

External Review of ICES Advisory services

In October 2010, Council commissioned an independent review of the ICES Advisory Services to be conducted from September 2011 to October 2012.

The main objectives of the external panel review were to evaluate the quality and reliability of the scientific advice, the appropriateness of the process used to prepare the advice, the relevance, responsiveness, and scope of the advice, and to assess if the human and financial resources available to deliver the advice are appropriate to the workload.

The following report of the external panel has been submitted to ICES in October 2012 and follow-up actions by ICES are currently under consideration.

EXTERNAL ADVISORY REVIEW

ADDENDUM TO REPORT 2012

VOLUME 1

Report of the External Panel, 2011-2012 to Review ICES Advisory Services

Addendum: Response to the issues raised in the letter
from the ICES President, 28 September 2012.



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Letter from the ICES President November

Having submitted its draft report in the beginning of September 2012, the Panel received a letter from the President of ICES, Michael Sinclair, pointing out that ICES would like some additional information and review. The relevant sections of the President's letter are found below.

"Although the report addressed all of the Terms of Reference, Bureau would like to request the views of the panel on how well the current system has accommodated environmental issues/the integration of environmental issues into the advisory process and, even more importantly, what the options for ICES advice are in this regard in future. We understand that the ToR regarding this issue has been rather open, so this could possibly be addressed by responding to a few specific questions in a separate document which could be annexed to the report. The specific questions we are struggling with in this regard relate to how we can develop towards integrated advice, based on integrated assessments. For instance: How could the present advisory products be delivered through a more integrated advisory process and what are the options for advice products, based in integrated assessments, which may be relevant to existing or potential advice recipients with authority within policies of the marine environment, habitat protection or spatial planning? Or, more specifically, how could ICES advice proactively help to further development of the EU Marine Strategy Framework Directive and marine spatial planning?

It is likely that this will be a core of the future ICES strategy, and inputs from the review would be very helpful. In addition, the meeting noted that the report does not reference the 2002 Copenhagen Declaration, which complements the 1964 Convention and explicitly commits ICES to the advisory process. You may wish to consider a small revision to Section 2.2 in order to account for this important Council document. The text of the declaration can be found online here: <http://www.ices.dk/aboutus/TheCopenhagenDeclaration.asp>. It would be appreciated if the above issue and edits could be received by 5 October 2012."

The Review Panel's Comments

Integrating environmental concerns into fisheries advice

The Panel touched on these issues in its draft report of early September, with focus on the operational aspects of the Copenhagen Declaration as reflected in the Strategic Plan, adopted by the ICES Council in 2007. It is clear that what is discussed here is a process of integrating environmental concerns into fisheries advice.

On request of the EU Commission, ICES has adopted a "Roadmap for provision of integrated advice" (ACOM meeting, November 2011, Doc. 7.i.i.). The "Roadmap" operates with seven types of advice and includes a short description of each advice type and timelines for provision of the advice by eco-region. The seven advice types are: 1) Single species MSY; 2) Data poor MSY; 3) Mixed fishery; 4) Multi species; 5) Wider ecosystem; 6) MSFD; and 7) Marine Spatial Planning, MSP.

The "Roadmap" gives a clear description of the ICES strategy on integrated advice and is most relevant to the issues raised by the President.

The same can be said about the goal that ICES responds to evolving needs of ICES clients by ensuring that the Advisory Services are flexible and adaptive. The strategy for achieving the goal includes a number of activities of which several relate to the

communication between ICES and the users of ICES advice. The “Roadmap” is an example on the ability of ICES to respond to evolving needs of users.

The integration of environmental issues into fisheries management within the Common Fisheries Policy of the EU is likely to take place in the form of integrated management plans, taking into account the biological and technical interactions among the fisheries, the resources, and the ecosystem. Important elements of these management plans will be management measures related to achieving MSY and the implementation of the MSFD with regards to descriptors and targets related to fisheries. Measures eliminating discards and minimising by-catches will also be given high priority.

The Review Panel believes that ICES should play a central advisory role in the development of integrated fisheries management plans. This, however, requires that ICES is prepared to provide scientific advice on all elements of the management plan, rather than limiting its advice to harvest control rules addressing the direct impact of fisheries on the resources.

It is important that ICES widens its advisory scope to cover social and economic considerations and to include concrete advice on appropriate management systems and measures. The type of advice required in support of developing integrated fisheries management plans depends on the type of management system in operation. In a result-based management system, where focus is on the achievement of clearly stated results and not on how the fishery is conducted, the need for advice is likely to be in relation to formulating the results to be achieved and not as much on concrete management measures. The present fisheries management systems within Europe are intended to address ecosystem impacts, and are mainly input based, for example by establishing technical measures governing how the fisheries may be conducted. For these systems ICES should provide advice on concrete technical measures.

The Review Panel considers that the necessary expertise required to provide integrated advice on fisheries management plans exists within the ICES community. However, to be recognised by fisheries managers (clients) and stakeholders as the main advisory body on integrated fisheries advice, the Panel believes it is important that ICES actively demonstrates that it can provide the advice.

Delivering integrated management advice where other human activities are taken into account

The Review Panel does not find it is in a position to define advisory products or specific processes to reach integrated assessments at this point. This has to be worked out by the recipients of advice in a dialogue with ICES. The Review Panel, however, expects that there will be an increasing demand for scientific advice on integrated management of all human activities affecting marine ecosystem. The demand does not only relate to protection of the marine environment, but also to potential synergies among the various maritime activities.

The provision of high quality integrated advice requires, as stated in ICES Science Plan (2009 – 2013), a robust scientific grounding and strengthened links among environmental science, physical and biological oceanography, fisheries science, social and economic sciences.

The Review Panel believes the availability of scientific expertise within the ICES community in all areas is crucial for ICES’ ability to provide advice on integrated management, but it is equally important that this expertise be more effectively drawn into the scientific process. The Review Panel understands that one of the objectives

behind merging the advisory committees into one committee was to strengthen the ability to provide integrated advice. The restructuring seems to have successfully integrated environmental concerns into the advice on fisheries management. The Review Panel is, however, not convinced that the ability for ICES to provide advice on integrated management has been strengthened.

In addition to OSPAR, HELCOM, and the EU Commission, the main clients for such advice are the ICES Contracting Parties. It is the impression of the Review Panel that, with the exception of the fisheries side, ICES Contracting Parties are not fully aware of the expertise within the ICES community and the possibilities for them to draw on this expertise.

Based on the above considerations the Review Panel recommends that the ICES Council considers taking a proactive role in organising a dialogue with those national administrations of the ICES Contracting Parties dealing with human activities in the marine environment on how to make requests for integrated advice to ICES. The Panel does regard the involvement of the EU DG-Environment and DG-Mare as essential. In addition, participation of Fisheries and Environmental Commissions, like NEAFC - NASCO and OSPAR - HELCOM would also be important."

The Review Panel furthermore suggests that the ICES Council considers how to ensure the participation of the required expertise in the advisory process, so that advice on integrated management can be provided.

EXTERNAL ADVISORY REVIEW

REPORT 2012

VOLUME 1

Report of the External Panel, 2011-2012 to Review ICES Advisory Services

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Foreward

In conducting this review the panel has been aware that this external review of ICES Advisory advice is quite different from the 8-9 performance reviews of Regional Fisheries Management Organisations undertaken since 2006¹. There may, therefore, be a general interest, not only in the outcome of the review, but also in the robustness of the process followed. In this review of the process of developing and producing scientific advice, as requested by managers and underpinning rational management, is scrutinized. The review does not consider the resultant management measures, their implementation, or enforcement.

The four Review Panel members were selected to encompass a variety of experiences in advisory processes and management of natural resources. This led to a panel consisting of two members that had been involved directly in the work of ICES on several levels as officers, experts, and/or parts of the ICES Secretariat, and two members with no such experience.

The Panel were aware that half of the Panel members were, thus, 'internal' members of ICES. This raised the spectre of conflict of interest and the potential to overstate performance or understate non-performance. Such concerns would have been present regardless of the structure of the Panel, as no such review can proceed in ignorance and must often depend on inquiry amongst those directly involved in the activities of the organisation concerned. The Panel benefited from having members who have held key positions within the ICES structure and who brought to the table a wealth of institutional knowledge. This meant that the Panel could spend more of its limited time debating key performance issues rather than in researching the functioning of the ICES advisory system. In practice all Panel members supported the inquisitorial approach towards ICES in order to gather information and test assumptions.

The Panel prepared a lengthy questionnaire to survey the points of view of the people that prepare the ICES advice and those who receive it. The Panel received strong technical support of the ICES Secretariat in administering the questionnaire. The response was satisfactory, and the Panel feels that this has contributed significantly to strengthening the basis of its conclusions.

There may have been some concerns in the Panel about the level of information that was immediately available, given that Panel members themselves had few resources and limited time available to carry out additional research. This concern was however offset by the amount of written material available on the activities of ICES, peer reviewed and in the grey literature, and the willingness of key figures in the ICES system and the Secretariat to share information. This greatly assisted the Panel in reaching its informed conclusions. It should nonetheless be realised that this review was carried out with a small budget both in time and resources. More detailed analysis would certainly have been welcomed, but we believe our key findings would have changed little except in detail.

Determining what constitutes best practice for giving scientific advice, whether at the national level or within a multilateral mechanism, is a complex exercise. The effective delivery of advice by ICES will ultimately depend on the requirements of the recipi-

¹ PERFORMANCE REVIEWS BY REGIONAL FISHERY BODIES FAO and RSN Draft 2010

ents of ICES advice, and how clearly the requirements are communicated to ICES; the resources made available to support the necessary basic science, applied science, and the acquisition of the necessary environmental data; data on resources exploited by various marine sectors and the impacts of all human activities; and independent and sector independent data. The ability of the ICES Advisory System to provide the advice depends on the funding and human resources made available for experts and the ICES Secretariat to support the ICES scientists that undertake the basic assessment underpinning the scientific advice.

Overall the Panel believes that the approach adopted for the review was effective and that the outputs were not biased by the construct and conduct of the Panel members.

31 August 2012

Stephen K. Brown

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Executive Summary

The Terms of Reference set out the criteria by which this report has been structured, and provided guidance to the Review Panel in assessing the ICES advisory process. The Panel gathered information through interviews with selected ICES staff, members of the Advisory Committee, and delegates to the February 2012 Meeting between ICES and Recipients of ICES Advice, MIRIA, and nine representatives from ICES environmental partners/clients. Considerable additional information was obtained using a questionnaire that was developed from the Terms of Reference. A total of 28 questions was developed and posted on the web. Eighty-two responses were obtained from 18 countries. In some instances the Review Panel assessed the work of ICES Advisory system against other generally accepted principles and examples of best practices in order to conduct a comprehensive and thorough performance review.

The results of the review are organized in this report by Term of Reference. Under each Term, background information, comments from the Panel and an overview of the results from the questionnaire are summarized as appropriate, and recommendations based on this information are provided. More detailed summaries of the information developed by the Panel are provided in the appendices. The Panel's responses to the Terms of Reference and the associated recommendations are summarized below.

The Review Panel were aware of a Council Resolution in 2010 on publishing the History of ACFM in the Cooperative Research Report Series. This meant that the Panel did not have to use time to describe the history and institutional memory before 2008 and also could refer to the history in discussions of recurring issues in the advisory process.

Structure and content of the report

Volume I consists of 5 Sections giving background and context.

Section 1 contains a foreword, and describes the Terms of Reference, ToR and schedule and conduct of the work of the Review Panel.

Section 2, ICES Background, contains a short history, an analysis of the ICES Convention in the light of present day international law and instruments and describes how ICES has met calls for transparency.

Section 3 describes the advisory process in ICES with the 2009 Advisory Plan, part of the ICES 2001 Strategic Plan. These documents are to be commended in giving a succinct and forward reaching description of the context of the advisory process in the North East Atlantic.

Section 4 gives an overview over the information acquired by the Review Panel in meetings, interviews and especially the results of the questionnaire.

Section 5 gives the responses to the questions posed in the ToRs. For each of the 8 issues dealt with in the ToRs there is some background, a summary of the replies from the questionnaire, the Review Panel's comments and its recommendations. It lists the recommendations on their own by ToR.

Volume II consists of the Appendices to the Report of the Review Panel

Appendix I: Summary of discussions at meetings of the Review Panel in preparation to undertaking the External Review.

Appendix II: Fisheries in the North Atlantic.

Appendix III: The Questionnaire: Information and Detailed analysis

Appendix IV: Overview of the Advisory Process for Federal Fisheries Management in the United States.

Summary of the substance of the recommendations.

ToR. 1. Is ICES Advice based on the right information and data, and are appropriate models used?

The Review Panel believes that the data required to perform classic stock assessments and single-species advice are generally available to ICES from the Member States. However, in recent years there have been problems with delivery of fisheries data from certain countries, that the data are often provided in an aggregated form, and that the system for providing data to ICES expert groups is not transparent. The models used by ICES are generally credible, and there have been recent efforts to introduce more statistically sound models. The Review Panel commends the initiatives taken by ICES to develop its role in providing integrated advice.

The Review Panel recommends that ICES consider introducing a formal data call system for data used by the Expert Groups in assessments. The data should not be aggregated and should be specified in detail. A data call for recurring advice could be issued annually, while data calls for non-recurring advice could be issued as necessary.

The Review Panel believes that ICES, as one of the main end users of fisheries and environmental data, could and should provide an important input to the designing data collection frameworks of Member states, including the EU Data Collection Framework and the development of monitoring plans in support of the MSFD.

ToR 2. Are the processes used to prepare the advice appropriate in terms of management control, quality control, efficiency, responsiveness and transparency?

The Review Panel notes that the credibility of the advice is central and that the review process plays an important role in guaranteeing that ICES advice is given a high degree of credibility. The Panel believes that the management of the ICES advisory process is appropriate, but that the process is overstretched. It has become increasingly difficult to recruit independent technical reviewers, and members of expert groups point to very heavy workloads. The Panel believes that the current set up, with considerable overlap between the drafting groups and ACOM, may not be the most efficient way of formulating and adopting the advice.

The Review Panel recommends that ICES considers using the Secretariat to play a larger role in conducting update assessments and in generally supporting the advisory process. ICES might also consider contracting individual experts or institutes to conduct the update assessments.

It also recommends that ACOM considers the overlap between advice drafting groups and ACOM to design a more efficient process, and that ICES investigates the possibility of establishing a more robust review system, based on information of how independent peer reviews are undertaken outside Europe.

ToR 3: Is the ICES advice considered relevant and credible among scientists, end users, ICES Member States governments, Member States of cooperating organisations, the EU commission, stakeholders and the public process?

The Review Panel believes that ICES advice is relevant and credible, but that communication between the direct clients and the scientific community is poor, especially for communication to stakeholders and public media. The Panel notes that it is important that the advice, while based on science, be developed in a dialogue between ICES and the recipients of the advice.

The Review Panel recommends that ICES continually evaluate the format of the ICES advice from the perspective of the recipient, and that ICES consider establishing a public-relations strategy focusing on ways to “translate” ICES advice into language for the general public.

The Review Panel recommends that ICES consider changes in how the advice is delivered, from the present “ex-cathedra” approach to an approach with greater communication with the advice recipients, to ensure the advice is useful and understood.

ToR 4: Is the scope of ICES advice appropriate in terms of addressing policy and societal needs, and is it consistent with the implementation of an ecosystem approach to management?

The answers to the questions in ToR 4 indicate a wide range of views. The Review Panel believes that ICES is well prepared to advise on all aspects of the ecosystem approach concerning the health of the ecosystems and how to monitor good environmental status. However, this cannot be said with respect to creating a basis for making societal and policy choices. How a particular societal choice will affect social groups and communities must be measured in socio-economic terms. With respect to the fisheries advice, this is exacerbated by the focus on stock assessments in the advice and the lack of description of the affected fisheries.

The Review Panel recommends that ICES widen the scope of the ICES advice to include descriptions of the various industry sectors having an impact on the oceans, their economies, and the social conditions of dependent communities. This includes data on fleet activity and economy, and the dependence of fishing communities on these activities.

ToR 5: Is ICES sufficiently proactive in preparing the basis for possible future policy needs for advice?

It is the Review Panel’s general impression that ICES is proactive in addressing the possible future policy needs for advice on biological impacts of human activities on marine ecosystems and their health and status. With respect to advice on non-biological issues, less seems to be happening. The Panel believes that the implementation of an ecosystem approach to management of human activities affecting marine ecosystems and the move towards integrated advice will increase the need for providing science-based advice on social and economic consequences of management actions.

The Review Panel recommends that ICES widen its advisory scope to include social and economic considerations, and that ICES strengthen its dialogue with present and possible future clients to explore its possible role as advisor on social and economic impacts of management measures.

ToR 6. Are present advisory commitments commensurate with available human resources and science expertise, and are there sufficient mechanisms in place to obtain human resources from ICES Member States?

The Review Panel believes that work load and access to human resources for the ICES advisory process is a problem, primarily because too few scientists are doing most of the work. Access to the required science expertise seems adequate, but here too resources are being stretched. The Panel notes that ICES cannot force Member States to participate in preparing ICES advice, and that funding for national institutes is very tight. Also, the Panel believes that the ICES advisory process does not provide sufficient incentives for individual scientists to participate, such as payment for services or advancement of scientific careers.

The Review Panel recommends that ICES considers proposals to ensure the commitments of ICES Member States to fund the ICES Advisory Services.

The Review Panel draws attention to three options:

- ICES could revise its Convention to commit Member States to funding the advisory services properly (including the basic scientific work).
- ICES could draw up agreements or MoU's with its member countries specifying the human resources that the ICES advisory system can draw upon.
- The funding of participation in the Advisory system could be included in the annual ICES budget, including budget lines describing the funding of the participation of experts in ACOM and SCICOM expert groups.

The Review Panel recommends that ICES considers ways to enhance the academic status of the scientists participating in scientific and advisory expert groups, for example with an active policy to assist with the publication of assessments and the underlying working papers in peer-reviewed journals.

ToR 7: Is the ICES advisory process consistent with the ICES constitution and commitments made internationally and regionally?

The Review Panel did not find reason to conclude that the present advisory process is inconsistent with the ICES constitution. However, the ICES Convention does not refer to commitments to international law or instruments, and nothing specific is said about scientific advice.

The Review Panel recommends that the Member States of ICES consider updating the Convention to reflect commitments of States and Regional Organisations found in international law and instruments. This would increase the responsibility and accountability of Member States within the ICES system with respect to international commitments.

ToR 8: Is the ICES advisory process cost-effective?

The views of all groups with respect to the question of whether the ICES advisory process is cost effective are somewhat positive, but the Review Panel did not have access to enough information to make any recommendation.

1 Introduction

1.1 Terms of reference for the External Review of ICES Advisory Services

The ICES Council agreed to establish a Council Working Group to prepare for an independent review of the ICES Advisory Services, (CWGAR), to be conducted over a two year period (September 2011 to October 2012).

The CWGAR proposed the following Terms of Reference for an External Panel Review.

“The panel will address the following questions and make recommendations on;

(1) Is ICES Advice based on the right information and data, and are appropriate models used?²

(2) Are the processes used to prepare the advice appropriate in terms of management control¹, quality control, efficiency, responsiveness and transparency?

(3) Is ICES Advice considered relevant and credible among scientists, end users, ICES Member States governments, Member States of cooperating organizations, the EU Commission, stakeholders and the public?

(4) Is the scope of ICES advice appropriate in terms of addressing policy and societal needs, and is it consistent with the implementation of an ecosystem approach to management?

(5) Is ICES sufficiently proactive in preparing the basis for possible future policy needs for advice?

(6) Are present advisory commitments commensurate with available human resources and science expertise, and are there sufficient mechanisms in place to obtain human resources from ICES Member States?

(7) Is the ICES advisory process consistent with the ICES constitution and commitments made internationally and regionally?

(8) Is the ICES advisory process cost-effective?”

1.2 The Panel

The Panel was chosen by ICES according to the following profile, developed by CWGAR.

(Profile 1) Experienced user of ICES advice and experience with an RFMO.

(Profile 2) Experience with the EU, STECF, Data Collection, Stock Assessment, Fisheries Advice.

(Profile 3) European experience of the formulation of and/or use of environmental advice and the EU Marine Strategy Framework Directive.

(Profile 4) North American experience with the formulation of and/or use of environmental advice.

² It was proposed at the kick-off meeting to split ToR 2 into two questions, changing the question to look at the current/past situation and future separately. It was also proposed to take out “control” in ToR 2.

Following the submission of a long list of potential candidates and after considerable discussions within CWGAR and at the June 2011 Bureau meeting, the following panel was recommended to and endorsed by Delegates.

1. Kjartan Hoydal (Chair)
2. Eskild Kirkegaard
3. Ben van de Wetering
4. Stephen K Brown

1.3 The schedule and conduct of work

The proposed schedule for the Panel's work was linked to the meetings of the Bureau in February and May-June and the Council Meeting in October 2012.

A kick-off meeting was held 17-18 November 2011. At this meeting the Panel reviewed the ToR and the questions, agreed on the procedure/analytical approach for the review, and reviewed the time table. The Panel also planned how to take statements from the scientific community, ICES member states, client commissions, industry representatives, and civil society. The Panel also participated in relevant parts of an ACOM meeting that was held at the same time. In February the Panel met in parallel with the MIRIA³ meeting, where ICES meets with recipients of ICES advice. The Panel interviewed representatives of recipients of advice at the MIRIA meeting who were willing to speak to the Panel. The Panel also participated in the part of the meeting relevant to its work. An attempt by the Panel to encourage more recipients of ICES advice to participate in the MIRIA meeting, thus making it possible to interview them, was not successful.

A summary of the observations at the meetings, related to the work of the Panel and a summary of the views of the clients as reported in the draft report from the MIRIA meeting is found in Appendix I.

The Terms of Reference and the questionnaire were discussed at two face-to-face meetings in November 2011 and February 2012. A list of contents for the Panel report was agreed in February, and the various sections split among the four members of the Panel.

The panel used considerable time to prepare a questionnaire, which was sent to recipients of ICES advice, scientists involved in producing and establishing the scientific basis for the advice, and other stakeholders. A list of people to be contacted was established in cooperation with the Secretariat. E-mails with the questionnaire to the list of contacts were followed up directly and personally by the members of the Panel and members of the ICES Council⁴. The questionnaire was closed 5 May 2012. A spreadsheet version of the responses was produced and provided to the Panel by the ICES Secretariat.

Progress in drafting the Panel report was discussed during four Webex conferences and a face-to face meeting 31 July-2 August 2012. A SharePoint was used to make literature and drafts available. The ICES Secretariat provided secretarial service and unstintingly supported the development of the questionnaire and the report.

³ Meeting between ICES and Recipients of ICES Advice, 9–10 February 2012

⁴ As proposed by the First Vice-President of ICES Paul Connolly

Progress in the work of the Panel was reported to the Bureau in February and in June by the Panel Chair, and comments from the Bureau were taken into account in the further work. The draft report, with the analysis of the information acquired and recommendations, was circulated to ICES delegates in August-September and presented to the Council in October.

The Panel worked on the basis of the Terms of Reference and questions provided by ICES, but also added issues thought to be important and relevant to the review and to the Panel's ability to address the Terms of Reference.

The Panel at an early stage agreed to concentrate on responses to the questions posed and issues raised in discussions with the ICES representatives and the Bureau, and not to include detailed background and history of the advisory process in the review report. Institutional memory and historical background will be covered in a Cooperative Research Report on the History of ACFM, expected to be published later this year. Only background information relevant to the analysis and responses underpinning the recommendations of the Panel is included.

2 ICES Background

2.1 History

The changes in fisheries governance from the mid-20th Century were dramatic, and changed the need for advice and the list of customers of ICES. This happened under the umbrella of international negotiations of international law and instruments stretching from the negotiations leading to the 1958 Conventions on the Territorial Sea and the Contiguous Zone, on the High Seas, Fishing and Conservation of the Living Resources of the High Seas and on the Continental Shelf, and the negotiations from 1972 to 1981 on the Third United Nations Conference on the Law of the Sea. This latter conference led to the signing of the United Nations Convention on the Law of the Sea in 1982, which entered into force in 1994.

The extension of the fisheries limits to 200 miles in the North Atlantic occurred in 1977. This removed most of the mandate of the multilateral NEAFC Convention of 1959 and transferred the jurisdiction to Coastal States in the North East Atlantic.

In line with these developments, the ICES Advisory framework has changed considerably since the Liaison Committee started its work advising coastal states in the North East Atlantic in the 1960s. For more details on this process and the development of ICES services after 1977, reference is made to “History of ACFM” (in preparation).

2.2 The ICES convention and international law and instruments

In previous performance reviews of RFMOs, an important issue has been whether the legal framework established by the conventions properly and comprehensively encompasses relevant international instruments. For ICES this concern would apply to those parts relevant to ICES operations.

With the rapidly growing number of states establishing jurisdiction over fisheries up to 200 nautical miles in the 1970s, a new and cooperative approach towards fisheries management was required.

Subsequent international fisheries instruments have built upon UNCLOS and the outcomes of the 1992 United Nations Conference on Environment and Development (UNCED), including Agenda 21, which provided a blueprint for management of the environment. These “post-UNCED fisheries instruments” progressively elaborated principles and approaches that are also relevant to the conservation and management of anadromous species.

These fisheries instruments were developed in parallel with, and are complementary to, broader international initiatives and agreements on the environment, including the marine environment, such as the 1992 Convention on Biological Diversity (CBD), and the 2002 Johannesburg Declaration on Sustainable Development and Plan of Implementation of the World Summit on Sustainable Development (WSSD-JPOI). The latter endeavoured to stimulate and reinvigorate the implementation of Agenda 21 in a more concrete manner to achieve clear results.

It is, therefore, possible to assess if the ICES Convention, rules of procedures, or other agreed operational procedures provide a proper foundation for delivering scientific advice for managing fisheries in the North East Atlantic by meeting the requirements set out in international law. The ICES Convention basically describes the commitments of the member states; establishes a clear line of command with the Council, the Bureau, the Consultative Committee; and sets out the means to establish further sub-

subsidiary bodies relevant to the scientific and advisory tasks. The period from the signing of the Convention in 1964 and its entering into force in 1968 brought in new requirements for ICES advice to fisheries managers.

However, the ICES Convention does not address commitments to international law or instruments, referred to in Section 3 in this report, and nothing specific is said about scientific advice. The onus is on research and cooperative programmes to acquire the necessary scientific information and to disseminate the results of their research.

The Panel was aware of the 2002 Copenhagen Declaration, signed by the Contracting Parties of ICES. The Declaration supplements the ICES Convention and commits ICES to the advisory services. It also refers to two international instruments, the 1995 UN Fish Stock Agreement and the FAO Code of Conduct. The Declaration also endorses the ICES Strategic Plan, which the Panel has focused on in its responses to the TORs. The Panel, moreover, would like to refer to the response to TOR 6, page 29, which discusses the need for stronger commitments to fund the advisory services of ICES.

2.3 Transparency within ICES

Following discussions at the Dialogue meeting in Dublin in 2004 on the possibility of admitting observers into ICES meetings, the Council established the current policy on observers of Advisory Services at its 19-20 February 2008 special meeting⁵. The policy establishes a process for obtaining observer status, but it does not specify the elements of advisory services open to observers. The elements of advisory services that are open to observers are addressed in a separate Council resolution (see Annex 2 from Council minutes 23-25 October 2007).

⁵ Appendix: Resolution on OBSERVERS in THE ADVISORY SYSTEM [Unanimously agreed by Special Council Meeting on 19-20 February 2008]

3 The Advisory Process

3.1 Scope of advice

ICES is recognised as the prime source of scientific advice to governments and international regulatory bodies on issues related to fisheries and other human uses of marine ecosystems. The area of competence is the North Atlantic and the Baltic Sea.

To provide advice on behalf of the Council, ICES has established an Advisory Committee (ACOM). The Committee is the sole competent body of ICES for providing advice, which is given in response to requests from Regional Fisheries and Environmental Commissions, and Member Governments. ACOM can, however, also give unsolicited advice when, in the opinion of the Committee, it is required.

The context of ICES advice is set by a number of United Nations agreements (UNCLOS, UNCED, UN Fish Stock Agreement, Convention on Biological Diversity, and the Johannesburg Declaration of the World Summit on Sustainable Development), along with the policies of the client commissions and Member States.

Within this context the ICES vision is: Scientific advice that is relevant, responsive, sound and credible. To achieve this vision, ICES has implemented a strategic plan where the goal for the advisory programme is to “Plan and implement a programme to deliver the advice decision makers need in partnership with member countries and client commissions.”

ICES advice addresses the biological aspects of human activities affecting the marine ecosystems. ICES has so far been reluctant to expand the advice to cover social and economic aspects. However, it is widely recognised that there is a need for analysis and advice that covers social and economic dimensions, and ICES is currently discussing the possible expansion of the advisory system to include these.

3.2 The recipients of advice and their requirements

ICES has currently signed Memoranda of Understanding (MoU) with the EU Commissions, the North-East Atlantic Fisheries Commission (NEAFC), the North Atlantic Salmon Conservation Organization (NASCO), the Helsinki Commission (HELCOM), and the Commission for the Protection of the Marine Environment of the North-East Atlantic (OSPAR).

According to the MoU's, ICES advice shall be: “independent and free from political influence and subject to best international quality procedures for research and research based advice. The technical basis for the advice and the process through which it is produced will be transparent and the quality of the technical basis is ensured through internal and external peer review.”

The MoU's with the EU Commission, NEAFC, and NASCO operate with recurring and non-recurring advisory deliverables. The recurring advice is in most cases given annually and includes advice on the states of the marine ecosystems, the states of fish stocks, and management of the fisheries. The non-recurring advisory deliverables includes all advice requested by the client commissions not covered by the agreement on recurring advice. They are delivered in response to specific requests from a client and are processed by ICES on a case-by-case basis.

The MoU's with OSPAR and HELCOM specify the procedures for delivering advice and the financing of the work, but do not contain information on the type of advice or specifications of recurring advice. All advisory deliverables to HELCOM and OSPAR

are non-recurring advice. OSPAR regularly requests advice from ICES, while HELCOM has not used ICES advisory services in recent years.

In addition to the client commissions, ICES member states may request ICES advice. The number of requests for advice from member states is, however, limited, and the great majority of requests come from client commissions.

The users of ICES advice are not limited to the client commissions and ICES member states. ICES advice is widely used by private and public groups concerned with the use of the sea. The advisory deliverables from ICES are published on the ICES homepage and are available free of charge.

3.3 ICES Advisory Services

The ICES Council has delegated its advisory authority to ACOM. ACOM is the sole competent body for ICES for scientific advice in relation to human use of the sea. It designs strategies and processes for preparation of advice, manages the advisory processes, and creates and delivers the advice.

The Advisory Committee has one member from each member country, who is appointed by the member country. The Chair of the Committee is appointed by the ICES Council. The Advisory Programme of the ICES Secretariat provides daily operational support to the advisory process.

In 2009 ICES adopted the Advisory Plan. The Advisory Plan is part of the ICES Strategic Plan and addresses six critical themes. Each theme is associated with a high level objective. The themes and high level objectives are listed below.

THEME	OBJECTIVE
DATA	Access to more and better data to fulfil advisory needs
HUMAN RESOURCES	A scientific community with enhanced capability to contribute to advice
INTEGRATION	Integrated advice based on advances in scientific knowledge and ecosystem considerations
USER NEEDS	Responsiveness to the evolving needs of advice users
CREDIBILITY	Advice that has earned and enjoys a high degree of credibility
PLANNING	Expectations for advice harmonised with human and fiscal resource constraints

The advisory process as described in the advisory plan includes five steps as illustrated in Figure 1(below).



Figure 1. ICES Advisory Process

The Committee works on the basis of scientific analyses prepared in expert groups. To deliver the recurring advice, ICES has established a number of permanent area or subject-based expert groups. These groups may also be asked to address non-recurring requests for advice, or, if required, ICES may establish ad hoc expert groups to address these requests.

The expert groups provide the scientific foundation for the advice. The client commissions require that the scientific basis for the advice be subject to a technical review. The objective of this review process is to ensure the best scientific basis for the advice. The review addresses the scientific basis for the advice and does not review the advice as such.

Based on the review report from the expert group and the general form and format of the advice adopted by ACOM, the advice is formulated by an advice drafting group consisting of ACOM members. The draft advice is finally adopted by ACOM.

