with the ministries, dealing with science and the Arctic, potentially aided through a letter from ICES, on our work in the Arctic. The organizing committee of the 2nd Arctic Science Ministerial consists of representatives from the European Commission, the Republic of Finland (linked to, but not part of the Arctic Council activities; Aleksi Härkönen, SAO Chair) and Federal Republic of Germany (Volker Rachold, Director of the new German Arctic Office in Potsdam, previous director of the International Arctic Science Committee/IASC)*

## Arctic issues

ICES continues to engage with relevant partners to ensure our competences and strengths can add value to scientific activities in the Arctic.

### Arctic Council

The Arctic Council's Task Force on Arctic Marine Cooperation

At the 10th Ministerial meeting in Fairbanks, Alaska on 11 May 2017, Ministers decided to extend the mandate of the Task Force for another two years, under the Finnish Arctic Council chairmanship. The task force is co-chaired by Finland, USA, and Iceland.

Reference was made to the need to look into a possible new subsidiary body and elaborate recommendations for complementary enhancements of existing Arctic mechanisms, for presentation at the ministerial meeting in 2019.

Among the areas specifically highlighted by the ministers are:

- Arctic MPA – toolbox



- Climate change
- Ocean Acidification
- Marine Debris/micro plastics
- Invasive alien species

2017 Fairbanks Ministerial Declaration is available online.<sup>1</sup>

The 2017 Ministerial meeting also adopted the Agreement on Enhancing International Arctic Scientific Cooperation<sup>2</sup>, (e.g.; Entry and exit of persons, equipment, and material; Access to research infrastructure and facilities, Access to research areas, Access to data)

#### Scientific experts on fish stocks in the central Arctic Ocean<sup>3</sup> (FiSCAO)

- Oslo Declaration 2015 (Interim Measures to deter unregulated fishing in the ABJN in the Central Arctic Ocean, get more knowledge, and an extended process)
- legally binding agreement (5+5countries/EU) under discussion

FiSCAO met September 26 to 28, 2016, in Tromsø to develop information supporting diplomatic negotiations on controlling commercial fishing on the High Seas of the central Arctic Ocean.

The meeting discussed a Research and Monitoring Plan (ToR2), and the following four components developed:

- 1) Mapping and Monitoring,
- 2) Reference Points and Indicators,
- 3) Modelling and Scenarios, and
- 4) Coordination.

The first three components provides guidance to a workshop (the 5<sup>th</sup> scientific meeting). This 5<sup>th</sup> meeting will develop an implementation strategy for the Plan, showing staged development of research and monitoring that addresses gaps in abundance, distribution, and other information providing advice about the potential for sustainable harvest of commercial species in the CAO.

Further defining the Coordination structure for the scientific enterprise should be part of the 5<sup>th</sup> Scientific Meeting on Fish Stocks in the Central Arctic Ocean.

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<sup>1</sup> [https://oaarchive.arctic-council.org/bitstream/handle/11374/1910/EDOCS-4339-v1-ACMMUS10\\_FAIRBANKS\\_2017\\_Fairbanks\\_Declaration\\_Brochure\\_Version\\_w\\_Layout.PDF?sequence=8&isAllowed=y](https://oaarchive.arctic-council.org/bitstream/handle/11374/1910/EDOCS-4339-v1-ACMMUS10_FAIRBANKS_2017_Fairbanks_Declaration_Brochure_Version_w_Layout.PDF?sequence=8&isAllowed=y)

<sup>2</sup> <https://www.state.gov/e/oes/rls/other/2017/270809.htm>

<sup>3</sup> Kingdom of Norway, the Russian Federation, the United States of America, Canada, the Kingdom of Denmark, the People's Republic of China, the Republic of Korea, Japan, Iceland and the European Union

There has been general agreement that existing scientific bodies working in the subarctic and Arctic could provide the support for this effort, though there is no agreement on which of these bodies (i.e., PICES, ICES, Arctic Council) should be the host. Still, there has been no suggestion of the need to create a new body.

Eskild Kirkegaard will represent ICES at the 5th meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean planned for 24-26 October, Ottawa, Canada.

See Council meeting document CM 2017 Del-doc 7.1.3.1, proposing a mandate for ICES in the Arctic, specifically for participation in the 5th meeting of Scientific Experts on Fish Stocks in the Central Arctic Ocean.

#### Observer status

ICES application for observer status in the Arctic Council was finally approved at the Council's 10<sup>th</sup> ministerial meeting in May (original application submitted 2013).

Read more: <http://ices.dk/news-and-events/news-archive/news/Pages/ICES-becomes-Arctic-Council-observer.aspx>

Regarding the proposed MoU between ICES and the Arctic Council (Annex 1 contains a draft MoU), the Senior Arctic Officials (SAOs) were asked to explore the possibility of establishing formal cooperation mechanisms, such as MoUs, and report back to the ministerial meeting in 2019.

#### 2<sup>nd</sup> Arctic Science Ministerial

ICES receives a number of invitations to partake in meetings associated with the Arctic Council, and other Arctic organizations. While it is important to communicate and, thus get a better understanding of the ICES activities it is equally important to offer specific services of ICES in specific fields. This also needs to take into accounts needs of the Arctic Council, and other Arctic organizations. The 2<sup>nd</sup> Arctic Science Ministerial will take place in Berlin, on 25- 26 October. The meeting will start with a status on the thematic issues agreed during the 1<sup>st</sup> Arctic Science Conference, held in Washing DC in 2016, scientific advances as well as new science commitments.<sup>4</sup> This will feed into the ministerial segment the following day, and will constitute the basis for a joint statement, about status of activities and future commitments and deliverables, see attachment 2.

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<sup>4</sup> The four themes of the first Arctic Science Ministerial were:

1. Arctic-Science Challenges and Their Regional and Global Implications
2. Strengthening and Integrating Arctic Observations and Data-Sharing
3. Applying Expanded Scientific Understanding of the Arctic to Build Regional Resilience and to Shape Global Responses
4. Empowering Citizens through Science Technology, Engineering, and Mathematics (STEM) Education Leveraging Arctic Science

**DRAFT DRAFT DRAFT**  
**Memorandum of Understanding**  
**BETWEEN**

**THE INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA**

**AND**

**THE ARCTIC COUNCIL**

**WHEREAS** ICES is an intergovernmental organisation established in 1902, and in accordance with the Convention of 1964 has the mission to promote and encourage research and investigations for the study of the sea particularly those related to the living resources thereof and to publish or otherwise disseminate the results of research and investigations. On the basis of marine research, ICES provides scientific information and advice to Contracting Parties, and the regulatory Commissions with which cooperative relationships have been established. ICES also coordinates data collection regarding the marine environment and living resources, hosts data bases, and provides knowledge products in the service of the scientific community and scientific advice;

**WHEREAS** the Arctic Council is an intergovernmental forum promoting cooperation, coordination and interaction among the Arctic States, Arctic indigenous communities and other Arctic inhabitants on common Arctic issues, in particular on issues of sustainable development and environmental protection in the Arctic.

**WHEREAS** the ICES and the Arctic Council have certain common goals and objectives with regard to conservation of the marine environment and ecosystems and the sustainable use of marine living resources in the Arctic

**HEREBY** enter into this Memorandum of Understanding (MOU) to further these common goals and objectives within their respective mandates.

1. The purpose of this MoU is to provide a framework of cooperation and to facilitate collaboration between ICES and the Arctic Council to further their shared goals and objectives in relation to the conservation of the marine environment and ecosystems and the sustainable use of marine living resources in accordance with their respective mandates.

2. In particular, ICES and the Arctic Council will seek to collaborate on:
  - A. strengthening the evidence base for the application of the ecosystem approach to management of marine activities, including provision of scientific knowledge and identification of scientific research needs;
  - B. development of methods and tools to make the ecosystem approach operational, including development of ecosystem assessments, trend analyses, priority anthropogenic pressures, provision of spatial data across various data sources, and data and knowledge gathering in relation to cumulative effects of pressures; and
  - C. such other areas of cooperation as may be mutually agreed.
3. ICES and the Arctic Council will:
  - A. share information relating to the areas of cooperation set forth in paragraph 2;
  - B. keep each other apprised of relevant work they are undertaking in those areas;
  - C. seek to participate in appropriate ways each other's programs and projects relating to those areas; e.g., by identifying subject matter experts to participate in relevant meetings;
  - D. consider the possibility of joint programs and projects, including the hosting of joint training activities and information sessions.
4. ICES and the Arctic Council will each identify through their respective Secretariats one or more focal points to coordinate cooperation under this MoU.
5. Nothing in this MoU imposes financial obligations upon either ICES or the Arctic Council.
6. This MoU may be amended by the mutual agreement of ICES and the Arctic Council.

7. This MoU may be terminated by ICES or the Arctic Council six months after giving notice of an intention to terminate the MoU.
8. This MoU shall remain in effect for 4 years if not terminated sooner in accordance with paragraph 7.

**IN WITNESS WHEREOF**, the duly authorized representatives of the Partners affix their signatures below.

**For the International Council for the  
Exploration of the Sea**

**For the Arctic Council**

President, Dr.Cornelius Hammer

Chair of the  
Arctic Council,

Date:

Date:



## Concept Note for convening the Second Arctic Science Ministerial

*The officers of the European Commission, the Republic of Finland and the Federal Republic of Germany – which are members of the Second Arctic Science Ministerial Organising Committee – have jointly prepared this document.*

### 1. Background

Scientific collaboration is vital to observing, monitoring and understanding the rapid changes taking place in the Arctic. Warming in the Arctic is about double the world average. Impacts have a global reach and represent a challenge of great concern and urgency. Communities and ecosystems around the Arctic are already experiencing the impacts of global change – science will contribute to minimizing the risks, finding methods of resilience and adaptation, and form a vital basis for decision-making.

The scale and pace of research must increase in order to develop predictive capabilities that inform decision and policy making processes. Existing national and international observing and research efforts are impressive, but they are not able to meet the demand for comprehensive and integrated information in the Arctic. There is a need to enhance cooperation and collaboration in Arctic science.

The first Arctic Science Ministerial (ASM1) was hosted by the White House in 2016. Science Ministers from 25 governments and the European Union and representatives from Arctic Indigenous peoples' organizations gathered to discuss collective efforts to increase the international scientific collaboration in the Arctic.

The ASM1 was organised around four themes:

1. Arctic-Science Challenges and Their Regional and Global Implications
2. Strengthening and Integrating Arctic Observations and Data-Sharing
3. Applying Expanded Scientific Understanding of the Arctic to Build Regional Resilience and to Shape Global Responses
4. Empowering Citizens through Science Technology, Engineering, and Mathematics (STEM) Education Leveraging Arctic Science

The declared long-term objective was to deepen international collaboration to enable nations to address large-scale research questions and increase the pace of discovery.

### 2. Rationale

The ASM1 was unanimously considered a success and proved to be key in the advancement of sustainable research and observation programmes. It highlighted, inter alia, the fact that the Arctic is still underrepresented in our global observing efforts and capabilities, and provides ample opportunities to enhance our global data gathering efforts.

Its broad format represented Arctic Science on an international scale including the contributions of Arctic and non-Arctic countries active in Arctic science. It included the valuable contributions of Arctic indigenous communities, which contributed through their traditional knowledge as well as through current data and observations towards an enhanced knowledge of the state of the environment in the Arctic region.

The impressive result of ASM1 was a Joint Statement of Ministers and a commitment of participants to

deliverables under the four themes chosen for the Washington Conference.

The deliverables and conclusions include identifying relevant Arctic Science challenges, strengthening and integrating Arctic observation through data sharing with the aim of an integrated observing array, applying scientific understanding to build resilience and shape global responses and the empowerment of citizens through STEM education leveraging Arctic science. The event was followed up by coordinated activities among the participants and regular teleconferences under US leadership to ensure a strong commitment towards the aims and deliverables.

In response to this valuable exercise and achievements of the US-administration under ASM1, focussing on Arctic Science, the European Commission, the Republic of Finland and the Federal Republic of Germany agreed to co-host the second Arctic Science Ministerial (ASM2) in the autumn of 2018. The Ministerial will not be an Arctic Council event, but connection is ensured by one of the ASM2 organisers, Finland, holding the chairmanship of the Arctic Council between May 2017 and May 2019. This connection is particularly important with regard to the Arctic Council's Agreement on Enhancing International Arctic Scientific Cooperation which will be signed by the Arctic Council Member States at the Ministerial Meeting in May, 2017. This legally binding agreement identifies various measures to increase the effectiveness and efficiency in the development of scientific knowledge regarding the Arctic.

The four themes discussed at the ASM1 and the relevant deliverables will be subjects of the Ministerial discussion in 2018 together with new themes that the organisers and the scientific community will identify as prominent.

All the delegations present at the ASM1 will be invited along with other governments engaging in Arctic Science. The participation of indigenous communities from the Arctic region is considered a priority. Their traditional knowledge and understanding of their natural environment is an essential element which contributes significantly to scientific understanding. Representatives of different Arctic community organizations from various Arctic countries around the world will be invited to take part in the Ministerial.

### **3. Structure of the event and expected objectives**

The ASM2 will take place over two days.

On the first day, an Arctic Science Conference will showcase the latest achievements in relation with the deliverables agreed under the thematic areas defined by the Washington White House Conference in 2016. Scientific advances presented in the ASM1 deliverables, as well as a necessary future commitment, will be the core of the discussion, open to many different Arctic stakeholders, policy-makers, NGOs, media. These discussions will prepare the ground for the high-level segment that will take place the second day.

A reception will be held in the evening of the second day. This event will provide an opportunity for Ministers and their delegations to meet representatives of the broader Arctic scientific and stakeholder community.

The format of the ASM2 will be decided by the co-organisers, taking into account lessons learned from ASM1. The discussion will focus on specific themes which reach across national boundaries and provide opportunities to advance understanding of, and ability to respond to major societal challenges in the Arctic.

The release of a Joint Statement will be one of the main objectives of the Ministerial meeting together with a report on the actions implemented in the previous two years and an updated list of "deliverables" that will generate results in the following years.

### **4. Date and Venue**

The Second Arctic Science Ministerial will be held in Berlin, Germany, on 25th and 26th October 2018.



**ICES**  
**CIEM**

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

Council Meeting 2017

October 2017

CM 2017 Del-Doc 7.2

Agenda item 7.2

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### Annual Science Conference hosts

- *Invitations to host future conferences will be welcomed.*
- *Council will be invited to discuss the potential for the conference to be hosted by other countries (beyond contracting parties).*

The Annual Science Conference (ASC) is an important gathering for the ICES community. The conference is hosted on a voluntary rotating basis among ICES member countries.

The 2018 ASC will be hosted by Germany in Hamburg. The 2019 ASC will be hosted by Sweden. Invitations to host the 2020 (and future) conferences will be welcomed.

#### List of Annual Science Conferences:

<http://ices.dk/explore-us/Documents/History/List%20of%20Annual%20Science%20Conferences.pdf>



## **ACOM Chair's – 2017 Annual Progress Report**

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## 1 Summary

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1. The advisory plan for 2017 involves advice on fishing opportunities for approximately 207 stocks, release of 2 ecosystem and 2 fisheries overviews, responses to 3 recurring requests for advice on ecosystem impacts of fishing activities and 18 special requests.
2. The process has until primo October involved 37 advice drafting groups and 29 Web-Conferences were planned to approve the advice. 12 of the Web-Conferences were cancelled because no substantial comments on the draft advice were received and the advices were adopted without a Web-Conference.
3. ICES has in 2017 until primo October been requested to present the advice at 20 meetings in 2017.
4. In general data has been delivered within the deadlines in 2017 and no major failures has been observed with the exception of VMS data and data on catches by zone (inside and outside EEZ's) where a couple of countries still have difficulties in delivering.
5. Expert Groups have in general been addressed their ToRs of relevance for the advisory process.
6. The Secretariat has used substantial resources in implementing the review system. It has in recent years been increasingly difficult to find experts willing to act as reviewer.
7. ACOM's involvement in drafting and approving advice has improved in 2017 compared to 2016. However, the participation is still skew in favor of fisheries advice with limited involvement of a large part of ACOM in ecosystem advice requests.
8. Whereas the current advisory structure has proven suitable for addressing fisheries requests, it has been less well-suited for environmental and ecosystem requests. The limited involvement of a large part of ACOM in ecosystem advice requests puts a question mark on ACOM's ability to address these requests. ACOM has therefore discussed possible changes to the Committee structure and working procedure. The background document for the discussion is annexed to this report.

ACOM agreed to maintain the current structure of one member per country but with a changed set of skills and background requirements for national ACOM members, and with a change in internal ACOM working procedures to support this change.

This includes changes to the profile of ACOM members in a way that members should have skills in science communication and strategic issues, rather than in stock assessment. ACOM also believes it is important that the

members actively coordinate the national contribution and involvement in the advisory process.

ACOM will review and revise its working procedure at the Committee's meeting in November with the aim of strengthen the Committee's ability to address non-fisheries requests.

9. ACOM agreed at the December 2016 meeting on a workplan for 2017 with the following points:
  - a) Frequency of assessments. Procedures and practices to reduce the frequency of assessments.
  - b) Reopening. Adjustment of the reopening procedure to produce better advice, reduce workload.
  - c) Technical guidelines. Continue the development of guidelines including a checklist, to avoid errors that are increasing in our assessments and advice.
  - d) Introduction to the advice. Revision to be available by June 2017.
  - e) Ecosystem advice. Development of a framework for ecosystem advice.
  - f) Fisheries overviews. Finalise and release the agreed fisheries overviews.
  - g) Ecosystem overviews. Implement the agreed update and review plan.
  - h) Non-fisheries advice.

Work is progressing on all points with the exception of point c) Technical guidelines and point d) Introduction to the advice.

In total 13 technical guidelines out of the 25 guidelines agreed by ACOM in 2014 have now been published. There has been little progress in finalizing the remaining guidelines. A plan for finalizing the guidelines will be presented at the November 2017 ACOM meeting.

The leadership has not had time to work on the introduction during the first half of 2017 and a revised version will not be available for ACOM approval until the November 2017 meeting.

On point f) Fisheries overviews, the progress has been less than planned. ACOM agreed in November 2016 to aim at releasing four overviews early 2017 (Baltic Sea, Celtic Seas, North Sea and Norwegian and Barents Seas). By September 2017 fisheries overviews have been published for the Baltic Sea and the Greater North Sea ecoregions. To continue the development of fisheries overviews a better support from ICES Member Countries in the form of allocation of resources to the work is required.

Regarding point h see point 8 above.

## 2 Overview of the advisory process and advice provided in 2017 until September

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### 2.1 Advice provided by ICES

The advice provided by ICES in period 2014 to 2017 is shown in table 1.

The decline during the period in number of advice on fishing opportunities is due to an increase in the number of stocks for which ICES provided biennial or more advice.

The low number of special requests in 2015 is partly due to a delay in the signing of the AA with the EU which meant that all EU special requests were delayed by more than half a year.

Advice type\year	2014	2015	2016	2017
Fishing opportunity	252	225	222	207
Special requests and other advice	19	14	29	25
Technical services	9	7	4	2

Table 1. Number of advice by type issued by ICES in the period 2014 to 2017.

### 2.2 Recurring requests for advice

ICES advisory plan for 2017 involves advice on fishing opportunities for 207 stocks.

Area	Number of stocks for which advice will provided in 2017
Iceland and East Greenland	12
Barents Sea	8
Faroe Plateau	3
Celtic Sea and West of Scotland	46

North Sea, Eastern Channel, Skagerrak and Kattegat	45
Bay of Biscay and Atlantic Iberian Waters	26
Baltic Sea	18
Widely distributed and migratory stocks	29

Table 2. Number of recurring advice on fishing opportunities planned for 2017 by area.