Most of the scientific resources, data, and methods used in producing the advice belong to the ICES member countries. ICES has no authority to manage or direct the work of the scientific community forming the basis for the advisory function of ICES. The advisory services of ICES are, therefore, reliant on the active involvement of the scientific community within the member countries. ICES also relies on the member countries to provide access to their data.

3.4 Recurring issues in the ICES advisory process

There has, over the years, been a continuous discussion in ICES over the interface between scientific advice and fisheries management. This is closely linked to the extent to which managers spell out their requests for advice. Ideally managers should indicate clear management objectives, the risks they want to take and specifying other factors set out in national and international law, which impact on the requirements for advice.

This list below groups the issues:

Advice beyond single stock advice.

Technical interaction

Multispecies effects

Normative or exploratory advice

Developments in international law and instruments

Safe biological limits

the precautionary approach (including defining safe biological limits and setting reference points)

The ecosystem approach (integrated advice incl. good environmental status, changes in the environment, overall assessment of cumulative impacts on marine ecosystems)

The TAC machine

ICES advice and fishery systems

Delivery of advice

The Panel was aware that these issues will be discussed in the History of ACFM (in preparation) and did not feel that they were necessarily relevant to the ToR, with the exception of the issue of the delivery of the advice.

3.4.1 The delivery of the advice

Globally scientific advice is delivered under three general models⁶.

- Autonomous, “ex cathedra”⁷, independent scientific institutions deliver the advice without further involvement in the management;
- Managed, a board of directors manages the scientific process and delivery; and
- Embedded.

In an embedded system assessments and evaluation of the consequences of different management strategies are undertaken by a technical, scientific advisory bodies. The Nordic Group proposed an embedded scientific advisory body to further dialogue between the advisory bodies and the partners, and the recipients of advice. Scientific independence is ensured by splitting the scientific process from the advisory process,

⁶ Nordic Council of Ministers Meeting - Decision Processes and Advice – Faroe Islands case 15 June, Faroe Islands.

⁷ with the full authority of the office – with reference to the infallibility of the pope. Advice “ex cathedra” is not to be discussed, but is the final answer from the advisory authority. In the ICES case it means that the advice is final and authoritative and cannot be changed until next time ICES gives advice.

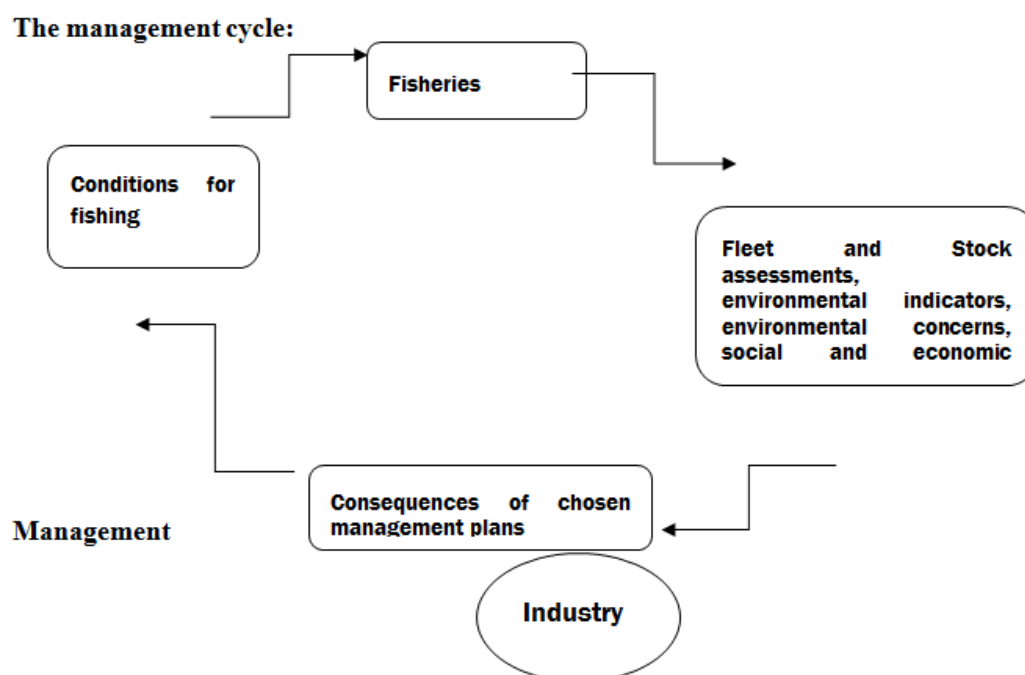


Figure 2. The management cycle

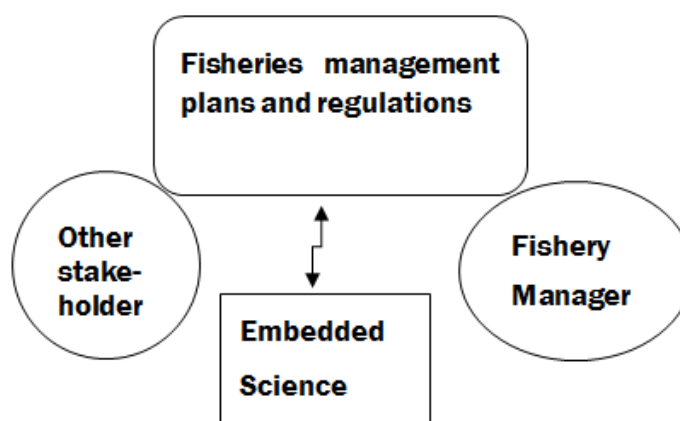


Figure 3. Embedded Science.

Embedded science means that scientific institutions act as a technical – scientific secretariat for management and, in addition to assessing the impacts of activities on the environment, investigate scenarios selected by management. The technical, scientific advisory body must cover biological, economic and social considerations. Such a system would underline that the scientific advice delivered is only one element in the management process and not the decisive one for the final management of the natural resources.

3.5 Advice on conservation and management of fisheries resources and the marine environment

The ICES approach to advice includes the three international themes: the ecosystem approach, the precautionary approach, and the maximum sustainable yield. Based on ICES interpretation of these three themes and the MOU's with the client commissions, ACOM has developed a detailed approach to advice on fisheries. The approach

defines the rules to be applied by the Committee in providing advice on individual fish stocks consistent with international norms, while taking into account the needs of the clients.

ICES has not developed a similar approach for advice on environmental issues. The requests for environmental advice have so far been addressed on an ad hoc basis. However, ICES is in the process of developing an approach for integrated advice, i.e. advice that takes account of the impacts of fisheries, other human activities, and natural changes of the ecosystem. To this end, and after a request from the EU Commission, ICES has developed a roadmap for providing integrated advice. The roadmap addresses the issues of mixed fisheries, biological interactions, and impacts of fisheries on non-target species.

In the roadmap for integrated advice, ICES points at the Marine Strategy Framework Directive (MSFD) and the growing use of marine spatial planning as strong drivers for ecosystem advice. ICES is already providing advice on spatial planning of fishing activities, taking into account environmental objectives. However, ICES considers that further research is required before it will be in the position to provide fully integrated advice, where all impacts on the ecosystem and the interactions among them are considered.

3.6 Comparison of the ICES advisory process to the U.S. system

The U.S. system of fisheries science programs providing scientific advice to fisheries managers shares many elements with the ICES system, but there are some key differences as well. The U.S. system is described in some detail in Appendix IV. The key difference is that one agency, the National Marine Fisheries Service (NMFS), carries out most of the activities on both the science and the management side under the fishery management council system. This system was set up under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the primary law that governs fisheries in federal waters (generally between 3 nmi from shore and the U.S. Exclusive Economic Zone boundary).

There are eight regional fisheries management councils, which develop the fishery management plans in their regions. The management policies set by these bodies, including catch quotas, are subject to approval by NMFS, and then NMFS is responsible for producing and implementing the regulations. The MSA mandates that annual catch limits be set for all of the approximately 500 federally managed species, and that these limits be based on the best available science. NMFS' regional fisheries science centers work within the council system to conduct stock assessments to support this process. The assessments are then subject to an independent peer review. The rigor of these reviews varies somewhat, depending on the importance and sensitivity of the particular stock. Many of the peer reviews are conducted by the Center for Independent Experts (Brown, *et al.* 2006), which is funded by NMFS, but is designed to maintain the independence of the reviewers from the agency. Managers then use this peer-reviewed advice to set the annual catch limits, which cannot exceed the levels established through the stock assessment. Approximately 80 stock assessments are completed per year, and most assessments are considered adequate for five years.

In contrast to the complex international arrangements and dependence on volunteers that characterize the ICES advisory process, NMFS conducts or is directly involved with most of the activities involved with developing the scientific advice. The chain of command thus enables a simpler process for coordination of activities and prioritization.

zation of staff time. Data access is a leading example. NMFS produces or contracts for nearly all the fishery-independent survey data used in the stock assessments. NMFS administers fisheries observer programs, which are a major source of fisheries-dependent data. Landings data are compiled by regional entities run by the states, but funded by NMFS, so access to the landings data is generally straightforward. NMFS scientists are assigned to conduct, or at a minimum to participate in, the development of the stock assessments and to participate in the fishery management council process.

4 The External Review Process

4.1 Overview of information acquired by the panel

The Panel decided that it was necessary to embark on an extensive information gathering exercise to evaluate how the various ICES constituents view the advisory process. This information would be used to inform the thinking of the Panel in developing the recommendations under each Term of Reference. Two major components were to develop a questionnaire to survey individual opinions held by ICES constituents, and to interview selected individuals as representatives of selected partner and client organizations.

4.2 The questionnaire – description and methods

The Panel developed a questionnaire to survey the opinions of relevant groups within the ICES system with respect to the types of information identified in the Terms of Reference. Specific questions were developed to address the Terms of Reference in discussions within the review panel and with ICES. Additional input for developing the questions was obtained from ICES leadership during and after the November 2011 and February 2012 meetings at ICES headquarters. The list of 28 questions was finalized on 11 April. The questions were organized by the applicable Term of Reference. Some basic demographic information was also collected from the respondents, to enable comparisons of the views held by different groups (e.g., scientists vs managers).

Each question was presented as a statement, and respondents could then respond in five categories, ranging from strongly disagree to strongly agree⁸. Results were analyzed by plotting histograms, and these categories were scored from -2 to +2, which enabled averages to be calculated. Each question also contained two follow-up questions designed to obtain more detailed information from the respondent: 1) “Why do you have this opinion?”, and 2) “What is one thing you would change”?

The questionnaire was posted on the ICES website on 13 April 2012. It was left open for replies until 7 May 2012. An e-mail requesting that people take the questionnaire was sent out to a total of 434 individuals and organizations from ACOM, ACOM Expert Group Chairs, ICES delegates, MIRAC members, observer organizations, recipients of ICES advice, SCICOM members, and SCICOM Expert Group chairs. A reminder e-mail was then sent two weeks before the questionnaire was closed. Details of the questionnaire itself are given in Appendix III-2. A detailed analysis of the responses is given in Appendix III-3.

4.3 Interviews and statements taken

The Panel also conducted interviews by telephone with selected environmental partners / clients of ICES.

- a. European Institutions - the European Environment Agency (EEA), its Water Topic Centre (ETC-Water), and the Joint Research Centre (JRC) of the European Commission
- b. The Secretariat of OSPAR

⁸ Two of the questions requested only written information, so were not scored using this scheme.

c. The Secretariat of HELCOM

European Institutions

The ICES Secretariat is acting as a partner in the ETC-Water, as established in the context of the European Environment Agency (EEA).

The interviews were conducted with:

- the EEA;
- the Joint Research Centre (JRC) of the European Commission;
- the Coordinator of the ETC and the ETC partner for marine issues.

Within the ETC, ICES developed a set of bio-indicators for good environmental status (GES) in the context of the Marine Strategy Framework Directive (MSFD). This work was regarded as very positive and relevant.

In discussion the following issues were noted.

- a. Areas for further work for ICES could include litter and further GES-Descriptors, in particular for large-scale marine animals (mammals and birds);
- b. Confusion resulting from the two different kinds of ecosystem approaches within ICES: one in the context of fisheries management and an overall (environmental) approach, which needs to be sorted out;
- c. The difference in geographical scope of ICES (North-East Atlantic) and the MSFD (the European marine area);
- d. Development of an integrated assessment of the marine environment within the ETC is becoming more important than the development of indicators;

This type of work should tap into the ICES advisory system more than into the Secretariat. However, the present advisory system might not meet specific requirements of the EEA (e.g. in terms of timing and policy orientation).

OSPAR Commission

The OSPAR is one of regular clients of ICES. Requests for advice are made in respect to the implementation of the MSFD. A recent package of work was related to chemical monitoring / biological effects monitoring and marine biodiversity.

From interviews with members of the OSPAR Secretariat, the Panel noted the positive opinion about the results delivered by ICES. ICES advice is generally well thought through and highly relevant.

The following issues were noted.

- a. The high level of scientific detail of ICES advice often requires “translation” into practical guidelines. Although the OSPAR itself would have to play a role in this translation process, ICES could facilitate and guide it by adding more practical guidance to its advice.
- b. An improved dialogue when defining the request for advice would reduce misunderstandings in developing the advice. Both Secretariats should play a role in this respect.
- c. With respect to biodiversity, the question was raised about depth versus breadth. OSPAR believes that ICES should go to the “scientific bottom.”

- d. Work to implement the MSFD requires a certain level of flexibility, in particular regarding the delivery of advice at the right time.
- e. Discussions / negotiations with ICES on the cost for its advice were regarded as transparent.
- f. Work on environmental statistics was missing.

Helsinki Commission

Because of its involvement with a World Bank project, HELCOM has not requested ICES advice for some time. It is expected that further requests will be issued.

4.4 The MIRIA meeting February 2012

The Panel participated in the 9 February 2012 “Meeting between ICES and Recipients of ICES Advice”(MIRIA), and had a number of interviews with individual members of MIRIA.

5 Conclusions and recommendations

ToR. 1. Is ICES Advice based on the right information and data, and are appropriate models used?

Background

Replies to the questionnaire

The replies to the questionnaire show that most respondents find that ICES advice is currently being based on the right data, which implicitly means that ICES in general has access to the data required to provide advice. The responses to question 1.5, regarding the availability of information and data to provide integrated advice, show a broad range of opinions with an overall negative opinion, indicating that ICES may not have access to the data required to provide integrated advice consistent with the ecosystem approach. Members of client commissions and policy advisors tended to have the most positive views of the questions under ToR 1, while stakeholders tended to have the most negative views. Both stakeholders and SCICOM members hold negative views on whether ICES advice makes adequate use of all available ICES science.

Overall the respondents to the questionnaire have a positive opinion on the models used by ICES in providing advice.

The Review Panel's comments

Data

The data required to perform classic stock assessment and single stock advice seem in general to be available to ICES via the member states. However, in most recent years there have been problems with delivery of fisheries data from certain member countries. If this situation continues, it may have a very negative impact on ICES ability to provide advice on a number of stocks.

The EU Data Collection Framework (DCF) and the associated implementing regulations seem to have had a positive impact on the availability and quality of fisheries data from EU Member States.

Although the system for delivering the data to be used in the advisory system seems to work, the Review Panel does not find the compilation of data and the system to record the data transparent. The Panel notes that the data is in general delivered to the expert groups in an aggregated form. Although guidelines for collecting and handling of data have been developed by most of the expert groups dealing with fisheries advice, the documentation on how the data have been generated often is missing or incomplete. This means that it can be difficult to evaluate the quality and uncertainty of the data.

The Review Panel notes that ICES does not collect data, but relies on the data delivered by the member countries and client commissions. ICES also relies on the experts attending the expert meetings to bring the data required for the analyses and assessments.

Recognising that most of the discussion of developments on data collection in relation to management of fisheries and environment in the North East Atlantic takes place within the EU (Data Collection Framework and Marine Strategy Framework Directive), the Review Panel believes that the role of ICES in these processes is not well defined. According to the MoU between the EU and ICES, the role of ICES in

support of the data collection framework is mainly to facilitate planning of expert group meetings and to assist the EU by implementing Data Collection community web-sites supporting exchange of information between scientific experts.

Models

The Review Panel notes that the respondents to the questionnaire have a positive opinion on the models used by ICES in providing advice. The review panel furthermore notes that progress has been made in recent years to introduce new more statistically sound stock assessment models.

Integrated advice

On request of the EU Commission, ICES has adopted a roadmap for provision of integrated advice (ACOM meeting, November 2011, Doc. 7.1.1.). The roadmap operates with seven types of advice and includes a short description of each advice type and timelines for provision of the advice by eco-region. The seven advice types are: 1) Single species MSY; 2) Data poor MSY; 3) Mixed fishery; 4) Multi species; 5) Wider ecosystem; 6) MSFD; and 7) Marine Spatial Planning, MSP.

Data availability is not identified as a critical issue in the roadmap. Except for the need for updated data on stomach contents, the roadmap indicates that ICES will be able to provide types 1 to 5 advices within four years. For advice types 5 to 7, it is unclear if and what sort of advice ICES will be requested to deliver. ICES indicates that this has to be sorted out before a roadmap for advice types 5 to 7 can be developed.

The Review Panel shares the view that it may be difficult to foresee the type of advice on the wider ecosystem, ICES may be requested to provide and what data such advice will require. It is therefore at this stage not possible to say anything conclusive on the availability of data and information required for integrated advice.

Recommendations

With a view to enhance transparency and allow a more systematic evaluation of data availability and quality, the Review Panel recommends that ICES consider introducing a formal data call system. The data call system could include a request from ICES to member countries to specify in detail the data to be delivered by the member country in support of ICES advisory work. The call for data to be used in addressing recurring advice could be issued annually, while data needed in support of non-recurring requests for advice could be issued when required.

The Review Panel believes that ICES as one of the main end users of fisheries and environmental data, could and should provide an important input to the revision of the Data Collection Framework and the development of monitoring plans in support of the MSFD.

The Review Panel notes the initiatives taken by ICES to develop its role in providing integrated advice (Roadmap for provision of integrated advice; ICES scientific and advisory services of relevance to the EU Marine Strategy Framework Directive), and suggests that ICES continues to clarify its role as a provider of integrated advice in a close dialogue with the clients.

ToR 2. Are the processes used to prepare the advice appropriate in terms of management control, quality control, efficiency, responsiveness and transparency?

Replies to the questionnaire

The replies to the questionnaire show that most respondents believe that the processes used by ICES to generate advice are appropriate. The views are most positive for the role of the secretariat, transparency, and responsiveness, and are least positive for the questions on efficiency, quality control, and the proactive engagement of ICES science expert groups. Different groups hold contrasting opinions for certain questions, perhaps reflecting their differing roles in the advisory process. For example, respondents that receive advice have a much more positive view on the efficiency of the advisory process than respondents that produce advice. In contrast to the positive views of most groups, stakeholders hold a view close to neutral regarding responsiveness and a negative view on the role of the secretariat, while SCICOM members hold a view close to neutral regarding transparency and a negative view regarding the proactive engagement of ICES science expert groups.

While the advisory process seems appropriate in dealing with the recurring advice, concern was expressed by some of the respondents whether the system is sufficiently flexible to handle ad hoc requests for advice with short notice.

The review panels comments

In accordance with the 2007 ICES advisory plan, ICES has implemented quality assurance protocols, a review system and regular benchmark workshops. Changes to the format of the advice have been introduced and the advisory process has been opened to stakeholders. The advisory process includes five steps: Benchmark workshops, expert groups, technical review, advice drafting and adoption of advice.

As mentioned above the replies to the questionnaire indicate that the management of the process is appropriate. The discussions with ICES staff members, however, indicate that the process is overstretched. It has for example become increasingly difficult to recruit independent reviewer to do the technical review and members of expert groups point to very heavy workloads. The general impression is that the process is resource demanding and that the system has reached the limit. Simplifications may be required to be able to meet future demands for advice.

The review panel understands that the role of the benchmark workshops is to review the methods and data and advice the expert groups on how to perform the analysis and assessments. For the recurring fisheries advice this implies that the expert groups perform update assessment and do not use resources on analysing data and development of methods. It is the impression of the review panel that the system has not been fully implemented and that the assessments conducted by the expert groups often are somewhere in between an update and a benchmark. There may be good reasons for this but the review panel suggests that a stringent implementation of update assessment could be one way to reduce the workload. To this end ICES might consider the role of the secretariat. The review panel believes that the secretariat could play a larger role in conducting update assessments.

In discussions with ICES staff members attention was drawn to the overlap between advice drafting groups and ACOM. In the description of the advisory process the role of ACOM is to adopt the advice formulated by the drafting groups. It seems, however, that ACOM uses considerable time on redrafting the advice and that the current set up with drafting groups and ACOM may not be the most efficient way of formulating and adopting the advice.

The review panel notes that the credibility of the advice is central and that the review process plays an important role in guaranteeing that ICES advice is given a high degree of credibility. It has, however, been difficult for the review panel to get a clear picture of how the reviews are used in the advisory process and if the review process adds to the quality of the advice.

Recommendations

The review panel recommends that ICES considers to let the secretariat play a larger role in conducting update assessments and generally supporting the advisory process.

The review panel recommends that ACOM considers the overlap between advice drafting groups and ACOM to reach a more efficient use of resources of both the drafting groups and advice.

The review panel recommends that ACOM considers the consistency of the review process and investigates the possibility of establishing a more robust system, based on information of how independent per reviews are undertaken outside Europe.

ToR 3: Is the ICES advice considered relevant and credible among scientists, end users, ICES Member States governments, Member States of cooperating organisations, the EU commission, stakeholders and the public process

Replies to the questionnaire

All respondent groups agree that ICES advice is relevant, and most agree that it is credible. Stakeholders and, to a lesser extent, SCICOM members are somewhat less supportive on the credibility issue.

All respondent groups express moderate agreement that ICES advice is effectively communicated and that ICES advisory expert groups have the appropriate expertise. SCICOM members were least in agreement with respect to expertise on ICES advisory expert groups.

Review Panel comments

The Panel noted that “maintenance of expertise” may become a problem for the future, as relevant experience does not seem to be growing sufficiently to meet future needs. Reflections of the Panel on this point are taken up in response to ToR 6.

The Panel also noted comments that communication between the direct clients and the scientific community is regarded as poor, especially for communication to stakeholders and public media.

The Review Panel considered the importance of delivery that is appropriate to the audience for enhancing the credibility of ICES advice. Background is given in section 3.4. The expert groups provide the scientific foundation for the advice. In accordance with the requirements from the client commissions, the scientific basis for the advice is subject to a technical review to ensure the best scientific basis for the advice. The Review Panel notes that it is important that the advice, while based on science, be developed in a dialogue between ICES and the recipients of the advice.

Recommendations

The Review Panel recommends that ICES continually evaluate the format of the ICES advice from the perspective of the recipient, and recommends that ICES consider establishing a public-relations strategy focusing on ways to “translate” ICES advice into

language for the general public. The Panel believes that such communication could be enhanced through the use of modern, interactive media.

The review panel recommends that the delivery of advice is considered and that a process of moving from ex-cathedra advice to embedded advice is started as soon as possible.

ToR 4: Is the scope of ICES advice appropriate in terms of addressing policy and societal needs, and is it consistent with the implementation of an ecosystem approach to management?

General context of ICES advice 2011⁹

ICES advises competent authorities on marine policy and management issues related to the impacts of human activities on marine ecosystems and the sustainable use of living marine resources. Almost all ICES member countries have policies that address the impacts of human activities on marine ecosystems. These policies may explicitly be framed as an implementation of an ecosystem approach. An important example is the Marine Strategy Framework Directive (MSFD) of the European Union (EC, 2008).

The ICES scientific community and ICES advisory services have played a key role in providing scientific guidance to define good environmental status (GES) indicators and standards. The process of developing these indicators and standards at the European level is ongoing, and the process is now being continued by specification of GES at the regional and national levels, conducting initial assessments, and revising current monitoring activities.

Marine spatial planning is envisioned as a key mechanism for achieving GES. The idea is to integrate planning and management actions across human activities (e.g. fisheries, renewable and non-renewable energy development, mineral extraction, transportation, etc.) to take into account the cumulative impact of all of these activities on ecosystems. This will require more spatially resolved data on more types of activities, and a better understanding of how these activities impact ecosystems. It will also require integrated ecosystem monitoring systems. The MSFD is an important challenge for the scientific community, and ICES welcomes the MSFD as an opportunity to apply an ecosystem approach.

An ecosystem approach is expected to contribute to achieving long-term sustainability for the use of marine resources, including fisheries. An ecosystem approach serves multiple objectives, involves strong stakeholder participation, and focuses on human behaviour as the central management dimension.

Results from the questionnaire

The answers to the questions in ToR 4 indicate a wide range of views. With respect to the question on whether ICES advice addresses the needs of advice users, the most positive views are held by stakeholders, members of client commissions, and policy advisors, while the views of managers and SCICOM members are less positive. Opinions are nearly evenly divided between positive and negative on the question of whether ICES advice is addressing societal needs, with stakeholders holding a somewhat negative view and SCICOM members holding a neutral view. Opinions

⁹

http://www.ices.dk/committe/acom/comwork/report/2012/2012/General_context_of_ICES_advice_2012.pdf

are similarly divided between positive and negative on the question of whether ICES advice is consistent with the implementation of the ecosystem approach to management, with the most positive opinion expressed by members of client commissions and the most negative opinions expressed by SCICOM members and stakeholders. Overall views are negative, but also are the most divergent, on the question of whether ICES advice should be expanded to include social and economic advice, with the highest percentages of scores in the strongly disagree and strongly agree categories. SCICOM members and scientists have somewhat positive views on this question, while all other groups have negative views. Policy advisors, members of client commissions, and respondents that receive advice have the most negative views.

Comments of the Review Panel

The Review Panel believes that ICES is well prepared to advise on all aspects of the ecosystem approach concerning the health of the ecosystems and how to monitor good environmental status.

However, this cannot be said with respect to creating a basis for making societal and policy choices. The Review Panel is of the view that it will be necessary for ICES to bring in social and economic data and analyses. How a particular societal choice will affect social groups and communities must be measured in socio-economic terms.

With respect to the fisheries advice, this is exacerbated by the focus on stock assessments in the advice and the lack of description of the affected fisheries. To describe the effect of changes in the allowed fishing activity (whatever means is used to control it) must necessarily be based on the economy of the fishing fleet and the fishing communities they support. It is notable that these types of analyses are a required component of developing implementing regulations in the U.S. fisheries management system.

The Review Panel notes that if ICES wishes to advise on the impacts of other sectoral activities, it will not be enough to just describe the environment alone without also characterizing the sectoral operators.

Recent studies with respect to the recuperation of the resource rent in Nordic pelagic fisheries¹⁰ have shown that it is feasible to get these types of data for the North East Atlantic. A similar study¹¹ was undertaken in 2006, funded by the Nordic Council of Ministers. Similar economic data will be needed for other sectors that impact marine ecosystems. The Panel noted that economic data are routinely compiled by the EU under the EU Data Collection Framework (DCF).

¹⁰ Samfundsøkonomisk afkast af pelagiske fiskerier i nordøstatlanten. Max Nielsen, Peder Andersen, Lars Ravensbeck, Frederik Møller, Laugesen, Jesper Levring Andersen, Fødevareøkonomisk Institut, Danmark; Daði Már Kristófersson, Universitetet i Island, Island; Siv Reithe, Jon Nilssen, Universitetet i Tromsø, Norge; Hans Ellefsen, Havforskningssinstituttet, Færøerne. TemaNord 2010:573 © Nordisk Ministerråd, København 2010.

¹¹ „Økonomien i de nordiske fiskerier – fokus på ressourcerenten“, udgivet af Nordisk Ministerråd

Recommendations

The Review Panel recommends that ICES widen the scope of the ICES advice to include descriptions of the various industry sectors having an impact on the oceans, their economies, and the social conditions of dependent communities. These descriptions should be as quantitative and data-driven as possible.

The Panel also notes that for comprehensive fisheries advice, data on fleet activity and economy, and the dependence of fishing communities on these activities, will be required.

ToR 5: Is ICES sufficiently proactive in preparing the basis for possible future policy needs for advice?

The Review Panel's comments

It is the Review Panel's general impression the ICES is proactive in addressing the possible future policy needs for advice on biological impacts of human activities on marine ecosystems and their health and status. This is illustrated by the ICES roadmap for provision of integrated advice¹² and the initiative on integration of fisheries surveys and environmental monitoring. ICES work on developing the ecosystem approach to fisheries advice can also be seen as ICES being proactive.

While the Review Panel supports the initiatives taken by ICES in preparing the basis for future advice on biological issues related to the impacts of human activities on marine ecosystems, it is important that the initiatives are taken in close dialogue with the present and possible future users of the advice. Otherwise, there is a risk that ICES may develop a type of advice for which there are no customers.

With respect to advice on non-biological issues, less seems to be happening. The inclusion of social and economic considerations in the advice has been discussed in ICES for many years, without much progress. It was addressed at a Dialogue Meeting in 1982 as follows:

“ACFM drew attention to the benefits which could accrue if the formulation of management advice could evolve to a position where biological issues were not considered entirely in isolation from economic considerations. Biology-based advice, it was pointed out, establishes only one set of constraints within which management ought to be implemented. Furthermoreit was also suggested that scientific advice based solely on biological grounds would have little likelihood of being accepted (and probably no prospect of being implemented or enforced) unless it also satisfied the constraints of economics.”

The Review Panel believes that the implementation of an ecosystem approach to management of human activities affecting marine ecosystems and the move towards integrated advice will increase the need for providing science-based advice on social and economic consequences of management actions.

The Review Panel also believes that ICES is in a unique position to be the main provider of advice on social and economic impacts of management of human activities in the North East Atlantic. This, however, requires that ICES be prepared to widen its

¹² Roadmap for Provision of Integrated Advice in ICES. ACOM, November 2011, Doc 7.i.i.,

scope to cover social and economic issues and that clients will request ICES for such advice.

Recommendations

The Review Panel recommends that ICES widen its advisory scope to include social and economic considerations, and that ICES in a dialog with present and possible future clients explore its possible role as advisor on social and economic impacts of management measures.

The Review Panel furthermore recommends that ICES strengthens the dialogue with present and possible future clients on the ICES advisory approach, to ensure that ICES addresses their needs for advice.

ToR 6. Are present advisory commitments commensurate with available human resources and science expertise, and are there sufficient mechanisms in place to obtain human resources from ICES Member States?

Replies to the questionnaire

Respondents to the questions under ToR 6 generally agree that access to human resources for the ICES advisory process is a problem. Members of client commissions have positive views on this issue, while SCICOM members, scientists, and respondents that produce advice have negative views. These results indicate that the people who create the advice have the most concern about human resources. While most groups hold somewhat positive views on the question of whether ICES advisory commitments are commensurate with available scientific expertise, SCICOM members hold a somewhat negative view. With the exception of stakeholders, the views of all groups on the sufficiency of support from the ICES secretariat are strongly positive.

A closer analysis of individual responses indicates that the workload is regarded as too high, primarily because too few scientists are doing most of the work. The remedies suggested by respondents include developing a new business model that allows compensation for services rendered, prioritizing the work to be done according to available resources, and reducing the amount or frequency of the advice provided.

With respect to science expertise, many responses indicated that the situation is pretty good or improved, while others found resources stretched. Other responses expressed the view that ICES access to scientists would be improved with provision of compensation for services and better scientific incentives that enhance the academic status of the scientists participating in scientific and advisory expert groups.

With respect to the question of Member States making human resources available, a majority noted that ICES cannot force Member States to participate, and that the funding very tight. Although there is not a clear pattern in the suggested remedies, several respondents suggested paying scientists or their home institutes for ICES work, strengthened requirements for Member State participation, or improved planning and transparency.

A majority of respondents found the support of the ICES Secretariat for the advisory process is excellent, sufficient, good, or improved.

With respect to what would increase the motivation of people to participate in producing ICES advice, respondents pointed to better recognition of ICES work in home institutes, stronger linkage between ICES work and the advancement of scientists'

careers (e.g., through publications and recognition of authorship), and the feeling that their products will affect policy and decisions.

Review Panel's comments

ICES ability to provide advice relies on the active involvement of scientists from the ICES member countries. Although the scientific community is identified as one of the strengths of ICES, the ICES advisory plan identifies the needs for new skills and scientists in disciplines that are currently underrepresented in the ICES scientific community. A main goal of the human resource theme is to attract more scientists to the ICES scientific community, for example from research institutes traditionally having little contact with ICES. Another goal is to strengthen the skills of the ICES scientific community relative to the needs for advice via the ICES Training Programme.

The Review Panel believes that ICES has been successful in broadening the scientific community to include scientists covering a very wide range of disciplines. However, this seems not to have had a major impact on the advisory system. The incentives for scientists outside the traditional ICES institutes to take active part in the advisory process are very limited or non-existent. Scientists may feel that active involvement in the advisory work is not recognised and may hamper their scientific careers, and it may be difficult to get funding to attend expert group meetings.

It is the Review Panel's impression that many institutes traditionally contributing actively to the ICES advisory system have difficulties in delivering the scientific expertise required for ICES to fulfil its advisory obligations. This is supported by the replies to the questionnaire, which indicate a general concern about the availability of human resources and science expertise.

The Review Panel considers that the present system, with Member States' institutes delivering resources to the ICES advisory system on a voluntarily and ad hoc basis, may constitute a major threat to ICES ability to deliver the advice requested. Without possibilities for covering the expenses associated with participating in the advisory process, it will likely be difficult for ICES to attract scientists from institutes currently having little contact with ICES, as well as be difficult to maintain the involvement of traditional ICES institutes in the advisory work.

The Review Panel is aware that under the DCF EU, Member States receive financial support for attending advisory working groups. This financial support does not, however, ensure that the scientific resources required are made available to ICES.

The decision on involvement in the advisory process is entirely up to the scientific institutes and/or the member countries. The resolutions adopted by the ICES Council that create the advisory work plan do not bind the member countries to make resources available for the work.

The Review Panel notes that the client commissions' payment to ICES for the advisory work only relates to cost for ICES in producing the advice, and does not cover the expenses of the institutes providing the scientific expertise.

The Panel believes that to ensure that the scientific expertise required to prepare the advice will be available to ICES in the future, it will be necessary to implement a system that makes it possible for ICES to financially support the scientists or the institutes participating in the advisory process.

The Review Panel believes that ICES may benefit by cooperating with EFARO in recording the activity of experts and the time used for preparation and meetings on a routine basis. It would then be possible to match demand and supply.

There are several ways to set up a system that ensures the commitment of ICES Member States and client commissions to fund the running of ICES advisory services.

- ICES could revise its convention to commit Member States to funding the advisory services properly (including the basic scientific work).
- ICES could draw up agreements or MoU's with its member countries specifying the human resources that the ICES advisory system can draw upon.
- The funding of participation in the Advisory system could be included in the annual budget, including budget lines describing the funding of the participation of experts in ACOM and SCICOM expert groups.

Recommendations

The Review Panel recommends that ICES considers the three proposals mentioned above to ensure the commitments of ICES Member States to fund the ICES Advisory Services.

The Review Panel recommends that ICES considers ways to enhance the academic status of the scientists participating in scientific and advisory expert groups, for example with an active policy to assist with the publication of assessments and the underlying working papers in peer-reviewed journals.

ToR 7: Is the ICES advisory process consistent with the ICES constitution and commitments made internationally and regionally?

Review Panel Comments

The ICES Convention creates a formal basis for the commitments of the Member States and establishes a clear line of command with the Council, the Bureau, the Consultative Committee. It also sets out the means to establish further subsidiary bodies relevant to the scientific and advisory tasks under the rules of procedure.

The Convention has a clear structure, with the Council as the decision-making body and the Bureau as the executive body. There is an open mandate to establish subsidiary bodies and delegate responsibilities to them.

With respect to financing the scientific and advisory services of ICES, the Review Panel noted that a major part of the work the Council supervises is financed from national expenses outside the ICES budget.

The Review Panel did not find reason to conclude that the present advisory process is inconsistent with the ICES constitution.

However, the Review Panel noted that the ICES Convention does not refer to commitments to international law or instruments, referred to in Section 3¹³ and nothing specific is said about scientific advice. The onus is on research and cooperative programmes to acquire scientific information and disseminate the research results.

Recommendations

The Review Panel recommends that the Member States of ICES consider updating the Convention to reflect commitments of States and Regional Organisations found in international law and instruments. This would increase the responsibility and ac-

¹³ As it now is found in the updated conventions of NEAFC and NAFO.

countability of Member States within the ICES system with respect to international commitments.

ToR 8: Is the ICES advisory process cost-effective?

Results of the questionnaire

The views of all groups with respect to the question of whether the ICES advisory process is cost effective are somewhat positive.

Review Panel Comments

The Review Panel noted that the ICES budget does not list the costs for ICES Member States for the participation of their scientists in ICES programmes as a “national expense.” In addition, it has been impossible for the Review Panel to gather information to assess the cost effectiveness of the advice.

Therefore, the Review Panel cannot evaluate the cost-effectiveness of the present ICES advisory process and cannot provide recommendations.

5.1 List of recommendations

ToR. 1: Is ICES Advice based on the right information and data, and are appropriate models used?

With a view to enhance transparency and allow a more systematic evaluation of data availability and quality, the Review Panel recommends that ICES consider introducing a formal data call system. The data call system could include a request from ICES to member countries to specify in detail the data to be delivered by the member country in support of ICES advisory work. The call for data to be used in addressing recurring advice could be issued annually, while data needed in support of non-recurring requests for advice could be issued when required.

The Review Panel believes that ICES as one of the main end users of fisheries and environmental data, could and should provide an important input to the revision of the Data Collection Framework and the development of monitoring plans in support of the MSFD.

The Review Panel notes the initiatives taken by ICES to develop its role in providing integrated advice (Roadmap for provision of integrated advice; ICES scientific and advisory services of relevance to the EU Marine Strategy Framework Directive), and suggests that ICES continues to clarify its role as a provider of integrated advice in a close dialogue with the clients.

ToR 2: Are the processes used to prepare the advice appropriate in terms of management control, quality control, efficiency, responsiveness and transparency?

The review panel recommends that ICES considers to let the Secretariat play a larger role in conducting update assessments and generally supporting the advisory process.

The review panel recommends that ACOM considers the overlap between advice drafting groups and ACOM to reach a more efficient use of resources of both the drafting groups and advice.

The review panel recommends that ACOM considers the consistency of the review process and investigates the possibility of establishing a more robust system, based on information of how independent per reviews are undertaken outside Europe.

ToR 3: Is the ICES advice considered relevant and credible among scientists, end users, ICES Member States governments, Member States of cooperating organisations, the EU commission, stakeholders and the public process

The Review Panel recommends that ICES continually evaluate the format of the ICES advice from the perspective of the recipient, and recommends that ICES consider establishing a public-relations strategy focusing on ways to “translate” ICES advice into language for the general public. The Panel believes that such communication could be enhanced through the use of modern, interactive media.

The Review Panel recommends that the delivery of advice is considered and that a process of moving from ex-cathedra advice to embedded advice is started as soon as possible.

ToR 4: Is the scope of ICES advice appropriate in terms of addressing policy and societal needs, and is it consistent with the implementation of an ecosystem approach to management?

The Review Panel recommends that ICES widen the scope of the ICES advice to include descriptions of the various industry sectors having an impact on the oceans, their economies, and the social conditions of dependent communities. These descriptions should be as quantitative and data-driven as possible.

The Panel also notes that for comprehensive fisheries advice, data on fleet activity and economy, and the dependence of fishing communities on these activities, will be required.

ToR 5: Is ICES sufficiently proactive in preparing the basis for possible future policy needs for advice?

The Review Panel recommends that ICES widen its advisory scope to include social and economic considerations, and that ICES in a dialog with present and possible future clients explore its possible role as advisor on social and economic impacts of management measures.

The Review Panel furthermore recommends that ICES strengthens the dialog with present and possible future clients on the ICES advisory approach, to ensure that ICES addresses their needs for advice.

ToR 6: Are present advisory commitments commensurate with available human resources and science expertise, and are there sufficient mechanisms in place to obtain human resources from ICES Member States?

The Review Panel recommends that ICES considers the three proposals mentioned above to ensure the commitments of ICES Member States to fund the ICES Advisory Services.

The Review Panel recommends that ICES considers ways to enhance the academic status of the scientists participating in scientific and advisory expert groups, for example with an active policy to assist with the publication of assessments and the underlying working papers in peer-reviewed journals.

ToR 7: Is the ICES advisory process consistent with the ICES constitution and commitments made internationally and regionally?

The Review Panel recommends that the Member States of ICES consider updating the Convention to reflect commitments of States and Regional Organisations found in international law and instruments. This would increase the responsibility and ac-

countability of Member States within the ICES system with respect to international commitments.

ToR 8: Is the ICES advisory process cost-effective?

The Review Panel did not have access to enough information to make any recommendation.

Volume II Appendices

Appendix I: Summary of discussions at meetings of the Review Panel in preparation to undertaking the External Review.

Appendix II: Fisheries in the North Atlantic.

Appendix III: The Questionnaire: Information and Detailed analysis

Appendix IV: Overview of the Advisory Process for Federal Fisheries Management in the United States.

EXTERNAL ADVISORY REVIEW

REPORT 2012

VOLUME 2

Report of the External Panel, 2011-2012 to Review ICES Advisory Services

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1 Appendix I: Summary of discussions at meetings of the Review Panel in preparation to undertaking the External Review.

1.1 External Review of Advisory Services - Kick off meeting November 2011

17–18 November 2011 at ICES Secretariat.

Attended by: Kjartan Hoydal (Chair); Eskild Kirkegaard; Ben Van de Wetering; Stephen Brown; Paul Connolly; Gerd Hubold; Poul Degnbol; Ellen Johannesen.

General Discussion

Paul Connolly gave an introduction and outlined the main review questions of concern for ICES Council. The main questions include: is the Advice a quality product? Is the Advice fit for purpose in the context of a changing EU policy environment? Other questions that may help the panel to approach the Advisory review could include: How does ICES make priorities? Is ICES doing too much? Is the current advisory system appropriate? Is ICES delivering what it is supposed to deliver? Who says what should be delivered? Does the client ask the right questions? Is ICES ready for the future? What do the clients expect? The Panel was advised not to look back past the advisory reform. Can this new structure work? Comment on the reform/structure. Is there a basis for comparison? Is 4 years long enough to compare? Are secretariat resources sufficient?

The structure of ICES and the advisory process was discussed. The link between Science and Advice was emphasized, and the Panel should meet/have contact with both the Advisory Committee (ACOM) and the Science Committee (SCICOM). The panel should not just review, but also consider the future. ICES Council wants clear recommendations on how to fix the problems identified by the group. The list of questions in the CWGAR report were used to draft the ToRs. The group should not be limited to these ToRs, and should feel free to comment on issues beyond those defined in the ToRs if they see fit. The question of socio-economic advice should also be addressed by the group. The regional scope of ICES could also be a point for review. Communication and how best to communicate the information/advice was also discussed as a point for review.

The current advisory system, the future of the advisory system, and the available/needed resources were discussed as central issues. Important first steps will be to establish what are the resource requirements for the advisory system both internally and externally. The European Fisheries and Aquaculture Research Organization (EFARO) recently made an estimate of the total costs of the European advisory system.

The review should consider the range of clients. What do the clients ask for but also consider the internal question of what do the member states ask for? Regional Advisory Councils (RACs) should also be included in the consultation stage. Commercial groups outside the current scope could also be consulted, for instance the Marine Stewardship Council. This may be outside the ToRs, but this is the kind of future thinking that needs to be addressed by the review. If the review group would like to organize contact with external people this will have to be arranged as soon as possible to be in time for the February meeting. Getting the full range of responses could be important, may be useful to get written responses though that can take time.

(1) Is ICES advice based on the right information and data, and are appropriate models used?

It was proposed to change the first ToR and make it in to two questions, changing the question to look at the current/past situation and future separately.

How does ICES interact with the Data Collection Framework (DCF)? This is an important consideration because it is the raw material for making advice.

The history of the DCF was also discussed with the national programmes approach being described as a suboptimal use of resources as compared to a regional programmes approach. Need to include this in the report: The commission is expecting to use 360 million euro for data collection in the next 10 years with co-funding from Member States. The cost of processing the data and providing advice is closer to 3 million a year and this reflects a mismatch in spending priorities.

FishFrame is a database that holds aggregated regional fisheries data, it has taken time for the ICES network to accept FishFrame. ICES didn't take the lead to develop an ICES coordinated database because the mandate needs to come from Member States. A regional database framework is advancing now since member state institutes are under increasing budget constraints.

Resource constraints

The economy will also need to be considered by the review with increasing pressure on member state travel resources possibly making expert participation in the advisory process more difficult in future. The workload should also be considered by the review with increasing efficiency in the system as a goal. Both at the broader scale of the overall advisory process and at the finer scale of in the working groups. Is simpler methodology a way forward? Certain working groups may be too large (in terms of region of responsibility) with too large reports. Discussed possible creative solutions to delegate the routine jobs to a lower level group, or other ways to make efficiencies. There is some duplication in the system that continues. Advice drafting groups have been known to do an extra assessment, sometimes ACOM reopens the advice. This could be a problem of ToRs not being explicit enough for working groups.

Will be important to look at the assessments, the kinds of advice that are produced, and the expert groups that create the advice. The motivation of the people coming to do the work, the conditions that they work under are important to consider because ICES depends on the experts to make the system work.

If the Advice format is standard, then the fisheries are not. Look also at what kind of fisheries there are. When the advice is formulated, what triggers the kind of advice that is given (analytic assessment gives one kind of advice, while other kinds of assessment provides other kinds of advice), in some areas this is disconnected because the information comes from outside the framework. Discussed if the information used in the assessment is being used optimally? Or is it only being used to fit the current form of the advice.

Implementation is not really ICES responsibility, though requests for management plans have started to be received.

On the second day an introduction was given by Poul Degnbol who described the operational issues that ACOM want addressed. Objectives should be reviewed in relation to the needs of clients (preferably called partners), what are their needs and in which direction are those needs moving? Is ACOM and the advisory system sufficiently prepared and do they have flexibility to meet the demands of making a quali-

ty science base (for instance with the MSFD, a new domain for which a request has not been made). The main issues as 1) the relevance; feeding the science into policy; 2) the process and workload.

Poul also used questions to convey to the group the kind of review that ACOM would find useful: The process implemented in the advisory reform (6 years ago) was set for a certain purpose, does it deliver what it intends? Does the purpose fit, and what level of complexity is required? Has the reform made it better or are there better ways of doing it? For fisheries does ICES have the capacity to respond to new requests from the policy side? After the reform is ICES better/sufficiently equipped to look at fisheries instead of stocks? Has the reform made ICES more equipped to translate policy in to advice? Review the steps in the process carefully and consider if they are appropriate.

Workload

The advisory system process was reviewed and the problems of a shortage of experts for peer review was discussed. The time-scale was also discussed with the time frame for the advisory cycle of about 6 months for recurrent requests, and non-recurrent questions from 1-6 months, as agreed with clients. Requests are the main driver of the advisory system. ICES has a unique system in the North Atlantic with the advisory system separate from the regulatory system.

Advisory resources and process. The panel wanted to know if everything is dealt with through meetings and questioned if this is an optimal system for routine work such as the update assessments. Discussed other options like scientists completing this work in their own institute.

The finance structure in the EU where Member States are paid to have experts (50%) to attend ICES meetings, could this be changed to a system where ICES gets the money directly? This finance structure is not balanced between fisheries and environment. DG MARE can only spend the money through the Common Fisheries Policy (CFP), the environment is the competence of the Member States. ICES is sometimes limited by the rules of the EU, cannot just hire a consultant to answer specific requests, because the EU has to put things out to tender. DG Environment does not have a budget line because they are limited by Member State competencies in the area of the environment. Could be possible to do things in another way other than a physical meeting, the argument for not doing it that way is that those who are doing the stock assessments need to have a chance to realign their approach with others doing the same in the region. The report should describe the current finance structure.

Could be an extension of this review panel to consider DG MARE and the policy of collecting environmental advice. To implement the ecosystem approach more data will be needed, if that was part of the new CFP, it could provide a source of funding. In the lead up to the new Data Collection Framework (DCF), it could be important to highlight the need for surveys to collect environmental data in addition to the fish data if integrated advice is a goal.

The gap between environment and fisheries ministries at the national level is a problem for identifying clients and disharmony of objectives when ICES tries to deliver advice. Difficult to deliver advice when there is a competency problem. This could be solved by thinking about the advice in a different way. The current cycle is not flexible, may need to include dialogue. The cycle may be fine for recurrent advice, but

does not fit for other types of advice where no clear question, or request is evident. Needs to be an iterative process.

It is easy to focus on fisheries, the balance with environmental issues also needs to be considered. Discussed the way that ICES interacts with clients to produce the results. The dialogue that happens and the way the questions/requests are asked can influence the outcome. PELRAC request with Norway and Iceland given as an example where ICES is helping/facilitating them to define objectives. This is a completely new way of doing things.

What about expertise in the expert groups, are they experts?

Some stocks are being assessed in a routine way with a standard established method without considering other possibilities for analysis. A shortage of expertise has become evident. ICES is addressing the problem through the Training Programme to help the recruiting generations in gaining competencies and capacity is being built. Some assessments continue to rely on older methods. Benchmarks are supposed to address this, but it can be difficult to implement. These assessments are not being stopped by the review process, because the review process only checks that what is being done matches what was described in the benchmark. There is no review of the benchmark because it is a review itself, ICES tries to recruit people from abroad for these reviews. XSA is still accepted by the benchmark. Would be good to take one or two examples to see how the benchmark process has been followed and the review process works and compare that with the ACOM overview of benchmarks. Poul will provide some benchmark examples with stock annexes for the group. Discussed the issue of data quality- benchmark should take care of data, but not clear how it is done in practice, this can be a problem for those coming from outside.

The Celtic Sea Working Group was given as an example where 35 stocks are being assessed by 15 people and workload becomes an issue. Benchmark and ecosystem integration, it is difficult to get the right expertise to focus on ecosystem integration. The assessment models are not yet able to consider this. The benchmark should be the place where this kind of work is developed. Benchmarks will need to relate to an ecosystem fisheries mix. ICES should move from stock assessment to fisheries/ecosystem. ICES currently gives advice to the management plans, but in future will provide options across species to present the outcomes. May present options for implementing mixed fisheries advice in future. This however increases the workload and priorities become important. Until the new management plan is implemented, the old models are still needed. Are the expert groups ever prioritized when you are making the work plan? The technical workshops, developed in coordination with STECF and scientific groups. Poul explained the logic behind how the working groups relate to the requests for advice.

Next steps

The meeting focused on understanding ToR 1, but also considered constraints, some of these constraints cannot be solved by the panel, but the report can draw attention and describe some of the problems. The EU will also be reading the report and encourages critical analysis of systems outside ICES.

The review process will begin by contacting some of ICES clients. Ben will use his contact to get some initial thoughts and inform them of the process as soon as possible, he will deliver a report of first contact/interview with some of his contacts from the environment side in the coming weeks.

The group decided to develop questions and a questionnaire as a tool for gathering information. Not all questions will be directed to all audiences. Steve presented a draft questionnaire using the eight questions given to the panel as a starting point. The affiliation terms used in the questionnaire should match the ICES terms. It was suggested to reorganize the multiple choice answers according to a number instead of an alphabetic scheme to easily make averages from responses. It is relevant to know how long people have been involved in ICES. Add a question to determine how people are involved in the advice (producer vs receiver). The focus of the questionnaire is on the current structure, the future is a more open question that may require more direct dialogue. The response 'don't know' should be changed to 'not applicable to me'. The draft will need a dry run to make sure the questions are clear. In ToR 2 need to understand what is management control? A question about the secretariat. Suggested to take out the word 'control'.

The questionnaire will be edited in the coming weeks before it is finalized. Who will it be sent to? Different audiences may require different questions (internal vs external audiences) It was agreed that the questionnaire will be sent in advance of a telephone or face-to-face interview as a tool to prepare potential respondents. The questionnaire will also provide a record of the interview that can be analysed and captures the opinions of respondents. Telephone interviews may be the most feasible. Would like to begin with clients as a starting point, then the analyses can be discussed with the clients in February. The panel will reflect on the text developed so far, then set up a process for contacting people. ACOM may be asked to answer the questionnaire. Respondents will include: Clients, ACOM, Stakeholder/industry/RACs, with the list to be completed.

The draft outline of the report was reviewed, areas of responsibility will be assigned later. Need to make contact with the users of advice, including ICES Member States. Avoid the word "jurisdictions". When contacting the client commissions for input to the process it will also be important to be aware of the difference between the opinion/input that can be given by the Secretariat vs the opinion of the Heads of Delegation (e.g. Helcom and OSPAR). The question if AMAP should be included prompted the panel to evaluate the distinction between the terms "Receivers of ICES Advice" and "Users of ICES Advice" with "Users" viewed as a broader group since the Advice is used by many, and is not limited to the receivers of the Advice.

Advice on fish stocks is heterogeneous. Start by compiling back ground information about the system. Single-stock advice still dominates. The ToRs need to be expanded with sub-questions or additional questions that help address some of the issues that have come up. The length of the final report was estimated to be between 100–200 pages, with the main report quite short.

Kjartan will upload some report examples to the Sharepoint. One issue that will need further development will be who to interview, and where the data will be gathered from. The major deliverable will be a report in early June, draft/interim report where Bureau can say this is ok, approval for the report.

The time schedule, week 8 (20–24 February) was discussed as a possible time for the panel to meet with Bureau and others for an intense period of information gathering. Kjartan should give a progress report at the Bureau meeting in February. Another opportunity could be the Meeting between ICES and the Regional Advisory Councils (MIRAC; 23–24 January) that will be attended by the ACOM leadership and Advisory Programme staff. With the short time schedule the group agreed that work cannot be delayed and needs to start immediately.

1.2 Excerpt for the draft minutest from the MIRIA meeting 9-10 February 2012

Opening of the meeting

The Chair, Jean-Jacques Maguire, opened the meeting and welcomed the participants. A warm welcome was also made by the new ICES General Secretary, Anne Christine Brusendorff. She emphasized the importance good interactions and communications with the recipients of ICES advice for both the development of the advice and for the continuity of the advice. DGENV, DGRTD, DGMARE, NEAFC, NASCO, OSPAR, Norway, Sweden (by ICES delegate), the ACOM Leadership, and the ICES Secretariat were represented at the meeting. For list of participants see Annex 1.

Tour de table of experience in 2011

OSPAR (by Emily Corcoran)

Good communication had taken place between OSPAR and the ICES Secretariat about the workplan for 2012, which had been agreed in June. Also in the execution of the 2011 workplan both the formal and informal communication had helped in shaping the advice so the answers became as useful as possible.

The future might bring more opportunities for longer term advice (back and forth exchanges for interim products taking 2–3 years to deliver).

OSPAR would welcome further assistance in statistics for monitoring, which has been a difficult area to focus on.

ICES could also be involved in a steering group in developing data management specifications for the future as a consultancy. The OSPAR Information System and Data Centre would help steer the work. The OSPAR committees will consider this work and the Commission will make decisions in June.

New area of interest for OSPAR, under the Industry Offshore Committee, is carbon capturing and storage. OSPAR is keen to learn if ICES will undertake work in this area or if OSPAR would have to seek advice. Also the opportunity to request a joint group on ocean acidification was mentioned.

DGRTD (Directorate-General for Research & Innovation, EC)

Coordinators of EU research projects have been asked to have final reports presented under international auspices such as ICES workshops. DGRTD has been working with ICES since 2009 to ensure better transfer of knowledge and dissemination of research projects and to identify research needs. A repository of the outcome of RTD projects on the ICES web-site should be more or less ready, it is expected that this initiative will improve the transfer of knowledge.

In identifying research needs ICES can be a partner but it has some difficulties in that DGRTD is not able to include ICES into a budget.

So far the process of identifying research needs has been very informal, when research needs have been identified and suggested by the ICES community they have been forwarded by email to DGRTD.

DGENV

DGENV is not using the ICES advice, but acknowledged the receipt of the Descriptor 3 report. This report will make an important input to the follow up workshop on De-

scriptor 3 in April which has been agreed by EU member states. Not all details are in place for the meeting but ICES should be involved.

The Commission has to assess the initial assessments made by member countries and DGENV expects that ICES will be involved in this process, also EEA and DGRTD will be involved. The process will have to be decided at the bilateral meeting for the 2013 work programme.

DGMARE

DGMARE had had good communication with the ICES Secretariat, STECF, and EFARO in 2011, and the new format for the advice was well received. The training that had been arranged for DGMARE non-scientific staff on ICES advice was very much appreciated. In the future such courses will also be open to RAC members.

NEAFC

ICES provides all scientific advice used by NEAFC and NEAFC has a good relationship with ICES. Requests for advice are formulated by the NEAFC Permanent Committee on Management and Science (PECMAS), which consists of one manager and one scientist from each member country. Advice is also being discussed by this Committee before it goes to the Commission.

In the past some requests had not been clear and in 2011 NEAFC had to ask for additional information to the advice given for the 'area management on Haddon Bank closed area' request. This initially created some confusion, but ICES was able to clarify things during the NEAFC Annual Meeting.

The traffic light pictograms used in ICES advice had caused disorientation. The rationale behind the traffic light system was understood, but NEAFC felt that the outcome in the advice did not always reflect the reality. For example Norwegian spring spawning herring red light was interpreted as if the management was not good even though ICES advice had been followed by managers for many years.

The recurring advice for fish stocks is fundamental; therefore, ICES should find a way to avoid creating such confusions, by presenting the advice in another way.

NASCO

In connection to ICES advice, NASCO had had two problems in the past, 1 was related to timeliness, the advice had in the past been delivered quite late. The problem had been solved and advice is now delivered in time for the Annual NASCO meeting. The other problem was related to user friendliness, the advice report was simply too big. The report to NASCO has been streamlined in recent years, but ICES should continue to simplify and clarify the advice.

Concern was raised that the models used by the ICES Expert Group was only understood by 2 or 3 persons. The ICES advice should be outside political influence, which cannot be guaranteed if the small number of people who understand the advice have an agenda. The ACOM Chair understood the concern and will follow up.

The salmon summit had taken place in October 2011 to explain why returns to rivers have halved. A lot of information was presented and it looked as if the decline was related to sea temperature. As a result of the summit a whole new tool box of genetic work is now available, and it will in the future make it possible to identify the river from where a salmon is coming.

Norway

Most important for Norway is the advice for the management of fisheries and that this advice is clear and received timely in accordance with agreed management plans. Circulating MPs and clear rules on what to do if no MP is in place, as ICES did in 2011, was very good, and it is appreciated that this process will be repeated in 2012.

Norway would like to see the MIRIA meeting to develop further and to have more parties such as the Faroese Islands, Iceland, and Russia represented. The Chair explained that the External Review had tried to encourage other recipients of advice to attend the meeting and that ICES will do more in the future. It was also mentioned that a problem might be to identify the relevant contact point in the respective member countries but that the intention is that all parties are welcome.

Sweden

The Swedish ICES Delegate was surprised that no more member states use the opportunity to attend the MIRIA meeting to express views on advice. ICES is established and financed by member states that also use the ICES advice and only few countries express their views at the Council meetings.

Compared to 2010 it was back to normal business in 2011. 2010 had been a difficult year where too many things were done at the same time, errors were found and advice had to be corrected in advice. In 2011 it was appreciated that had only one advice was given. Also Sweden found that the traffic lights can be difficult to understand and they had required a lot of discussions. Complaints had been made about the advice being too complex and difficult to understand by non-experts. In this connection it was mentioned that the 'Opening the box' workshop was well received.

Difficulties of general nature are still existing for data poor stocks and it is creating unintended consequences within the European Union.

An overview of the advice will be provided in Section 1.6 of ICES Advice and will be released together with the advice for Baltic fish stocks 31 May.

The Review Panel appreciated the opportunity to attend the MIRIA meeting and to talk to the recipients of ICES advice. The group had approached Faroe Islands, Iceland, Russia and asked if they would attend the meeting as well.

1.3 Meetings with the Bureau External Advisory review (Bur. Doc. 1732) Meeting February 2012

Bureau welcomed the presentation by the Chair of the External Review of Advisory Services, Kjartan Hoydal. The presentation outlined the proposed contents of the final report. A first draft is expected by the end of May.

In the ensuing discussion Bureau provided the following feedback:

- the need to examine the ICES – STECF interrelation with a view to ensure a better use of the common pool of experts;
- the importance of getting feedback from receivers of advice in member states, this could be facilitated through interviews with ICES delegates;
- the importance of ensuring a broad consultation process, by reaching out to potential recipients of advice; this could be accomplished by posting the questionnaire created by the review panel on the ICES website with replies compiled by the Secretariat;

- the importance of including SCICOM in the process, which could be ensured during the upcoming mid-term meeting of SCICOM;
- the importance of including recommendations in the final report.

The Bureau found the outlined report to be very ambitious and that the outcome will play a key role in the update of the ICES strategic Plan. The following process was outlined:

- the draft report will be discussed and commented on at the June Bureau meeting;
- the final report will be submitted to the October Council meeting and subject to the endorsement of the recommendations, an implementation team will be established.

2 Appendix II: Fisheries in the North Atlantic

In the table below the stocks on which ICES has given advice are listed according to EEZ, ANBJ and status as exclusive, trans-boundary or straddling stocks.

STOCKS ON WHICH ICES GIVES ADVICE 2007, EXCLUSIVE, TRANSBOUNDARY AND STRADDLING STOCKS BY EEZ S, BALTIC AND ANBJ.

ALL EU STOCKS NOT SHARED ARE LISTED UNDER TRANSBOUNDARY AS QUOTAS HAVE TO BE NEGOTIATED BETWEEN MEMBER STATES

Coastal state or ANBJ	Exclusive	Shared	Transboundary	Straddling
The EU	horse mackerel	NS Cod, haddock, saithe, whiting, plaice, sole	Cod, haddock, saithe, whiting, plaice, sole, anchovy, hake, Baltic herring and cod, sprat, horse mackerel	Blue whiting, AS herring, mackerel
Greenland				Oceanic redfish
The Faroe Islands	Cod, Haddock, Saithe		Tusk, Ling, blue ling,	Blue whiting, AS herring, mackerel
Iceland	Cod, Haddock, Saithe's Summer spawning herring		Tusk, Ling, blue ling,	Blue whiting, AS herring, mackerel
Norway	Saithe	NS Cod, haddock, saithe, whiting, plaice, NEA cod, haddock, capelin, redfish		Blue whiting, AS herring, mackerel, S. mentella
Russian Federation		NEA cod, haddock, capelin, redfish, Baltic cod, herring, sprat, salmon		AS herring, S. mentella
ANBJ NEAFC South of Iceland				Blue whiting, AS herring, mackerel, deep sea species
ANBJ NEAFC Norwegian Sea				Blue whiting, AS herring, mackerel, S. mentella,
ANBJ NEAFC Barents Sea				Prawns
The Baltic		Sprat, herring, cod, salmon	Sprat, herring, cod, salmon	

The number of coastal states are involved in management has potential implications for the form of the advice and the delivery of advice.

3 Appendix III

3.1 The Questionnaire: Description and overview of the responses

3.1.1 Introduction

The questionnaire was developed to survey the opinions of relevant groups within the ICES system with respect to the types of information identified in the Terms of Reference. Specific questions were developed to address the Terms of Reference in discussions within the review panel and with ICES. Additional input for developing the questions was obtained from ICES leadership during and after the November 2011 and February 2012 meetings at ICES headquarters. The list of questions was finalized on 11 April.

Each question was presented as a statement, and respondents could then respond in five categories, ranging from strongly disagree to strongly agree. To enable analysis of the response data, these categories were assigned numerical scores ranging from -2 to +2, with zero for a neutral opinion. Each question also contained two follow-up questions designed to obtain more detailed information from the respondent: 1) “Why do you have this opinion?”, and 2) “What is one thing you would change¹”?

The questionnaire also requested that respondents provide information about themselves. This information was requested to supply information on the demographic characteristics of the responding population, such as role at home institution, duration of involvement and role with ICES, and nationality. Contact information (phone number and e-mail address) was also requested to enable any follow-up that might be needed. The respondents were assured that their answers would be kept confidential, and that there would be no attribution of answers to any individual. All respondents provided the requested information.

The final questionnaire and the guidelines for completing the questionnaire are provided in Section 2.