In addition to the recurring advice on fishing opportunities ICES has issued two Ecosystem Overviews, two Fisheries Overviews and providing advice in response to recurring requests on ecosystem impacts of fisheries to:

**EU Commission:**

- Bycatch of small cetaceans and other marine animals;
- Impact of fisheries on other components of the ecosystem;

**NEAFC:**

- Vulnerable deep-water habitats in the NEAFC Regulatory Area

## 2.3 Special requests

ICES has by mid-October accepted 18 special requests that have or will be addressed in 2017:

**EU:**

- Effects of lifting the “sprat box”
- Distributional shifts in fish stocks
- Fisheries related anthropogenic impacts on silver eel
- $F_{MSY}$  ranges for whiting in the North Sea and Eastern Channel
- In-year advice on haddock (*Melanogrammus aeglefinus*) in Division 7.a (Irish Sea)
- In-year advice on Anchovy (*Engraulis encrasicolus*) in Division 9.a (Atlantic Iberian waters)
- Review the advice for alfonsoinos/golden eye perch (*Beryx* spp.) in the Northeast Atlantic
- Review the advice for blackspot (= red) seabream (*Pagellus bogaraveo*) in Subarea 10 (Azores grounds)
- Risk to the stock of dab and flounder of having no catch limits
- Evaluation of the management plan for Iberian sardine
- Guidance on development of operational methods for the evaluation of the MSFD criterion D3.3, Phase 2
- Indicators for assessing pressure and impact on the seafloor from bottom-contacting fishing - trade-offs between benthic impact and landings/value

**EU, Faroe Islands, Iceland and Norway**

- Evaluation of long-term management plan for mackerel

#### **Iceland:**

- Evaluate the harvest control rule for Ling in Division 5.a
- Evaluate the harvest control rule for tusk in Subarea 14 and Division 5.a
- Evaluation of harvest control rules for a management plan for Icelandic summer-spawning herring (Division 5.a)

#### **NASCO:**

- Future impacts of climate change on salmon stock dynamics

#### **NEAFC**

- Appropriateness of NEAFC bottom fishing closures

## **2.4 Technical services**

HELCOM - Technical Service on fishing abrasion maps

OSPAR - Technical Service on fishing abrasion maps

## **3 Review of advisory process in 2017**

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### **3.1 Data**

In general data has been delivered within the deadlines in 2017 and no major failures have been observed with the exception of VMS data and data on catches by zone (inside and outside EEZ's) where a couple of countries did not deliver or delivered incomplete data.

### **3.2 Expert Groups**

The attendance of Expert Groups dealing with advisory ToRs seems in general to have been satisfactory and the groups have with a few exceptions addressed their advisory ToRs.

### **3.3 Reviews**

The advisory process involves peer review of responses to special requests, benchmark results and substantial changes to methods and data used in an advice. ICES has 20 - 30 advice review groups and 10 – 15 benchmark review groups per year. The difficulties observed in recent years to find experts willing to act as reviewer have continued in 2017.

The internal audit system implemented for stock assessment groups has not been reviewed. However, it seems that the quality of the audits varies highly both within and between expert groups.

15 corrections to advice have been issued in 2017 until primo October. All minor corrections with no impact on the advice.

### 3.4 Advice Drafting Groups.

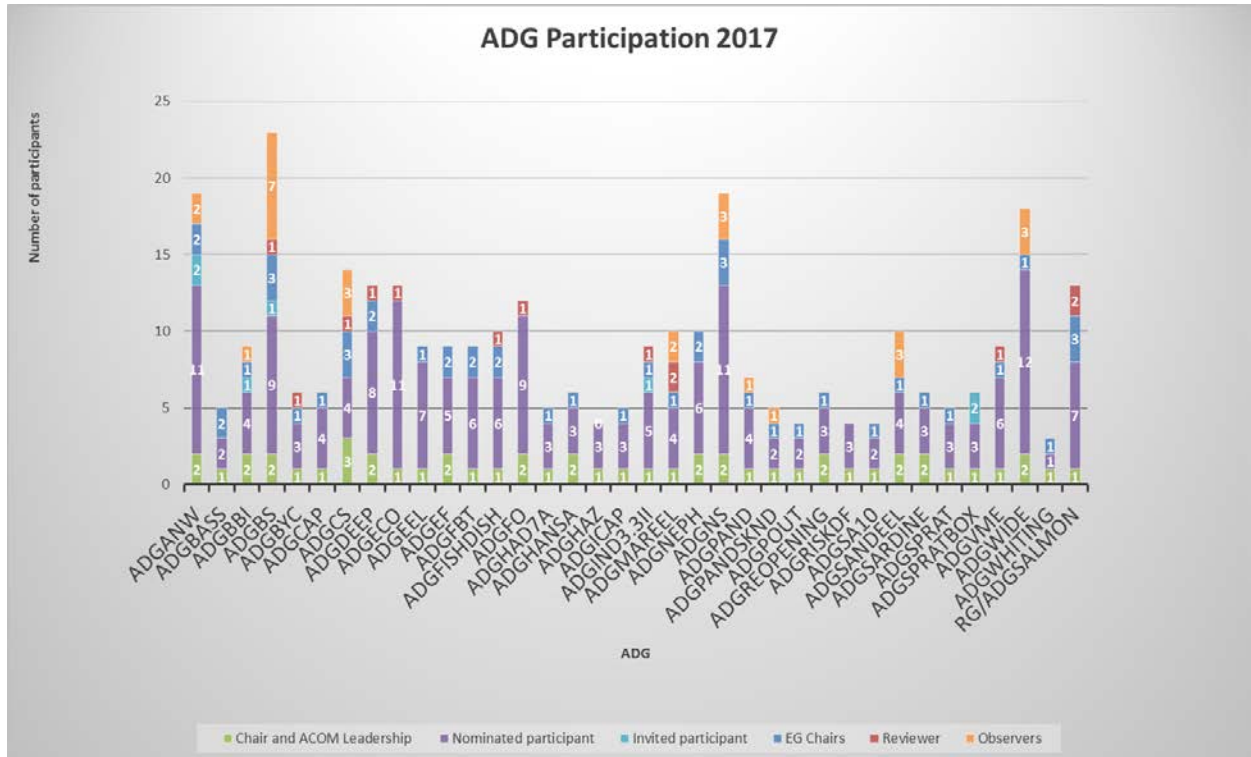


Figure 1. In 2017 until primo October 37 Advice Drafting Groups have met.

The number of participants in the ADGs varied between 3 and 23. Attendance by participants nominated by ACOM national members varied from 1 to 12. The attendance by national nominated members was less than three in 5 of the 37 ADGs.

The participation in ADGs has improved compared to last year and has in general been satisfactory.

Especially for non-fisheries ADGs there have been a number of cases, where national nominated members withdrew a few days before the start of the ADG with reference to that they were not aware of having been nominated or had not planned to attend.

There has in 2017 been a number of cases where ACOM agreed procedures or rules were questioned by ACOM members during ADGs making it difficult to implement the ACOM decisions.

### 3.5 ACOM Advice Web-Conferences.

The participation in ACOM advice approval Web-Conferences in 2017 until primo October is shown in Figure 2. A total of 29 Web-Conferences were planned for the period. 12 out of them were canceled because no substantial comments on the draft advice were received and the advices were adopted without a Web-Conference being held.



On average 50% of ICES Member Countries were represented at a Web-Conference, 23% did not attend but approved the advice beforehand and 27% did not respond to the Web-Conferences invitation.

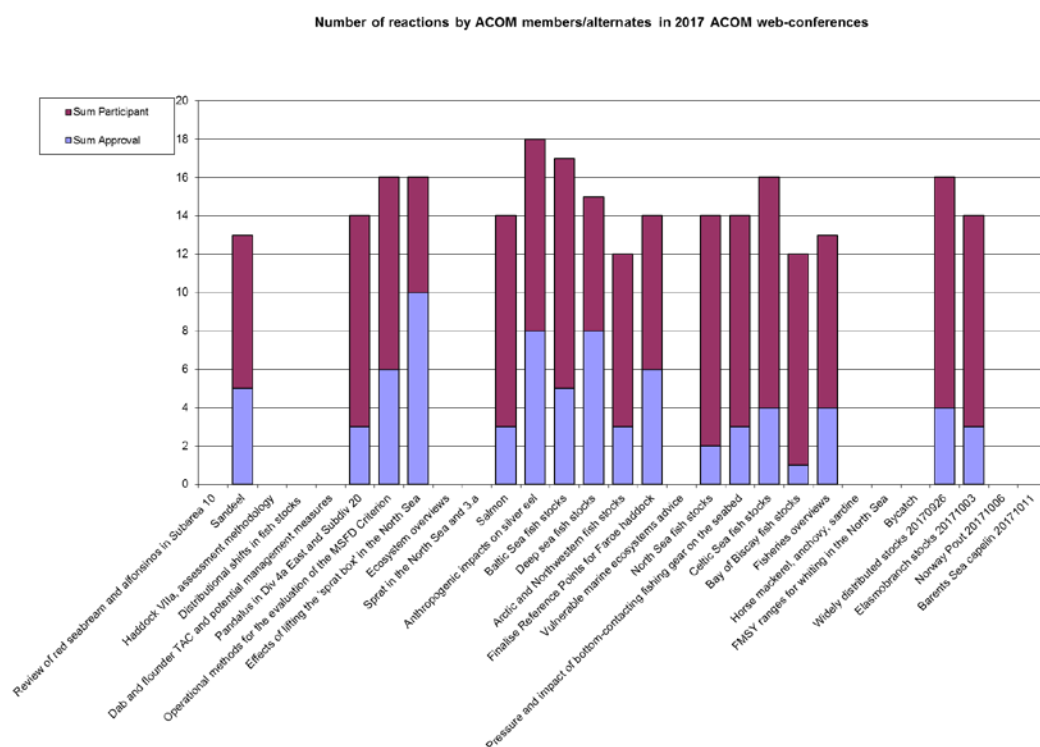


Figure 2 Number of ACOM members participating in advice Web-Conferences or approved the advice before the Web-Conference in 2017 until primo October. In cases where no participation is reported the Web-Conference was canceled because no substantial comments to the advice were received

### 3.6 Presentation of advice

The Administrative Agreement (AA) with EU, and the MoUs with Norway, NEAFC and NASCO ICES include commitments for ICES to present, if requested, the advice at meetings organized by the clients. In addition the leadership has been requested to give presentations at Costal State meetings, regional meetings and conferences. Table 2 provides an overview of presentations provided in or planned for 2017.

Table 2. Presentations of advice by ICES in 2017.

Organisation/meeting	Venue	Date	Presenter
DG MARE. ICES advisory process	Brussels	7 March	Lotte Worsøe Clausen
EFCA. Joint Workshop BALTFISH / BSAC / EFCA on Monitoring,	Hamburg	8 March	Eskild Kirkegaard

Control and Enforcement of the Landing Obligation			
OSPAR HASEC, interim Advice on hazardous substances	Stockholm	28 – 31 March	Mark Tasker
BalticAC. Advice on Baltic stocks	Klaipeda	7-8 June	Eskild Kirkegaard
NASCO, Annual meeting	Varberg, Sweden	6 - 8 June	Gérald Chaput
BaltFish. Advice on Baltic stocks	Berlin	29 June	Eskild Kirkegaard
NWWAC. Advice on North Western Waters stocks.	Edinburgh	4 July	Ghislain Chouinard
DG MARE. Informal meeting on ICES advice for 2018.	Brussels	6 July	Eskild Kirkegaard
PelAC. Advice on herring stocks. Advice on other pelagic stocks	Den Haag Den Haag	11 July 4 October	Ghislain Chouinard Carmen Fernandez
NSAC. Advice on North Sea stocks.	Edinburg	13 July	Ghislain Chouinard
BaltFish. Advice on Baltic stocks	Copenhagen	30 August	Lotte Worsoe Clausen
BaltFish. ICES framework for advice on fishing opportunities	Copenhagen	31 August	Eskild Kirkegaard
DG MARE. Seminar on state of stocks in EU Waters.	Brussels	26 Sept.	Eskild Kirkegaard
EU Council. Stock advice for 2018.	Brussels	28 Sept.	Eskild Kirkegaard
NEAFC, PECMAS. Advice to NEAFC. Annual Meeting, Advice to NEAFC	London London	3 - 4 Oct. 13 - 14 Nov.	David Miller and Eskild Kirkegaard; Eskild Kirkegaard and Mark Tasker
Coastal State meeting on mackerel	London	10 October	Eskild Kirkegaard
Coastal State meeting on blue whiting	London	16 October	Carmen Fernandez

## 4 MIRIA and MIACO

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The annual meeting with the recipients of ICES advice took place 17<sup>th</sup> to 18<sup>th</sup> January 2017 with the participation of EU, NEAFC, OSPAR, Norway, Iceland, Greenland, Faroe Islands, France and Denmark.

The meeting with observers to ICES advisory work were organised back to back with the MIRIA meeting from 19<sup>th</sup> to 20<sup>th</sup> January. The meeting was attended by 32 observers representing 18 observer organisations.

The main aims of the meetings were to review ICES advisory work, and to inform and discuss with recipients and observers new developments in ICES advice.

The agendas for the two meetings were very similar, containing a mixture of information and discussion items including:

- 1) Errors in advice.
- 2) Involvement of stakeholders in ICES advisory process.
- 3) Ecosystem overviews.
- 4) Fisheries overviews.
- 5) MSY approach for category 3 and 4 stocks.
- 6) Workload.
  - a) Frequency of assessments.
  - b) Reopening of advice.
- 7) Management plans as basis for ICES advice.
- 8) ICES Advisory Work-plan 2017.

Both meetings were evaluated by the participants as very constructive, informative and important for the cooperation with ICES. It was agreed to hold similar meetings again in January 2018.

The discussions and conclusions of the meetings are presented by item below.

A separate two hours meeting with the EU Advisory Councils (ACs) took place on the 19<sup>th</sup> prior to the MIACO. This meeting mainly focused on the cooperation between ICES and the ACs including ICES presentation of the advice at AC meetings. There was a strong wish from the ACs to continue with the separate meeting between ICES and the ACs and it was agreed that the ACs should be active in planning the meeting. The 2018 meeting will therefore be organised by the Baltic AC secretariat and ICES.

## 5 WGCHAIRS

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WGCHAIRS met from 23<sup>rd</sup> to 25<sup>th</sup> January 2017. Chairs of expert and steering groups contributing to ICES advisory work were invited. 33 chairs (2 by WebEX) participated in the meeting.

In addition to the items addressed at the November 2016 ACOM meeting the chairs meeting also discussed ecosystem based management and ICES advice, and data issues.

The discussion on ecosystem based management was aimed at informing the chairs about ICES approach to ecosystem based management and how the concept influence the work in different expert groups or may do it in the future.

The data item was a follow up on discussions at the 2016 chairs meeting and was used to inform the chairs on the current work to streamlining data management within ICES. As several chairs of Regional Coordination Groups under EU's data collection framework (DCF) attended WGCHAIRS it was possible to discuss data issues across data providers and data users.

The chairs meeting at the ASC in Riga identified a need for enhancing the communication between ICES groups. Discussions during the January meeting confirmed that most chairs thinks there is not enough information flow, or direct communication, between groups. In its current layout it is exceedingly difficult to get an overview of, and integrate, the work, with each group working in isolation. It was highlighted that there is a definite lack of feedback links and loops between the different groups. It was also stressed that, with Chairs changing every three years, successful cooperation between groups can't be dictated by interpersonal relationships.

The discussions clearly identified a need for improved communication and coordination.

Chairs of expert groups are central for ICES work whether science or advice. It is important that this is recognised by ICES and the chairs are given the necessary support to plan and run their groups work. One way of supporting the chairs is by providing a forum where they can exchange views and experiences.

WGCHAIRS is such a forum and ACOM and SCICOM have agreed that the January 2018 Chairs meeting should be for all expert groups within ICES. The experiences from this meeting will form the basis for ACOM/SCICOM decisions on future chairs meetings.

## **6 Review by MIRIA, MIACO and WGCHAIRS of ICES advisory services provided in 2016**

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### **6.1 MIRIA**

The recipients were very happy with the cooperation with ICES and the quality of the advice. All found ICES to provide high quality advice and commended the flexibility shown by ICES to address request with tight deadlines. The AA and MoUs and the request template have facilitated a continuous dialogue to specify the precise needs by clients enabling a timely and operational advice by ICES. It was underlined that ICES enables clients to have a clear separation between their policy responsibilities and the science basis and the independence of ICES was seen as crucial for the credibility of the advice.

Several Clients were pleased to see ICES involvement on aquaculture is being picked up again.

OSPAR pointed to the importance of the assistance provided by ICES on simplifying complex OSPAR reports as well as the technical services on data management. For ICES and OSPAR there is an element of rebuilding of trust

which need attention in 2017; both organizations are optimistic with off-set in a meeting held in December 2016.

A number of items for further discussions/improvements were identified by the recipients including:

- errors corrected after the advice have been released,
- ICES revision of reference points and how it affects already agreed management plans with detailed harvest control rules,
- information on catches by zone where ICES has not been able to fully address a request from NEAFC,
- mixed fisheries advice where clarity is needed,
- advice on 'minimize by-catch' where it was unclear if ICES were given zero catch advice or that by-catches were OK,
- communication – difficult to find information on ICES website and sharepoint. Wish was expressed to have a more active information policy.

## 6.2 MIACO

The general feedback from MIACO was very positive. ICES was commended for a very good job under difficult conditions. The Advisory Councils expressed satisfaction with the way the advice had been presented to the councils.

A number of issues/wishes were raised including:

- the advice on catch opportunities was found to be too “narrow” leaving no room for interpretation and flexibility in evaluation of stock status and catch opportunities,
- the best format of the advice was when the advice contained many options directly linked to the stock size,
- stocks should be looked at more individually instead of applying a standard MSY approach,
- the integrated ecosystem approach should be used when providing advice,
- too many errors in the advice - the quality control system should be improved,
- communication, difficult to find information on ICES website and sharepoint. Wish was expressed for ICES to have a more active information policy.

## 6.3 WGCHAIRS

The chairs discussed what went well or not so well in 2016, and how to improve.

Main issues discussed were:

- Old software. Support from secretariat to update software was requested,
- Easier access to DATRAS data was requested,
- Stakeholder involvement in expert groups and working procedures. It was recommended that the responsibilities of participants and what information could be circulated outside the groups during meetings was addressed at the beginning of meetings with the aim of having an agreed procedure,
- Role of advice drafting groups. Based on concrete examples concerns were expressed that advice drafting groups may change methods agreed

at expert group meetings. Current guidelines specifies that the expert group should be consulted before substantial changes are made to the draft advice prepared by an expert group,

- Errors in assessments and need for a more efficient audit system,
- Communication between data groups and assessment groups using the data was in general considered poor and inadequate. Should be given priority,
- Changes in ToRs. Big changes including new tasks for the expert groups are not received well. The chairs would rather send these important issues to be addressed at benchmarks,
- Recommendations – unclear what happens to recommendations that the expert groups make,
- Workload – solutions needed to better manage the workload, too many ToRs, last minute special requests, data availability,
- How to deal with different views within a working group. Several chairs were not aware of the guidelines to chairs including what to do if consensus cannot be reached,
- Information to the expert groups on feedbacks from the clients and stakeholders.

## **7 ACOM Workplan 2017**

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ACOM identified at the November 2016 meeting the following as priority area for the Committees strategic work in 2017:

- Frequency of assessments. Procedures and practices to reduce the frequency of assessments.
- Reopening. Adjustment of the reopening procedure to produce better advice, reduce workload.
- Technical guidelines. Continue the development of guidelines including a checklist, to avoid errors that are increasing in our assessments and advice.
- Introduction to the advice. Revision to be available by June 2017.
- Ecosystem advice. Development of a framework for ecosystem advice.
- Fisheries overviews. Finalise and release the agreed fisheries overviews.
- Ecosystem overviews. Implement the agreed update and review plan.
- Non-fisheries advice.