The questionnaire was posted on the ICES website on 13 April 2012. Initial plans were to keep it open until 1 May, but this deadline was later extended to 7 May. To stimulate participation, a mass e-mail message was sent from ICES headquarters on 13 April to the following groups: ACOM (106 individuals), ACOM Expert Group Chairs (35 individuals), ICES delegates (42 individuals), MIRAC members (64 individuals), observer organizations (12 organizations), recipients of ICES advice (5 organizations, 5 individuals), SCICOM members (52 individuals), and SCICOM Expert Group chairs (113 individuals)². A reminder e-mail was sent to these recipients on 24 April.

3.1.2 Guidelines provided to respondents for completing the Questionnaire

The questionnaire begins with collecting some information about you, the respondent to this questionnaire. Be assured that there will be no attribution of any responses to individuals. This information will be useful for interpreting the results of the ques-

¹ Two questions did not contain the categories of agreement; they only requested short written answers.

² Since there is some overlap among the lists, the total number of people contacted is somewhat below the sum of these numbers.

tionnaire (e.g., for comparing the views of scientists versus managers), as well as for any follow up that may be needed for clarification.

All questions, with the exception of 1.7 and 6.5, are answered using the categorical answers and follow ups as shown in the table below. For the categories of agreement, for each question please choose the single answer that most closely resembles your opinion. We are seeking your personal opinion, based on your experiences related to the ICES advisory process.

Then if you are able to pick one of these categories, please provide a short written answer to the “why” and “what is one thing you would change” follow ups. Please describe the most important or highest priority issue from your perspective.

If you do not feel that you are familiar enough with the topic to answer a question, feel free to choose “not applicable to me” by entering “NA” and move on to the next question.

Questions 1.7 and 6.5 are seeking your personal input in the form of a brief written answer only, since these questions do not contain a statement to agree or disagree with.

Answer to question	How to answer the question
Generally or strongly agree	+2
Slightly agree	+1
Neutral	0
Slightly disagree	-1
Generally or strongly disagree	-2
Not applicable to me	NA
Why do you have this opinion?	Short answer
What is one thing you would change?	Short answer

3.1.3 Overview of questions

Respondent Information

First name

Last name

Affiliation (Name of home institution)

Phone

E-mail

Affiliation (categories)

ICES Member State or member of an organization cooperating with ICES

Stakeholder

Client commission

Other

Your role at home institution (categories)

Scientist

Manager

Policy advisor

Your history of involvement with ICES (categories)

Greater than 5 years

Between 1 and 5 years

Less than 1 year

Your role in relation to ICES (categories)

Produce advice for ICES

Receive advice from ICES

Both produce advice for ICES and receive advice from ICES³

Questions

- 1.1. Current ICES advice is based on the right information and data.
- 1.2. Current ICES advice is based on appropriate models.
- 1.3. Current ICES advice makes adequate use of all relevant and available ICES Science, including time-tested as well as new, innovative scientific knowledge.
- 1.4. The ICES advisory process interacts well with the EU Data Collection Framework (DCF).
- 1.5. The right information and data are available for ICES to provide integrated advice consistent with the ecosystem approach to management.
- 1.6. In the future ICES will have access to the right data and models.
- 1.7. Explain what role you would like ICES to play in supporting implementation of the Marine Strategy Framework Directive (MSFD). Please provide a short written answer only.
- 2.1. The process by which ICES prepares advice is appropriate in terms of management.
- 2.2. The process by which ICES prepares advice is appropriate in terms of quality control.
- 2.3. The process by which ICES prepares advice is appropriate in terms of efficiency.
- 2.4. The process by which ICES prepares advice is appropriate in terms of responsiveness.
- 2.5. The process by which ICES prepares advice is appropriate in terms of transparency.
- 2.6. The role of the ICES secretariat in the advisory process is appropriate.
- 2.7. The process by which ICES prepares advice proactively engages ICES science expert groups.

³ SCICOM members were identified after the questionnaire closed.

- 3.1. ICES Advice is relevant.
- 3.2. ICES Advice is credible.
- 3.3. The ICES advice is effectively communicated.
- 3.4. ICES advisory expert groups have the appropriate expertise.
- 4.1. The scope of ICES advice is appropriate in terms of addressing the needs of advice users.
- 4.2. The scope of ICES advice is appropriate in terms of addressing societal needs.
- 4.3. The scope of ICES advice is consistent with the implementation of an ecosystem approach to management.
- 4.4. The scope of ICES advice should be expanded to include social and economic advice.
- 6.1. The present advisory commitments of ICES are commensurate with available human resources.
- 6.2. The present advisory commitments of ICES are commensurate with available science expertise.
- 6.3. There are sufficient mechanisms in place for ICES to obtain the needed human resources from Member States.
- 6.4. The support from the ICES secretariat to the advisory process is sufficient.
- 6.5. What could increase the motivation of people to work on producing ICES advice? Please provide a short written answer only.
- 8.1. The ICES advisory process is cost effective.

3.1.4 Statistics of the responses

ICES staff provided a spreadsheet of the raw responses to the questionnaire. The file was cleaned up to remove duplicate records and records that contained no actual answers to questions. These records probably were recorded from respondents who wanted to look at the questionnaire, but then decided to either not take it after entering some initial information, or they partially completed it and then started over later, re-entering their information and initiating a new record.

Demography of the Respondent Population

The tables at the end of this Appendix contain a demographic summary of the respondents. The following are key characteristics of the respondent population, which must be considered when interpreting the answers to the questionnaire.

- The total number of unique respondents is 82, representing 18 countries. However, the population is biased towards northern countries (except Russia), with Spain and Portugal the only countries in the responding population that could be considered southern. The United States and Canada had six respondents each.
- 83% of the respondents are affiliated with an ICES Member State or are a member of an organization cooperating with ICES. Only a few stakeholders or members of client commissions responded.

- 70% of the respondents are scientists; only 15% are managers, and even fewer are policy advisors.
- Six respondents are SCICOM members.
- 94% of the respondents have more than five years of involvement with ICES.
- Over 60% of the respondents produce ICES advice, while approximately 15% receive ICES advice and another 15% both produce and receive ICES advice.

Tables

Demographic summary of questionnaire respondents.

Number of Responses: 82

Number of Countries: 18

Country	Number of Respondents	Country	Number of Respondents
Norway	10	Finland	4
Ireland	8	France	4
Spain	7	Germany	4
United Kingdom	7	Sweden	4
Canada	6	Portugal	2
United States	6	Belgium	1
Denmark	6	Estonia	1
Netherlands	5	Lithuania	1
European Union	5	Iceland	1

Affiliation Category	Number of Respondents
ICES Member State or member of an organization cooperating with ICES	68
Stakeholder	6
Client Commission	5
Other	3

Role at Home Institution	Number of Respondents
Scientist	57
Manager	12
Policy Advisor	5
Scientist and Policy Advisor	2
Scientist and Manager	1
Manager and Policy Advisor	1
Executive Secretary	1

History of Involvement with ICES	Number of Respondents
> 5 years	77
1-5 years	5
<1 year	0

Role In Relation to ICES	Number of Respondents
Produce Advice	52
Receive Advice	12
Both Produce and Receive Advice	13
SCICOM member	6

3.2 The questionnaire- Analysis of the responses -

3.2.1 Introduction

A statistical summary of the responses is provided in the following sections for each of the questions. The numbers of respondents that answered a particular question

range between 46 and 80, with an average of 65.5 answers per question. The average score per question is 0.579, which is approximately mid-way between neutral and slightly agree. The maximum average score per question is 1.455, which is approximately mid-way between slightly and strongly agree. The minimum average score per question is -0.576, which is approximately mid-way between neutral and slightly disagree.

In addition to this, a brief analysis of the numerical responses is given for each of the question together with a summary with the responses to the open questions:

- Why do you have this opinion?
- What is one thing you would change?

Scoring system used in the questionnaire:

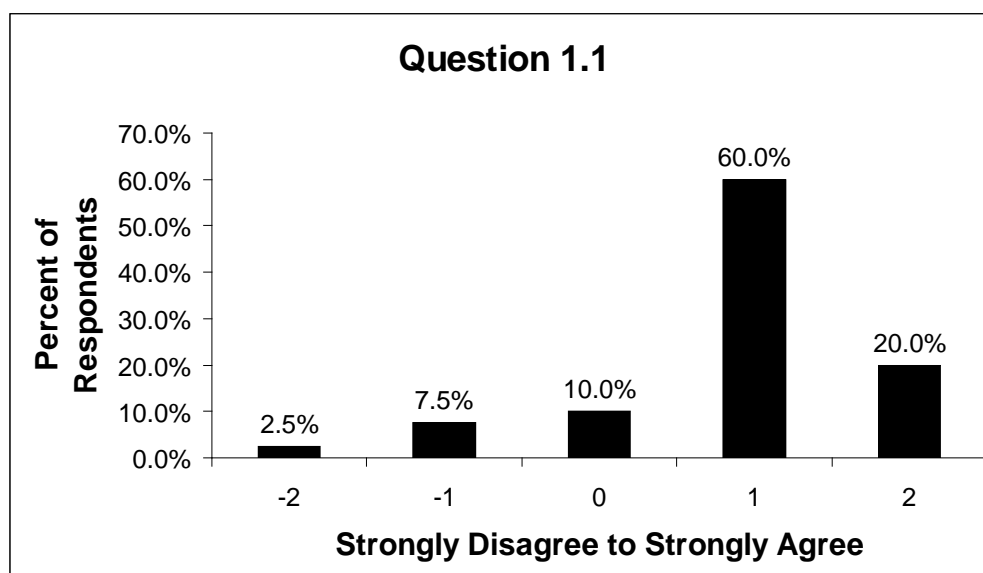
-2	Strongly disagree
-1	Slightly disagree
0	Neutral
+1	Slightly agree
+2	Strongly agree

The Average score per question: 0.579; maximum average score per question: 1.455; minimum average score per question: -0.576

Question 1.1: Current ICES advice is based on the right information and data.

Mean score: 0.875

Number of responses: 80



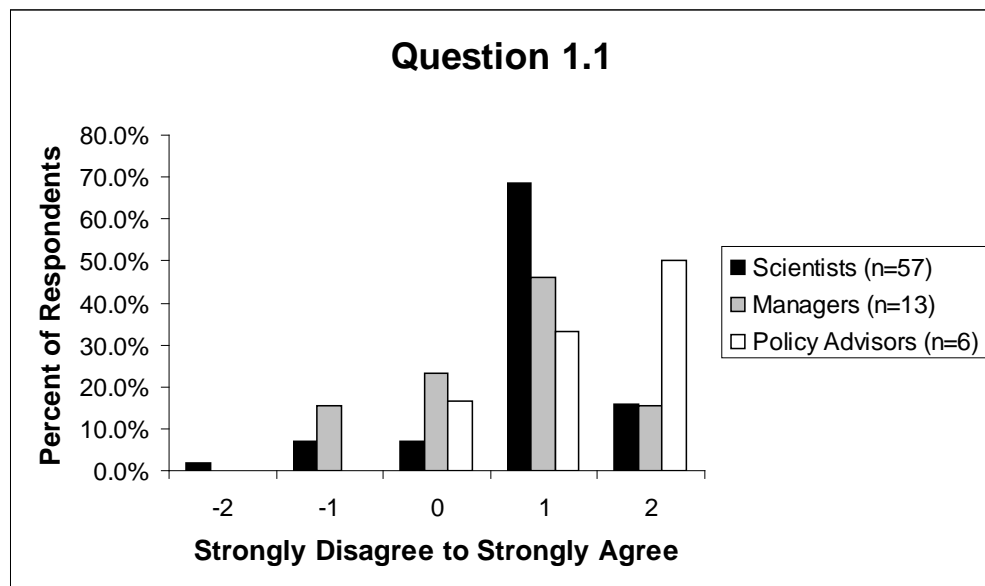
Overall, respondents have a positive opinion for this question, with 80% providing a positive opinion and only 10% providing a negative opinion. The most frequent response is to slightly agree, at 60%.

Comparisons between groups based on average scores are summarized in the table below. Two comparisons indicate substantial differences between groups. Although

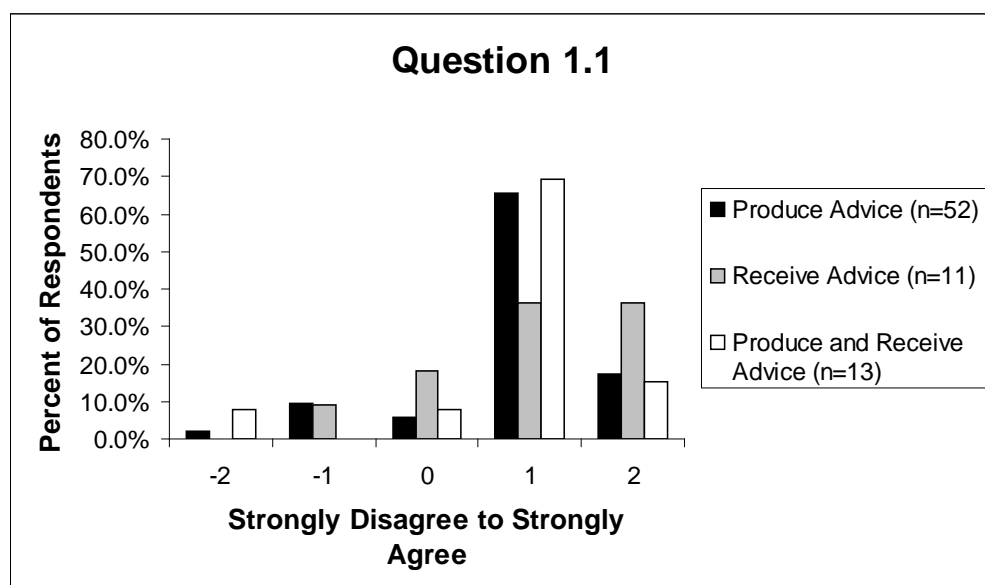
the number of respondents is small, policy advisors tend to have a higher opinion than scientists or managers. Also based on a small number of respondents, respondents from client commissions have a high opinion, in contrast to stakeholders, which average a neutral opinion, with respondents from ICES member states or cooperating organizations in between. SCICOM members had a relatively high opinion, averaging somewhat above slightly agree.

Group	Number of Respondents	Average Score
Scientists	57	0.89
Managers	13	0.62
Policy Advisors	6	1.33
Produce Advice	52	0.87
Receive Advice	11	1.00
Produce and Receive Advice	13	0.85
ICES Member or Cooperator	66	0.89
Stakeholders	6	0.00
Client Commission	5	1.40
SCICOM members	6	1.17

The distributions of opinions for scientists, managers, and policy advisors are all positive, with scientists and managers peaking at slightly agree and policy advisors at strongly agree.



The distributions of opinions for those that produce, receive, or both produce and receive advice are all positive. Those that produce and those that both produce and receive advice peak at slightly agree, whereas those that receive advice show equal peaks at both slightly and strongly agree.



In total 74 of the respondents gave an indication of what they would change. Most of these replies can be divided into the following three main type:

- a. replies that address data management issues like data collection and data quality;
- b. replies that address the assessment, either in terms of the assessment process, the assessment method or the assessment product;
- c. a third group addressed data quality and availability in relation to the assessment method.

Data management

Many respondents addressed improvements in the collection of data and in the quality of the collected data, e.g. by providing positive incentives when the right data is reported or negative incentives when reporting is not adequate.

One respondent suggests that ICES could take on a stronger role in advising about improving the implementation of the DCF.

In addition to improving the reporting as such, also the quality of the data being reported should be improved.

Finally, some suggestions were made that the handling of the data should be improved.

Assessment process

A main point made in many responses was the need to be more open in the assessment process and to allow the use of new methods and tools. One respondent expressed this in the following way: “to accept other data types and models, to allow for other info to be used, instead of excluding data because it does not fit the current assessment model”.

Suggestions to achieve this included, inter alia, to enable observers to participate in the process and to bring in scientists from other regions and disciplines (e.g. management expertise). In addition to transfer of knowledge from other working groups should be improved.

In addition, some respondents addressed the need to give more time for gathering information and drafting the advice. Furthermore, it was suggested to set up an ICES funding means to stimulate participation.

Other replies addressed simplifications of the process and a more binding participation.

Assessment method

In relation to the assessment method, many respondents addressed the (urgent) need to integrate other aspects than fisheries in assessments and to move towards the application of the ecosystem approach.

One respondent explicitly addresses the need to incorporate social-cultural and economic aspects in assessments.

Assessment product

Although there is of course a strong relation between on the one side the assessment process and methods and on the other the resulting product of the assessment, it was found relevant to address this issue separately.

Several respondents addressed uncertainty in data and methods in a better way. In addition, the product should be made easier to understand with less jargon and acronyms in a popular version.

One respondent suggested not to provide a (single?) advice but to point to the consequences of different possible actions.

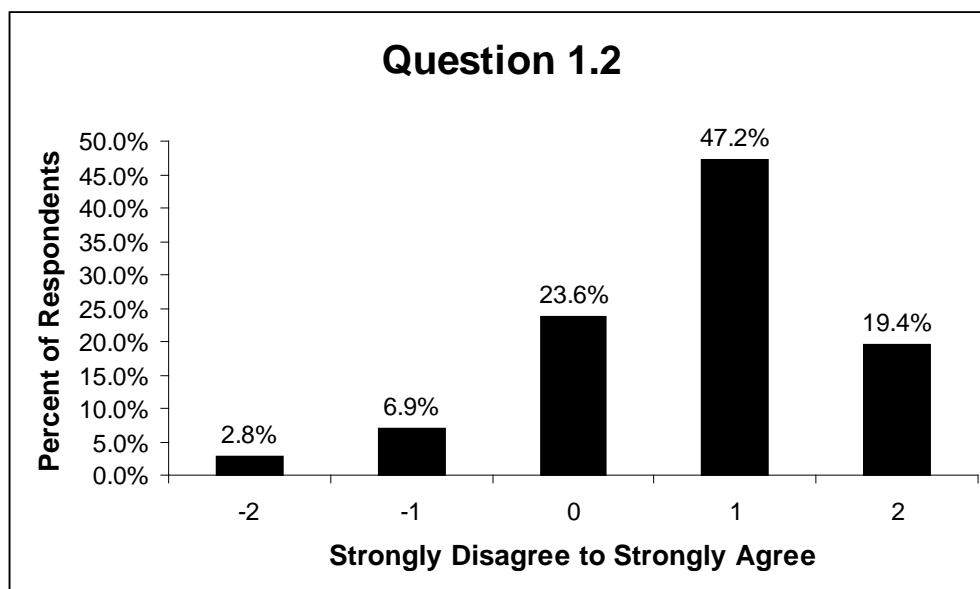
Data availability in relation to the assessment method

The main point made in this last group was that the assessment method should be adapted to the availability of the data.

Question 1.2: Current ICES advice is based on appropriate models.

Mean score: 0.736

Number of responses: 72



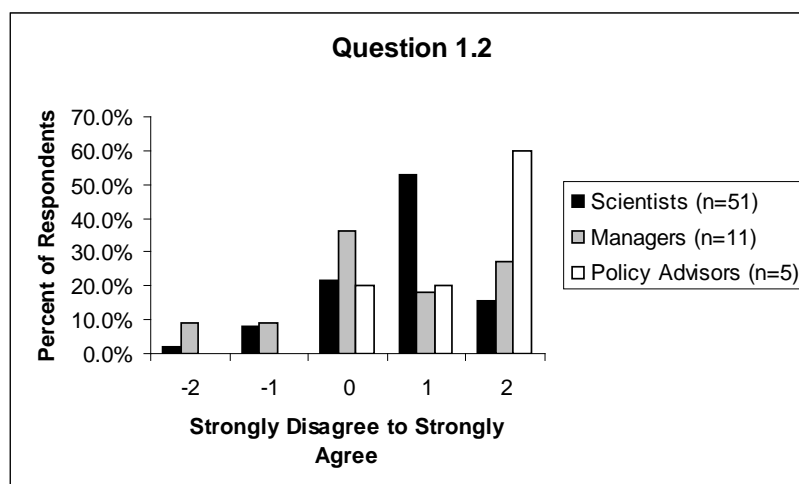
Overall, respondents have a positive opinion for this question, with 66.6% providing a positive opinion and only 9.7% providing a negative opinion. The most frequent response is to slightly agree, at 47.2%.

Comparisons among groups based on average scores are summarized in the table below. The groups with the highest average opinion are members of client commissions, policy advisors, and receivers of advice, all of whom have average scores above the slightly agree level. Stakeholders have the lowest average score, averaging at a neutral opinion, with the SCICOM average slightly higher. Respondents from ICES member states or cooperating institutions, who produce or both produce and receive advice, scientists, and managers all have opinions averaging between neutral and slightly agree.

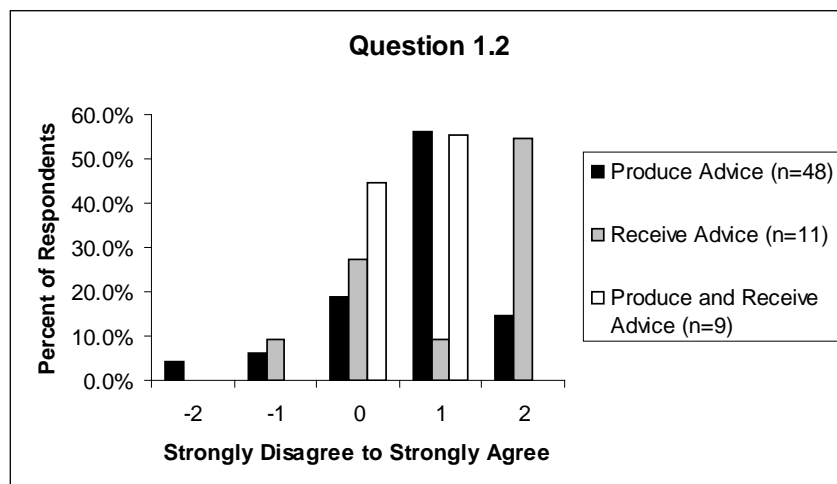
Group	Number of Respondents	Average Score
Scientists	51	0.73
Managers	11	0.45
Policy Advisors	5	1.40
Produce Advice	48	0.71
Receive Advice	11	1.09
Produce and Receive Advice	9	0.56

Group	Number of Respondents	Average Score
ICES Member or Cooperator	59	0.77
Stakeholders	6	0.00
Client Commission	4	1.50
SCICOM members	6	0.17

The distributions of opinions for scientists, managers, and policy advisors are all positive. Although the number of respondents is small, policy advisors have a much higher opinion than scientists and managers. The opinions of managers are broadly distributed, with a slight peak at neutral. The opinions of scientists peak at slightly agree, whereas the opinions of policy advisors peak at strongly agree.



The distributions of opinions for those that produce, receive, or both produce and receive advice are all positive. Those that produce and those that both produce and receive advice peak at slightly agree, whereas those that receive advice peak at strongly agree.



On the negative to neutral side of the score (about one third of the replies), most respondents are not involved in using models and do, therefore, not provide an answer to the question. Where comments are being made, they reflect general points that:

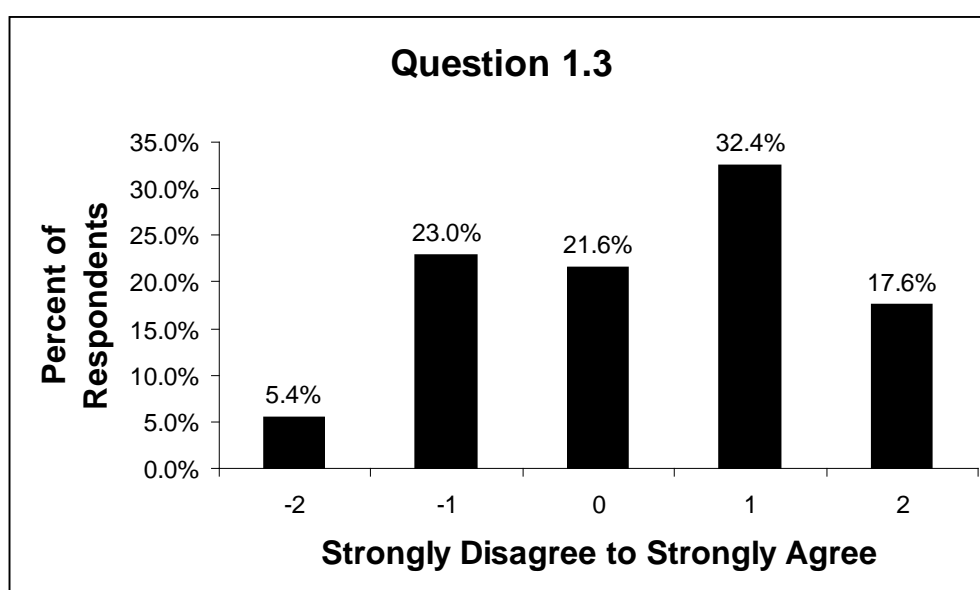
- results of models are as good as the data used;
- various models should be used more flexible in a mix with other tools;
- the range of available models should be explored more thoroughly. It is suggested to set up a model repository.
- the choice of the model to be used should be made more consistently
- the best available models are being used, but that there is a continuous need for making improvements.

Some comments point to the fact that many models are out of date and that ICES is rather conservative when it comes to using new tools.

Question 1.3: Current ICES advice makes adequate use of all relevant and available ICES Science, including time-tested as well as new, innovative scientific knowledge.

Mean score: 0.338

Number of responses: 74



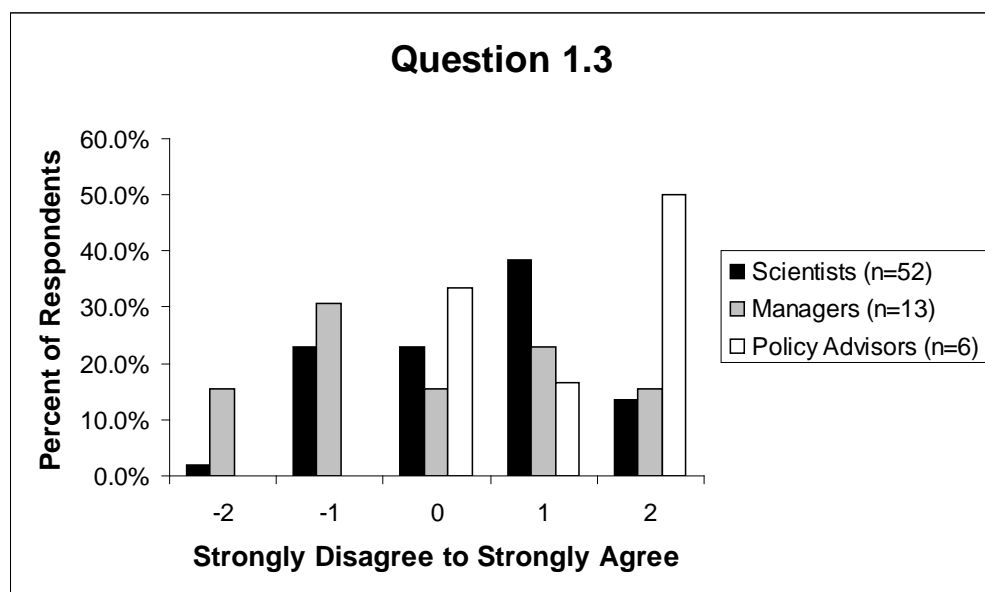
Overall there is a broad range of opinions on this question, with 50% positive and 28.4% negative opinions. The most frequent response was to slightly agree, at 32.4%.

Comparisons between groups based on average scores are summarized in the table below. Managers have an average opinion slightly below neutral, while the average opinion of policy advisors is above slightly agree. Producers and receivers of advice have similar average opinions between neutral and slightly agree. Respondents affiliated with ICES member states or cooperating institutions have average opinions between neutral and slightly agree, whereas stakeholder opinions average at slightly disagree and respondents from client commissions average between slightly and strongly agree. The average score for SCICOM members is between neutral and slightly disagree.

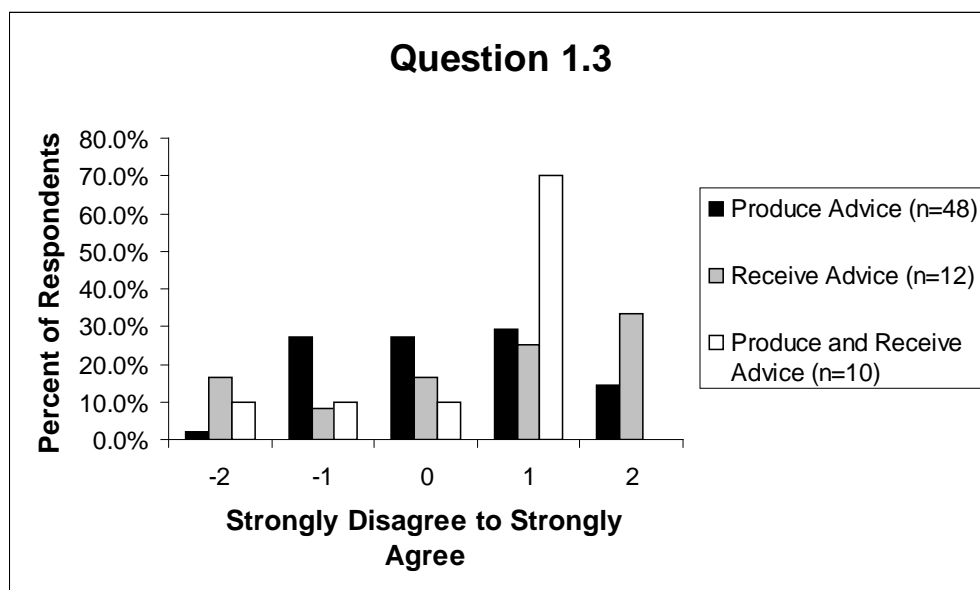
Group	Number of Respondents	Average Score
Scientists	52	0.38
Managers	13	-0.08
Policy Advisors	6	1.17
Produce Advice	48	0.27
Receive Advice	12	0.50
Produce and Receive Advice	10	0.40
ICES Member or Cooperator	61	0.34
Stakeholders	5	-1.00

Group	Number of Respondents	Average Score
Client Commission	5	1.40
SCICOM members	6	-0.67

The distributions of opinions for both scientists and managers are fairly broad, though scientists overall have a more positive response than managers. Scientists peak at a slightly agree, whereas managers peak at slightly disagree. Policy advisors are more positive, peaking at strongly agree.



Opinions were broadly distributed for those that produce advice, those that receive advice, and those that do both. Most opinions for respondents that produce advice fall between slightly disagree and slightly agree, with no distinct peak. The opinions of respondents that receive advice tend to be more positive, with a slight peak at strongly agree. The opinions of respondents that both produce and receive advice have a strong peak at slightly agree.



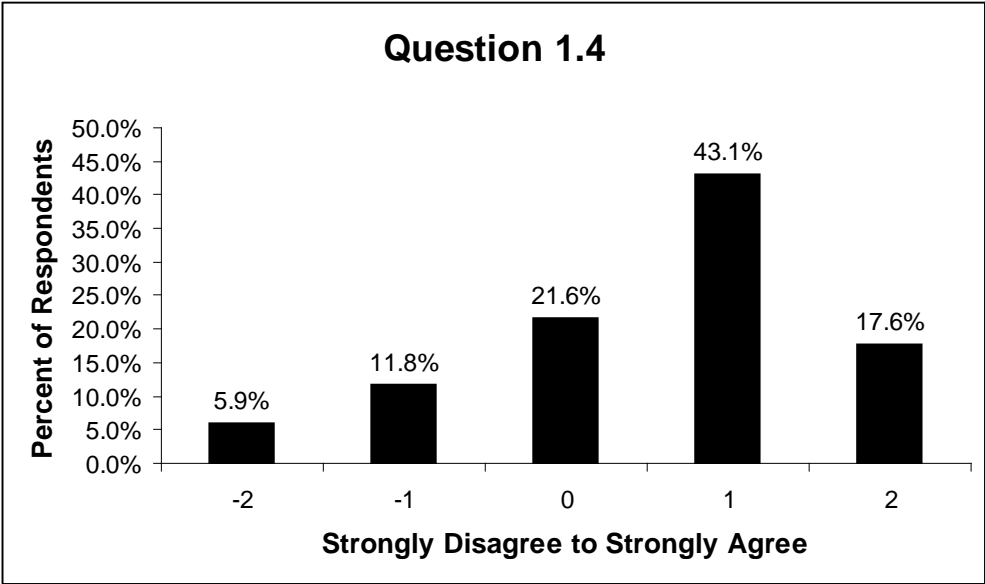
Main point on the negative side of the score is that the link between science and advice is weak and should be improved. In this context it is said that the advice part of ICES is rather conservative and not open to change and that there is a lack of innovation. A reason for this could be that there are “too many discipline-oriented” Working Groups.