### **7.1 Frequency of assessments.**

ACOM, with inputs from expert group, identified at the 2016 November meeting category 1 stocks that could be candidates for less frequent assessments.

The list was presented to MIRIA with the aim of having a general discussion of the need for annual assessments and to MIACO and WGCHAIRS for information. It was underlined that advice on fishing opportunities might still be given on an annual basis taking into account the most recent developments in catches.

Observers were positive to prioritise the assessment work and focus the work on the important stocks and where assessment issues have been detected.

The clients were not prepared to provide feedback on the list at the meeting and it was agreed to follow up bilateral.

As a follow up the issue was on the agendas of meetings between ICES and DGMARE on 7<sup>th</sup> February and 22<sup>nd</sup> June. DGMARE understood the workload issue and the need to find ways of reducing the advice workload. DGMARE did not provide direct feedback on the list prepared by ACOM but explained that their needs for advice have changed with the introduction of multi annual plans (MAP). Currently the EU needs advice on fishing opportunities for all stocks for which TAC and quotas are set. With the implementation of the MAP the EU is distinguishing between target stocks (driver stocks) and other stocks. If a TAC is set for “an other stock” the EU will until otherwise decided still need advice on fishing opportunities. If no TAC is set only advice on the state of the stock (MSY and safe biological limits) is needed. State of stock advice may not be needed every year and DGMARE also indicated that they were prepared to discuss the frequency of advice for “TAC” stocks. This will be on the agenda for the 2017 ACOM consultation.

## **7.2 Reopening of advice.**

Following the agreement at the 2016 ACOM meeting it was suggested to the clients that the assessment and advice for the stocks currently subject to the reopening procedure be moved to the autumn. ICES also suggested moving the release of the mixed fisheries advice to October.

EU and Norway, the recipients of possible reopened advice, agreed at MIRIA to discuss the issue at their next bilateral consultations. Norway indicated that it could accept to move the advice release for the stocks concerned to October.

DGMARE informed at the meeting with ICES on the 22 June that, for the time being, changes to the current process could not be accepted. EU needs the advice for most stocks by early July.

When discussed at MIACO observers underlined that it is important that the advice is based on as updated information as possible.

## **7.3 Technical guidelines**

Two technical guidelines were published in early 2017 (ICES fisheries management reference points for category 1 and 2 stocks and Rounding rules to be applied in ICES advice). In total 13 technical guidelines out of the 25 guidelines agreed by ACOM in 2014 have now been published. There has been little progress in finalizing the remaining guidelines. A plan for finalizing the guidelines will be presented at the November 2017 ACOM meeting.

## **7.4 Introduction to the advice.**

ACOM requested in November 2016 the ACOM leadership to prepare a simplified version of the introduction to ICES advice to be discussed at the 2017 ACOM Consultation. The leadership has, however, not had time to work on the introduction during the first half of 2017 and will not be able to present a revised version for ACOM approval until the November 2017 meeting.

## **7.5 Ecosystem advice. Development of a framework for ecosystem advice.**

ACOM agreed at the 2016 November meeting to move forward to develop a framework for ecosystem advice and established WKECOFRAME. The report of the workshop was presented to ACOM at the Consultations in Fort Lauderdale.

ACOM found that WKECOFRAME had made good progress in developing an ICES framework and decided that WKECOFRAME should hold a second workshop with the same chairs, and the ToRs for this workshop should include a request to prepare a proposal for a dialogue meeting on the topic.

## **7.6 Fisheries and ecosystem overviews.**

Fisheries overviews have been published for the Baltic Sea and the Greater North Sea ecoregions. ACOM agreed in November 2016 to aim at releasing four overviews (Baltic Sea, Celtic Seas, North Sea and Norwegian and Barents Seas).

ICES has until September 2017 published six ecosystem overviews (Barents Sea, Bay of Biscay and Iberian Coast, Celtic Seas, Greater North Sea, Icelandic waters, Norwegian Sea).

The resources allocated to the overviews by ICES Member Countries have, with a few exceptions, been relatively limited and the production of the overviews has largely relied on the Secretariat and the ACOM leadership. The ACOM leadership does not find the current way of working sustainable.

ACOM discussed the overviews at the Consultations in Fort Lauderdale and concluded to continue with the overviews. ACOM will discuss and agree on a plan for the work at the November 2017 ACOM meeting.

## **7.7 Non-fisheries advice.**

Whereas the current advisory structure has proven suitable for addressing fisheries requests, it has been less well-suited for environmental and ecosystem requests. The limited involvement of a large part of ACOM in ecosystem advice requests puts a question mark on ACOM's ability to address these requests. ACOM therefore discussed possible changes to the Committee structure and working procedure at a WebEx meeting 10 October 2017. The basis for the discussions was a document prepared by an ACOM subgroup (annex 1 to this report). The document outlines the issue, what fails and lists four options for possible changes to the ACOM structure and working procedure to improve ACOM's involvement and ability to address the requests for advice.

The Committee agreed with consensus to maintain the current ACOM structure but change working procedures and urge member states to follow the requirements when nominating national ACOM members.

This means that the current structure of ACOM of one member per country is maintained but with a changed set of skills and background requirements for national ACOM members, and with a change in internal ACOM working procedures to support this change. The aim is to develop ACOM into a strategic committee overseeing the production of the advice, but not producing actual advice. The requirement profile of ACOM members should be changed in a way



that members have proven skills in science communication (mainly with clients of the advice) and strategic issues, rather than a specific technical expertise. ACOM members should be able to read, understand and comment on advice regardless whether it is fisheries or any kind of environmental or economic or social advice. Ultimately, ACOM is looking for a higher profile of members than at present, which however is in conflict with present time requirements.

It is important the ICES Member Countries actively support these changes and ensure that their ACOM member has the necessary mandate to coordinate the national contribution to ICES advisory work.

ACOM will review and revise its working procedure at the Committee's meeting in November 2017 with the aim of strengthen the Committee's ability to address non-fisheries requests and the members engagement in the advisory work.

## **Annex 1. Reforming the ACOM structure to improve the delivery of ecosystem advice**

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This document is developed as a background document for an ACOM decision on the further development of the ACOM structure prepared by an ACOM subgroup established at the 2017 ACOM Consultations in Fort Lauderdale in September 2017.

### **1 Background**

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ACOM was established in 2008 with a remit to oversee all ICES advisory services, including provision of strategic direction and leadership and the ability to establish such processes as necessary to prepare and deliver advice. In addition to ACOM, an advisory structure was implemented that included: Benchmark and Data Analysis Workshops, Expert Groups, Review Groups, and Advice Drafting Groups. ACOM replaced three previous Committees that had these advisory functions in the areas of Fisheries Management, the Marine Environment and Marine Ecosystems, respectively.

ACOM discussed the role of the Committee at its 2014 meeting and confirmed that the main tasks are to: a) oversee the advisory process; b) set the strategic direction; c) provide leadership around advice (prioritisation, connection with clients, and to balance what needs to be done with the resource available) and d) prepare and deliver the advice. ACOM also discussed the role of ACOM members. The Committee agreed that, in addition to contributing to the above tasks, members are responsible for following up on ACOM decisions at member country level.

ICES provided in 2016 advice on fishing opportunities for 205 stocks, release of 4 ecosystem overviews, responded to 3 recurring requests for advice on ecosystem impacts of fishing activities and 28 special requests. The majority of ICES advice is on fisheries management. However, there has been an increasing interest to seek ICES advice on ecosystem issues and 10 out of the 28 special requests were addressing non-fisheries issues.

Whereas the current advisory structure has proven suitable for addressing fisheries requests, it has been less well-suited for environmental and ecosystem requests. The limited involvement of a large part of ACOM in ecosystem advice requests, illustrated by the limit involvement of ACOM members in non-fisheries ADGs, puts a question mark on ACOM's ability to handle these requests.

The low involvement of ACOM in non-fisheries advice requests has been discussed at several ACOM meetings. Recognising that the current way ACOM is operating is not providing the necessary support to address non-fisheries requests, ACOM agreed, at the Consultation in Riga 2016, that ACOM would work harder at improving the composition of ACOM (including members, alternates and nominees) to better respond to non-fisheries advice. How this would be accomplished was left to the member countries.

The issue was discussed again at the ACOM's meeting in November 2016 and ACOM concluded that the decision taken at the Consultations in Riga was insufficient and would not deliver the required strengthening of ACOMs

involvement in non-fisheries work. ACOM therefore agreed to ask WKECOFRAME (meeting in May 2017) to address the issue and the workshop was tasked to “Identify options to ensure ownership of the ecosystem advisory process by ACOM and the wider ICES network”. As part of the response to this term of reference, WKECOFRAME recommended that ICES should rethink the membership of ACOM. In its report, WKECOFRAME discussed three possible solutions to the current ACOM; highlighting the possible advantages and the potential disadvantages to each. WKECOFRAME did not recommend any particular option.

The WKECOFRAME report was discussed during the ACOM consultations held at the Annual Science Conference in Fort Lauderdale (September 2017). During the discussions, it was made clear that the ACOM ownership issue in regards to the ecosystem advice had not improved during 2017 and that a solution was urgently needed. The present ACOM structure does not support the needs of the ICES community in terms of provision of overview of processes and development of the necessary framework for all areas for which ICES provides advice. ACOM discussed the solutions proposed by WKECOFRAME in terms of the composition of ACOM and developed some other potential avenues. ACOM agreed to return to the issue at a WebEx meeting to be set up prior to the Council meeting 18 – 19 October.

A subgroup was established to prepare the current document in which the various options are reviewed.

## **2 What is broken and why do we need to fix it?**

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The expertise held by ACOM members and alternates covers a wide range of topics including non-fisheries. You may therefore expect that ACOM would be able to take ownership of the response to fisheries as well as non-fisheries requests for advice. However, the experiences are that it is much more difficult to engage ACOM members and alternates in non-fisheries requests. In some cases, there has been no involvement of ACOM members or alternates in developing the response to a request and the advice drafting has to a large extent been left to the ACOM leadership and the secretariat.

Following the discussions in ACOM on how to enhance the Committees engagement in non-fisheries advice the nomination from ACOM of members of non-fisheries advice drafting groups has improved. However, the actual improvement in participation has been less than expected based on the nomination. The reasons for nominees not attending have not been reviewed. However, it seems that some of the nominees see themselves being nominated in their personal capacity and not as a national nominated member.

ACOM’s involvement in advice drafting groups can not only be measured by the number of participation. The members’ engagement in the work varies substantially and active involvement in specific advice requests are often limited to one or two members. The need to enhance ACOM’s ownership needs also to ensure a more active contribution from the attendees. This goes for both fisheries and non-fisheries advice drafting groups.

The relative low involvement of a large part of ACOM in non-fisheries issues not only results in low ACOM ownership of non-fisheries advice, but also hampers

the communication from ACOM to the ICES science community in many ICES Member Countries. This is illustrated by the low engagement of ACOM members in supporting ICES work with fisheries and ecosystem overviews. The development of the overviews was initiated by ACOM and the Committee has at several meetings confirmed that it sees the overviews as relevant, useful and important advisory products and agreed to give priority to them. Despite this, there has been limited support from most ICES Member Countries in the form of allocating resources to this work.

To address the shortcomings identified above ACOM believes that a structural change is needed. The structural change should in addition to address the current low ACOM involvement in non-fisheries request also aim at enhancing the communication between ACOM and ICES Member Countries and provide a general increase in ACOM members' engagement in the Committees work.

### **3 Possible solutions**

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The first three potential solutions discussed below were included in the WKECOFRAME report. Following the discussion during the 2017 ACOM consultations, option 4 was added.

In addition to these options, it was considered that, irrespective of the option retained it would be beneficial to more clearly define the roles and responsibilities of ACOM members and alternates. In that way, member countries would be better equipped in selecting members and alternates that would be able to devote the time required to complete the requirements of the ACOM work.

#### **3.1 Two Committees (Establishment of a new Committee)**

This option involves the establishment of two Advisory Committees to replace ACOM, one on fisheries advice and one on non-fisheries advice. ACOM as it stands at present could become the fisheries advice Committee with one member per Member Country. A non-fisheries advice Committee would be established with one member per Member Country. Ex officio membership to be determined.

Leaderships for the two Committees in the form of Chairs and Vice-chairs will be established. The co-ordination of the work will be a joint responsibility of the two leaderships. Current alternate system to be implemented for both Committees.

Advantages:

- i) clear ownership of fisheries and non-fisheries advice process;
- ii) likely improved engagement in non-fisheries advice;
- iii) clear location for fisheries and non-fisheries client interfaces;
- iv) encouragement of a wider ICES advice community;
- v) improved ability to bring, for example, social and economic factors into ICES' advice;
- vi) improvement in altering the perception of ICES as being mainly about traditional fish stock advice;
- vii) reduce the workload for individual ACOM members.

Disadvantages:

- i. increased Committee meeting and leadership cost;
- ii. in contradiction to ICES strategy of integration and carries a risk of lower integration than other options in longer term;
- iii. risk of result in two independent advisory frameworks within ICES;
- iv. may complicate dialogue with clients and observers;
- v. may reduce the individual responsibility for ICES advisory work when spread over two Committees;
- vi. may be difficult to return to a to one Committee if the change does not have the expected outcome.

### **3.2 Increase the membership of ACOM to two ACOM members per Member Country**

ACOM is maintained as the advisory committee overseeing all ICES advisory work and deliverables. The membership of ACOM is expanded to include two national members per country, having equal rights and responsibilities. Ex officio members include SCICOM Chair and all steering group chairs.

The nomination of national members will be up to the Member Countries. However, guidelines will be that the countries nominate one member responsible for fisheries issues and one responsible for non-fisheries issues.

The Committee will operate in plenary on strategic and planning topics and in two sub-groups when developing and approving advice. One sub-group will cover all fisheries requests and the other non-fisheries requests. Only one of the national members or alternates can participate at a time in sub-group work.

The current leadership (Chair and three Vice-Chairs) and ACOM alternate member structure will be maintained.

Advantages:

- i. better ownership of non-fisheries advice process;
- ii. improved perception of ICES' advice process;
- iii. likely improved non-fisheries advice;
- iv. encouragement of a wider ICES' advice community;
- v. may facilitate the developing of integrated advice by having a better balance between fisheries and non-fisheries expertise in the Committee;
- vi. improved ability to bring, for example, social and economic factors into ICES' advice;
- vii. improvement in altering the perception of ICES as being mainly about traditional fish stock advice;
- viii. reduce workload for individual ACOM members.

Disadvantages:

- i. increased ACOM meeting cost;
- ii. more cumbersome ACOM meetings;
- iii. risk that some member countries might choose not to follow the guidelines on membership and nominate two "fisheries" ACOM members;

- iv. reduced individual responsibility for the ACOM work (then spread over two national ACOM members);
- v. may be difficult to return to a reduced membership if the change does not have the expected outcome

### **3.3 Maintain the current ACOM structure (status quo).**

The current structure of ACOM is maintained. No change in membership rules.

Advantages:

- i. no extra costs;

Disadvantages:

- i. continuing lower perception of ICES than necessary;
- ii. greater risk of loss of non-fisheries requests;
- iii. involvement of ACOM in advisory processes dependent on topic, with high risk of low involvement in non-fisheries advice;
- iv. continuing reduced diversity in ICES' advice community;
- v. continuing difficulty in producing high-quality integrated advice;
- vi. low ability to bring, for example, social and economic factors into ICES' advice.

### **3.4 Maintain current ACOM structure but change working procedures and urge member states to follow the requirements when nominating national ACOM members.**

The current structure of ACOM of one member per country is maintained but with a changed set of skills and background requirements for national ACOM members, and with a change in internal ACOM working procedures to support this change. The aim is to develop ACOM into a strategic committee overseeing the production of the advice, but not producing actual advice. The latter has in the past led to highly technical (fisheries) discussions at ACOM meetings and Web Conferences, and in turn encouraged member countries to nominate ACOM members with fisheries expertise, to be able to contribute to what was perceived as most important part of the ICES advice (fisheries).

The requirement profile of ACOM members should be changed in a way that members have proven skills in science communication (mainly with clients of the advice) and strategic issues, rather than a specific technical expertise. ACOM members should be able to read, understand and comment on advice regardless whether it is fisheries or any kind of environmental or economic or social advice. Ultimately, ACOM is looking for a higher profile of members than at present, which however is in conflict with present time requirements.

To support this change, one could think of a multitude of changes in the governance structure, such as:

- ACOM membership should be rotating, which could be implemented with term limits [3-5 years, re-nomination to be discussed];

- maximum number of ACOM members with a specific background, alternating with different nations and/or different terms;
- confirmation of proposed national ACOM members by ACOM to ensure balanced background of members;
- role of alternates could be changed: they could be high-profile experts with specific background required for the advice production in the ADGs, as long as there is limited overlap between ADG and EG membership and should be more actively involved in the advisory process;
- there could also be an official assignment of chairmanship and membership of ADGs to specific member countries, rules on minimum participation of ACOM members/alternates in an advisory process for the process to proceed and/or official announcement of the annual resources allocated to ACOM by ICES member countries

No change to leadership structure is required.

This option requires that ICES Member Countries ensure that the national contribution to the advisory process is coordinated and the resources required are made available.

Advantages:

- i. no or marginal extra cost for ICES;
- ii. provides the ACOM Leadership with various operational tools to increase engagement of a wider ICES advice community;
- iii. wider expertise made available to the advisory work;
- iv. reduction of workload of individual ACOM members;
- v. may facilitate the developing of integrated advice by having a better balance between fisheries and non-fisheries expertise involved in the advisory work;
- vi. ICES member countries will have to take an active decision on ACOM membership at regular intervals which may have a positive impact on the ACOM members' engagement in the committees work.

Disadvantages:

- i. may not result in improved ownership of non-fisheries advice and may in practice correspond to the status quo option;
- ii. unsure if it will have a positive effect the quality of non-fisheries advice;



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Council Meeting 2017

October 2017

CM 2017 Del-Doc 8.1.3

Agenda item 8.1.3

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### Quality Assurance in the Advisory Process

*Meeting participants will be invited to discuss quality assurance in the advisory process. Letters have been received from contracting parties and provided here for background information to the discussion.*





Department of  
**Agriculture,  
Food and the Marine**  
An Roinn  
**Talmhaíochta,  
Bia agus Mara**

Ms Anne Christine Brusendorff,  
General Secretary,  
International Council for the Exploration of the Sea,  
H. C. Andersens Boulevard 44-46  
Copenhagen V,  
Denmark.

8<sup>th</sup> June 2017

**REFERENCE: ICES Scientific Advice and the Need for Quality Assurance**

Dear Ms Brusendorff,

Ireland has a long tradition of association with ICES, having been a member since 1926, as a user of its independent scientific advice, as a contributor of annual share payments and in the provision of scientists to serve on scientific expert groups. We greatly value the independent scientific advice from ICES on marine matters and recognise that this advice is essential for the management of fisheries resources.

It is in that context that I now write to express concern about recent revisions to ICES fisheries advice following the discovery of errors in the assessments on which the advice is based (e.g. Year 2016, Haddock in Area 6; Years 2016 and 2017 in North East Atlantic Mackerel). Our primary concern is that, unfortunately, these errors and resultant revisions to the advice run the risk of undermining the credibility of ICES advice in general.

The errors that were discovered in the NEA mackerel advice for 2016 and 2017 are a particular cause of concern given the economic importance of this stock, the amount of resources put into data collection (e.g. mackerel egg surveys) and assessments (i.e. provision of scientists to ICES) by Ireland and other ICES Member Countries.

There is a responsibility on Member Countries of ICES to collect the appropriate data on the exploited fisheries resources and to ensure these data are quality checked and analysed correctly before they are submitted to ICES scientific meetings. Equally, it is the responsibility of ICES to ensure that data quality is maintained within the ICES advisory process and that data inputs are subject to rigorous checks.

Department of Agriculture, Food & the Marine  
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Ireland would like to request that ICES review quality assurance in the advisory process, with a view to seeing how the current quality system could be improved (or an alternative system put in place). We are also of the view that this matter could usefully be discussed at the ICES Council meeting in October 2017 by all the Member Countries.

Our purpose here is not to be critical but to explore what we can collectively do to improve quality assurance of the advisory product. You have my assurance that Ireland will continue to be a strong supporter of ICES and on the absolute necessity for robust independent scientific advice to inform management decisions.



Cecil Beamish  
Director Fisheries  
Department of Agriculture, Food and the Marine



## DIRECTORATE OF FISHERIES

The International Council for the Exploration of the Sea  
H.C. Andersens Boulevard 44-46

DK-1553 Copenhagen

Denmark

Division:

Inquiries to: Per Sandberg

Telephone: +47 90219680

Our reference: 17/2482

Your reference:

Date: 21.02.2017

Att: Anne Christine Brusendorff

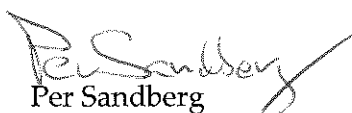
### Errors in advice

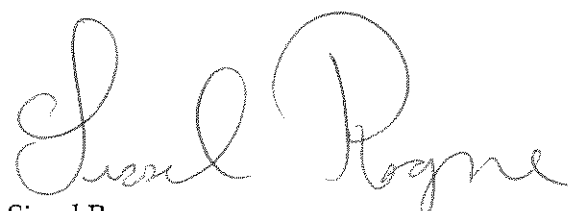
Dear Anne-Christine

Reference is made to our last MIRIA held at ICES HQ 17-18 January this year. During agenda point 4 (Errors in advice) we were informed about the errors/mistakes in advice in 2015 (7 times) and in 2016 (18 times). We were further informed about what ICES does to reduce the number of mistakes in the future, of which one central element was the finalization of the Transparent Assessment Framework (TAF). Our impression was however, that one of the challenges was related to data, or more specifically – that survey indices are provided from the national institutes to ICES in the form of calculated indices and not as data that can readily be entered into the ICES Datras or Acoustic database.

We fully agree with the objective of reducing the number of errors in advice as much as possible, and would like to underline the importance of ICES secretariat to achieve this. Clear, unbiased and correct stock assessment and advice on fishing opportunities is the most important feature of ICES, and need to be constantly guarded. We do however also see that there is a need to standardize the input of survey data to enter them into ICES Datras and Acoustic database. Concerning the latter, we would request the secretariat to start/restart a dialogue with the member states and their national institutes to identify which problems exists, as well as to find a solution to ensure the correct format and transfer of survey data to ICES databases.

Yours sincerely

  
Per Sandberg  
Head of Department

  
Sissel Rogne  
Director of the Institute of Marine Research



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Council Meeting 2017

October 2017

Del-Doc 8.1.4

Agenda item 8.1.4

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## Industry expert participation

*Council is requested to consider options for revising the current policy and procedure allowing industry/NGO experts to attend Advisory expert groups.*

Current observer rules:

[https://www.ices.dk/community/Documents/Observers/CM\\_2013\\_Del-11%203\\_Observer\\_rules.pdf](https://www.ices.dk/community/Documents/Observers/CM_2013_Del-11%203_Observer_rules.pdf)

ICES Delegates may use the national nomination procedure to nominate industry experts allowing them to participate in advisory expert working groups. According to the ICES observer rules:

Observers to Advisory expert groups are restricted to (1) employees of intergovernmental Commissions that have a MoU with ICES for either scientific information or advice, and (2) employees of government agencies that formally use ICES advice to manage fisheries or other marine ecosystem activities.

Allowing industry experts/NGOs to participate in the Advisory Expert Groups, through nomination by national delegates is, therefore, not in spirit of the observer rules, and does not support transparency in the process.

At the 2016 Council meeting a variety of statements were debated, including one related to participation of industry experts. This discussion revealed a lack of awareness around the current procedure and a further action was included in the Council minutes as noted below:

Statement for debate	Feedback from Council	Proposed way forward
Industry/NGO experts can partake in WGs as experts	Varied opinions Fear of undermining our role Knowledge on current practises, procedures and safeguards	<b>Bureau will propose a potential way forward, detailing current practices, procedures, safeguards to be presented at next Council meeting</b> If Council decides current practice is insufficient other options should be considered (e.g. Code of Conduct)

In March, the Secretariat received a letter from Per Sandberg (Norway), outlining the Norwegian perspective, and requesting that the current policy be revised so that industry experts may not be allowed to participate in Advisory expert groups. (See annex).

In 2014, following an industry expert request, ICES Bureau considered a proposal for revising the nomination procedure for industry experts. (Attachment 1)

At that time, Bureau concluded: **Action:** *Bureau noted that industry observers can already participate in advisory expert groups via national nomination. If a scientist does*

*not adhere to the core values of ICES, then it is up to the EG Chair to deal with this matter. ACOM/SCICOM are requested to consider how to provide appropriate training for chairing meetings for all expert group chairs. The President and Secretariat will draft a response to the initial email from the Pelagic Freezer-trawler Association. (Bureau 2014-06 Bureau 236 Agenda 10.2 Bur Doc 1882)*

Industry affiliated scientist may also be invited by the chair of the meeting in consultation with the national Delegate.

In 2016 the Northern Pelagic Working Group (NPWG), a subgroup of the European Association of Fish Producers Organisations (EAPPO) elaborated their “Code of Conduct for Industry affiliated scientists attending ICES Expert groups, Benchmarks and Workshops” (see annex), which states:

*3.1 When participating in an Expert Group, industry affiliated scientists will not participate in the subsequent Advice Drafting Group or as observer at the ACOM meeting where the Expert group advice is being discussed.*

*3.2 Industry affiliated scientists will not request access to SharePoint if not participating in the meeting.*

*3.3 The industry affiliated scientists shall give high priority to participate in, and contribute to, the entire meeting. Part-time participation should be avoided.*

Type of group/meeting	Member	Chair-invited expert	Observer	Advice Requesters
Committee meeting	Appointed by national delegate		Participants with observer status may attend following advance notice	May participate following advance notice
Advice expert group	Appointed by national delegate	In consultation with the national Delegates of the expert's country for one year	Not open for observers	May participate following advance notice
Advice drafting group	Nominated by the national Advisory Committee member or delegate.		Participants with observer status may attend following advance notice	May participate following advance notice
Science expert group	Appointed by national delegate for the three year term of the group	Appointed for the three year term of the group	Participants with observer status may attend following advance notice	May participate following advance notice
Joint ACOM/SCICOM expert group	Appointed by national delegate	Appointed for the three year term of the group	Participants with observer status may attend following advance notice	May participate following advance notice
Workshop	A public meeting – participant registration via the Secretariat	Not applicable (public meeting)	Not applicable (public meeting)	Not applicable (public meeting)

## Industry Observers in the Advisory Process

*Bureau is invited to review the proposal in the email below, discuss potential implications and recommend the issue of industry observers in the Advisory process be added to the Council agenda.*

### **Background:**

In April 2014, the President got the proposal below from a newly hired scientist in an industry organization. The proposal suggests that ICES opens for participation by 'Industry Scientists', nominated by industry organizations or the advisory councils and nominally approved by ICES, in working groups.

The rules for participants and observers are set down in CM 2011 Del-06.5 (general rules for participants and observers in ICES processes) and [CM 2013 Del-11.3](#) (ICES policy and observer status). The latter consolidates rules regarding observers and supersedes the former in this respect. For advisory processes, expert groups are open for observers from competent authorities and experts by nomination by national delegates, workshops are public meetings where all are participants, while the ACOM processes (ADGs and ACOM deliberations) have participation nominated by ACOM and are open to observers.

Fishery industry organizations in Europe have hired staff with a natural science background for many years, but their engagement in the ICES advisory process has so far been as industry or RAC representatives as observers, similar to other stakeholder observers in the ACOM processes or participants in workshops, in accordance with the rules described above. In 2012, the Secretariat was for the first time asked about whether a scientist, hired by an industry organization, could participate in a working group as scientist. Up until today, reference has been made to the relevant Council delegate for nomination (or not) through the normal nomination procedure as described in the rules. The proposal suggests to move further and introduce a supplementary expert concept with a separate nomination procedure.

The proposal raises a number of questions which Bureau may want to consider in its discussion and – if relevant – in a proposal for changed rules for participants in working groups:

- The *scope* of wider expert access: is a limitation of stakeholder experts to 'Industry Expert' in accordance with ICES policy to be neutral vis a vis specific societal interests? For the proposal: One may argue that it is only the industry which may have specific knowledge (contrary to opinions) to carry to the table for the reason that it is the industry which has access to direct observation at sea. Against the proposal: opening specifically for 'Industry experts' will send a signal that ICES is industry biased; other stakeholder groups may also have specific knowledge about an issue.
- Is the *expert concept* in ICES compatible with representing a specific organization in a process? Against the proposal: An 'industry expert' is already in the very name defined as a person who speaks from and on

behalf of a specific affiliation. ICES experts groups work on the ethos that participants shed their institutional affiliations when they enter the ICES process – an ICES expert is specifically expected not to represent their institute or government when they enter the process, and the process is expected to be based on scientific argument only, and not a political negotiation. This is central to ICES delivering unbiased advice. For the proposal: Having experts who formally represent specific organizations makes biased opinions which may arise transparent and easier to control – the ICES ethos of formal non-affiliation may look good on paper but serves to hide a problem which is bound to be there anyway.

- The *formal process* of nominating experts: Can proper (well defined, not open to arbitrary choice) criteria be defined for the ICES approval of these experts? Which body within ICES should have the competence to approve or not?

If modifications of the rules are considered these questions could at least in part be addressed by opening for expert participation from all stakeholder groups, by maintaining that experts are expected to shed their affiliation when entering an expert group and by making clear criteria differentiating participants and observers both in terms of how they are approved and what rights and duties they have in the process.

#### **Email from Martin Pastoors to Paul Connolly 28 April 2014**

Dear Paul,

I hope you are well and enjoying your role as president of ICES.

As you may have heard, I will be joining the Pelagic Freezer-trawler Association (PFA) to become their first Chief Science Officer. Together with Claus Sparrevohn (who is scientists for the Danish Pelagic Producers Organisation), I expect that we will be the first fisheries scientists (and probably not the last) who are directly employed by the fishing industry to improve their scientific awareness and to enhance the knowledge and resource contribution of the industry to the scientific advice. Claus and I both will operate under scientific standards, apply scientific methods and publish in scientific journals.

The issue we would like to raise with you is that of contributions to expert groups in ICES. Both our organizations have requested observer status for the ICES Advisory Programme. That gives us access as observers to the relevant advisory groups (ADGs, benchmarks etc.). But we would like to explore the possibility of going one step further: by contributing to (selected) expert groups with relevant knowledge. As you know, I have been intimately connected with the reform of the advisory process and the discussion on the role of observers in expert groups. I respect the decision by the ICES Council not to allow observers in the expert groups. But we would like to explore a role in which we would be actively contributing with data, resources and knowledge to the expert groups.

The nomination process for experts to experts groups is handled through the national delegates. Even though this process has worked satisfactory for some years for Claus, we feel that a more transparent procedure would be required in which the position of the industry experts is being recognized explicitly. The model

we would like to suggest to you is similar to model that is used in the South African advisory process, where there is a specific “industry scientific participant” is defined: “Industry scientists (either employed or contracted) who can make meaningful scientific input to the Scientific Working Group deliberations”.

In the South African system, it is the chair of the Scientific Working Group who may invite industry scientists. However, given that stakeholder participation in fisheries management in Europe is already institutionalized through the RACs and through formal industry observers in ICES, we feel that it would be more suitable to have the RAC or an industry observer to nominate a industry scientist which then needs a formal approval by ICES (Secretariat? ACOM?). We see the RACs as good and constructive players and getting them involved will improve the transparency in the process. You could consider whether participation by Industry Scientific Participants should be limited to a certain maximum per meeting.

Would this be something that we can explore together if and how such a industry science contribution could be proposed for ICES. We were thinking about an experimental basis starting with Claus and myself.

Kind regards,

Martin Pastoors and Claus Sparrevohn



The International Council for the exploration of Division: Statistics Department  
the Sea

Inquiries to: Per Sandberg  
Telephone: +47 90219680  
Our reference: 17/3079  
Your reference:  
Date: 14.03.2017

Att:

### **Industry/NGO experts participation in Working Groups as experts**

During our last Council meeting we discussed the existing ICES rules allowing industry/NGO experts to take part in ICES working groups as experts. The discussion and the feedback from the Council is noted in the table of point 2.2. There were varied opinions about whether ICES policy of allowing such participation should be continued. According to the minutes from the meeting, Bureau will propose a potential way forward on this issue. As Norway was one of the more sceptical voices at the Council, we would like to explain our position.

Let us start by saying we endorse ICES general policy of transparency. According to ICES website, observers have access to science activities based on a decision by the chair of the relevant group and the secretariat. Observers can also attend workshops, benchmark meetings, advice drafting groups and meetings of ACOM. We believe this confirms that the work of ICES is open and transparent to most interested parties.

Our concern then, is limited to ICES policy of allowing industry/NGO experts to take part in ICES Advisory expert groups. We are aware that such participation can only be granted if the delegates of the expert in question give their approval. The approval by delegates ensures that those accepted for participation have the necessary qualifications, and as such improves the scientific quality of the group. With such a perspective, it may be difficult to understand why anyone can be negative to participation of industry/NGO experts in the Advisory experts groups.

But there is another perspective that we should not loose sight of. ICES relevance as an advisory body regarding fishing opportunities rests with its neutrality and objectivity. Fishing is an economic activity, and while most interested parties would through their support to manage fish stocks to ensure high long term yield, there may be different perspectives in both industry and NGOs as to which models and data are best fit to achieve

such an objective. Such differences in views are also prevalent in the industry of various fishing nations, and our experience is that the quality of ICES advice is constantly challenged.

The annual advice ICES offers on total allowable catch (TAC) for various commercial fish stocks is received with great interest from fishermen, NGOs and the general public. This is as expected as the level of TAC is the most important factor determining the income from the fishermen, and also indicates the level of catch that can be sustained in a sustainable manner. The advice is very often challenged by representatives from various organisation questioning both data and models applied by ICES.

Due to ICES neutrality and objectivity it has so far been easy to defend ICES advice. This has been important domestically, but even more important when quotas are to be fixed by two or more parties sharing a fish stock. With ICES high integrity, the parties responsible for managing a fish stock can rely on one single biological advice.

We would underline that we have no reason to state that the existing representation of experts from industry/NGOs in ICES Advisory expert groups have been a problem for ICES neutrality or objectivity. We do however see that such representation can lead to a lack of trust in ICES as neutral and objective. This would especially be the case if the number of experts from industry/NGO should continue to increase. For management authorities responsible for fixing the annual level of TAC for fish stocks, a lack of societies trust in ICES would not be desirable.

Consequently, we believe it would be correct of ICES to revise its policy regarding the possibility of allowing experts from indtustry/NGOs to attend Advisory expert groups. We believe, to protect the neutrality and objectivity of ICES as advisor on fishing opportunities, to have a clear policy stating that such expert groups cannot be attended by experts from industry/NGOs.

We look forward to discuss this item at the next meeting of the Council. To the extent that the Bureau, in preparing this discussion, would need more information from the Norwegian side, we are of course open to answer any question the Bureau might have.

Yours sincerely

Per Sandberg  
Head of Department

Per Sandberg  
Per.Sandberg@fiskeridir.no

**Our Ref:** B.4.k/EJ

31 July 2017

**Subject:** Industry/NGO experts participation in Working Groups as experts

Dear Per,

At the June meeting of Bureau, Bureau members discussed your letter and the concerns raised regarding the participation of industry/NGO experts nominated by Council delegates, in the ICES Advisory expert groups.

The Bureau discussion focused on the role of our recently adopted Conflict of Interest (CoI) Policy, which sets out a process, and outlines the responsible actors, for ensuring that ICES work is not affected by any interest, or by any participant which might affect, or reasonably be perceived to affect, the participants objectivity and independence in carrying out his/her work. I have attached the 2016 CoI Policy.

The issue of Industry/NGO participation in working groups will be further discussed at the Council meeting in October. Bureau discussed your letter and the points raised, and did not identify a specific conflict between participants nominated as experts, based on their specific scientific qualifications and capacity to contribute, and the preservation of ICES objectivity and neutrality.

As stated in your letter, there have been no actual cases where existing representation from NGO/industry has led to a challenge of the quality of ICES Advice. However, continued review of our policies and procedures safeguarding ICES reputation is an important task of the Council.

Bureau stressed the scientific nature of the work carried out in ICES and that it is in this capacity that any nominated expert is expected to contribute to the work of ICES. Many experts, whether working in a national governmental laboratory, an IGO/NGO or industry organization, are affiliated with other interests, and carry out other work than that related to their ICES fisheries advisory work.

Bureau agreed that it is important to follow-up on the implementation of the CoI Policy, and have requested an annual report to be provided to Bureau on how CoI issues have been handled within the organization, in order to facilitate consistency and transparency in the handling of these issues.

Bureau is pleased to get any additional requests for information, in order to be well prepared for the discussion in Council during October.



**ICES**  
**CIEM**

International Council for  
the Exploration of the Sea

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Sincerely,

A handwritten signature in blue ink, reading "Cornelius Hammer". The signature is written in a cursive style with a horizontal line extending from the end of the name.

Cornelius Hammer  
ICES President

## Conflict of Interest policy and ICES Code of Conduct

### ICES Conflict of Interest Policy (Col)

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As a knowledge provider ICES depends both on the expertise of its participants, and on the perception of cooperation partners that ICES is independent, guided by integrity and objectivity

ICES must facilitate a transparent and consistent handling of situations where conflicts of interest (COI) may arise, to avoid the creation of an appearance of impropriety that can undermine confidence in the person.

ICES stresses the importance to develop and sustain an open organizational culture where COI/measures dealing with COI can be freely raised and discussed.

The ICES Code of Conduct outlines how to address Conflicts of Interest.

### ICES Code of Conduct (CoC)

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The Code of Conduct consists of four components:

#### **I Guiding principles for participating in ICES work**

Recalling the vision and the mission of the International Council for the Exploration of the Sea, all those contributing to the work of ICES are expected to conduct themselves in a manner consistent with scientific independence, integrity, and impartiality.

#### **II Definition of COI**

In the context of this policy a conflict of interest means any interest by a participant that may affect or reasonably be perceived to affect the participants objectivity and independence in carrying out his/her work. A conflict of interest may exist even if no unethical or improper act results from it. The holding of interests does not automatically give rise to a conflict of interest, if the independence and objectivity of work to be carried out are not at risk.

#### **III Declaration of interests**

It is the responsibility of both the Chairs of the meetings as well as the national delegates (who nominate experts to participate in ICES work) to make the nominated participants aware of the ICES Conflict of Interest Policy.

The Chair should address the issues of Conflict of Interest in advance of, and at the beginning of each meeting. Meeting participants should be reminded of the duty to declare any interests in advance of the meeting/commencement of work.

The primary responsibility for assessing whether an interest might impede independence or influence judgement and for declaring any possible conflict of interest is placed on the person concerned.

#### **IV How to proceed when a potential or perceived COI is identified**

It is recognized that it is often difficult to objectively assess whether a conflict of interest situation exists.