In the group with positive responses, many of the replies indicate room for improvement. In particular with regard to the link between science and advice there is room for improvement to stimulate innovation and. Some see a need to establish more interdisciplinary Working Groups as new information is hardly used. On the other hand, there are also respondents who trust the expertise of ICES and are confident that the latest information is used as there is a strong relation between science and advice.

Question 1.4: The ICES advisory process interacts well with the EU Data Collection Framework (DCF).

Mean score: 0.541

Number of responses: 51



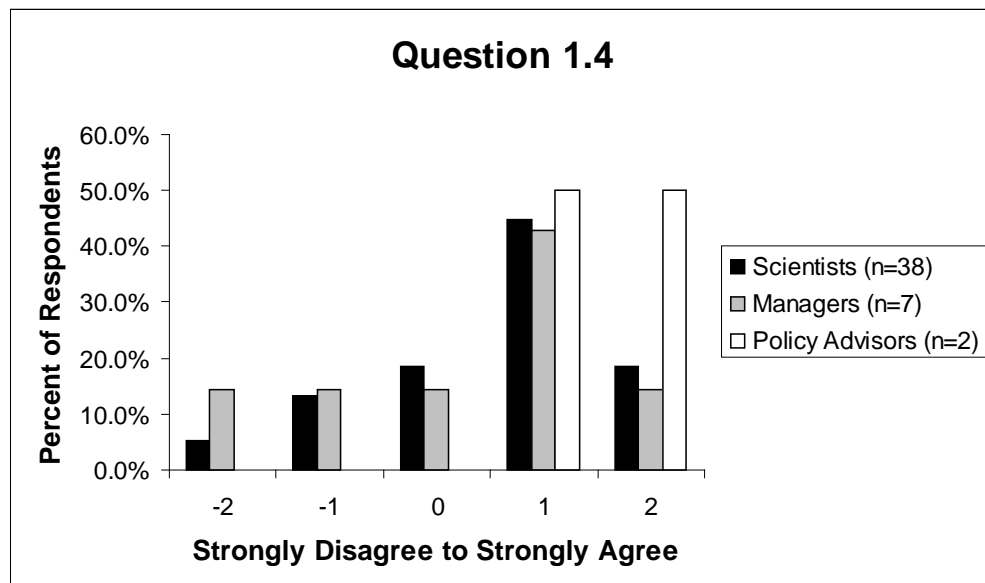
Overall, respondents have a positive opinion for this question, with 60.7% providing a positive opinion and 17.7% providing a negative opinion. The most frequent response is to slightly agree, at 43.1%.

Comparisons between groups based on average scores are summarized in the table below. There were only 51 responses to this question, so sample sizes are relatively low, especially for policy advisors, stakeholders, members of client commissions, and SCICOM members. Members of client commissions, policy advisors, and receivers of ICES advice have high opinions, all averaging above slightly agree. SCICOM members, managers, people who receive advice, and respondents from ICES member states or cooperating institutions have the lowest opinions, averaging between neutral and slightly agree.

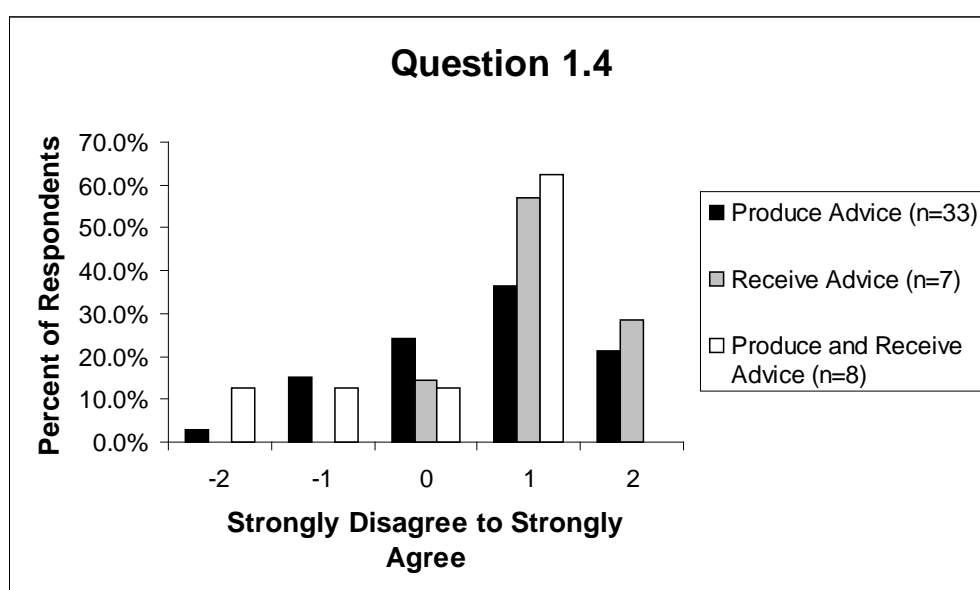
Group	Number of Respondents	Average Score
Scientists	38	0.58
Managers	7	0.29
Policy Advisors	2	1.50
Produce Advice	33	0.58
Receive Advice	7	1.14
Produce and Receive Advice	8	0.25

Group	Number of Respondents	Average Score
ICES Member or Cooperator	42	0.43
Stakeholders	4	0.75
Client Commission	2	2.00
SCICOM members	3	0.67

The distributions of opinions for both scientists and managers are fairly broad, with both peaking at slightly agree. Policy advisors are more positive, with one respondent slightly agreeing and one strongly agreeing.



The distribution of scores for those that produce advice, those that receive advice, and those that do both all peak at slightly agree. No scores from those who receive advice are below neutral, while a few from those that produce or both produce and receive advice are negative.



On the negative side to neutral side of the score there is either no experience with the DCF or the comment is made that there is a poor interaction between data collectors and data users and that the DCF-Database would only be available with restrictions and therefore underutilized.

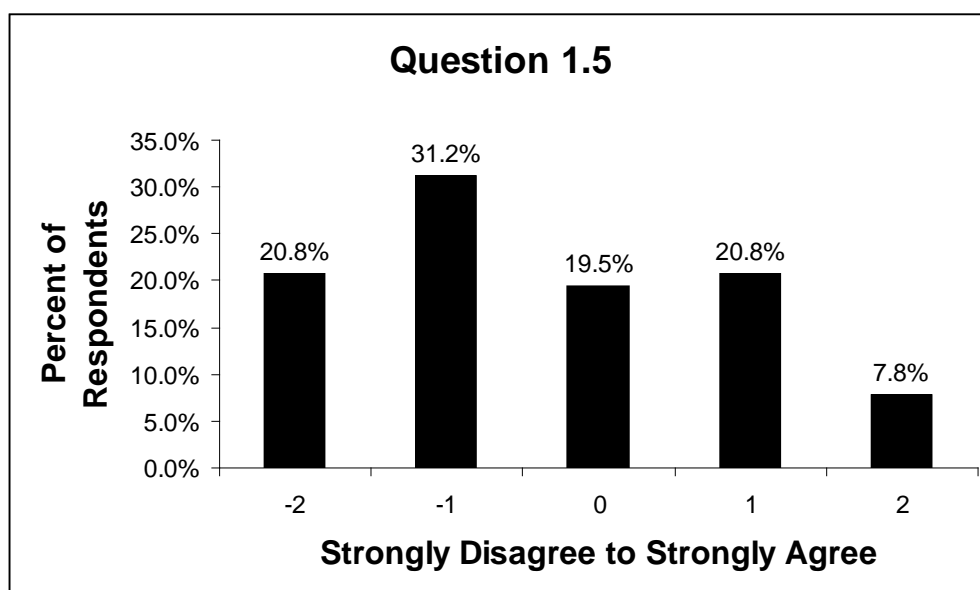
More than half of the replies express a positive view on the interaction with the EU DCF. Nevertheless, many suggestions for improvements were being made. These include the organization of regional data collection workshops to improve the link between collection and use and an improved communication to underline that better data would substantially improve the quality of the advice.

A specific point mentioned by some respondents is that the DCF is too much fisheries oriented. A framework for the integrated collection of data for the purpose of the CFP, the MSFD and the Birds and Habitats Directives should be established.

Question 1.5: The right information and data are available for ICES to provide integrated advice consistent with the ecosystem approach to management.

Mean score: -0.364

Number of responses: 77



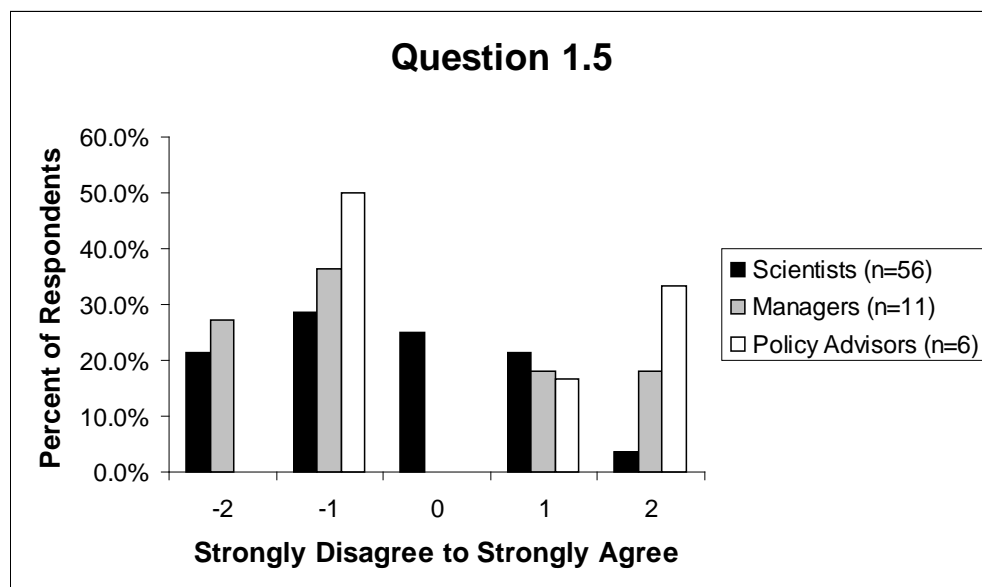
Overall, respondents have a negative opinion for this question, with 52.0% providing a negative opinion and 28.6% providing a positive opinion. The most frequent response is to slightly disagree, at 31.2%.

Comparisons between groups based on average scores are summarized in the table below. Scientists, managers, and SCICOM members have somewhat negative opinions, averaging between neutral and slightly disagree. The scores of policy advisors are somewhat positive, averaging between neutral and slightly agree. Scores from those that produce advice are negative, averaging half way between neutral and slightly disagree, while the scores from those that receive advice or both produce and receive advice average at neutral. Stakeholders have the most negative opinions, with scores averaging below slightly disagree. Respondents from ICES member states or cooperating institutions have somewhat negative opinions, averaging between neutral and slightly disagree. Respondents from client commissions have somewhat positive opinions, with scores averaging between neutral and slightly agree.

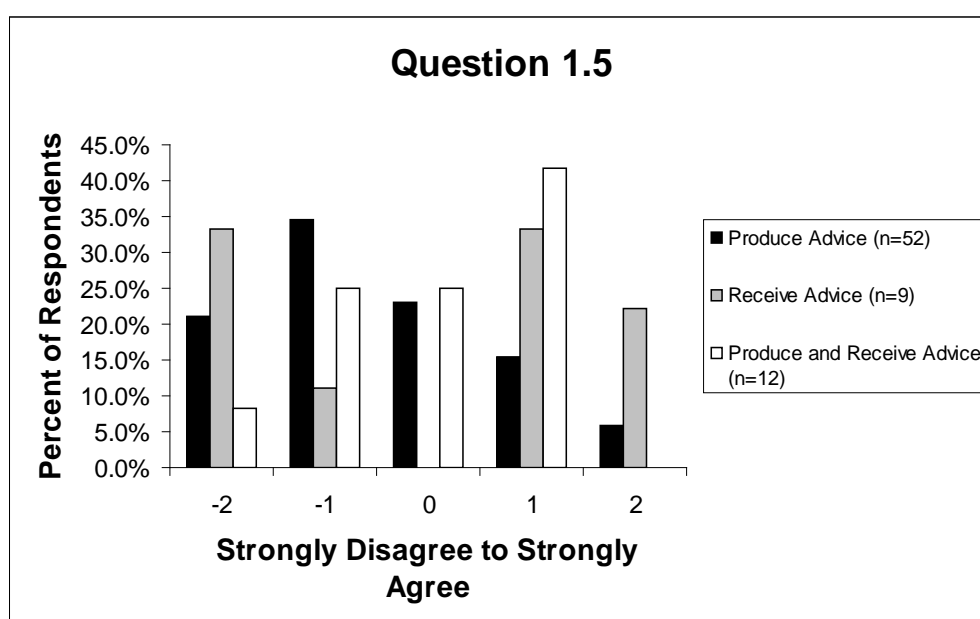
Group	Number of Respondents	Average Score
Scientists	56	-0.43
Managers	11	-0.36
Policy Advisors	6	0.33
Produce Advice	52	-0.50
Receive Advice	9	0
Produce and Receive Advice	12	0

Group	Number of Respondents	Average Score
ICES Member or Cooperator	64	-0.39
Stakeholders	5	-1.20
Client Commission	5	0.40
SCICOM members	6	-0.17

There are broad ranges of opinions among scientists, managers, and policy advisors on this question. For scientists, there is a small peak at slightly disagree, No managers provided a neutral score, but all other categories of agreement have substantial number of scores, with a peak at slightly disagree. The peak for policy advisors is at slightly disagree, though considerable percentages slightly or strongly agree.



There are broad ranges of opinions among those that produce, receive, and both produce and receive advice, without major peaks and with scores spread throughout the range of agreement for all three groups. The highest percentage of scores for those who produce advice is at slightly disagree, while the highest percentage of scores for those who both produce and receive advice is a slightly agree. There is no peak for those who receive advice, with equal percentages at strongly disagree and slightly agree.



In many of these replies on the slightly to strong negative side, it is questioned whether all required data and information is available. From other replies it can be concluded that the approach is not (yet) well defined (e.g. in operational terms) and that the ICES structure is not (yet) equipped to carry out a true holistic integrated assessment and that as it is too much discipline-oriented. For this reason, ICES cannot provide advice based upon applying an ecosystem approach.

One respondent indicates that clients are not asking for advice based upon an ecosystem approach.

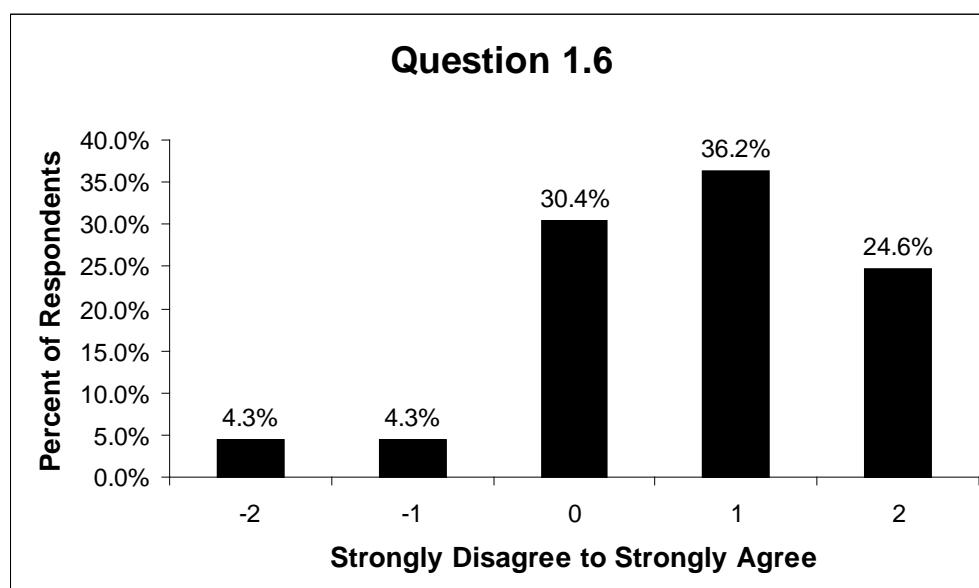
Also on the positive side of the score, there is some doubt as to whether all the right data and information is available or, when it is available, used in the advice. One respondent indicates that the approach followed is too rigid and that a more “organic” approach would be required. An other respondent gives a warning for broadening the knowledge in groups too much as this could lead to a subdivision in smaller groups which could start their own life. Some respondents simply state that its all there and used in a proper way by high quality scientists.

Obviously, developing a better or more feasible and operational definition of ecosystem approach in addition to collecting more and better integrated data and developing better models are a main elements in the need for changes. Some respondents refer to the need to increase resources and money.

Question 1.6: In the future ICES will have access to the right data and models.

Mean score: 0.725

Number of responses: 69



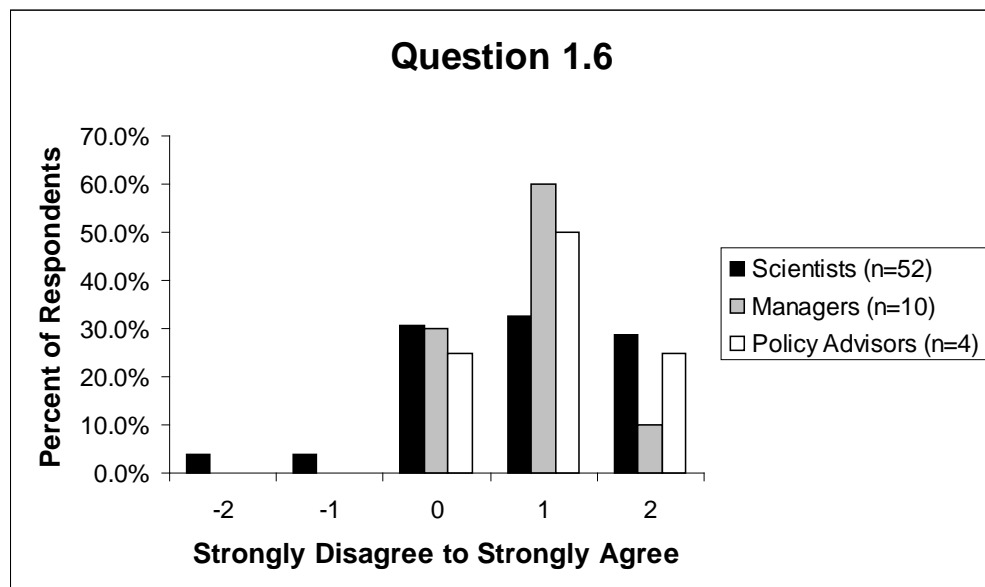
Overall, responses to this question are generally neutral or positive. Positive scores total 60.8% of responses, while negative responses total only 8.6%.

Comparisons between groups based on average scores are summarized in the table below. Opinions are the highest for policy advisors and SCICOM members, with average scores at slightly agree. Average scores for nearly all of the rest of the groups are between neutral and slightly agree, including scientists, managers, those that produce or receive advice or both, and respondents from ICES member states or co-operating institutions. The one exception is stakeholders, whose average score is slightly below neutral

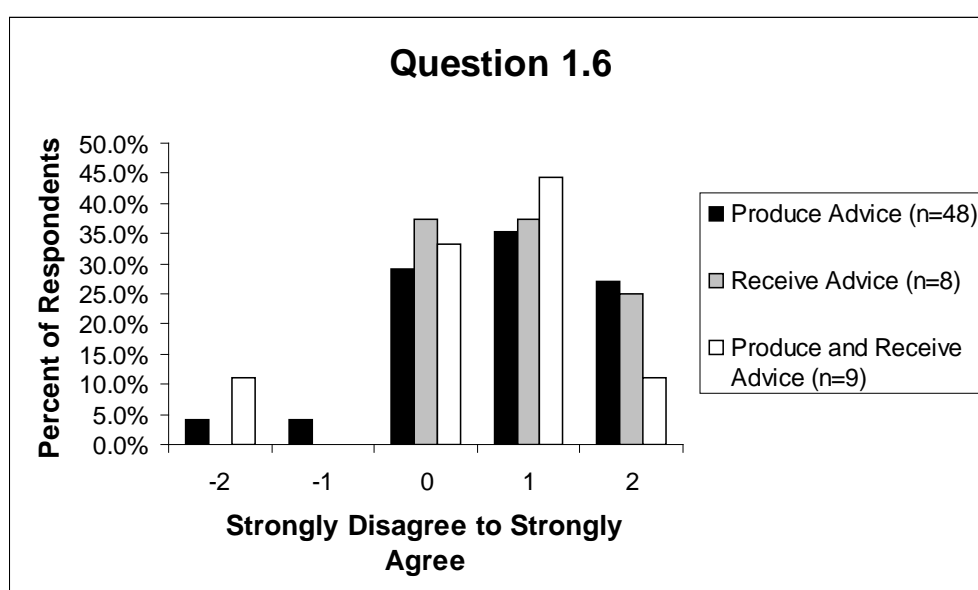
Group	Number of Respondents	Average Score
Scientists	52	0.79
Managers	10	0.80
Policy Advisors	4	1.00
Produce Advice	48	0.77
Receive Advice	8	0.88
Produce and Receive Advice	9	0.44

Group	Number of Respondents	Average Score
ICES Member or Cooperator	58	0.76
Stakeholders	6	-0.17
Client Commission	3	0.67
SCICOM members	6	1.00

Most opinions of scientists are between neutral and strongly agree, without a marked peak. Managers and policy advisors also fall within this range, with peaks at slightly agree.



Most respondents that produce advice, receive advice, or both provided scores between neutral and strongly agree. Those that produce advice or both produce and receive advice have peak scores at slightly agree, while those that receive ICES advice score equally at neutral and slightly agree.



On the negative to neutral side of the scoring, it was commented several time that access to the right data and models depends to a large extend on availability of funding. Funding for science should be given priority. Although ICES would never be in charge of its own agenda, it should always be ready for new approaches and continue to review the needs for data and assessments methods. In this it should pay more attention to improving synergy by improving communication between groups.

Also on the positive side of the scoring, the funding is addressed several times, in particular regarding data collection. Improving the quality of the data collected and the management are mentioned to be important issues. Also the sharing of data and the use of data from Vessel Monitoring Systems should be improved.

Regarding modeling, comments are being made that modeling will catch up with improved data but that there is a growing need to improve the link between science and advice by improving communication.

As a separate point, it is indicated that involvement of scientist from Canada and USA and from outside ICES member countries should be improved.

One respondent indicates that the challenge is the strategic and practical integration of the necessary and available knowledge.

Question 1.7: Explain what role you would like ICES to play in supporting implementation of the Marine Strategy Framework Directive (MSFD). Please provide a short written answer only.

From the 64 replies to this open question on the role of ICES in implementing the MSFD, 4 main areas of work can be derived:

- monitoring and data collection;
- indicators for good environmental status;
- framework for Integrated assessment;
- independent assessments.

A continuation of the role of ICES on indicators is mentioned in many of the replies. Also work on developing a framework for assessment is mentioned several times as

is the case for developing advice regarding monitoring and data collection. Less focus is given to a role in carrying out independent assessment required under the MSFD.

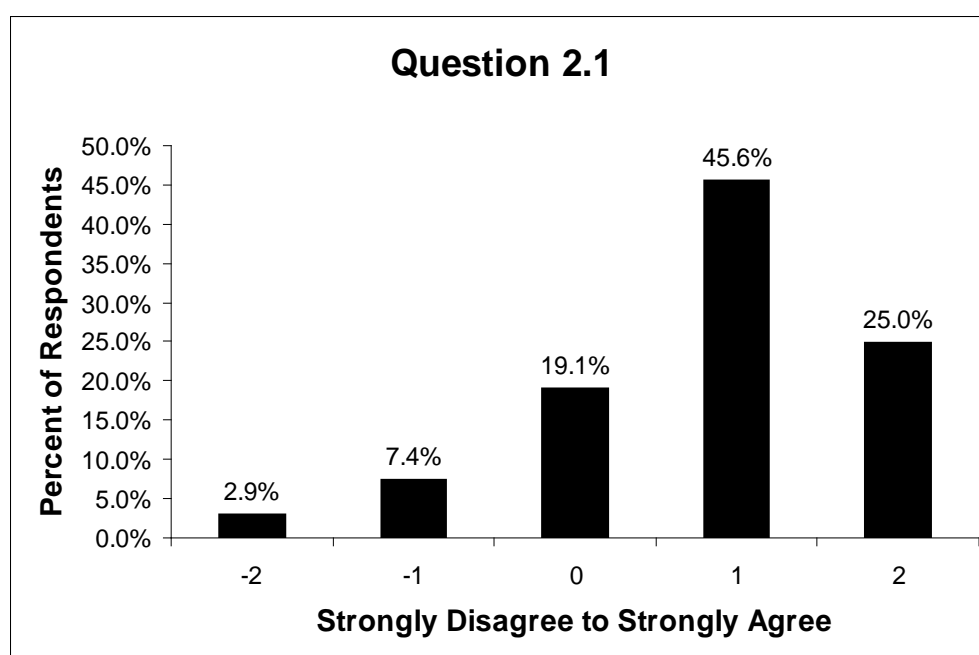
In several replies, it is indicated explicitly that ICES should play an (pro-)active leading and guiding role as an independent advisor in these main areas of work. In addition, comments are made that ICES should take a realistic approach, that it should focus on its core competences and that it should attempt to integrate the CFP and the MSFD.

In some replies attention is given to the fact that not all member states of ICES are EU member states. This would imply that ICES can only work on request and should be careful taking a pro-active role.

Question 2.1: The process by which ICES prepares advice is appropriate in terms of management.

Mean score: 0.824

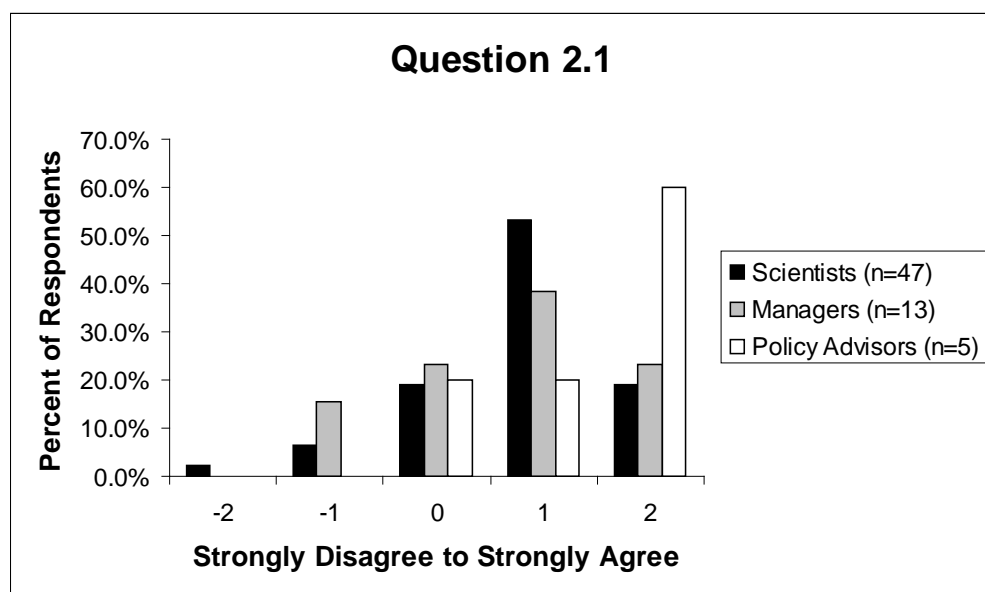
Number of responses: 68



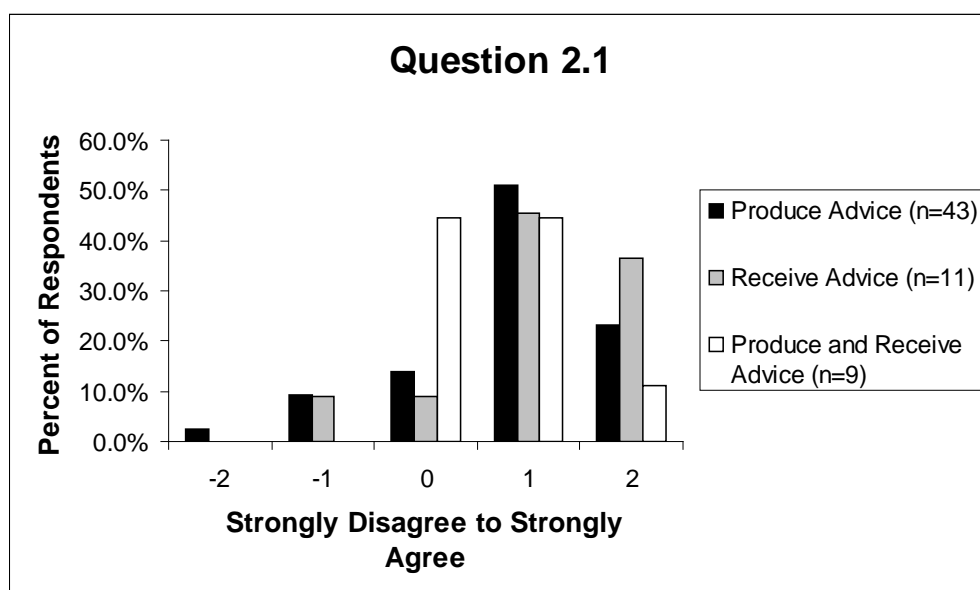
Overall responses are generally positive, with 70.6% of respondents slightly or strongly agreeing, and only 10.3% slightly or strongly disagreeing.

Comparisons between groups based on average scores are summarized in the table below. Respondents from client commissions, policy advisors, and those that receive advice have average scores above slightly agree. The average score for SCICOM members is exactly at slightly agree. Average scores for the other groups are between neutral and slightly agree, including scientists, managers, those that produce or produce and receive advice, respondents from ICES member states or cooperating institutions, and stakeholders.

Group	Number of Respondents	Average Score
Scientists	47	0.81
Managers	13	0.69
Policy Advisors	5	1.40
Produce Advice	43	0.84
Receive Advice	11	1.09
Produce and Receive Advice	9	0.67
ICES Member or Cooperator	57	0.79
Stakeholders	4	0.50
Client Commission	4	1.50
SCICOM members	5	1.00



The distributions of most scores is neutral to positive, with only small percentages of scores from scientists and managers indicating disagreement. For both scientists and managers the peak scores are at slightly agree, while the small number of scores from policy advisors peak at strongly agree.



The distributions of scores from respondents who produce advice, receive advice, or both are primarily in the neutral to strongly agree range, with only small percentages of scores from those who produce or those who receive advice below neutral. The peak for respondents that produce advice and those who receive advice is at slightly agree, while there are equal peaks for respondents that do both at neutral and slightly agree.

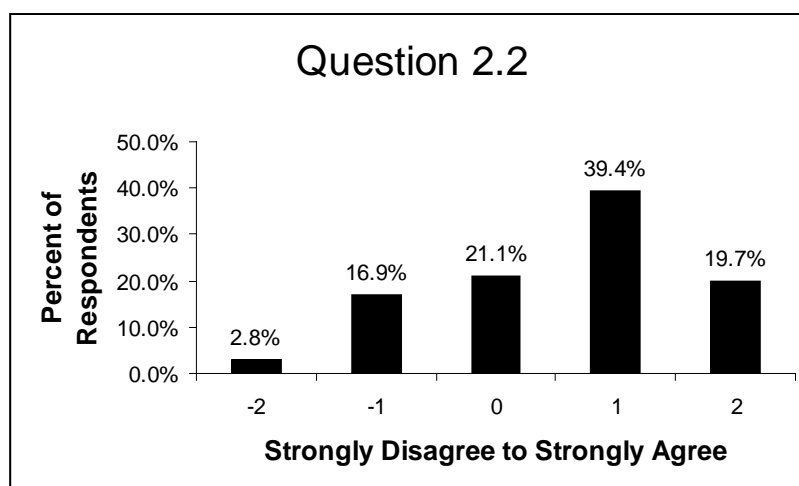
The positive distribution of scores is clearly reflected in written comments connected to these scores. Comments to improve the management ever further include comments like a reduction of the frequency of advice, an increase of the flexibility of the meeting schedule (as one meeting per year is sometimes not sufficient e.g. to enable addressing unscheduled requests for advice), an increase of the involvement of observers. Like in replies to other questions, improving the link between the science and the advisory part of ICES is addressed.