In case of a potential/perceived COI, the procedure outlined below should be followed:

- the Expert Group/Committee Chair shall be notified with a short explanation of the nature of the potential conflict of interest, and will make a decision on the participation of the person in question. The Chair will inform the Secretariat and the national delegate about the decision;
- if the Chair finds that there is a need for further follow-up, the Chair will notify the Secretariat who will engage with the national delegate and share with the relevant committee;
- if uncertainty remains as to how to proceed when a potential or perceived COI is communicated, the Chair will ask the Secretariat to give guidance.
- if there is still uncertainty (following consultation with the Chair/Secretariat/Coordination Group) about how to proceed given a potential or perceived COI, the Secretariat will ask the Bureau to make a decision.

To assess the extent of CoI, and ensure that it is being addressed in a consistent and transparent manner, Bureau will be provided with an annual report on CoI issues within ICES, and how they have been handled.

These issues will be discussed in the Coordination Group, to ensure dissemination of information across the organization, as well as consistency and transparency in the way issues are handled.

# Code of Conduct for Industry affiliated scientists attending ICES Expertgroups, Benchmarks and Workshops

## 1 RATIONALE and PURPOSE

A number of industry associations and producers organizations, especially within the pelagic sector, employ fisheries scientists with experience and competences that enable them to contribute to ICES meetings. To make the contribution of industry affiliated scientists fully transparent, the Northern Pelagic Working Group (NPWG), a subgroup of the European Association of Fish Producers Organizations (EAPO), have developed this Code of Conduct.

The code describes rules of engagement and procedural guidelines for industry affiliated scientists participating in ICES Workshops, Benchmarks, ACOM Expert groups and SCICOM Expert groups (all together called ICES meetings throughout this document). The code should be viewed as an addition to the general ICES Guidelines, and not as a replacement.

## 2 NOMINATION

Industry affiliated scientists shall follow the general ICES Guidelines for participation in Expert groups and Workshops in the same way as scientist affiliated to research institutes. This means that workshops and benchmarks are open for all governmental organizations, intergovernmental organizations, non-governmental organizations, and individuals who have observer status in ICES. In case of advisory Expert group participation industry affiliated scientists – similar to research institute affiliated scientist - have to be either nominated by a National ICES delegate, or invited by the relevant Chair in consultation with the national Delegates of the Industry affiliated scientist country.

## 3 PROCEDURAL MATTERS

3.1 When participating in an Expert Group, industry affiliated scientists will not participate in the subsequent Advice Drafting Group or as observer at the ACOM meeting where the Expert group advice is being discussed.

3.2 Industry affiliated scientists will not request access to SharePoint if not participating in the meeting.

3.3 The industry affiliated scientists shall give high priority to participate in, and contribute to, the entire meeting. Part-time participation should be avoided.

3.4. Participation in ICES meetings requires investment of time and resources to cover travel plus subsistence to the meeting venue, which will be borne by the relevant industry groups.

#### 4 GUIDELINES FOR Industry affiliated scientists PARTICIPATING IN ICES GROUPS

4.1 Industry affiliated scientists will work in the best interest of the science and advice produced during the meeting; they will not act as a representative of a particular sector or interest groups.

4.2 Where possible the industry affiliated scientists will bring additional relevant information from the fisheries for consideration within the expert group.

4.3 The industry affiliated scientists will assist in producing science based advice in a consensus mode and actively participate in discussions on all topics where appropriate.

4.4 It is the responsibility of the industry affiliated scientists to allow other ICES group participant, awareness of the affiliation of the industry affiliated scientists.

4.5 When communicating deliberations and background for decisions made by the group, Industry affiliated scientists will follow the Chatham House Rules: *“At a meeting held under the Chatham House Rule, anyone who comes to the meeting is free to use information from the discussion, but is not allowed to reveal who made any comment.”*



#### 4 GUIDELINES

4.1 The observers may make oral statements during the meeting in accordance with the practice decided by the chair. If nothing else is decided by the chair, the observer can make oral statement upon the invitation of the Chair.

4.2 The observer may distribute documents at meetings through the Chair.

4.3 The observer may engage in other meeting activities, subgroups etc.as approved by the Chair.

4.4 All observers admitted to a meeting shall comply with all rules and procedures applicable to other participants in the meeting.

4.5 Observers may not insist on alterations or edits being made to the meeting report. Observers may not make minority statements in the report.

# Code of Conduct for Industry Observers attending Benchmarks, Data Compilation Workshops, Review and Advice Drafting Groups plus ACOM meetings

## 1 RATIONALE and PURPOSE

A number of industry associations, producer organizations and Advisory Councils has achieved observer status in ICES (<http://ices.dk/community/get-involved/Pages/List-of-ICES-observers.aspx>), which allows them to participate as observers in open ICES Meetings. To make the participation of Industry Observers fully transparent and consistent, the Northern Pelagic Working Group (NPWG), a subgroup of the European Association of Fish Producers Organisations (EAPO), has developed this Code of Conduct.

The code describes rules of engagement and procedural guidelines for industry members participating as observers at open ICES meetings, which includes Benchmarks, Data Compilation Workshops, Review and Advice Drafting Groups plus ACOM meetings.

This document should be viewed as an addition to, or adoption of, the general ICES Guidelines, and not as a replacement of these. Industry Observers shall at any time follow the ICES Guidelines specified for participation open ICES Meetings.

## 2 OBSERVER STATUS

Observers have to follow the general ICES rules for gaining observer status in open ICES meetings (<http://ices.dk/community/advisory-process/Pages/How-to-join-the-advisory-process.aspx>).

## 3 PROCEDURAL MATTERS

3.1 During the meeting and when signing up it is the responsibility of the observer to clearly state under which Organization, Association or Advisory Council participation takes place.

3.2 The observer should aim at keeping the ICES secretariat or the chair of the meeting orientated on the coming and going of the observer. This applies both in cases where the participation is by electronic connection and in person.

3.3. Participation in ICES meetings requires investment of time and resources to cover travel plus subsistence to the meeting venue, which will be borne by the relevant observers organizations.

#### 4 GUIDELINES

4.1 The observers may make oral statements during the meeting in accordance with the practice decided by the chair. If nothing else is decided by the chair, the observer can make oral statement upon the invitation of the Chair.

4.2 The observer may distribute documents at meetings through the Chair.

4.3 The observer may engage in other meeting activities, subgroups etc.as approved by the Chair.

4.4 All observers admitted to a meeting shall comply with all rules and procedures applicable to other participants in the meeting.

4.5 Observers may not insist on alterations or edits being made to the meeting report. Observers may not make minority statements in the report.



### Modernization of ICES work processes

*The document is providing background information under five headings to be used to review and discuss issues related to workload.*

The “workload” issue has been a recurring theme in the management discussions of ICES work. ICES has decided on various initiatives to rectify the situation, including reallocations of the core budget, and investments (as opposed to maintenance) from SIF/equity. The document forms the basis to start a discussion and consider what progress has been made and what further changes, if any are needed, to consider the issue “Improved”.

<b>Investments and updates to the system (from 2008)</b>	<b>Benefits to ICES community/clients/secretariat</b>	<b>Costs</b>	<b>Form of Investment and delivery date</b>
<b>Data Collection</b>			
DATRAS governance group	Improved oversight and prioritisation of developments by ICES community		
RCG input from ICES as end user; annual meeting between RCG chairs and ICES	Improved oversight and prioritisation of developments/surveys/data by ICES community/Secretariat into regional coordination of monitoring activities for EU DCF. Leading to a better utilised data collection.		Advisory budget Recurrent
EOSG looking at ecosystem considerations and survey design	Further development of effectively co-ordinated, integrated, quality assured and cost-effective monitoring will lead to better advice and lower costs in the long-term. Even though monitoring methods are increasingly automated, many methods are still ship-based or require ship support, and costs can easily exceed 10K euro per		Core budget

<b>Investments and updates to the system (from 2008)</b>	<b>Benefits to ICES community/clients/secretariat</b>	<b>Costs</b>	<b>Form of Investment and delivery date</b>
	day for larger vessels working offshore, with additional costs for staff time, consumables, sample and data processing. Thus, small investments in procedures can reap significant benefits. Existing programmes often developed more or less in isolation and well before the advent of the ecosystem approach, political pressure to rationalise and the emergence of new monitoring technologies.		
<b>Data management and data processing</b>			
RDB-ES (regional database and estimation system)	Improved quality of data management, documentation, processing and estimation of commercial catch data. Better oversight and timely delivery of relevant input data to an assessment. Regional approach allowing a pooling of effort (from sample design to data product delivery). Key input to Transparent Assessment Framework (TAF)		Equity Several phases, start-up in 2015 and expected completion date 2019
ACOUSTIC	Improved quality of data management, documentation, processing and estimation of acoustic survey data. Better oversight and timely delivery of relevant input data to an assessment. Regional approach allowing a pooling of effort (from sample design to data product delivery). An input to Transparent Assessment Framework (TAF)		In use AtlantOS
DATRAS	Improved quality of data management, documentation, processing and estimation of		Equity – on-going

<b>Investments and updates to the system (from 2008)</b>	<b>Benefits to ICES community/clients/secretariat</b>	<b>Costs</b>	<b>Form of Investment and delivery date</b>
	biological survey data. Regional approach allowing a pooling of effort (from sample design to data product delivery). A key input to Transparent Assessment Framework (TAF)		
CARA: Stock assessment database, Stock information database (SAG and SD.ICES.DK)	Improved quality of data management, documentation of stocks and assessments, processing and automation of outputs. A key component for Fisheries Overviews, MSFD D3 outputs. A key output linked to Transparent Assessment Framework (TAF)		In use Equity Several phases, with start-up in 2012
Ecosystem assessment Data Portals (Noise, Biodiversity, Contaminants, Eutrophication, Marine litter)	Improved quality of data management, documentation of assessment input, automation of data products and indicators. A key service to RSC as clients and could potentially be in ICES Ecosystem Overviews.		In use Core budget and special requests
Transparent Assessment Framework,	Improved quality of data management, documentation of assessment (input, output and methods, versions). Automation of assessment products (input and output). A tool for use, and to be developed, within the ICES assessment community). Reduction of repetitive tasks within WG's. A key service to RSC as clients and could potentially be in ICES Ecosystem Overviews.		Equity 2016- 2020
Quality Control: Source code and documentation management	Improved documentation and shared access to in-line quality control and coding used in ICES products. More efficient for locating documentation for		Core budget and equity

<b>Investments and updates to the system (from 2008)</b>	<b>Benefits to ICES community/clients/secretariat</b>	<b>Costs</b>	<b>Form of Investment and delivery date</b>
(GitHub and QC database)	Secretariat and Community, as well as ability to share effort on tasks on a greater pool of resources.		
<b>Organizational structuring</b>			
Strengthening of Secretariat, SCICOM and ACOM leadership	Active day to day leadership of core areas of work, stronger communication between science and advice, more active communication with network, stronger and more frequent representation of science, ecosystem approach and advice, externally visible ICES leadership of these areas of work.		In place Equity/SIF, advisory and core budget
Ecosystem based approach - Strengthened ecosystem focus in the secretariat	Strengthening the ICES work to provide products of relevance for the application of the ecosystem based approach		Completed Equity
Allocation of all EG in ICES to a Steering Group (i.e. Fish and fisheries Steering Group)	Ensures that all EG are effectively represented in ICES including at the SCICOM Business Group/ACOM Leadership meetings and therefore creates more active links between science and advice. These costs are small in relation to the long-term benefits expected to accrue from strengthening links between science and advice	80,000 to 100,000 DKK to support the SG Chair. One-off short-term cost of a few days staff time to update ICES systems and the website to reflect the change and an ongoing additional	Core budget

<b>Investments and updates to the system (from 2008)</b>	<b>Benefits to ICES community/clients/secretariat</b>	<b>Costs</b>	<b>Form of Investment and delivery date</b>
		workload to the Secretariat of around one week per year to support the SG Chair.	
Website restructure and rebrand			Carried out Equity
Advisory services review			Carried out Equity
Young fisherman at ICES ASC			Terminated Equity
<b>Process Optimization and Network</b>			
RCT	Improved quality of expert resource management in terms of expertise and processes. Better oversight for relevant links between experts, groups and meetings and a 'one-access' point for updating information.		Carried out – still looking into further possibilities of streamlining working processes Equity
Frequency of assessment	Reduction of the annual number of stock assessment to be conducted in support of the advice on fishing opportunities without compromising quality and robustness of advice. More efficient use of available expertise within Secretariat and ICES community.		Advisory budget 2016 -



<b>Investments and updates to the system (from 2008)</b>	<b>Benefits to ICES community/clients/secretariat</b>	<b>Costs</b>	<b>Form of Investment and delivery date</b>
Reopening of advice	Minimizing the number of re-openings of advice will facilitate a more efficient use of available expertise within Secretariat and ICES community.		Advisory budget  Negotiation during the revision of the AA for 2018
Training programme and online modules	The Training Programme develops careers, broadens knowledge and expands professional networks of scientists in the ICES network. Training on advice-related topics increases quality of the advisory process.		SIF  Equity /un-used  BlueBridge
SharePoint updates: <ul style="list-style-type: none"><li>• New community site</li><li>• ASC – registration, abstract and theme session submissions</li></ul>			Core budget
MARCOM+			Carried out/project ended  Equity
Historical Plankton Data rescue	Recovery of historical time series, quality control and documentation of dataset. Made available under ICES Data policy on ICES website  <a href="http://ices.dk/marine-data/dataset-collections/Pages/Plankton.aspx">http://ices.dk/marine-data/dataset-collections/Pages/Plankton.aspx</a>		In use  Equity/SIF

Investments and updates to the system (from 2008)	Benefits to ICES community/clients/secretariat	Costs	Form of Investment and delivery date
Use and outputs			
CARA: SAG and SD.ICES.DK	Improved quality of data management, documentation of stocks and assessments, processing and automation of outputs. A key component for advice outputs. A key output linked to Transparent Assessment Framework (TAF)		In use Equity
Fisheries and Ecosystem Overviews	Provide an integrated approach to management of ocean resources, providing a description of the ecosystems, identifying the main human pressures, and explaining how these affect key ecosystem components. The fisheries overviews address fishing activity and impacts across ecoregions while ecosystem overviews puts the fishing activities into the context of the trends and status of the marine ecosystem as a whole.		Core and advisory budget 2014 – Developed for several ecoregions and under development for the remaining. Will be updated annually.
Science symposia and Early career scientists conference			Core budget and equity
Strategic Initiatives (currently; Strategic Initiative on Climate Change and Marine Ecosystems and the Human dimension, and	Supports the network to highlight and develop high priority, dynamic and topical science areas, and often to build collaboration outside our existing member countries.		SIF

<b>Investments and updates to the system (from 2008)</b>	<b>Benefits to ICES community/clients/secretariat</b>	<b>Costs</b>	<b>Form of Investment and delivery date</b>
earlier Biodiversity, Strategic Assessment methods, MSFD, and Maritime Spatial Planning)			
OOPS products	Using external projects to improve the availability of relevant and customised data products for use in ICES working groups. Saves Secretariat resource, brings access to data/products that ICES would otherwise not have access to.		EMODnet
Science Fund			SIF/Equity

# 1 Issues highlighted in Bureau 2016 (Understanding Data Flow in ICES)

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ICES would seem to have many of the tools to affect a positive change at its fingertips, however making best use of the tools and making the linkages between the various tools and working practices is really the challenge. The following are an unprioritised list grouped into 3 broad categories outlining suggested issues to look at, improvements and questions drawn from various discussions with the assessment and data collection experts.

## 1.1 Data collection

1. Fisheries independent data:
  - a. Surveys groups, as the custodians of long lived and consistent time series, may be resistant to changes in the survey design that would potentially improve the ability of the survey to answer current and future needs.
  - b. Survey groups main tasks are to plan and coordinate surveys, develop guidelines/manuals for how to conduct the surveys, improve survey design and address issues related to handling and reporting of data. The groups are in general not linked to the use of the data.
  - c. A greater ownership of DATRAS (trawl surveys) by both the survey groups and assessment groups. Survey groups need to not only ensure delivery to the database, but also provide a standard and well documented evaluation of the data to the end user. Assessment groups need to make use of the standard products and ensure that survey data in their assessments is channeled through this route whenever possible.
2. Fisheries dependent data:
  - a. ICES has no process to coordinate collection of fisheries dependent data. Within EU the Regional Coordination Groups (RCGs) coordinate the collection of data under the DCF.
  - b. Data groups within ICES are developing guidelines for statistically sound sampling.
3. How does ICES ensure that coordination of data collection (fisheries as well as fisheries independent data) occurs within regions? Should ICES take a more proactive role? Can ICES use the RCGs and in case how do we ensure that they cover all ICES ecoregions and involve all Member Countries.

## 1.2 Data management and data processing

4. Collaborative tools such as the [ICES GitHub](#) can serve the dual purpose of creating transparency (of the methods) and greater ownership of the methods by the experts (as they have direct and immediate influence)

5. Easing access to databases for scientific users of the data i.e. simplified and transparent procedures to access the restricted systems such as RDB.
6. ICES need to be pragmatic and realistic about the data flow process; it is not sufficient to describe and document the data provision, methods of calculation and flow of outputs if this is not how the system works in reality. If some parts of the process are not within the described flow i.e. if an individual survey goes straight from country A to the assessment group this should be made explicit in the description.
7. Shared with data users and data providers, a more systematic understanding of what data sources are being used, by whom, and what is the quality of these data, how access is provided to these data, and when, and where the gaps in provision of data and data products are is important. An 'engineered' approach is needed for at least some of the current data flows, the initiative suggested by DIG to target a few groups to gather this knowledge would be very useful. Without this we may observe (or never realise) the inefficiencies and duplications occurring within the complex interactions of the data flows to assessment groups.

### 1.3 Data use

8. As highlighted by some of the regional sea approaches, removing individuals (but not data users as a collective entity) from the operational setting of the data flow process helps by focusing in on the data use (the real product required for assessment) and avoids an inoperative process where dependencies are created around individuals in the process.
9. End users are defining their data needs but the routing and the receiver of these information is not apparent; RCMs might be considered an obvious receptor of data needs requirements but: 1) They operate outside ICES and do not represent all ICES member states but only EU Members, and 2) RCMs goal is to coordinate data collection between countries but not to prioritize data needs.
10. In relation to the above; ICES needs to define a simple and consistent way of providing feedback on data needs; this will need to include a clear process to make priorities on data needs.
11. ICES needs to look beyond the CFP framework for data requirements to fulfil special requests and environmental data, which is also an essential and growing part of ICES work.
12. A standard practice should be a quality review of input data as a key task for the assessment and survey WG – and making time/opportunity for this to occur

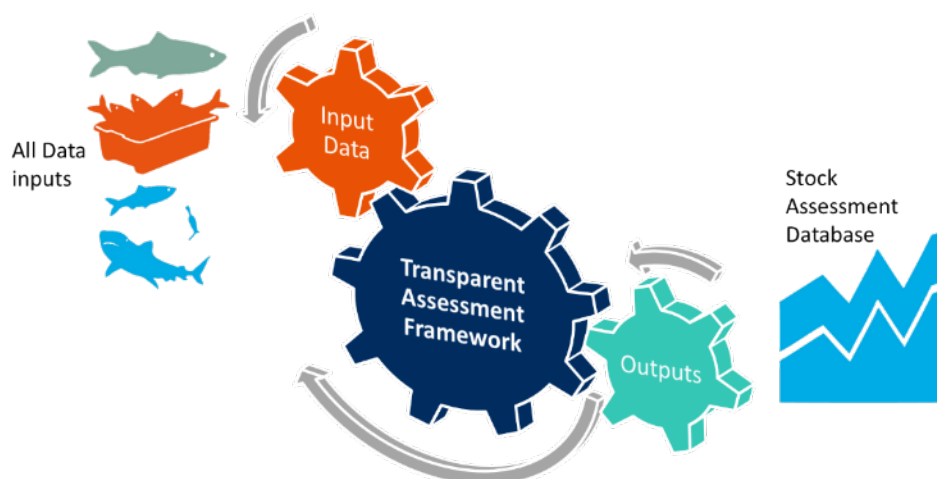
13. Consistent and specific interactions should be sought out between the survey/collection side and the end user i.e. WGISUR, WKDATR that bring the data survey, data management and end use together. Usually these initiatives are driven from the survey/data management side, but it would be a turning point if this came from the assessment side.
14. Prioritization of data (i.e. what stocks and surveys, and variables are needed, nice to have, nice to have in the future). Currently the prioritisation is done for CFP related data by EU and Member States and for all other data by Member Countries. The process within ICES is not defined and needs a strategic concerted effort. ICES does not perform at the moment any cost-benefit analyses prior to communicating to RCMs. A good starting point would be to have a cost-benefit of what surveys are needed under EC (also including Norway).