A lack of priority for the ecosystem approach and for MSFD issues is identified several times as a reason for a neutral or negative scoring. Lack of sufficient time and flexibility are other points mentioned several times (“Spend more time getting it right but less often”).

Question 2.2: The process by which ICES prepares advice is appropriate in terms of quality control.

Mean score: 0.563

Number of responses: 71

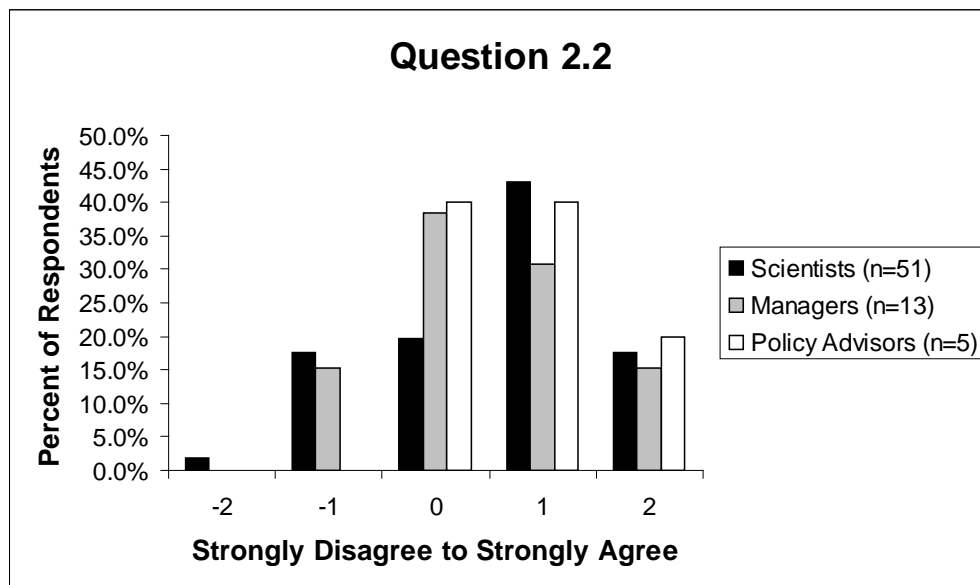


Overall 59.1% of respondents have a positive response, with the peak at slightly agree. Another 21.1% have a neutral response, and 19.7% have a negative response.

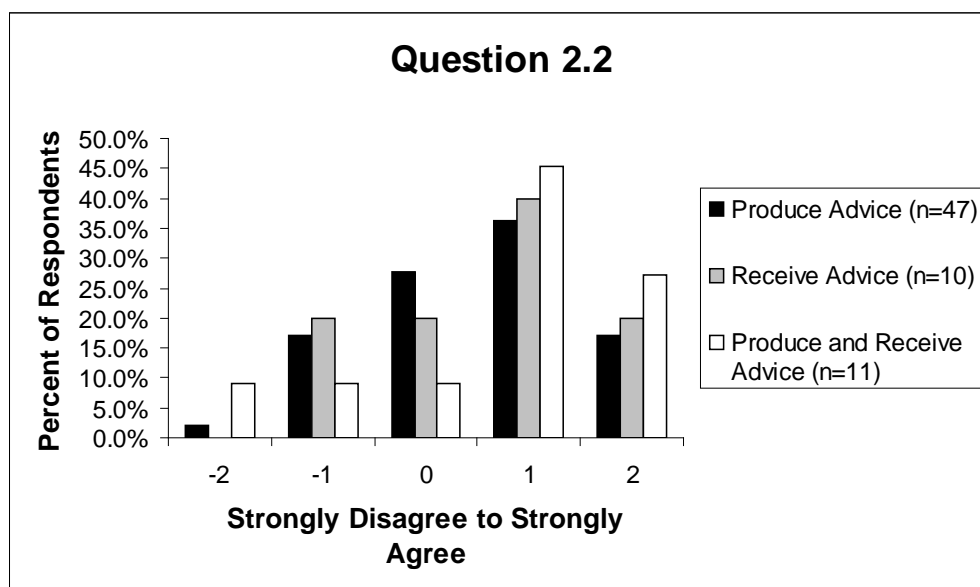
Comparisons between groups based on average scores are summarized in the table below. Average scores for nearly all groups are between neutral and slightly agree, including scientists, managers, policy advisors, those that produce advice, receive advice, or both, respondents from ICES member states or cooperating institutions, and SCICOM members. The exceptions are stakeholders, whose average score is slightly below neutral, and members of client commissions, whose scores average at exactly slightly agree.

Group	Number of Respondents	Average Score
Scientists	51	0.57
Managers	13	0.46
Policy Advisors	5	0.80
Produce Advice	47	0.49
Receive Advice	10	0.60
Produce and Receive Advice	11	0.73
ICES Member or Cooperator	61	0.56
Stakeholders	5	-0.20

Group	Number of Respondents	Average Score
Client Commission	4	1.00
SCICOM members	5	0.40



The majority of scores for scientists, managers, and policy advisors group around neutral to slightly agree. For scientists, the peak is at slightly agree, while the peak for policy advisors is at neutral. Policy advisors show equal peaks at neutral and slightly agree. There are only a few negative scores for scientists and managers, and none for policy advisors.



The scores for respondents that produce advice, receive advice, or both peak at slightly agree. Beyond the peaks, all groups provided scores from strongly disagree through strongly agree.

Although the clear majority considers that the advice ICES is preparing is appropriate in terms of quality control, a lot of suggestions are being made to further improve that. Suggestions made include issues like a better preparation in advance, the development of a more consistent approach on how to interpret time series and an indicator of the quality/robustness of the advice, a greater adherence to the benchmark approach.

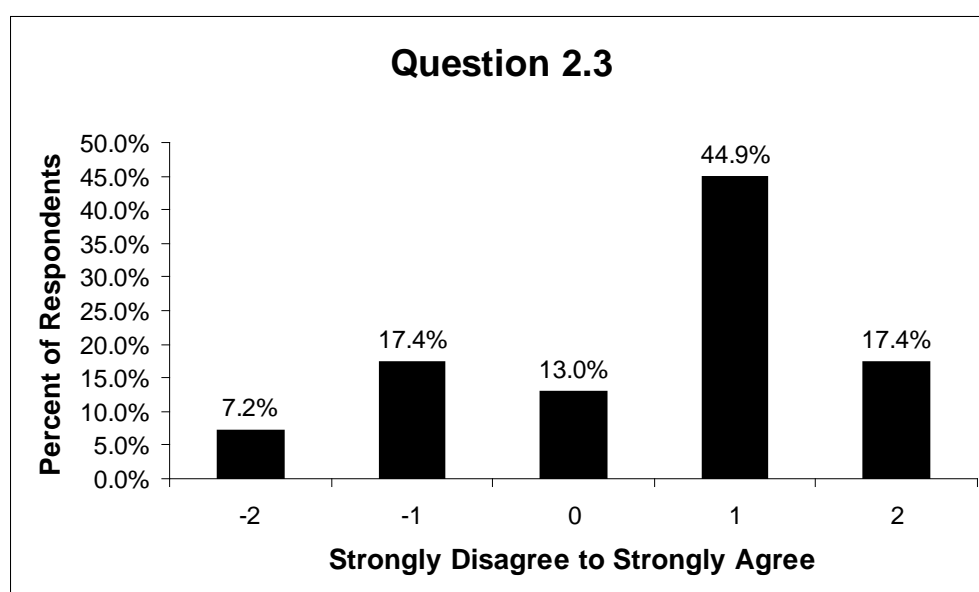
In addition, it is mentioned that preparing and reviewing advice by same people should be avoided and that regular checks with clients ongoing the process would be required.

On the negative side of the score, one respondent recommends an intensification of training programs for young scientists to enable maintaining the present high level of quality control.

Question 2.3: The process by which ICES prepares advice is appropriate in terms of efficiency.

Mean score: 0.478

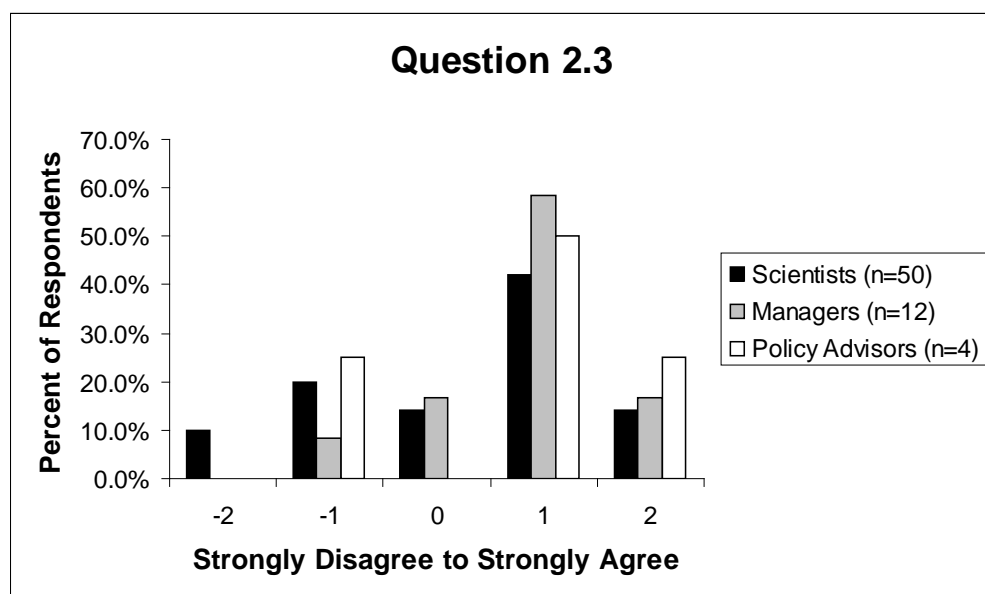
Number of responses: 69



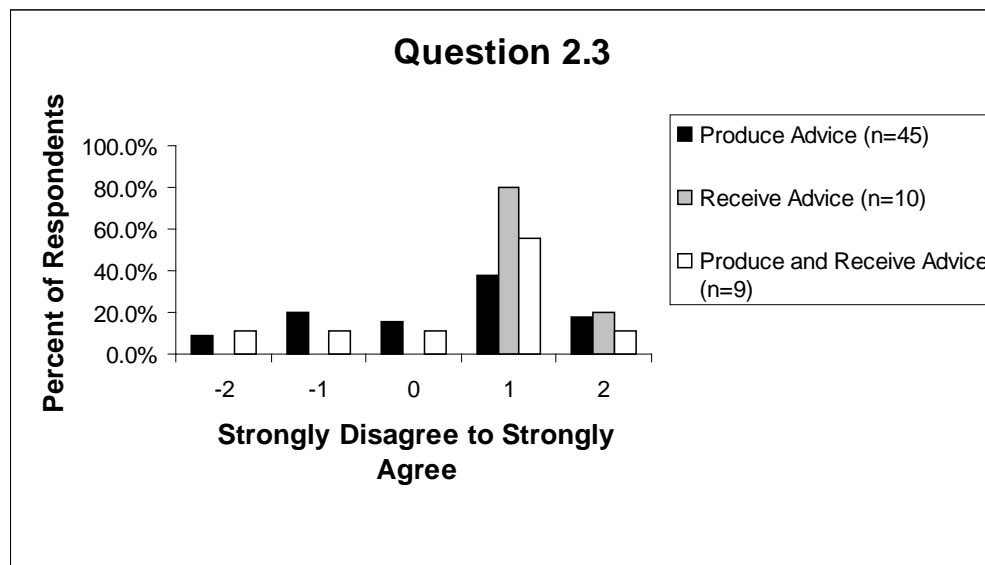
Overall, the majority of responses to this question indicate agreement. Positive scores total 62.3% of the responses. Relatively few respondents provided neutral scores (13.0%), while negative responses total 24.6%.

Comparisons between groups based on average scores are summarized in the table below. Average scores for most groups are between neutral and slightly agree, including scientists, managers, policy advisors, those that produce advice or both produce and receive advice, respondents from ICES member states or cooperating institutions, and SCICOM members. Three exceptions are stakeholders, members of client commissions, and those that receive advice. Scores for these three groups average above slightly agree.

Group	Number of Respondents	Average Score
Scientists	50	0.30
Managers	12	0.83
Policy Advisors	4	0.75
Produce Advice	45	0.36
Receive Advice	10	1.20
Produce and Receive Advice	9	0.44
ICES Member or Cooperator	59	0.37
Stakeholders	4	1.25
Client Commission	4	1.25
SCICOM members	5	0.40



The distributions of scores peak at slightly agree for scientists, managers, and policy advisors. All three groups show some negative scores, particularly scientists and policy advisors.



The scores from those that produce advice, receive advice, or both show strong peaks at slightly agree. All scores from those that receive advice are positive, whereas the distributions of scores from respondents that produce advice or both produce and receive advice include both strongly agree, neutral, and negative scores.

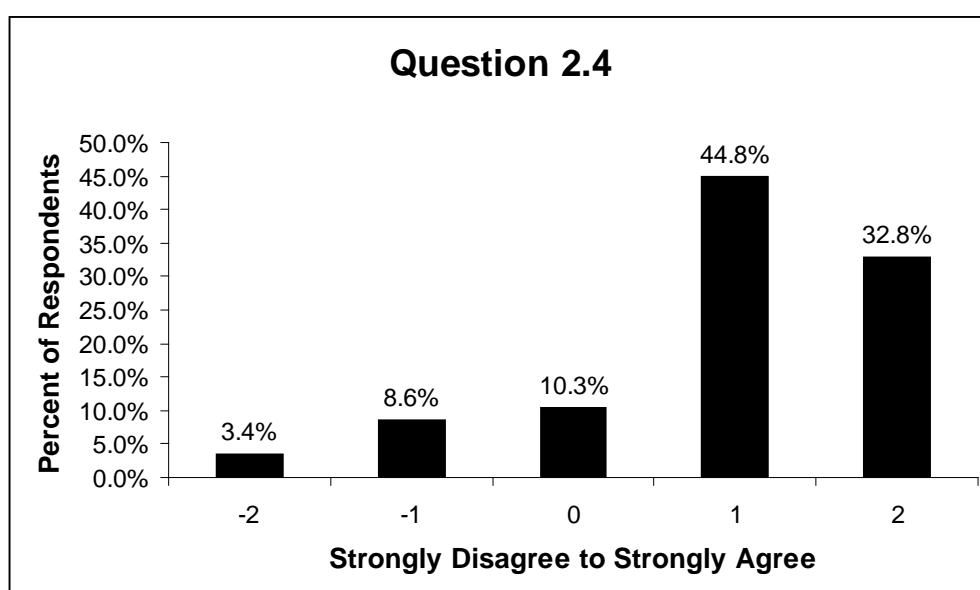
Also for this question the agreement indicated in the scoring on efficiency is reflected in the written comments. Suggestions to increase efficiency include a better distribution of work over the year and less frequent assessments (e.g. depending on the lifespan of species). A better focus on the Terms of Reference of Groups would also increase efficiency as it would reduce wasted effort. One respondent suggests shifting data collection more to the fishing industry.

Respondents with an outspoken negative score on efficiency justify this i.a. with comments on overlaps between groups and with STEFC and EU projects, an inefficient access to data.

Question 2.4: The process by which ICES prepares advice is appropriate in terms of responsiveness.

Mean score: 0.948

Number of responses: 58

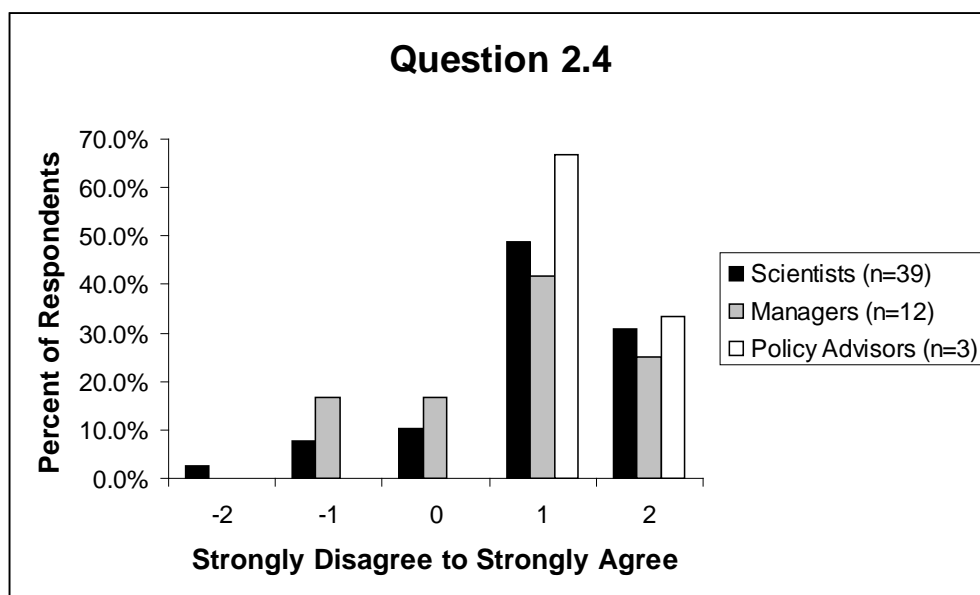


Overall, 77.6% of the scores are positive, indicating general agreement by most respondents. Only 12% of the responses indicate disagreement.

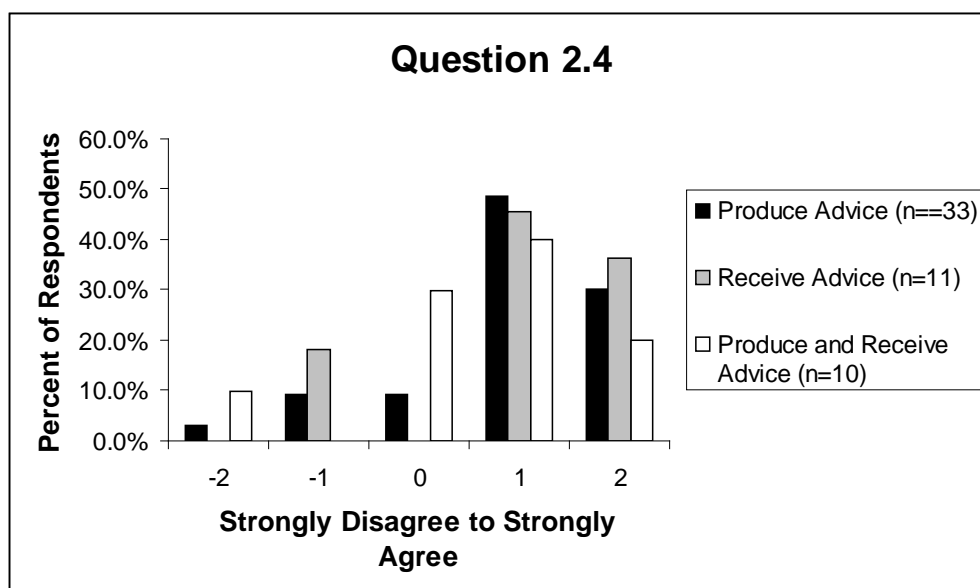
Comparisons between groups based on average scores are summarized in the table below. Average scores for nearly all groups are well above neutral; the exception being stakeholders, with an average score just slightly above neutral. The average scores for respondents that receive ICES advice and for respondents from ICES member states or cooperating institutions are exactly at slightly agree, while average scores for SCICOM members are somewhat lower, though still close to slightly agree. Average scores for policy advisors and members of client commissions are between slightly and strongly agree.

Group	Number of Respondents	Average Score
Scientists	39	0.97
Managers	12	0.75
Policy Advisors	3	1.33
Produce Advice	33	0.94
Receive Advice	11	1.00
Produce and Receive Advice	10	0.60
ICES Member or Cooperator	46	1.00
Stakeholders	6	0.17

Group	Number of Respondents	Average Score
Client Commission	3	1.67
SCICOM members	4	0.75



The distributions of scores are generally positive among scientists, managers, and policy advisors. Substantial peaks for all three groups are at slightly agree, with the second highest percentages at strongly agree.



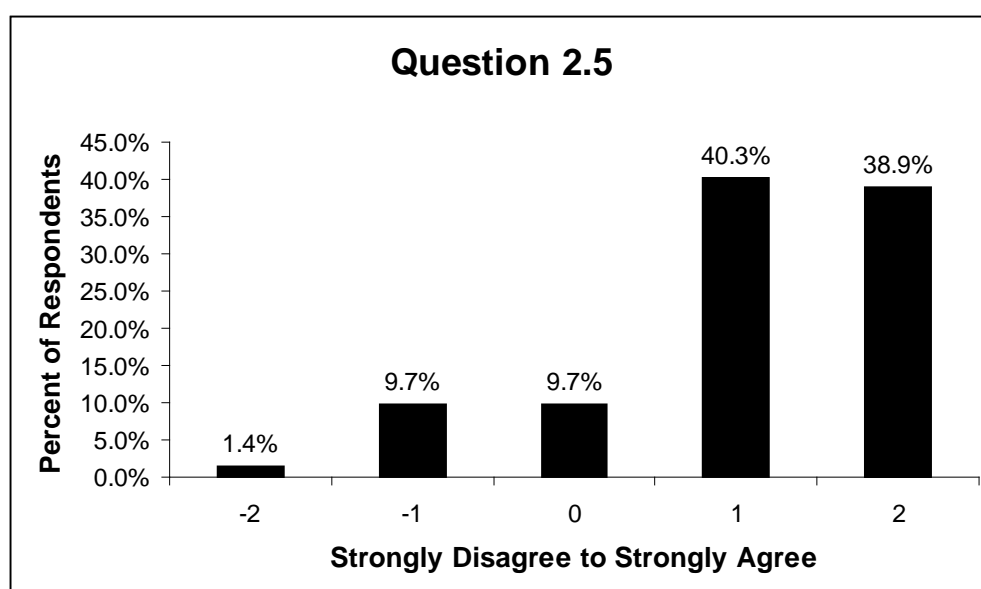
The distributions of scores are generally positive among respondents that produce advice and those that receive advice, with peaks at slightly agree and the second highest percentages at strongly agree. The peak from respondents that both produce and receive advice is also at slightly agree, but the second highest percentage in this group is at neutral.

A point made several times in the written comments is the need to improve the interaction between ICES and stakeholders. In addition, a better cooperation with clients is advocated (to improve the request - response relation). However, the risk of an advisory process which is too much client driven is also addressed. The development of a “fast track approach” is also mentioned in order to be able to react to urgent requests, e.g. by making better use of modern communication technology

Question 2.5: The process by which ICES prepares advice is appropriate in terms of transparency.

Mean score: 1.056

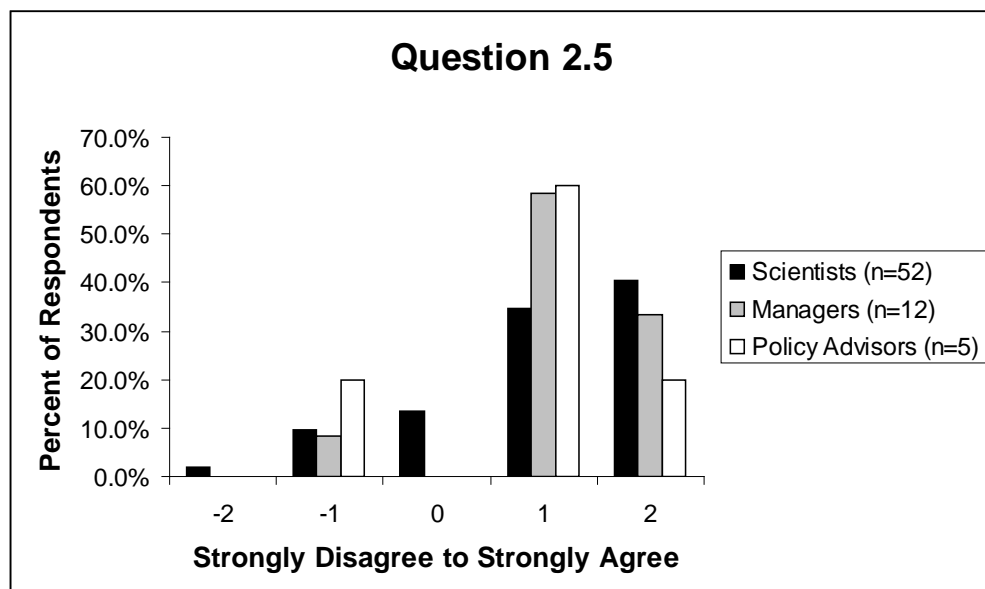
Number of responses: 72



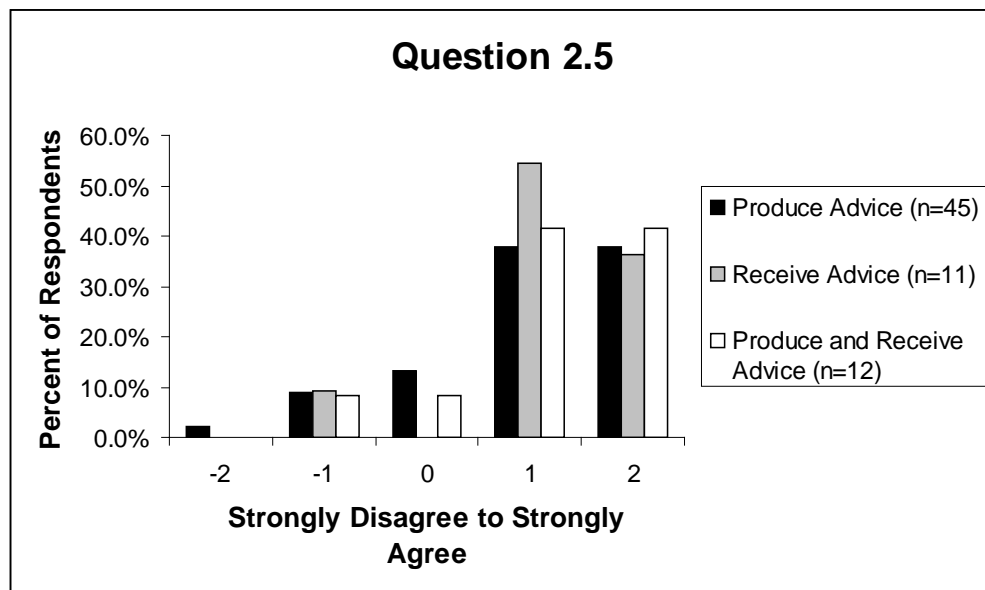
Overall, 79.2% of the respondents agree with this question, with nearly equal percentages slightly and strongly agreeing. Only 11.1% disagree, with most of these only slightly disagreeing.

Comparisons between groups based on average scores are summarized in the table below. Average scores for nearly all groups are well above neutral; the exceptions being SCICOM members and stakeholders, with an average score less than half way between neutral and slightly agree. Many average scores are at slightly agree or higher. Starting from highest of these are members of client commissions, those that receive advice, those that both produce and receive advice, managers, respondents from ICES member states or cooperating institutions, scientists, and respondents that produce advice, which have an average score at exactly slightly agree.

Group	Number of Respondents	Average Score
Scientists	52	1.02
Managers	12	1.17
Policy Advisors	5	0.80
Produce Advice	45	1.00
Receive Advice	11	1.18
Produce and Receive Advice	12	1.17
ICES Member or Cooperator	59	1.05
Stakeholders	6	0.33
Client Commission	5	1.40
SCICOM members	6	0.17



The distribution of scores indicates that most scientists, managers, and policy advisors slightly or strongly agree with this question. The peaks for managers and policy advisors are at slightly agree. The peak for scientists is at strongly agree, but nearly as many scientists slightly agree as strongly agree. The distribution is broadest for scientists, since small percentages of scientists slightly or strongly disagree.



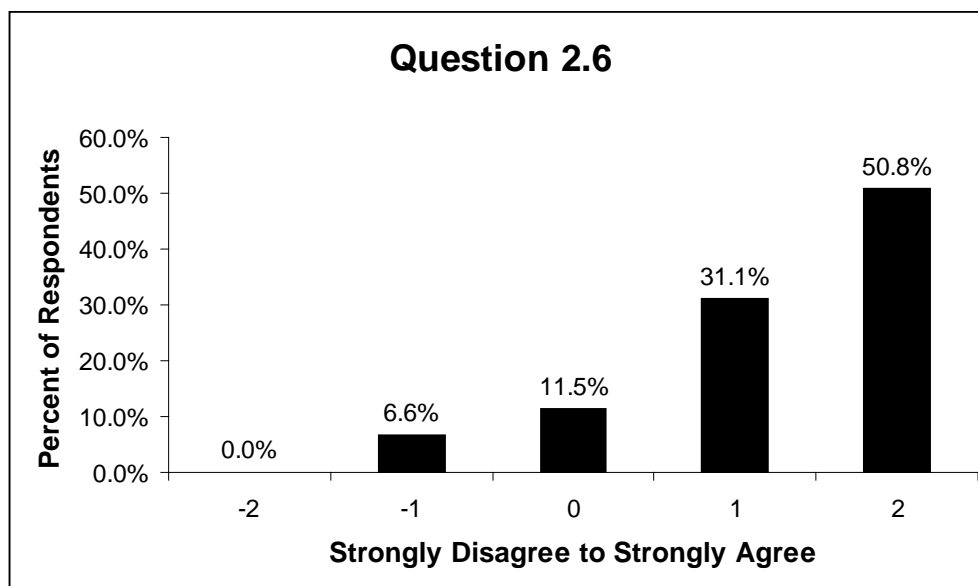
The distribution of scores among respondents that produce advice, receive advice, or both indicates high levels of agreement. Scores for those that receive advice peak at slightly agree, with nearly as high of a percentage at strongly agree. Respondents that produce advice or that both produce and receive advice have equal peaks at slightly and strongly agree.

Transparency of the process is generally regarded as very high even though there would be room for improvement by opening up all working levels for NGO participation. In addition, some respondents indicate that it should be considered how to improve the transparency of the results of the process as this is, due to its complexity, not always easy to understand. Furthermore, the decision making process should be made more transparent.

Question 2.6: The role of the ICES secretariat in the advisory process is appropriate.

Mean score: 1.262

Number of responses: 61

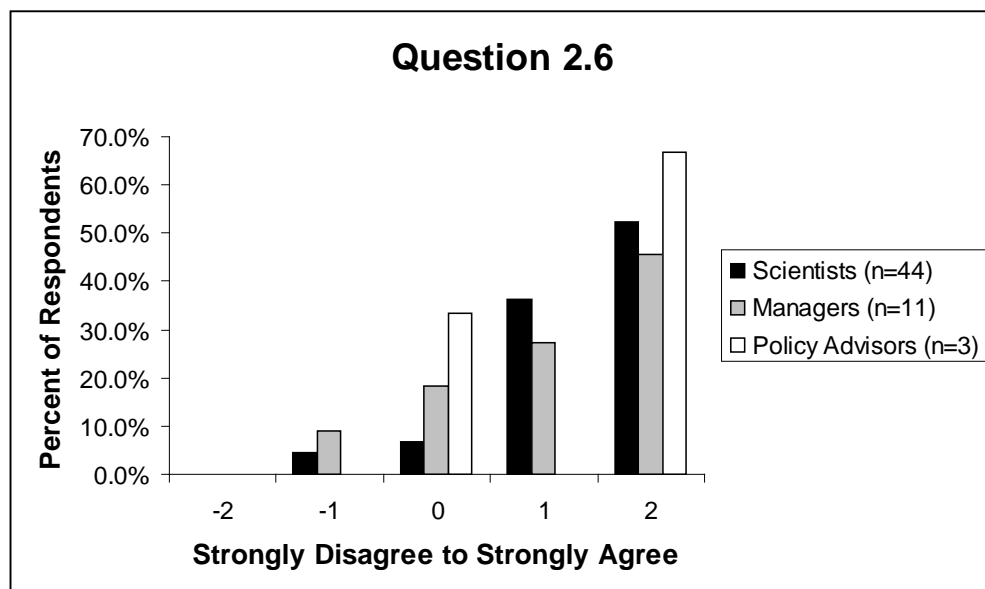


Overall respondents have very positive answer to this question, with 81.9% indicating agreement. The peak is actually at strongly agree, and no respondents indicate strong disagreement.

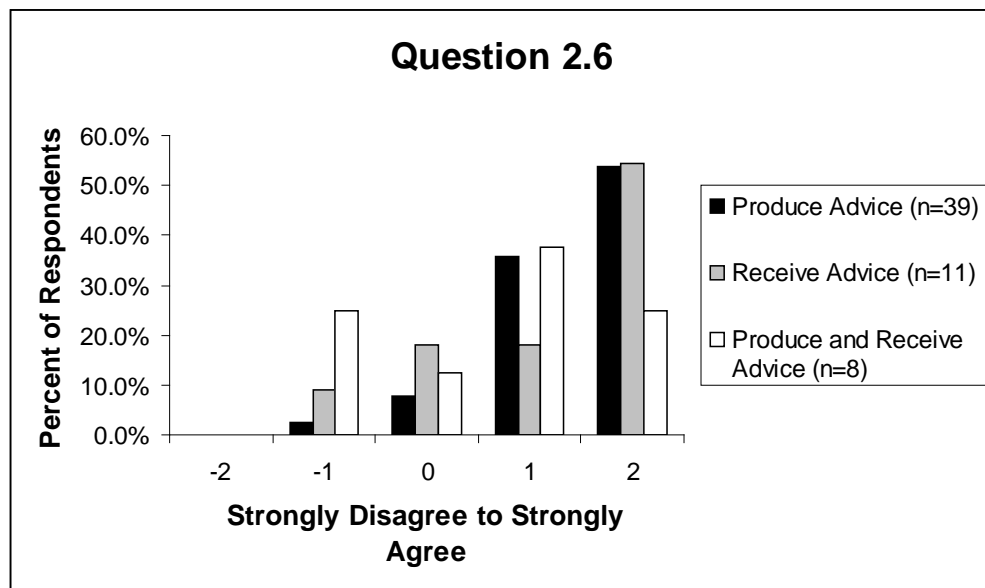
Comparisons between groups based on average scores are summarized in the table below. Average scores for nearly all groups range between slightly and strongly agree, including members of client commissions, who all provided scores of strongly agree; SCICOM members; respondents that produce advice and those that receive advice; respondents from ICES member states or cooperating institutions; scientists; managers; and policy advisors. The exceptions are respondents that both produce and receive advice, with average scores between neutral and slightly agree, and stakeholders, with average scores between neutral and slightly disagree.

Group	Number of Respondents	Average Score
Scientists	44	1.36
Managers	11	1.09
Policy Advisors	3	1.33
Produce Advice	39	1.41
Receive Advice	11	1.18
Produce and Receive Advice	8	0.63

Group	Number of Respondents	Average Score
ICES Member or Cooperator	51	1.39
Stakeholders	5	-0.60
Client Commission	3	2.00
SCICOM members	4	1.75



The distributions of scores for scientists, managers, and policy advisors all peak at strongly agree, with the second highest percentages for scientists and managers at slightly agree. There are small percentages of scientists and managers that slightly agree, but no one in these three categories strongly disagrees.



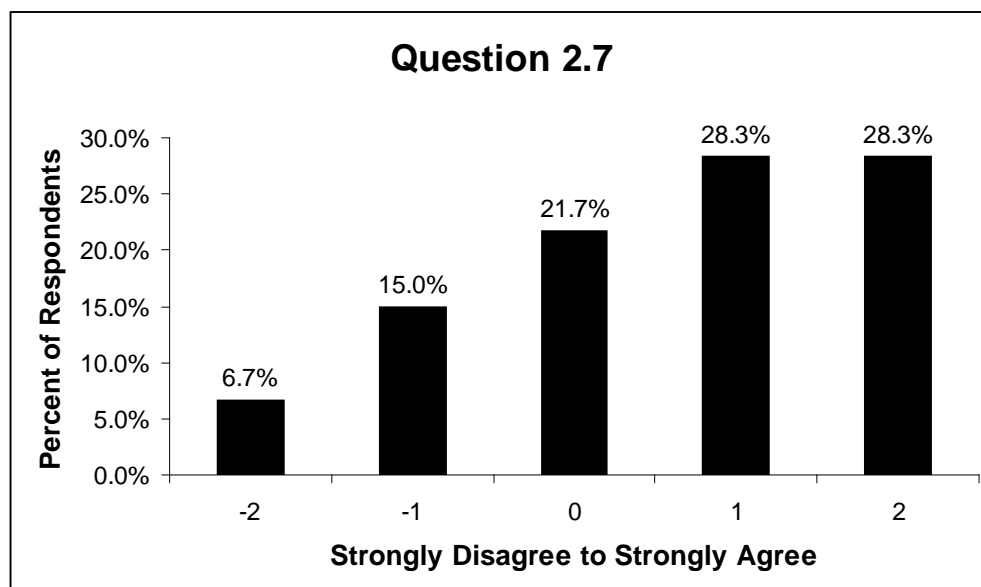
The distributions of scores among respondents that produce advice, receive advice, or both indicate considerable agreement with this question. The peak percentages for respondents that produce advice or that receive advice both are at strongly agree, with a substantial second peak at slightly agree for respondents that produce advice. The distribution for respondents that both produce and receive advice is broader, with a peak at slightly agree. No respondents in these groups strongly disagree with the question.

The written comments clearly reflect the general positive scoring about the role of the Secretariat as a good facilitator between all parties involved. A comment worth mentioning is that the role of the Secretariat could be better defined as it is not always clear where facilitation ends and input becomes to directive.

Question 2.7: The process by which ICES prepares advice proactively engages ICES science expert groups.

Mean score: 0.567

Number of responses: 60

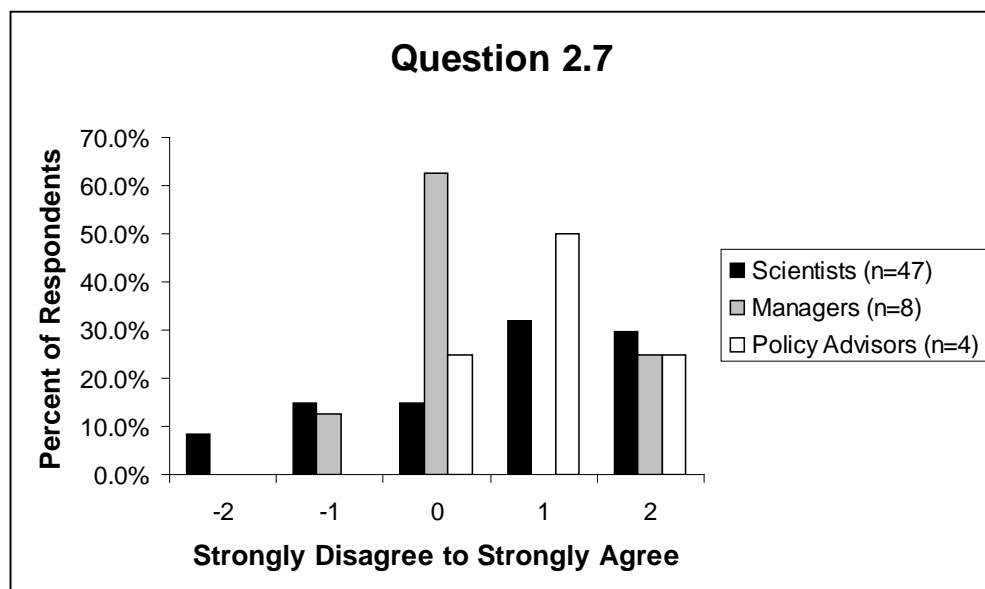


Overall there is a broad distribution of opinions among the respondents to this question. A small majority (56.6%) is equally divided between slightly and strongly agree. However, 21.7% are neutral, and another 21.7% disagree with the question.

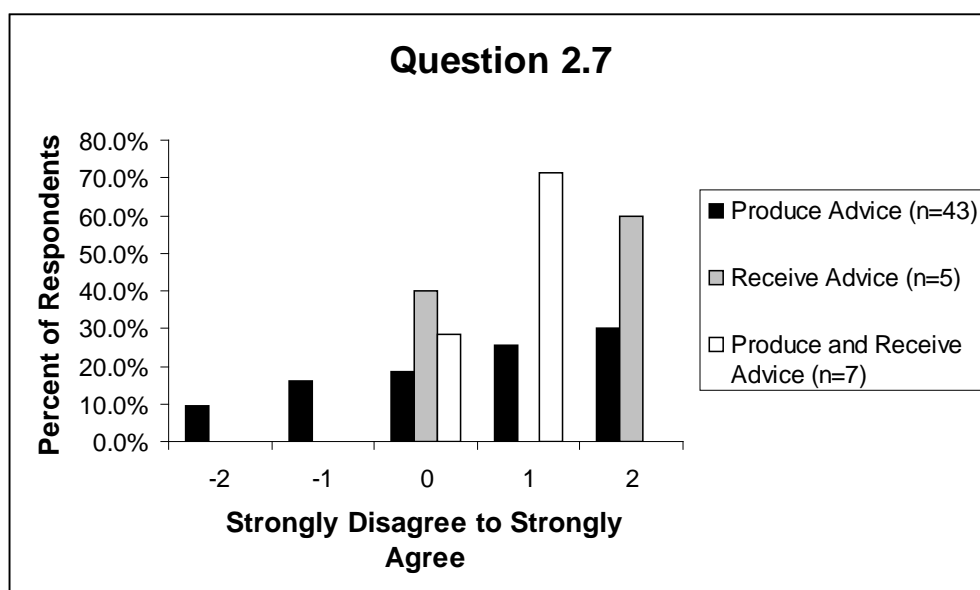
Comparisons between groups based on average scores are summarized in the table below. Average scores for most groups range between neutral and slightly agree, including scientists, managers, respondents that produce advice and those that both produce and receive advice, and respondents from ICES member states or cooperating institutions. Groups with average scores at or above slightly agree are policy advisors, respondents that receive advice, members of client commissions, and the single stakeholder that answered this question. The one exception is SCICOM members, whose average score is between neutral and slightly disagree.

Group	Number of Respondents	Average Score
Scientists	47	0.60
Managers	8	0.38
Policy Advisors	4	1.00
Produce Advice	43	0.51
Receive Advice	5	1.20
Produce and Receive Advice	7	0.71

Group	Number of Respondents	Average Score
ICES Member or Cooperator	52	0.44
Stakeholders	1	1.00
Client Commission	4	1.25
SCICOM members	6	-0.50



The scores for managers peak at neutral, and the scores for policy advisors peak at slightly agree. The scores for scientists are more broadly distributed. There is a minor peak at slightly agree, with nearly as high a percentage at strongly agree. However, some scientists slightly or strongly disagree with the question.



There is a broad distribution of scores from respondents who produce advice, with a low peak at strongly agree, but with scores in all categories of agreement, including strongly disagree. The scores for respondents that receive advice peak at strongly agree, with a secondary peak at neutral. The scores for respondents that both produce and receive advice have a strong peak at slightly agree.

A little less than half of the replies are neutral to strong negative. Analysing the replies to the question as to why this opinion and what would need to be changed revealed that most of the respondents address in one or the other way the link between the science part and the advisory part of ICES.

Measures to strengthen the link between the science part and the advisory part of ICES seem to be required.

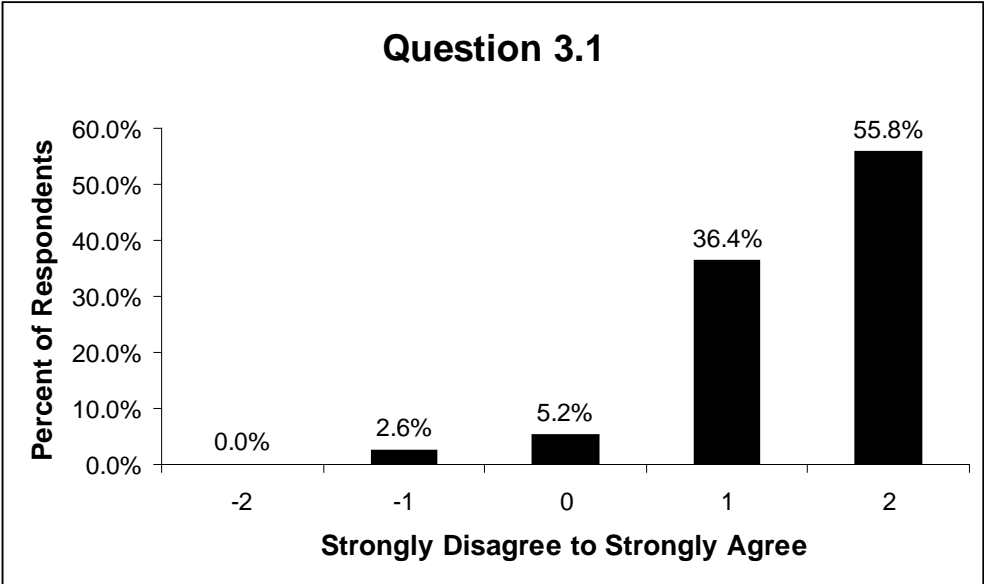
Some quotes from the replies:

- Perhaps science EG need to be forced to develop standard inputs to advisory processes.
- the advice is often completely detached from the science.
- Survey and planning groups (e.g. WGIBTS, PGCCDBS) should report within the advisory stream, not SCICOM.
- Increase transparency in the communication of advice requirements to all WGs to gain support from their work.
- have more joint workshops on specific topics.

Question 3.1: ICES Advice is relevant.

Mean score: 1.455

Number of responses: 77

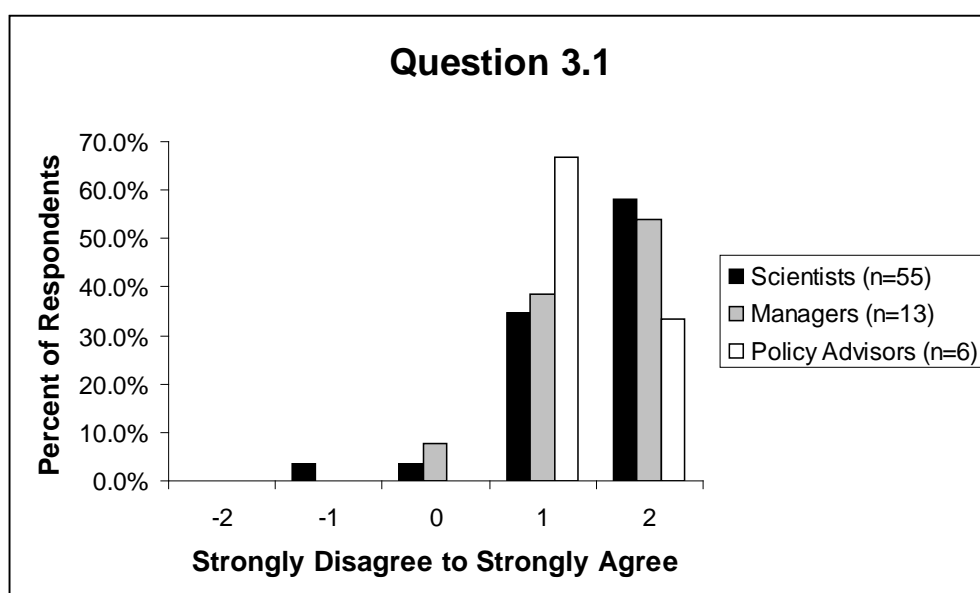


Overall there is widespread agreement with this question, with 92.2% of respondents indicating agreement. The peak of the distribution is at strongly agree, at 55.8%. No respondents strongly disagree.

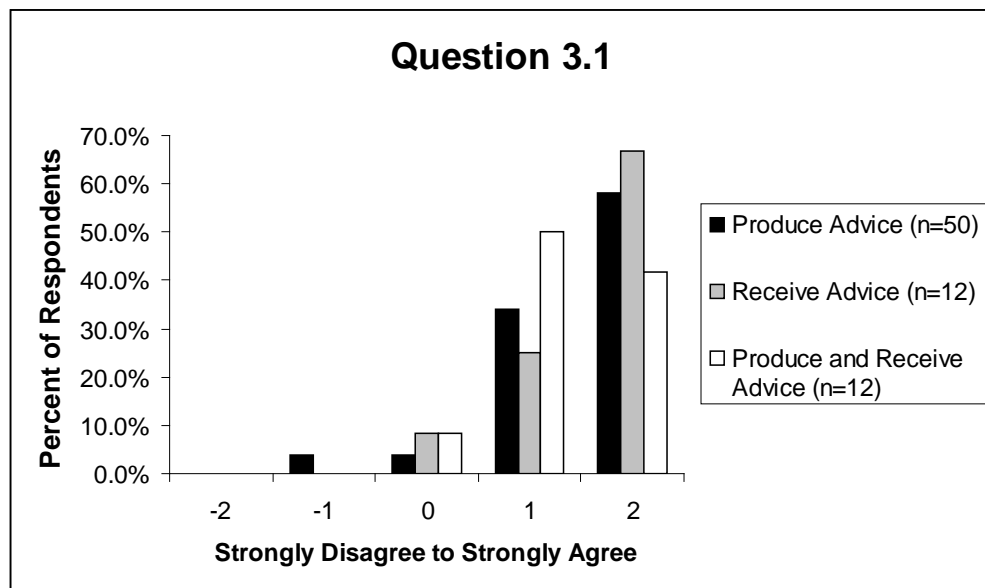
Comparisons between groups based on average scores are summarized in the table below. Average scores for all groups range between slightly and strongly agree, including scientists; managers; policy advisors; respondents that produce advice, receive advice, and those that both produce and receive advice; respondents from ICES member states or cooperating institutions, stakeholders, and members of client commissions; and SCICOM members.

Group	Number of Respondents	Average Score
Scientists	55	1.47
Managers	13	1.46
Policy Advisors	6	1.33
Produce Advice	50	1.46
Receive Advice	12	1.58
Produce and Receive Advice	12	1.33

Group	Number of Respondents	Average Score
ICES Member or Cooperator	63	1.48
Stakeholders	6	1.17
Client Commission	5	1.40
SCICOM members	5	1.20



The great majority of scientists, managers, and policy advisors agree with the question. The peak for policy advisors is at slightly agree, but no policy advisors expressed a neutral or negative opinion. The peaks for scientists and managers are at strongly agree, with most of the rest of these groups expressing slight agreement. Only a small percentage of scientists expressed slight disagreement.



The great majority of respondents that produce advice, receive advice, or both agrees with this question. The peaks for those that produce advice and those that receive advice are at strongly agree, while the peak for those that both produce and receive advice is at slightly agree. Only a small percentage of respondents that produce advice indicate slight disagreement.

A very clear support to the statement that the ICES advice is relevant is justified in a lot of cases by a simple the statement that it is relevant as it is used or because of the fact that it is the only science based advice and that it is a response to the needs of clients. However, there are also comments like “it is relevant but that doesn’t make it right.”

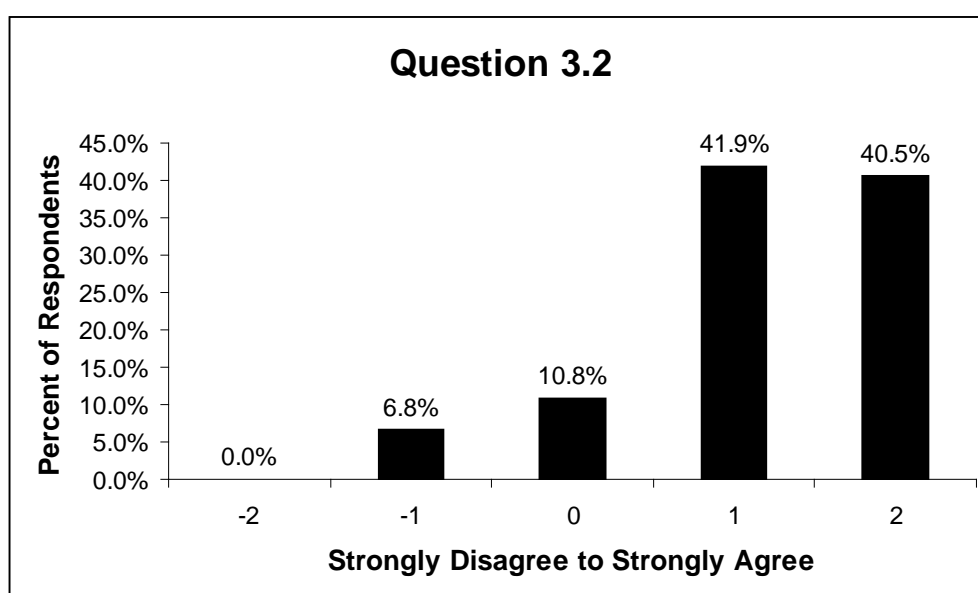
Points where improvements could be made include references to the inclusion of ecosystem driver and, more general to the MSFD.

A specific point mentioned several times is that feedback to the WG on the quality of the advice and on the actual use of it should be improved.

Question 3.2: ICES Advice is credible.

Mean score: 1.162

Number of respondents: 74

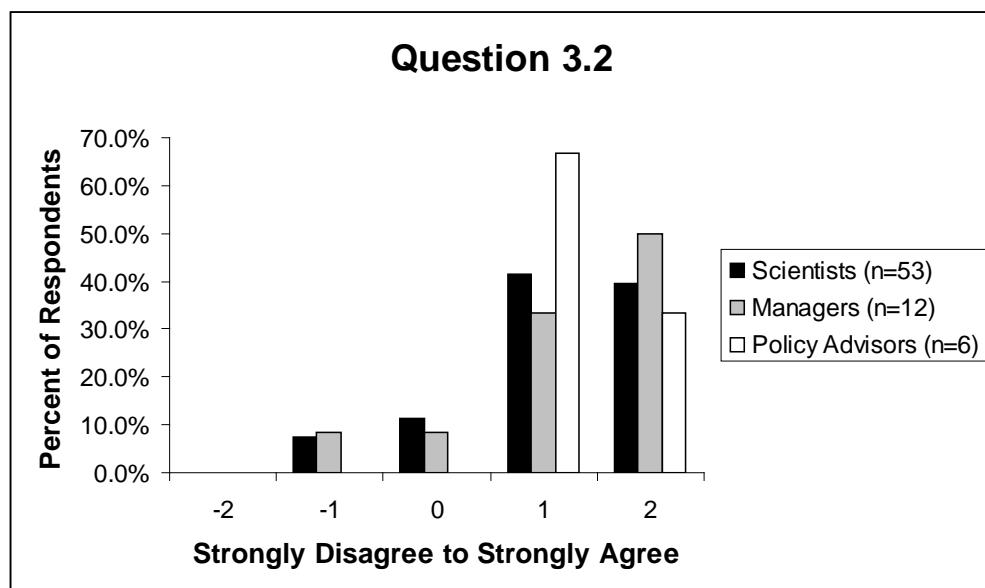


Overall the great majority of respondents (82.4%) express some level of agreement with the question. The peak is at slightly agree, but the percentage that strongly agree is nearly as high. Only a small percentage of respondents (6.8%) express slight disagreement.

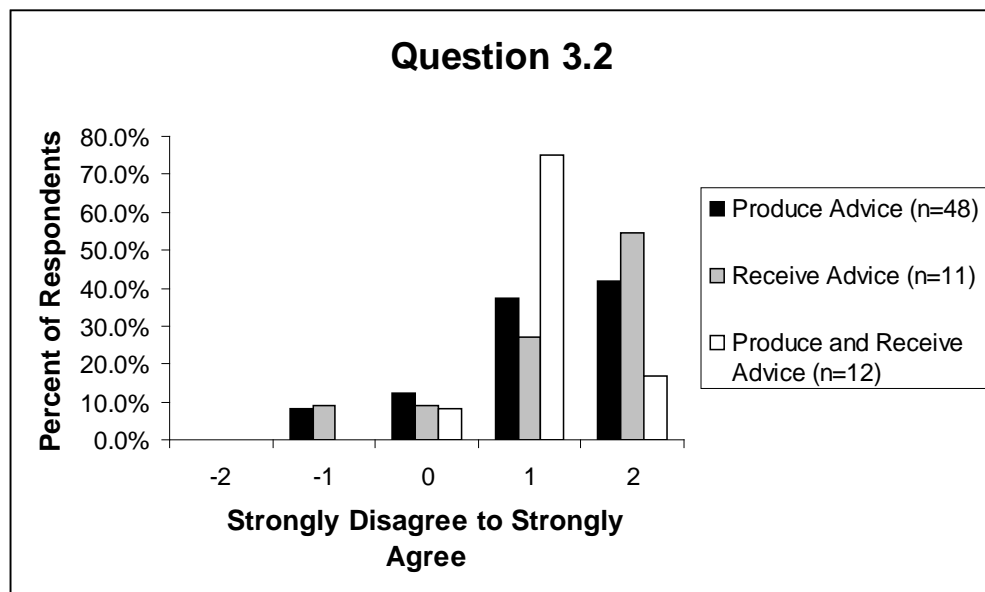
Comparisons among groups based on average scores are summarized in the table below. With the exception of SCICOM members and stakeholders, the average scores for all other groups range between slightly and strongly agree, including scientists; managers; policy advisors; respondents that produce advice, receive advice, and those that both produce and receive advice; respondents from ICES member states or cooperating institutions, and members of client commissions. The average scores for SCICOM members and stakeholders are lower, but still positive, in the range between neutral and slightly agree.

Group	Number of Respondents	Average Score
Scientists	53	1.13
Managers	12	1.25
Policy Advisors	6	1.33
Produce Advice	48	1.13
Receive Advice	11	1.27
Produce and Receive Advice	12	1.08
ICES Member or Cooperator	60	1.18

Group	Number of Respondents	Average Score
Stakeholders	6	0.33
Client Commission	5	1.60
SCICOM members	5	0.60



The distributions of scores from scientists, managers, and policy advisors indicate a high level of agreement with this question. The peak for scientists is at slightly agree, with nearly as high a percentage indicating strong agreement. The peak for managers is at strongly agree, whereas the peak for policy advisors is at slightly agree. No one from these groups strongly disagrees with the question.



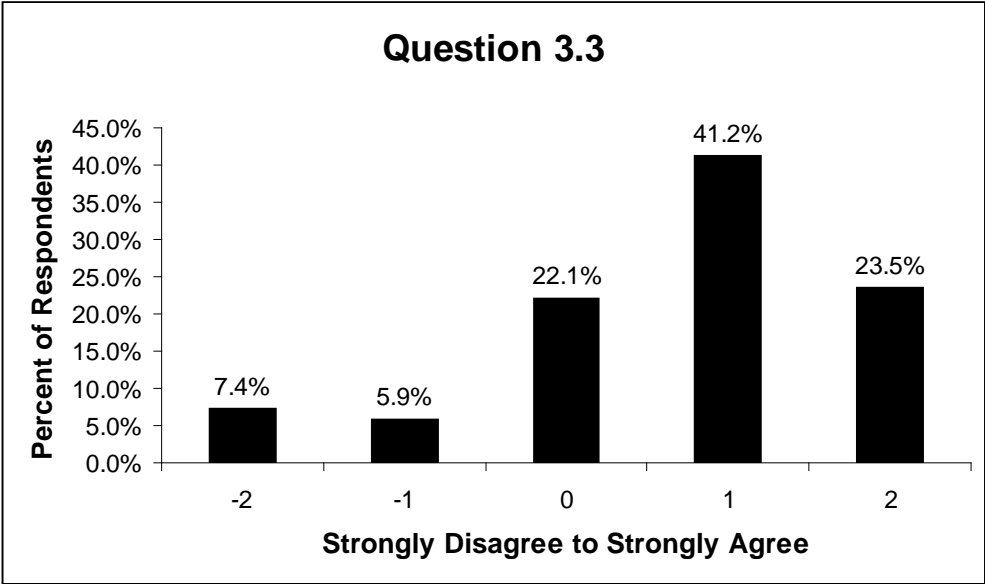
The distributions of scores among respondents who produce advice, receive advice, or both all indicate a high level of agreement with this question. The peaks from those that produce advice and those that receive advice are at strongly agree, while the peak from those that do both is at slightly agree. No one from these groups indicated strong disagreement.

The general view that the ICES Advice is credible is clearly expressed in the written comments and justified for instance by the fact as it is based upon consensus between scientists and that stakeholders can participate.

Question 3.3: The ICES advice is effectively communicated.

Mean score: 0.676

Number of responses: 68

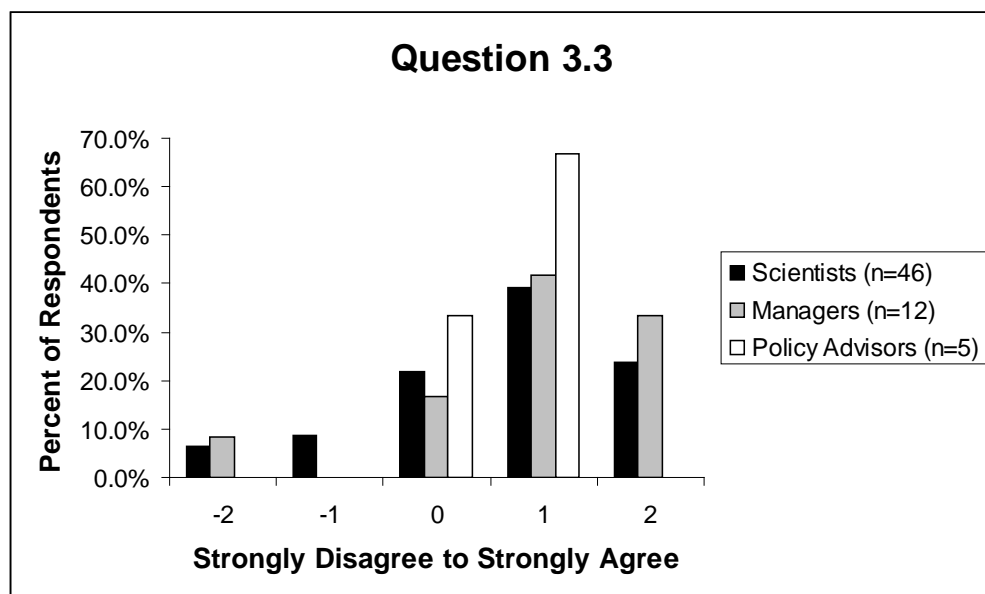


Overall respondents expressed considerable agreement with this question, with 64.7% slightly or strongly agreeing. The peak is at slightly agree. A total of 13.3% of respondents expressed some level of disagreement.

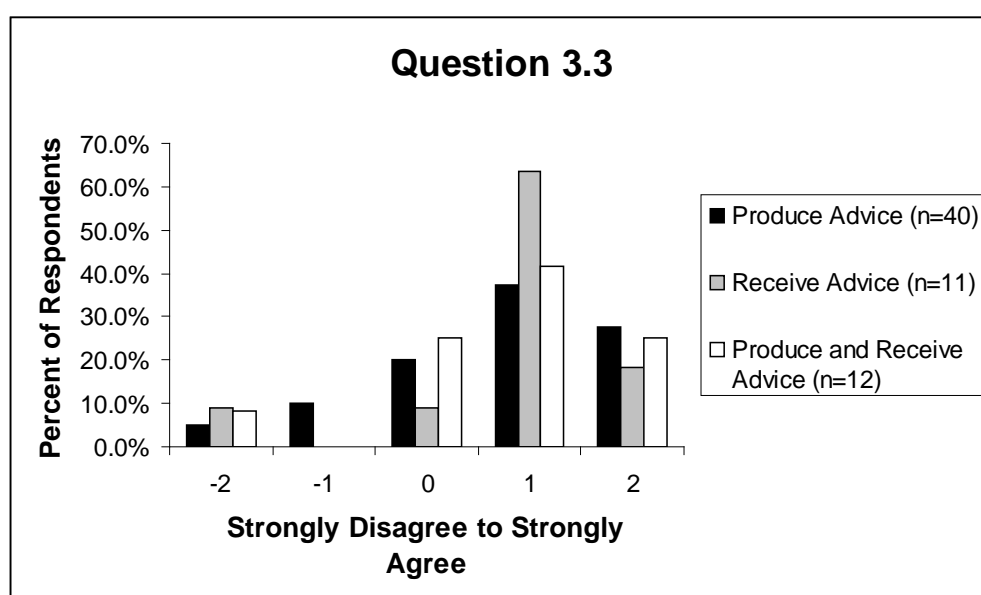
Comparisons among groups based on average scores are summarized in the table below. There is a very consistent level of agreement with the question among groups, with nearly all groups averaging in the upper half of the range between neutral and slightly agree. The members of client commissions are a slight exception, with the average score for this group at exactly slightly agree.