For data calls – as a specification of what is required by assessment –time should be devoted to it in an assessment group, and where possible the data providers should be consulted early in the design so it is both realistic and relevant. This avoids time intensive issues later when the data are delivered.

## Progress report on data related activities

### 1 Summary

Through various initiatives culminating in a series of discussions and actions at the Bureau and Council and its subsidiary bodies, ICES is on its way to providing a 'total framework' approach to the provision of Advice and Science outputs. Much of this is founded on sound data provision and management, which is depicted in the diagram below. This report will summarize progress in this framework context.



In brief, my feeling is that we have progressed a significant way along the path to a fully connected and transparent framework for data coming into, and going out of ICES. We are still carrying risk in whether we will be able to deliver all that has been anticipated in the strategic plan, and with Council investment. However, reviewing the progress in this report, it is clear we are currently on track.

Some short highlights from the areas touched upon in this report:

- The 2 year rebuild of **RDB (Fisheries Dependent Data)**, funded by ICES Council in 2016, is commencing and engaging with the RCG's via the Steering group for the RDB, PGDATA and WGCATCH as the main providers of knowledge and expertise to the needed methodological changes.
- The RDB steering group has now agreed a new configuration which makes a place for non-DCF ICES countries and opens up development also towards the Mediterranean.
- Progress on the 2016 Council investment on **DATRAS (fisheries independent data)** is presented in detail in [Section 2.2](#). Briefly, a number of activities have started, to enable ICES Secretariat to target the activities highlighted for improvement.

- The **Acoustic data portal** is now operational, and in use by some of the ICES acoustic groups (WGIPS), with others coming online in 2017 (WGBIFS) <http://acoustic.ices.dk>
- VMS and logbook data (and resulting products) have raised the profile of ICES regionally within Europe, both in terms of knowledge providers, but also quality assurance of data.
- In the pipeline in 2017, a **Bycatch (of protected species)** database in connection with WGBYC.
- ICES Secretariat, with WGBIOP have been in discussion with ILVO (BE) to develop their Otolith age reading/annotating software (**SmartDots**) into an ICES platform for the benefit of the ICES working groups/workshops via WGBIOP.
- Smartdots was presented and demonstrated at WGBIOP 2017, the group officially adopted the Smartdots platform as the tool for age reading exchanges and workshops in ICES from 2018 onwards and expressed wishes that it will also be used for maturity exchanges and workshops in the future
- For fisheries data provided via agreement with **NEAFC** (catch and vessel positions), and discussed at the bilateral with NEAFC in January 2017. ICES are still waiting on a response from NEAFC, to make progress on improving the quality and resolution of data, which will improve the advice delivery both for NEAFC but also other partners.
- Investigation of the feasibility of hosting (and developing further) the **European Birds at Sea database** (ESAS), currently hosted by JNCC (UK) has been explored in a workshop with representatives of ESAS and ICES Secretariat. There will now be a follow-up meeting in Winter 2017 to agree on specifics of such a handover.



## 2 Input Data (the first cog)

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### 2.1 Regional Database (RDB)

As discussed at Council in 2016, the aim of the RDB was to cater for all ICES countries and therefore be the main prerequisite for development of regional sampling programmes, for standardisation of data, and the tool for ensuring transparency and quality assurance of input data for stock assessment, and for the management of the marine living resources by the EU and non-EU countries in the North Eastern Atlantic area. At the steering meeting (SCRDB 29 Nov-01 Dec) which followed soon after the ICES Council meeting, non-EU ICES members (Iceland, Norway) participated physically, and the US and Canada participated by web conf. In addition, the long distance and large pelagic RCM's have been recommended to use the RDB, and therefore should be included in the steering.

Therefore, the configuration of the RCG-RDB steering committee was one of the main topics, and a new proposed configuration of the steering committee was formulated as:

- RCG's that are not actively submitting data, but interested to follow the development.
- non-EU countries as observers (primarily Norway, Iceland, Faroe islands, Greenland and Russia).
- A new group under the ICES system, the **ICES RDB Steering Group**, will be created with similar ToR's and the same chair as the RCG-RDB-Steering Committee. Non-EU countries that are part of ICES will have full membership of this group.
- The two groups will meet sequentially (2 days for RCG-RDB-Steering Committee and 0.5 days for ICES RDB Steering Group) in order that all can follow the discussion and proposed decisions, but allow the EU and non-EU countries to have a separate reporting line for the outcomes.
- This will allow some flexibility in addressing the needs of the RCG's as end users, and ICES as an end user.

The other main topic of the meeting was the re-development of the RDB as discussed and funded at Council in 2016. The tight timeline (and associated risk) was raised at Council, as a response to this a dedicated support group providing 'instant' support throughout the process was established under the steering committee. This core RDB development support group will reflect on suggestions and proposals crucial to the process of developing and building the new RDB.

The 2 year rebuild of RDB (Fisheries Dependent Data), provisionally renamed the Regional Database and Estimation System (RDBES), has had extensive activity related to WGCATCH and PGDATA in elaborating the data model and associated formats to handle all the components of commercial catch sampling. More recently, this activity has started to open up for the eventual incorporation of the recreational fisheries data management needs (WGRFS and WGEEL), which will be a major improvement to the management and accessibility of these data.

The first simple version of the RDBES web site application with menu creation of users and roles has been created. The RDBES should be ready in the spring 2019,

but the specifications are 6 months delayed, as the experts have needed more time to test the data model against their sampling schemes, and the fit across so many national and regional approaches is a challenge. In the last 7 months the core group have had 7 online meetings, 2 x 2 day workshops and numerous iterations of the data model – so the input from experts is without question (and appreciated).

## 2.2 DATRAS

### **Benthic Marine Litter data**

The coordinated work within the ICES survey groups to agree on standards for the inclusion of litter data directly into the DATRAS reporting process is now well established. In 2017, via a special request from OSPAR, work has been carried out to provide a standard DATRAS output versioned product for the marine litter data. Both the input and output format were presented at the MSFD TG DATA meeting in Copenhagen in June, and they were promoted as a standard for MSFD marine litter (benthic) data.

### **DATRAS Governance**

There has been discussion in the Data Centre, DIG, Observation Steering Group and SCICOM, on how best to manage the governance of DATRAS – in terms of technical implementation of products, prioritization, quality assurance aspects etc. DIG have had this on their agenda, and with some suggested changes from SCICOM, will proceed to setup a governance group to deal with this. This would give the ICES community more input and control of the shared systems, in the same way that the RDB has a steering group.

#### **2.2.1 DATRAS additional tasks (Council funded)**

##### **Expert revision and automatization of NS-IBTS ALK (age length key) substitution procedure**

##### **Status: Started**

- Preparing documentation of current DATRAS substitution procedure routines, to be eventually discussed and analysed by trawl survey working group such as IBTSWG, WGBEAM and BITSWG.
- Gathering algorithms of similar approach handled by other trawl databases, for better understanding of which rules DATRAS apply for missing samples.

##### **ROCKALL and SWC-IBTS data products and indices in DATRAS**

##### **Status: 75% complete**

- Calculation procedures and product workshop held in July 2017, CPUE base calculation is done for SWC-IBTS and online, ROCKALL CPUE calculation is implemented in DATRAS (will be available with indices product)
- Open source code written in R for indices calculation and is currently in finalization with Marine Scotland-ICES DC, will be published on ICES github in beginning of 2018.

## **LFI (Large Fish Indicator) for biodiversity indicator in Ecosystem Overviews**

### **Status: Started**

- LFI code developed for OSPAR assessment currently under review by ICES Secretariat, code review completed.
- ICES Secretariat attended and supported the ToR at WGBIFS 2017 related to the trawl data needed for a biodiversity indicator based on these data. This needs further discussion within the data and advice teams on how best to take this work forward.
- The next steps are to implement data cleaning routines, and work on statistical adjustments to counter for bias in the surveys (NSIBTS uses a standard Swept area calculation, which is not available so far in other areas) and get the final output of the indicator. This will be done during fourth quarter of 2017 and into 2018.

## **Compute the estimations for maturity Ogives and provide the data and method on the DATRAS webpage generic approach**

### **Status: Not Started**

- There is a planning for second knowledge exchange exercises between Thuenen institute and ICES DC, to develop Baltic products as well as a generic approach applicable to all surveys.
- Maturity base product discussion will be part of IBTSWG meeting, mainly focussing on North Sea standard species maturity and sex data availability in DATRAS.

## **Further development and bug fixing of pilot automated service base data submission project with IMARES**

### **Status: Started**

- There were two online web meetings organised for planning to resolve current task issues. Two different type of web services base file upload procedure developed (WCF and Rest) ,so either or can be use in Python platform.
- October 25 to 27, project workshop where plan to develop and finalise base tasks.

## **2.3 Acoustic data portal**

ICES Acoustic data portal at <http://acoustic.ices.dk>.

Following the dedicated workshop in December 2016 for the Baltic on the use of the new acoustic formats and data portal, and the estimation procedures using the IMR software STOX. There was good support from the ICES Data Centre and IMR in supporting its uptake in the WGBIFS meeting, however WGBIFS are still in a transition to the new setup and the new system will not be fully adopted until the next assessment cycle in 2018.

In 2017 the main plans are to make additional quality control checks, implement a map in order for the users to view data within the database in addition to the grid

currently shown at the portal. And finally, to ensure as many ICES acoustic groups are using the system as possible.

## 2.4 VMS and Logbook data

In 2017 the provision of the data products for OSPAR and WGDEC (among other end users) has run as a ICES technical service rather than advice. A great deal of effort from both the Secretariat and WGSFD has been spent on quality control scripting and procedures. This has resulted in very extensive quality control reports that are provided back to the member countries well in advance, and has addressed data issues well before the planned meeting and use of the data. This model would be advantageous to follow for all working groups that are using data in their assessments, but it is recognised that this takes a substantial effort to achieve and manage the process. In 2017, the coverage and quality of data are better than previous years, with Iceland now also providing a full set of VMS/logbook data.

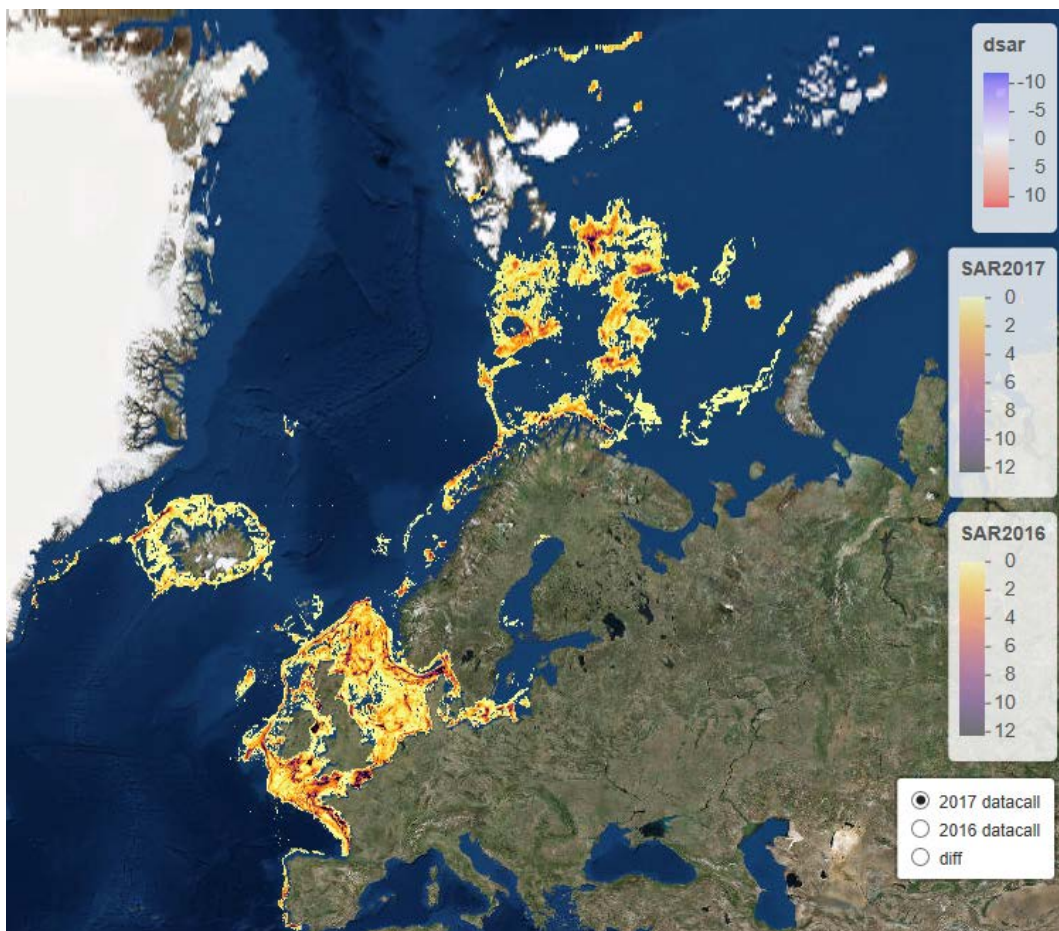


Figure 1 Swept area plots, WGSFD 2017

### 2.4.1 NEAFC data quality

In the January bilateral between ICES and NEAFC, the current arrangement of provision of VMS and Catch information from NEAFC to ICES was discussed.

ICES has identified and communicated<sup>1</sup> a number of improvements to the data flow/data gaps that would greatly increase the quality of the resulting outputs that ICES use the data for in provision of advice to NEAFC. ICES are still waiting on a response from NEAFC, to make progress on improving the quality and resolution of data, which will improve the advice delivery both for NEAFC but also other partners.

## 2.5 Bycatch (of protected species)

The bycatch database is being populated in connection with the WGBYC meeting (12-16 June, 2017). There is still some discussion needed on how these data are connected to the existing data policy(s) that ICES operate under as the group were unable to conclude this at their June meeting. However, it is likely that they will be accommodated under the existing RDB data policy in some form.

## 2.6 SmartDots – Otolith annotation and reading software

Since February, there has been a rapid development of the SmartDots framework, with ILVO, DTU-AQUA, IMR and ICES Data Centre working in collaboration. This software is intended to help and improve the age reading process and to manage the metadata associated with the otoliths sampled. The project has four main objectives: data quality, efficiency, validation and traceability always with Data Collection (DFC) needs in mind, and to optimise and automatize age reading.

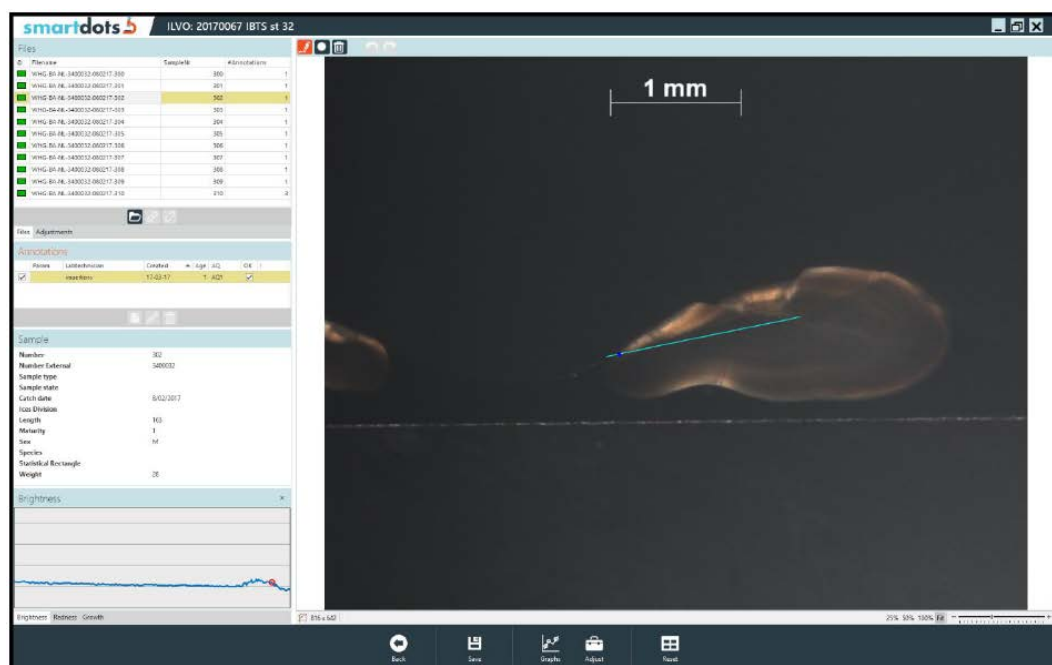


Figure 2 SmartDots Age reading annotation, courtesy of ILVO

Smartdots was presented at WGBIOP (Biological Parameters) 2017, the group officially adopted the Smartdots platform as the tool for age reading exchanges

<sup>1</sup> See Letter to NEAFC Council document Annex 1.



and workshops from 2018 onwards and expressed wishes that it will also be used for maturity exchanges and workshops in the future. By January 2018, Smartdots will be hosted by ICES and will be ready to “go live”. The North Sea Norway Pout age reading exchange will be the first official ICES age calibration exercise to be set up, annotated and analysed using the Smartdots tool. The group decided to go live with the most recent version of Smartdots that was presented at WGBIOP 2017, however in order for the tool to be fully operational by then a number of developmental and deployment steps need to be completed by the core development team (ILVO, ICES, DTU Aqua and IMR).

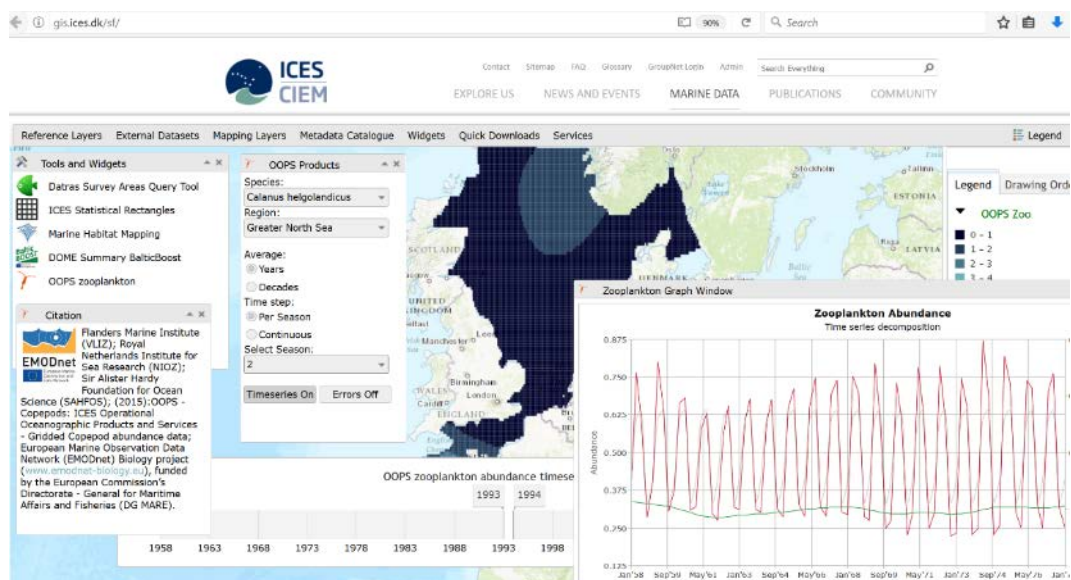
## 2.7 European Seabirds at Sea (ESAS)

The ESAS steering group met at ICES in Copenhagen in September 2017 to facilitate discussions on the potential for ICES to act as hosts of the ESAS database currently at the JNCC (UK). The meeting touched on the issues of data access and future development needs. Both ICES and the ESAS steering group were positive and at the next meeting of JWGBIRD in November there will be an opportunity to further discuss the specifics.

## 2.8 Operational Oceanographic Products and Services (OOPS)

### OOPS Biology

Working through EMODnet Biology, ICES have now published the operational product that maps and charts data related to the 6 most abundant zooplankton species in the ICES Ecoregions. The resulting product is plugged directly into the ICES Spatial facility and can be dynamically queried to display time series by different species/time intervals. The data product was extensively reviewed by the EMODnet partners involved (VLIZ, SAHFOS and NIOZ) and an additional review was instigated by ICES using a number of prominent community experts. Generally, ICES need to think about the process of review for such products that sit outside the normal ICES system. <http://gis.ices.dk/sf/index.html?widget=oops>



## OOPS Physics

ICES is still pursuing the product related to Copernicus (CMEMS). It has proven difficult to get exactly the product and service from Copernicus, partially as they work in a federated system, and partly because they will need a support project to deliver the required project – which may be some time away. Representatives will visit Copenhagen in November to discuss the specifics with the ICES Secretariat.

## 2.9 Quality control online database

In February 2016, ICES released its first compendium of quality control checks performed across all datatypes managed at ICES (<http://ices.dk/marine-data/tools/Pages/quality-control.aspx>). The significance of this once again refers back to a transparent assessment, which includes knowing what actions have been performed on incoming data. The overall goal of the QC checks is to provide the documentation necessary, in an easily accessible way for data end users, so that ICES could additionally provide a quality flagging system to all data managed at ICES. Quality flagging would greatly increase the utility of ICES managed datasets to machine interfaces and scripted programmes, such as packages developed by ICES working groups in the R environment.

## 3 Assessment Framework (the middle cog)

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### 3.1 Transparent Assessment Framework (TAF)

The development of the ICES Transparent Assessment Framework (TAF) is progressing successfully. The system will make all ICES stock assessment input data, analyses, and results available online<sup>2</sup>. TAF will pipeline the data flow, starting from the ICES fisheries and survey databases and ending by submitting



the results to the ICES stock assessment graphs database. By making the analysis

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<sup>2</sup> See TAF flyer Council Document Annex 2

open and reproducible, TAF will also make it easier to prepare and run update assessments with a new year of data.

The first online version of TAF was demonstrated as a "live poster" at the ICES ASC in Florida during the poster session. It attracted a good number of viewers

<Back

### Haddock (Melanogrammus aeglefinus) in Division Va (Iceland grounds)

AnalysisKeyLabel	2015_had-iceg
Stock Code	had-iceg
Stock Database ID	0 NEED TO FIX
Data Category	1
Assessment Type	Adapt-type model (in ADMB)
Ecoregion	Greenland Sea Ecoregion, Iceland Sea Ecoregion
Expert Group	North-Western Working Group (NWWG)

Scripts Data

raw data input model output report utilites

#### Tables and Figures

Scripts to produce the tables and figures included in the report.

```
report_tables.R
1 ## Prepare tables for report
2
3 ## Before: catage.csv, smh.csv, wstock.csv, wcatch.csv, maturity.csv,
4 ##         summary.csv, natage.csv, fatage.csv (data, output)
5 ## After:  catage.csv, smh.csv, wstock.csv, wcatch.csv, maturity.csv,
6 ##         summary.csv, natage.csv, fatage.csv (report)
7
8 library(icesTAF)
9
10 mkdir("report")
11
```

and was well received by young scientists, stock assessors, and senior scientists involved in fisheries advice. This demonstration will be repeated for ACOM, WGCHAIRS, and for the assessment working groups in 2018.

**Figure 3 TAF online workflow and assessment run**

Currently, there are now five stocks in the TAF system, undergoing continual development. In the coming year, in collaboration with the stock assessment scientists, assessments from several ICES working groups will be introduced in a stepwise manner to allow for gradual (agile) development of TAF system components: user interface, R packages, and web services.

The current status of these stocks in relation to their inclusion in TAF:

- Completed: North Sea spotted ray, Icelandic haddock
- In testing: Eastern Channel plaice, North Sea cod
- In progress: Icelandic ling

The TAF team have been working primarily on making the data connections and structure between the input side and the assessment model. In addition,



discussions and collaboration with the DTU hosted Stockassessment.org, as well as the IMR equivalent project, and the DFO in Canada are ongoing. The aim being to share and make use of, as much as possible, the existing software and methods developed within these systems to allow TAF to exploit these systems, but with some flexibility for other software and models to be incorporated as the ICES assessment community see fit.

## 4 Assessment and Indicator outputs (the last cog)

The stock assessment results provided by <http://standardgraphs.ices.dk> have now been further developed to provide stock status summaries automatically – both through the web page interface and programmatically through web services. This allows automation to the information in [Fisheries overviews](#) and has also been successfully mapped to Descriptor 3 reporting for the 2018 MSFD 1<sup>st</sup> assessment cycle, which was presented as a prefilling exercise to aid member states intending to refer to these assessments directly as part of their reporting obligation.

		Fishing pressure				Stock size		
		2014	2015	2016		2015	2016	2017
Maximum sustainable yield	F <sub>MSY</sub>	✓	✓	✓ Below	MSY Btrigger	✗	✗	✓ Above trigger
Precautionary approach	F <sub>pa</sub> , F <sub>lim</sub>	✓	✓	✓ Harvested sustainably	B <sub>pa</sub> , B <sub>lim</sub>	✗	⚠	✓ Full reproductive capacity
Management plan	F <sub>MGT</sub>	—	—	— Not applicable	B <sub>MGT</sub>	—	—	— Not applicable

**Figure 4 Stock status summary, no longer locked in a PDF and can be queried and outputted by different criteria**

The configuration of stocks and all of their related settings has been compiled in a companion database to the stock assessment results, known as the stock database, has now also gone into production and is seen as a key piece of the transparent assessment that ICES is striving to deliver.

## 5 Data and Information Group

The [DIG report](#) highlights a proposal on a data governance initiative, briefly summarized below (see also DATRAS section above).

This was the first year in which DIG was working towards a data governance framework and reporting model after receiving positive feedback from SCICOM. This year, activities focussed on evaluating the format, and creating oversight of how the framework will assist in achieving greater integration across the ICES Data portfolio.

Specifically, DIG carried out an exercise in locating data across multiple systems to answer broad/integrated questions, and located a number of strengths and weaknesses around how data systems are presented. Generally speaking, individual systems are highly competent at providing expert level insight to data, but less good at facilitating more generalist access, or to locate data across multiple systems.

DIG also did an initial trial of using a data governance framework to evaluate performance in specific data collections, and compared this approach to other

metrics-based approaches such as accreditation and quality management frameworks.

Overall DIG and members of staff from the ICES Data Centre are now positive and confident that a governance framework and reporting format can be adopted for ICES data products. This will help provide more structured reporting to SCICOM and ACOM when relevant, by giving a 'dashboard' view of the relative strengths and weaknesses of various ICES data outputs and products.

The exercise did however also identify that formation of governance groups is necessary to deal with the largest data collection. Specifically, DIG is setting up a governance group for the DATRAS portal to implement this reporting framework.

## 6 WISE-Marine

The flagship information portal for the MSFD, hosted by the EEA and supported by the Commission was launched at the Our Oceans conference in Malta in October <https://ourocean2017.org/>. The portal is now online on this link:

<http://water.europa.eu/marine>



ICES Data Centre and Communications department have been heavily involved in the conceptualisation and implementation of the web portal. The EEA, through the drafted letter of understanding with ICES, is keen to ensure that ICES has a prominent position in the both the showcasing of information into the system, but also the governance of the portal as it develops.

## 7 Blue Science Cloud and outlook past 2020

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With the EU Commission's initiative towards a European Open Science Cloud <https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud> there is a push to consolidate the various marine related cloud infrastructure and services projects into one coherent pilot. There will be a great deal of focus from the Commission on this in the coming 1-2 years as they elaborate a Blue Science Cloud.

ICES does not, as yet, have a strategy towards the Cloud initiatives. So far we have engaged with individual initiatives and projects (i.e. BlueBridge), which may be using cloud infrastructure, that have offered solutions/resources that can be related back to the ICES Strategic Plan. At present, this would seem to be a sensible approach to continue as ICES primary interest is in the products, services and standardisation that may be related to a cloud project/infrastructure but essentially will exist/be required irrespective of whether it is provided via the cloud or not.

To further this, the Head of Data and Information and DIG chair have drafted an outline of the major challenges/opportunities facing the Data landscape in the next 5 years. This will be fully presented at the SCICOM mid-term for further discussion and ultimately incorporation into the next ICES Strategic plan.

Stefan Amundsen  
NEAFC Secretariat  
44 Baker Street  
London, W1U 7AL  
UK

**Our Ref:** G.10/NH/2017

**Subject:** NEAFC provision of fisheries data to ICES

6 March 2017

Dear Stefan,

Recalling the meeting at ICES in Copenhagen on 18<sup>th</sup> January between NEAFC Secretariat and representatives from your contracting parties, and ICES Secretariat and ACOM representatives. We opened a discussion centred around the provision of data from NEAFC to ICES, both in its quality and potential gaps. The provisions of these data are by formal arrangement as agreed in 2014<sup>1</sup>. These data are used, for example, in the advice on the evaluation of vulnerable marine habitats within the NEAFC regulatory area.

We mutually agreed to explore some of the issues that ICES raised in the data provision via a correspondence. I would highlight that ICES are prepared to visit the NEAFC Secretariat, or the sub-contractors that manage the NEAFC data, if it is felt that it may be easier to work through the discussion in this way. ICES have narrowed down the issues, and hereby describe the provision as it is, and what ideally would be required:

- 1. Present situation:** VesselID is randomised every 6 months (data sent twice per year)  
**Preferred:** If data were transmitted annually, and the VesselID to only be randomised on an annual basis (i.e. in January)
- 2. Present situation:** Catch information is provided aggregated to 6 months for each vessel/species  
**Preferred:** Catch information (CATCH\_DATA table) should include date information to a minimum of daily if possible, otherwise weekly by vessel/species catch
- 3. Present situation:** No catch weight provided  
**Preferred:** Catch information is mandatory in the NEAFC recommendation on reporting, so (CATCH\_DATA table) should include catch weight information

<sup>1</sup> [http://ices.dk/explore-us/Documents/Cooperation%20agreements/NEAFC/20140313\\_VMS\\_data\\_agreement.pdf](http://ices.dk/explore-us/Documents/Cooperation%20agreements/NEAFC/20140313_VMS_data_agreement.pdf)



**ICES**  
**CIEM**

International Council for  
the Exploration of the Sea

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l'Exploration de la Mer

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# ICES TAF

## Transparent Assessment Framework

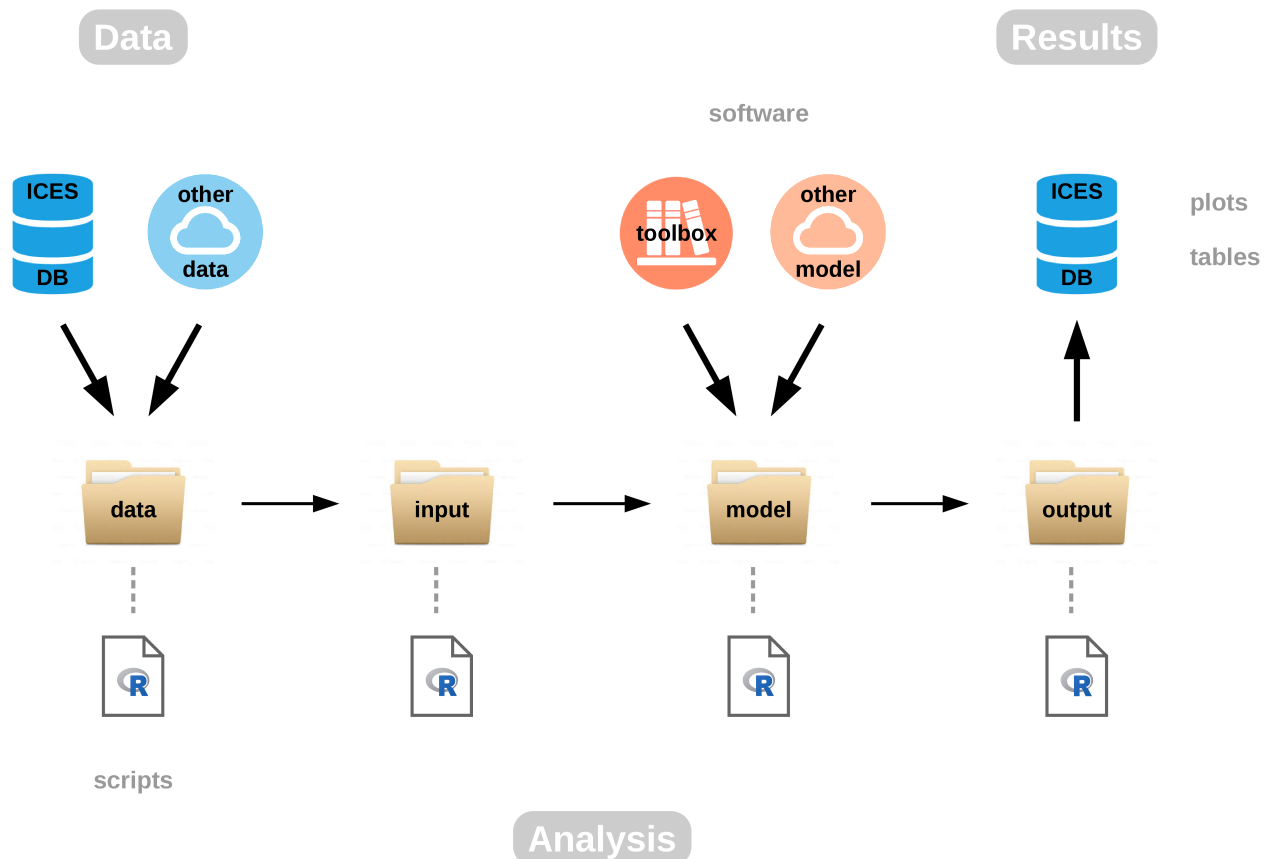


### Transparent assessment framework?

- Anyone can view/download data, model, and results
- Anyone can run the analysis on any computer
- Official assessment is run on the TAF server
- Data preprocessing is documented as well

### How does it work?

- R scripts are run sequentially
- Scientists write the scripts and update them
- Everything is archived in a TAF database
- Can read from GitHub and stockassessment.org



### What are the benefits?

- Easy to find data and results from final assessment
- Open and reproducible science, improved peer review
- Easy for scientists around the world to get ICES data
- Easy to run an update assessment next year
- If scientist changes jobs, next person can take over
- Existing and future tools can use TAF services

<http://taf.ices.dk>

4. **Present situation:** We suspect that ICES does not receive all available data. This issue was highlighted to us by other organisations and when examining AIS data. It is unclear whether this is a reporting issue (to NEAFC) or database issue.  
**Preferred:** All vessel activity to be provided

Thank you for your consideration of these points, and I hope we can find ways to further improve the dataflow, to both NEAFC and ICES benefit.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Neil', with a stylized flourish extending to the right.

Neil Holdsworth  
Head of Data and Information



### Changes to the Rules of Procedure following changes to the recruitment process for ACOM and SCICOM Chair

*-Council will be invited to approve the changes to the rules of procedure to support the revised recruitment procedure as agreed by Bureau.*

In connection with the revision of ICES leadership structures, including creating full-time ACOM and SCICOM Chairs, new recruitment procedures were also developed. After the experience of implementing the recruitment procedure, further improvements were suggested in the table below.

At its February meeting, Bureau supported the suggestion to streamline the process, protecting the confidentiality of applicants, and giving the sole responsibility to the recruitment panel.

Agreed recruitment procedure	Issues identified/areas for improvement
1. The position of Chair of the ICES Science/Advisory Committee should be advertised as widely as possible, on the ICES website and by notifying ICES Member Countries, stakeholders, and cooperation partners, and with a clear outline of the timeframe of the various stages of the recruitment process, as well as an indication of the expected start date. The General Secretary will compile the applications.	No issues identified. The vacancy announcements were advertised widely, also using professional social media networks (LinkedIn).
2. A recruitment panel will be established with the following membership: Three SCICOM/ACOM members selected by SCICOM/ACOM of which one is appointed by SCICOM/ACOM as chair of the panel, two members of Bureau selected by the Bureau, an ACOM/SCICOM representative, the General Secretary, and the Head of Advisory Support/Head of Science Support. The	No issues identified.

outgoing Chair of SCICOM/ACOM cannot be appointed as member.	
3. The applications will be reviewed by the recruitment panel and the panel will develop a short-list (based on certain criteria defined in the job description).	Given the broad membership of the recruitment panels, and the interconnected nature of the ICES community, conflicts of interest presented themselves (recruitment panel members personally or professionally connected to applicants). This was dealt with in an ad hoc manner guided by the CoI policy and prevented any effect on the outcome.
4. The Chair of the recruitment panel will present the shortlist to SCICOM/ACOM for further selection of up to three candidates to go further to a more formal interview with the recruitment panel (nominations).	<p>Reopening the process with ACOM/SCICOM, who had representatives in the recruitment panel and also chaired the panel, was in practice a merger of two very different processes. A professional recruitment process, and a recruitment by Committee.</p> <p>This made the recruitment non-confidential, and could potentially deter applicants from applying in future recruitments.</p> <p>-this also has the potential to create redundancy, and negate the efforts of the recruitment panel's priority ranking process.</p> <p><b>It is suggested to change the recruitment procedure to be conducted solely by the recruitment panel.</b></p>
5. Based on the interviews a priority ranking of candidates will be created by the recruitment panel, i.e., specifically stating that the listed candidates are qualified and recommended in priority order to do the job.	<p>With only two candidates, the priority ranking was self-evident.</p> <p>With up to five candidates, priority ranking was more difficult and the value of ranking number four (4) and five (5), etc. was not evident.</p>
6. Finally, Council appoints the SCICOM/ACOM Chair according to the priority ranking, and thus approving that the process has been carried out according to the established procedure. This ensures	No issues identified.



that if the first priority candidate decides not to take the position, the list of candidates in rank order may be followed to fill the position.	
7. The position is for a three-year term, with a possibility for another three-year term (limit of two successive terms). The SCICOM/ACOM chair is subject to an evaluation process after one year, led by the President and Bureau. One year before the end of the three-year term a Bureau–SCICOM/ACOM panel consisting of 2 Bureau members and 2 SCICOM/ACOM members will evaluate if the contract of the SCICOM/ACOM Chair shall be extended for a further three years. They will provide a recommendation to Bureau, who will decide on the renewal.	No issues identified.

### **Revised Recruitment procedure:**

1. The position of Chair of the ICES Science/Advisory Committee should be advertised as widely as possible, on the ICES website and by notifying ICES Member Countries, stakeholders, and cooperation partners, and with a clear outline of the timeframe of the various stages of the recruitment process, as well as an indication of the expected start date. The General Secretary will compile the applications.

2. A recruitment panel will be established with the following membership: Three SCICOM/ACOM members selected by SCICOM/ACOM of which one is appointed by SCICOM/ACOM as chair of the panel, two members of Bureau selected by the Bureau, an ACOM/SCICOM representative, the General Secretary, and the Head of Science Support/Head of Science Support. The outgoing Chair of SCICOM/ACOM cannot be appointed as member.

3. The applications will be reviewed by the recruitment panel and the panel will develop a short-list (based on certain criteria defined in the job description).

~~4. The Chair of the recruitment panel will present the shortlist to SCICOM/ACOM for further selection of up to three candidates to go further to a more formal interview with the recruitment panel (nominations).~~

~~5-4.~~ Based on the interviews a priority ranking of candidates will be created by the recruitment panel, i.e., specifically stating that the listed candidates are qualified and recommended in priority order to do the job.

~~6-5.~~ Finally, Council appoints the SCICOM/ACOM Chair according to the priority ranking, and thus approving that the process has been carried out according to the established procedure. This ensures that if the first priority candidate decides not

to take the position, the list of candidates in rank order may be followed to fill the position.

7.6. The position is for a three- year term, with a possibility for another three-year term (limit of two successive terms). The SCICOM/ACOM chair is subject to an evaluation process after one year, led by the President and Bureau. One year before the end of the three-year term a Bureau–SCICOM/ACOM panel consisting of 2 Bureau members and 2 SCICOM/ACOM members will evaluate if the

## **Rules of Procedure**

### **Revision history:**

#### **Changes**

**adopted by Council on**

**3 October 2001,  
29 September 2004,  
20 October 2005,  
27 October 2006,  
19 February 2008  
22 October 2008  
22 October 2014,  
19 October 2016  
19 October 2017**

**The Rules should be read in association with the  
ICES Convention of 1964**

## 1 REPRESENTATION

### Rule 1

Each Contracting Party shall inform the General Secretary in writing of the names of its Delegates on the Council. Delegates shall inform the General Secretary in writing of the names of experts and advisers appointed to attend scientific and business meetings when there is a requirement for *pro forma* representation.

### Rule 2

The Council may invite any Government not party to the Convention and any international or other organisations having objectives related to those of the Council to be represented at its meetings by observers.

### Rule 3

- i ) Plenary sessions of the Council shall be open to attendance by all Delegates. The Chair of the Science Committee (i.e. the Consultative Committee as referred to in the ICES Convention) and the Chair of the Advisory Committee shall each have the right, *ex officio*, to attend and address such sessions. Any other person, with the agreement of the Council, may attend and address such sessions.
- ii ) The General Assembly comprises Delegates, experts, advisers, observers and any other person attending the meeting of the Council with its approval. Any of those present may, unless the Council decides otherwise, address the Assembly.
- iii ) Delegates may attend business sessions of subordinate bodies of the Council, such as the Bureau and Finance Committee. They may also designate individuals to attend Council meetings and business sessions of subordinate bodies of the Council. The General Secretary shall be informed in advance of the intention of delegates or their designee to attend such sessions. The Chair of the Council or of business sessions of subordinate bodies may limit attendance if necessary because of limitation of space, or if the subject matter of the session is deemed to be sensitive and requires confidentiality. Delegates, or their designee, may address the sessions they attend, at the discretion of the Chair, without the right to vote.

## 2 VOTING

### Rule 4

- i ) At the plenary sessions of the Council each Contracting Party shall have one vote which may be cast by either Delegate where more than one is appointed.
- ii ) At any meeting of a Committee, the members (or any Delegate) may vote, provided that at meetings of the Committees established according to Rule 28 any Contracting Party shall exercise only one vote.

### Rule 5

- i ) Except as otherwise provided in the Convention, when a vote is taken in plenary sessions of the Council or in meetings of its Committees, a simple majority of the votes cast for or against shall be decisive.
- ii ) In the event of an even division of votes in a Committee other than the Bureau the proposal before the Committee shall be regarded as rejected.
- iii ) The Council and Committees shall vote by show of hands, except that:

- a ) in the Council a vote by roll call shall be taken if a two-thirds majority is required by the Convention or upon request of a Delegate;
- b ) all elections shall be decided by secret ballot after confidential nominations in writing.
- iv ) For election to the office of President, First Vice-President, Vice-President or Chair or Vice-Chair of a Committee a candidate who secures votes numbering more than half the number of Contracting Parties represented at the meeting at which the vote is taken, shall be declared elected. If no candidate secures the number of votes required for election, then:
  - (a) if there are only two candidates, voting shall be continued until a candidate is elected;
  - (b) if there are three or more candidates, the candidate receiving the lowest number of votes shall be eliminated and voting continued in accordance with this paragraph until a candidate is elected, provided that if there are two or more candidates receiving the lowest number of votes it shall be decided by separate vote which candidate shall be eliminated.
- v ) If the offices of two or more Vice-Presidents have to be filled at the same meeting separate votes shall be taken for each office.
- vi ) At any time not more than one member of the Bureau shall be from the same member country.

#### Rule 6

In cases of urgency between meetings of the Council a vote of the Contracting Parties may be taken by post or by electronic means, in which a simple majority shall be a simple majority of the Contracting Parties.

#### Rule 7

Delegates representing a simple majority of the Contracting Parties shall constitute a *quorum* for plenary sessions of the Council.

### 3 PRESIDENT

#### Rule 8

The President shall be elected for a term of three years and shall not be eligible for re-election for the immediately succeeding term.

#### Rule 9

The duties of the President shall be:

- i ) to preside at the General Assembly and plenary sessions of the Council, and at all meetings of the Bureau;
- ii ) to decide when and where the Bureau shall meet;
- iii ) to decide any questions of order raised at meetings over which he/she presides subject to the right of any Delegate to request that any ruling by the President shall be submitted for decision by vote;
- iv ) generally, to make such decisions and give such directions to the General Secretary as will ensure that the business of the Council is carried out efficiently and in accordance with the decisions of the Council or of the Bureau;

- v ) by virtue of his/her office, to attend and take part in the meetings of any Committee of the Council.

#### Rule 10

In the event of the office of President falling vacant from resignation or otherwise, the Council shall elect a new President at its next meeting.

## 4 VICE-PRESIDENTS

#### Rule 11

- i ) The First Vice-President shall be elected for a period of three years and shall not be eligible for re-election for the immediately succeeding term;
- ii ) Any other Vice-President shall be elected for a period of three years and shall not be eligible for re-election for the immediately succeeding term;
- iii ) Any Vice-President may resign at any time and shall vacate office on ceasing to be a Delegate;
- iv ) In the event of an office of any Vice-President falling vacant the Council shall elect a new Vice-President at its next meeting.

#### Rule 12

- i ) Whenever the office of President is vacant the First Vice-President shall act as President until a new President assumes office in accordance with the provisions of Article 10 of the Convention; the First Vice-President shall also act as President whenever the President is unable to act.
- ii ) The duties of the First Vice-President under paragraph (i) of this Rule shall devolve on the next senior Vice-President able to act if the office of First Vice-President is vacant or if he is unable to act.
- iii ) A Vice-President shall not be precluded from acting as Delegate of a Contracting Party by whom he is appointed merely by virtue of being a Vice-President; but the First or any other Vice-President shall forthwith cease to act as a Delegate during any period when he/she is acting as President and during any such period the Contracting Party which appointed him/her shall have the right to appoint another person to serve as Delegate in his/her place.

## 5 BUREAU

#### Rule 13

It shall be the duty of the Bureau:

- i ) to convene meetings of the Council in accordance with Article 7 of the Convention, to prepare the agenda for each meeting (after considering any proposals made by Delegates), and to circulate it to Contracting Parties and to Delegates one month before the date of the meeting;
- ii ) to prepare for consideration by the Finance Committee at each annual meeting:
  - (a) the audited accounts for the preceding financial year;
  - (b) a preliminary account for the current financial year; and
  - (c) the Budget for the ensuing financial year and a Forecast Budget for the following year, and, after considering the report of the Finance Committee

on these documents, to present them with such alterations as it may deem desirable to the Council;

- iii ) to be responsible for the investment of funds of the Council and to give an account of such investments at the end of each ordinary annual meeting;
- iv ) to advise the Council on the appointment of a General Secretary, ~~a Chair of the Advisory Committee, and a Chair of the Science Committee (SciCOM)~~;
- v ) subject to any general directions of the Council, to appoint such other staff as may be required for the purpose of the Council and to determine their duties and terms of appointment;
- vi ) to consult the Science Committee on all matters affecting the scientific work of the Council and take into account advice tendered by that Committee.
- vii ) to present to the Council for approval with such observations and amendments as it may deem appropriate, recommendations of all Committees including the Science Committee and the Advisory Committee, and to advise the Council as to the financial obligations involved in the approval of such recommendations;
- viii ) to be responsible for the execution of resolutions of the Council and for all duties incidental to the Council's affairs and to report thereon to the Council at each ordinary annual meeting.

**Commented [EJ1]:** Deleted with reference to the new recruitment procedure agreed (Council 2016) for the ACOM & SCICOM Chairs.

#### Rule 14

- i ) Meetings of the Bureau shall take place as, when and where the President may decide.
- ii ) The Bureau shall keep minutes of its meetings.
- iii ) The Bureau shall arrive at its decisions by simple majority of the votes cast for or against. The President shall have a deliberative vote and, in the case of an even division of votes, a casting vote. Resolutions may be taken either at meetings of the Bureau or by correspondence.
- iv ) Subject to this Rule the Bureau shall settle its own procedure.

## 6 GENERAL SECRETARY

#### Rule 15

- i ) The General Secretary shall be the Chief Executive Officer of the Council and responsible to the Bureau for the management of the Council's staff and office.
- ii ) The General Secretary shall be responsible for the receipt of all monies due to the Council and for disbursements in accordance with the Budget; he is authorised to meet unforeseen expenditure subject, in cases of doubt, to consultation with the President, and to sign cheques on behalf of the Council or authorise their signature; he shall also be responsible for the preparation of the Council's accounts and for drafting the Budget.
- iii ) The General Secretary shall attend the plenary sessions of the Council and meetings of the Bureau and, as far as possible, meetings of the Science Committee. He may attend meetings of any other Committee of the Council.
- iv ) The General Secretary shall provide secretarial services for all meetings of the Council and of the Bureau and, in consultation with the Chairs of Committees, arrange for such secretarial services as may be needed for meetings of the Council's Committees.

- v ) The General Secretary shall issue as soon as possible after each meeting of the Council a report of the proceedings and transmit it to the Contracting Parties.
- vi ) The General Secretary shall circulate to Delegates a provisional agenda for each ordinary meeting of the Council and intimate the date on which proposals for inclusion should be submitted for consideration by the Bureau.
- vii ) The General Secretary shall be responsible for all matters connected with the Council's publications subject to consultation with appropriate office holders of the Council, including editors.
- viii ) The General Secretary shall perform other such functions as may be assigned to him/her by the Council or the Bureau.
- ix ) All communications to and from the Council shall be addressed to or emanate from the General Secretary, provided that all communications to Contracting Parties and also contracts, except those of a routine character, shall be signed by the President and the General Secretary.

## 7 ORDER OF BUSINESS

### Rule 16

No proposal involving changes in the Rules of Procedure shall be considered at a meeting of the Council unless either (a) two months' notice of the proposal has been given to the Contracting Parties and Delegates, or (b) the Delegates present consent by unanimous vote.

## 8 FINANCE

### Rule 17

The financial year of the Council shall be from 1 January to 31 December.

### Rule 18

- i ) The expenditure of the Council shall be regulated in accordance with a Budget approved by the Council at its ordinary annual meeting. A statement of the proposed Budget and a Forecast Budget for the ensuing year shall be circulated to Contracting Parties and Delegates two months before the meeting. The Council shall on the basis of the Forecast Budget determine the contributions to be paid by the Contracting Parties for the year to which that Budget relates.
- ii ) The Budget approved by the Council shall not alter the contributions from Contracting Parties agreed in the Forecast Budget for that year, but may make changes in other sources of income, and in expenditures.
- iii ) Excess of Income over Expenditure, or Expenditure over Income, on the annual accounts, shall be included as respectively Income or Expenditure in the next following Forecast Budget.

### Rule 19

- i ) The contributions of Contracting Parties in respect of any financial year should be paid on the 22 July preceding its commencement, but not later than 30 days after the beginning of the financial year.



- ii ) Requests to Contracting Parties for the payment of their contributions shall be accompanied by a statement of the Council's proposed Budget for the year to which they relate.

#### Rule 20

- i ) The Danish Delegate or Delegates and the General Secretary are charged with the safekeeping of the Council's funds.
- ii ) The liquid funds of the Council and all bonds and other documents relating to the invested funds of the Council shall be lodged in a bank.
- iii ) The Council's funds may be invested in bonds in which capital belonging to minors or other capital subject to public administration or control is allowed under prevailing Danish law.
- iv ) Any document relating to the Council's invested funds signed on behalf of the Council by the General Secretary and one of the Danish Delegates shall be valid.
- v ) In case of sale or change of bonds of the Council the General Secretary and one of the Danish Delegates are jointly authorised to give receipts valid in law and to perform all dispositions under real law.
- vi ) The General Secretary and one of the Danish Delegates are authorised to raise loans for the purpose of the Council on the security of the Council's bonds.
- vii ) The Council's Auditor shall check the invested and liquid funds as of 31 December each year as soon as possible after that date for the purpose of preparing the Balance Sheet, and they shall once annually, at such time as they may choose, inspect the Council's funds. The Council's Auditor may consult the Danish Delegate or Delegates on any question in connection with the accounts.

#### Rule 21

- i ) The Council shall pay the travelling and subsistence expenses incurred by the President and the Chair of the Science Committee and of the Chair of the Advisory Committee in attending meetings of the Council or the Bureau or when engaged on the business of the Council.
- ii ) The travelling and subsistence expenses of the Vice-Presidents incurred in attending meetings of the Bureau other than those held in conjunction with ordinary meetings of the Council shall be paid by the Council.
- iii ) The Council may pay the travelling and subsistence expenses of any person appointed by it to perform duties on behalf of the Council.
- iv ) Travelling and subsistence expenses paid by the Council shall be calculated in accordance with a scale approved by the Council.

#### Rule 22

The Council may pay any person appointed by it to perform any prescribed duties for promoting work of the Council, and also to the Chairs of Committees such fees as it may approve from time to time.

## 9 COMMITTEES

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### Rule 23

- i ) The Committees of the Council are those set out in Rules 24 to 28 with the terms of reference therein assigned to them and the constitution respectively specified in those Rules and Rule 29. Provided that in order to avoid unnecessary duplication or to secure better coordination between the work of Committees with related terms of reference the Council may give directions from time to time about the assignment of particular subjects to Committees and the relevant Rules shall be interpreted accordingly.
- ii ) In addition, the Council may from time to time appoint such *ad hoc* committees as it thinks fit to perform such functions as it may determine.

### Rule 24

- i ) The Finance Committee shall examine:
  - (a) the audited Accounts of the Council for the preceding financial year;
  - (b) the preliminary Accounts for the current financial year;
  - (c) a Budget for the ensuing financial year and a Forecast Budget for the following year.
- ii ) The Committee shall consider such other matters as may be referred to it by the Bureau or as it may deem desirable and shall report its observations and conclusions to the Bureau.
- iii ) The Finance Committee shall consist of one of the Delegates of Denmark and four other Delegates appointed by the Council for a period of three years, after which they shall not be eligible for re-appointment for the immediately succeeding term unless a member of the committee is appointed as Chair of the Finance Committee in which case he/she may serve one additional term. When a member of the Committee ceases to be a Delegate, he/she shall immediately vacate office.
- iv ) The Council's First Vice-President should attend the meetings of the Committee without the right to vote.
- v ) The Chair of the Committee shall be appointed in accordance with Rule 30 (ii).

### Rule 25

- i) The Consultative Committee, as in the Convention, will be called the ICES Science Committee (SciCom).
- ii) The Science Committee (SciCom) shall oversee all ICES scientific interests.
- iii) Rules for the governance and management of the SciCom are agreed by Council resolution.

### Rule 26

- i ) The Advisory Committee (ACOM) shall oversee all ICES advisory services.
- ii ) Rules for the governance and management of the ACOM are agreed by Council resolution.

#### Rule 27

The Science Committee will ensure that all publications of the Council, and the arrangements for their preparation and issue are appropriately considered.

#### Rule 28

The Science Committee, on behalf of the Council, shall institute structures and processes to ensure that *inter alia* science programmes, regional considerations, science disciplines, and publications are appropriately considered.

#### Rule 29

The composition of structures established according to Rule 28 shall be determined by the Science Committee.

### 10 CHAIRS AND VICE-CHAIRS OF COMMITTEES

#### Rule 30

- i) ~~According to the agreed procedure<sup>1</sup>, the Chair and Vice-Chair(s) of the Science Committee shall be selected by the recruitment panel and appointed by the Council, the nominated by the Science Committee and appointed by the Council.~~ The Chair and Vice-Chair(s) shall hold office for a term of three years, with the possibility of ~~one additional one~~ one additional three-year extension term (limit of two successive terms), subject to approval by the Council. They shall assume office on the first day of January next following their ~~election~~ appointment. ~~They shall not be eligible for re-election for the immediately succeeding term.~~
- ii) The Chair of the Finance Committee shall be nominated by the Bureau from among the members of the Committee and appointed by the Council; the Chair of the Finance Committee shall vacate office on ceasing to be a Delegate.
- iii) ~~According to the agreed procedure, the Chair and Vice-Chair(s) of the Advisory Committee shall be selected by the recruitment panel and appointed by the Council. The Vice-Chairs are selected by the Advisory Committee nominated by the Advisory Committee and appointed by the Council.~~ The Chair and Vice Chair(s) shall hold office for a term of three years, with the possibility of one additional three-year term (limit of two successive terms) ~~with the possibility of a one-year extension~~, subject to approval by the Council. They shall assume office on the first ——— day of January next following their election. ~~They shall not be eligible for re-election for the immediately succeeding term.~~
- iv) The Chair and the Vice-Chair(s) of the Science Committee and of the Advisory Committee shall not serve as a representative of a Contracting Party. At the time they assume the office of Chair or Vice-Chair, the Contracting Party should appoint another representative to the committee.
- v) The Chairs of the Science Committee and the Advisory Committee on assuming office shall cease to be Chair of any other Committee and the Committees concerned shall forthwith elect successors.
- vi) If, for any reason, the Chair of any Committee is unable to complete his/her term of office, or is temporarily unable to act, the President shall nominate an interim Chair who will serve for the remainder of the year, or for such shorter period as may be decided by the President, until a new chair can be selected. ~~The Committee shall elect a new Chair at the first opportunity. The interim Chair will be eligible for election as Chair.~~
- vii) ~~For nominations and appointments the procedures in Rule 5 shall apply mutatis mutandis.~~

**Commented [ACB2]:** Updates to reflect the agreed recruitment procedure.

**Commented [ACB3]:** No longer applicable given the new recruitment procedure.

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<sup>1</sup> Refer to procedure outlined in CM 2017 Del-11.1.

**Rule 31**

The Chair of the Science Committee (or in his/her absence the Vice-Chair) and the Chair of ACOM (or in his/her absence the Vice-Chair) shall have *ex officio* the right to attend ordinary meetings of the Bureau.

**Rule 32**

The functions of Chairs with respect to structures and processes established according to Rules 27 and 28 shall be established by SciCom.