Group	Number of Respondents	Average Score
Scientists	46	0.65
Managers	12	0.92
Policy Advisors	6	0.67
Produce Advice	40	0.73
Receive Advice	11	0.82
Produce and Receive Advice	12	0.75

Group	Number of Respondents	Average Score
ICES Member or Cooperator	54	0.63
Stakeholders	6	0.67
Client Commission	5	1.00
SCICOM members	6	0.67



Most of the opinions of scientists, managers, and policy advisors range between neutral and strongly agree, with the peaks for all three groups at slightly agree. A few scientists and managers expressed slight or strong disagreement.



The opinions of respondents that produce advice, receive advice, or both all peak at slightly agree, with the second to highest percentages for all three groups at strongly agree. Small percentages of all three groups expressed slight or strong disagreement, with respondents that produce advice showing the highest percentage of disagreement.

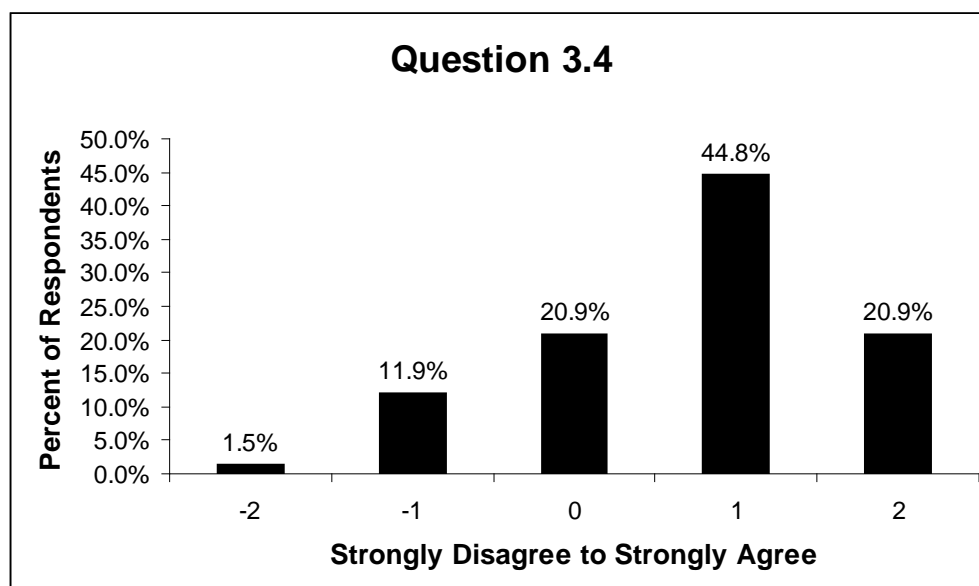
The general view that the ICES advice is effectively communicated is clearly expressed in the written comments. However, a clear need for improvements is identified as well. This is in particular the case with regard to communication to stakeholders and the media as communication beyond the direct clients is regarded as poor. For this, the advice should be “translated” into an easier to understand text (with less jargon and acronyms) and modern, interactive, media should be used.

Specific points mentioned several times are that the summary sheets are too complicated, that the focus is often too much on negative developments and that “uncertainties” should be better communicated.

Question 3.4: ICES advisory expert groups have the appropriate expertise.

Mean score: 0.716

Number of responses: 67

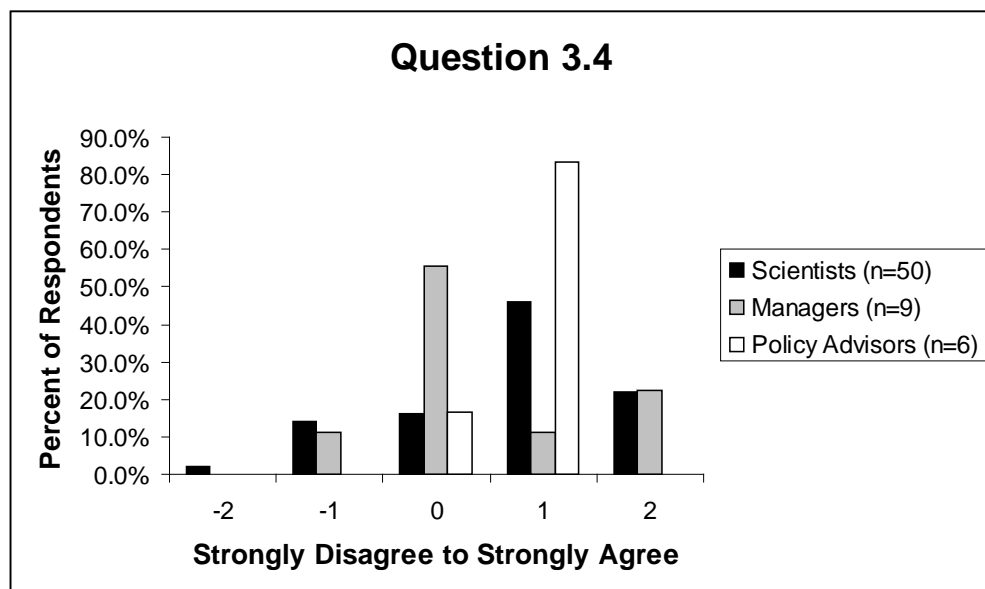


Overall 65.7% of respondents indicated some level of agreement with this question, with the peak at slightly agree. Some level of disagreement was expressed by 13.4% of respondents.

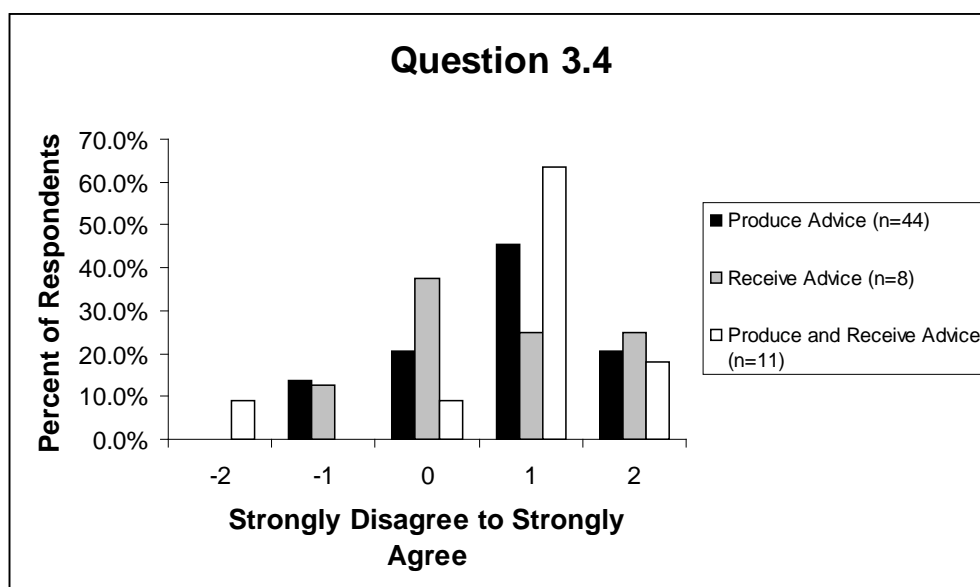
Comparisons among groups based on average scores are summarized in the table below. The average scores for most groups range between neutral and slightly agree, including scientists; managers; policy advisors; respondents that produce advice, receive advice, and those that both produce and receive advice; respondents from ICES member states or cooperating institutions; and SCICOM members. The average score for stakeholders is exactly at slightly agree, while the average score for members of client commissions is between slightly and strongly agree.

Group	Number of Respondents	Average Score
Scientists	50	0.72
Managers	9	0.44
Policy Advisors	6	0.83
Produce Advice	44	0.73
Receive Advice	8	0.63
Produce and Receive Advice	11	0.82

Group	Number of Respondents	Average Score
ICES Member or Cooperator	56	0.61
Stakeholders	3	1.00
Client Commission	5	1.20
SCICOM members	6	0.33



The distributions of scores indicate some differences of opinions among scientists, managers, and policy advisors. The opinions of scientists span the entire range from strongly disagree to strongly agree, with a peak at slightly agree. The opinions of managers range from slightly disagree to strongly agree, with the peak at a neutral opinion. There is a major peak for policy advisors at slightly agree.



The opinions expressed by respondents that produce advice, receive advice, or both span a wide range. For those that produce advice, the peak is at slightly agree, with opinions ranging from slightly disagree to strongly agree. For those that receive advice, the peak is at neutral, with opinions ranging from slightly disagree to strongly agree. For those that both produce and receive advice, there is a major peak at slightly agree, with opinions ranging from strongly disagree to strongly agree.

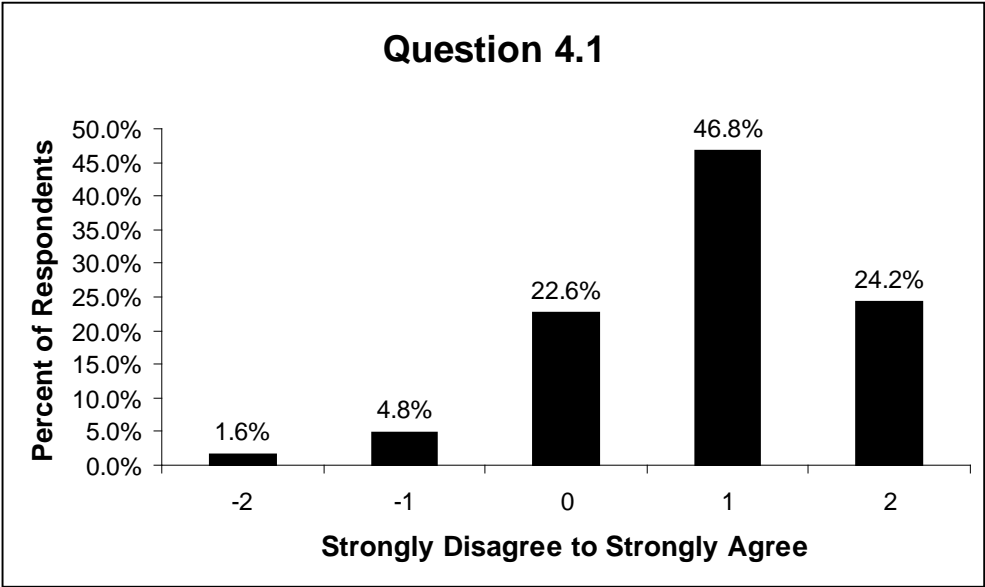
The general view that ICES advisory expert groups do have the appropriate expertise is clearly expressed in the written comments, even though there are also comments of “not so good examples” and statements that only a few countries take up responsibility. The level is regarded as highly qualified. However, the need to involve experts from outside the direct ICES community (e.g. from the academic community), as well as the need to increase the involvement of marine ecology experts, is identified in several comments.

What may be becoming a problem for the future is what is called “maintenance of expertise” as experience seems to be disappearing. Participation in the ICES advisory process should be made more rewarding. In addition to this it is mentioned that a limited number of experts is constantly overcharged. To solve this problem, an analysis of work allocation may be required.

Question 4.1: The scope of ICES advice is appropriate in terms of addressing the needs of advice users.

Mean score: 0.871

Number of responses: 62

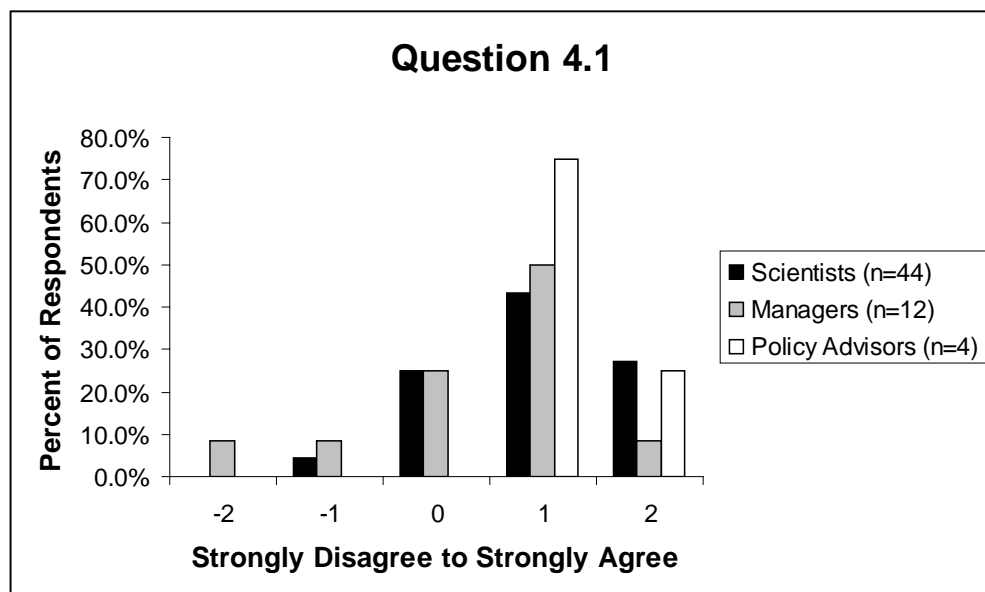


Overall 80.0% of respondents expressed some level of agreement with this question, with the peak at slightly agree. Only 6.4% of respondents expressed any level of disagreement.

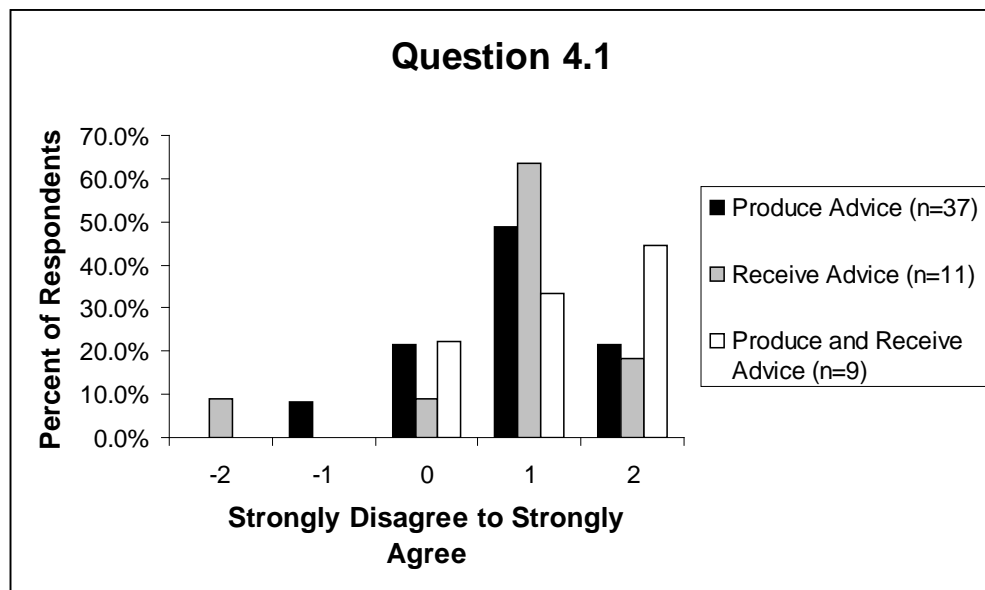
Comparisons among groups based on average scores are summarized in the table below. The average scores for most groups are close to slightly agree. Average scores for scientists, managers, respondents that produce advice, those that receive advice, respondents from ICES member states or cooperating institutions, and SCICOM members are all between neutral and slightly agree. Average scores for policy advisors, respondents that both produce and receive advice, stakeholders, and members of client commissions are all between slightly and strongly agree.

Group	Number of Respondents	Average Score
Scientists	44	0.93
Managers	12	0.42
Policy Advisors	4	1.25
Produce Advice	37	0.84
Receive Advice	11	0.82
Produce and Receive Advice	9	1.22

Group	Number of Respondents	Average Score
ICES Member or Cooperator	51	0.78
Stakeholders	5	1.40
Client Commission	3	1.33
SCICOM members	5	0.60



The distributions of scores from scientists, managers, and policy advisors all peak at slightly agree. Nearly all the scores from scientists are between neutral and strongly agree, while the opinions of managers span the entire range from strongly disagree to strongly agree. All the scores from policy advisors are either slightly or strongly agree.



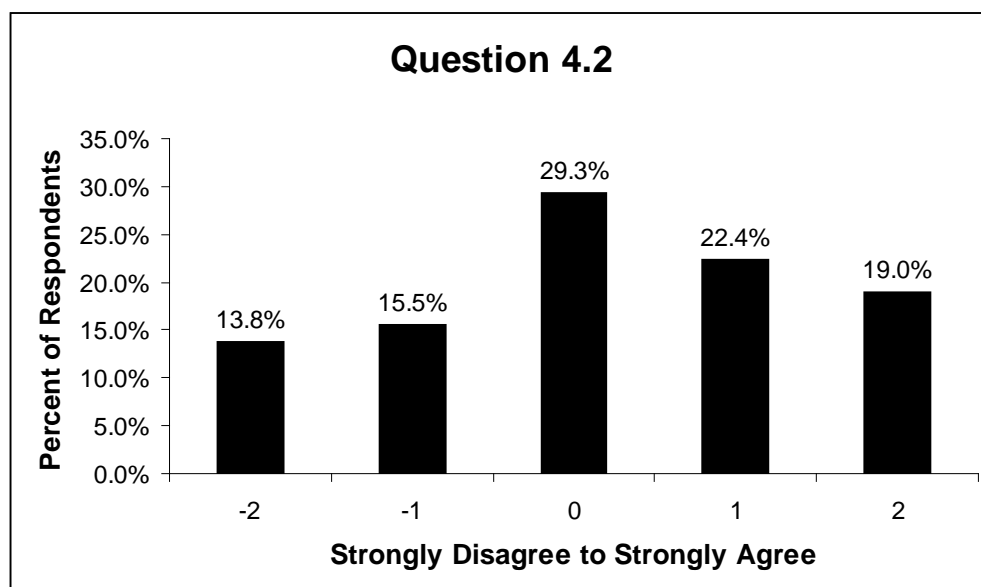
Most of the scores from respondents that produce advice, receive advice, or both range between neutral and strongly agree. The peaks for those that produce advice or receive advice are at slightly agree, with a few from these groups expressing some level of disagreement. The peak for those that do both is at strongly agree.

From this scoring it is clear that most respondent are satisfied that the ICES advice is adequately covering the needs of the users. Nevertheless, several comments were made that the needs of the user are not always well defined and that ICES should undertake to find out what these needs are. It is also questioned whether the users ask the right question and in some comments it is stated that the focus is too much on fisheries / TAC.

Question 4.2: The scope of ICES advice is appropriate in terms of addressing societal needs.

Mean score: 0.172

Number of responses: 58

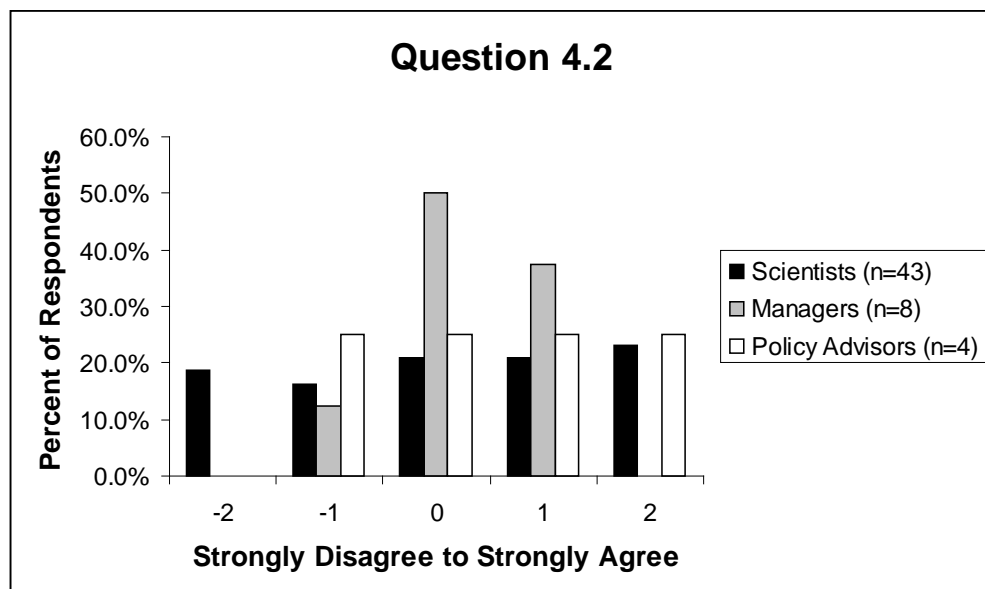


The overall distribution of scores indicates a broad range of opinions for this question. Some level of agreement is expressed by 41.4% of respondents, while 29.3% of respondents expressed some level of disagreement. The peak of the distribution is at neutral, at 29.3%.

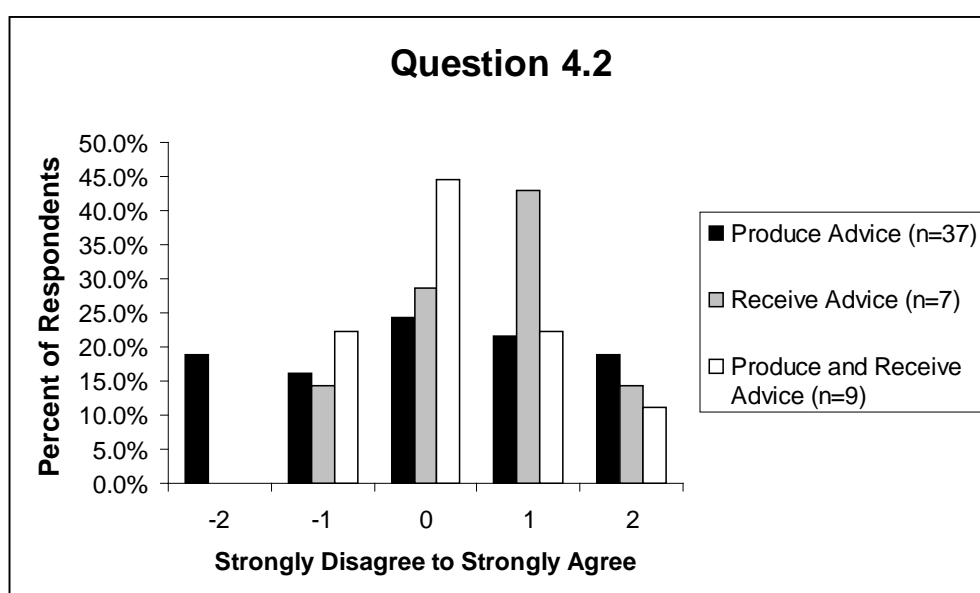
Comparisons among groups based on average scores are summarized in the table below. The average scores for most groups are between neutral and slightly agree, including scientists, managers, policy advisors, respondents that produce advice, those that receive advice, those that both produce and receive advice, respondents from ICES member states or cooperating institutions, and members of client commissions. The average score for SCICOM members is exactly at neutral, while the average score for stakeholders is between neutral and slightly disagree.

Group	Number of Respondents	Average Score
Scientists	43	0.14
Managers	8	0.25
Policy Advisors	4	0.50
Produce Advice	37	0.05
Receive Advice	7	0.57

Group	Number of Respondents	Average Score
Produce and Receive Advice	9	0.22
ICES Member or Cooperator	48	0.15
Stakeholders	5	-0.40
Client Commission	2	0.50
SCICOM members	6	0.00



The distributions of opinions of scientists indicate a wide range of opinions between strongly disagree and strongly agree, with no real peak. The opinions of managers range from slightly disagree to slightly agree, with a peak at neutral. The opinions of policy advisors are equally distributed between slightly disagree to strongly agree.



Scores from respondents that produce advice range from strongly disagree to strongly agree, with a minor peak at neutral. Scores from respondents that receive advice range from slightly disagree to strongly agree, with a peak at slightly agree. Scores from those who both produce and receive advice also range from slightly disagree to strongly agree, with the peak at neutral.

The rather even spread in scores is clearly reflected in the written comments.

However, one could question whether the question is understood in the right way. On the negative to neutral side of the score (a negative judgment of the appropriateness), there is a majority of the respondents explicitly indicating that ICES is not considering societal needs at all.

There is no clear picture as to whether ICES should start addressing societal needs. Comments are made that fisheries are “not the most relevant activity” in the marine environment and that ICES should stick to biology but also that ICES should open up considering economic aspects and that it should start with identifying methodologies.

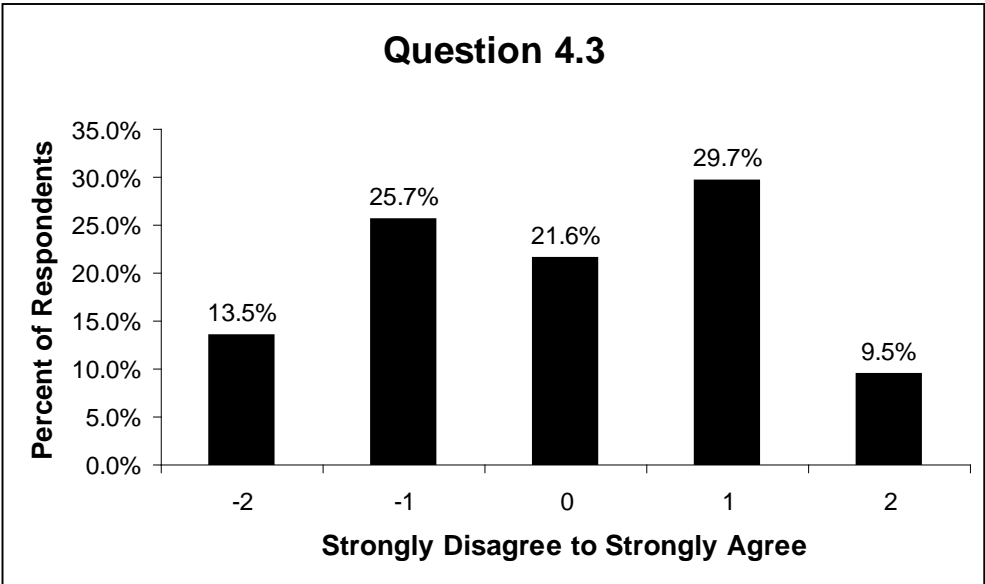
There is no clear line in the comments on the positive side of the score (i.e. a positive judgment of the appropriateness) as there are statements like:

- including society's desires is not within the remit of ICES; and
- more emphasis on socio-economics is needed; or
- ICES is broadening in the right direction (into non-fishing activities).

Question 4.3: The scope of ICES advice is consistent with the implementation of an ecosystem approach to management.

Mean score: -0.041

Number of responses: 74

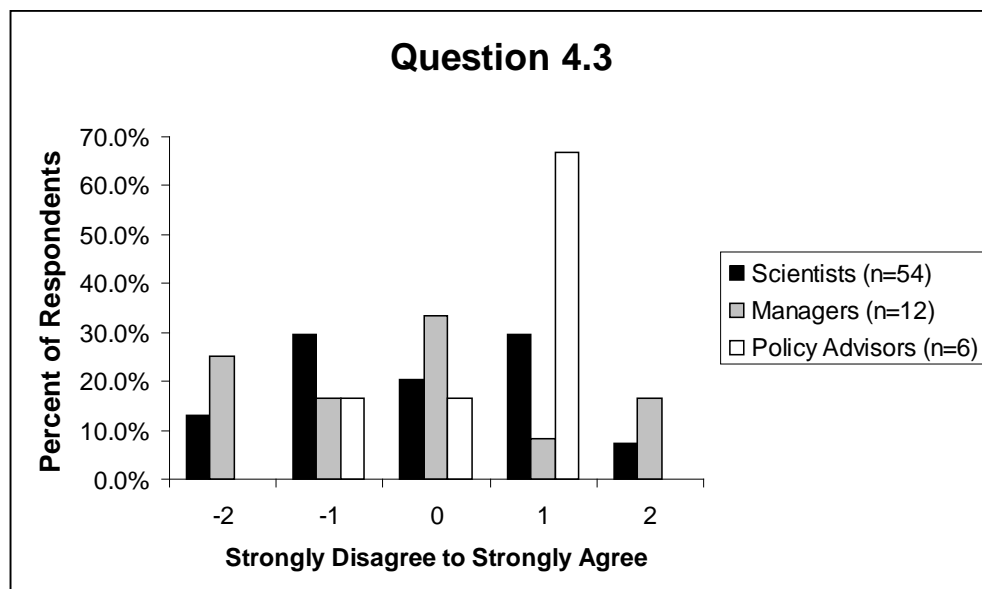


Overall the respondents expressed a wide range of opinions on this question. Although there is a minor peak at slightly agree, equal numbers of respondents expressed some level of disagreement as some level of agreement (39.2% in each case).

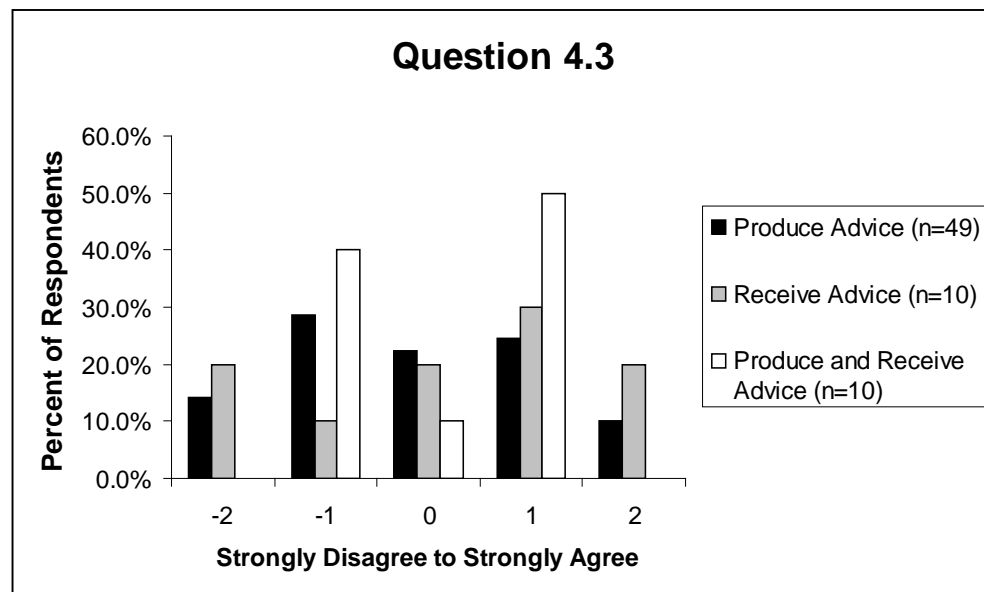
Comparisons among groups based on average scores are summarized in the table below. The scores for SCICOM members are the most negative, averaging exactly at slightly disagree. The average scores for many of the groups are between neutral and slightly disagree, including scientists, managers, respondents that produce advice, respondents from ICES member states or cooperating institutions, and stakeholders. Average scores for some groups are between neutral and slightly agree, including policy advisors, respondents that receive advice, those that both produce and receive advice, and members of client commissions.

Group	Number of Respondents	Average Score
Scientists	54	-0.11
Managers	12	-0.25
Policy Advisors	6	0.25
Produce Advice	49	-0.12
Receive Advice	10	0.20

Group	Number of Respondents	Average Score
Produce and Receive Advice	10	0.10
ICES Member or Cooperator	62	-0.12
Stakeholders	4	-0.75
Client Commission	5	0.80
SCICOM members	6	-1.00



A wide range of opinions exists among scientists, managers, and policy advisors with respect to this question. There are minor equal peaks at slightly disagree and slightly agree for scientists, with some opinions in all categories from strongly disagree to strongly agree. There is a minor peak at neutral for managers, whose opinions also range broadly from strongly disagree to strongly agree. There is a major peak at slightly agree for policy advisors.



There is a broad range of opinions among respondents that produce advice, receive advice, or do both. The scores from those that produce advice range broadly from strongly disagree to strongly agree, with a minor peak at slightly disagree. The scores from those that receive advice range broadly from strongly disagree to strongly agree, with a minor peak at slightly agree. The scores from those that do both peak at slightly agree, with a substantial second peak at slightly disagree.

Most if not all respondents are aware of the fact that that EAFM is not yet being implemented but that there is a move in the right direction. Reasons for this “lagging behind” are manifold and do not really differ depending on the score given to this question. Points made could be summarised as follows:

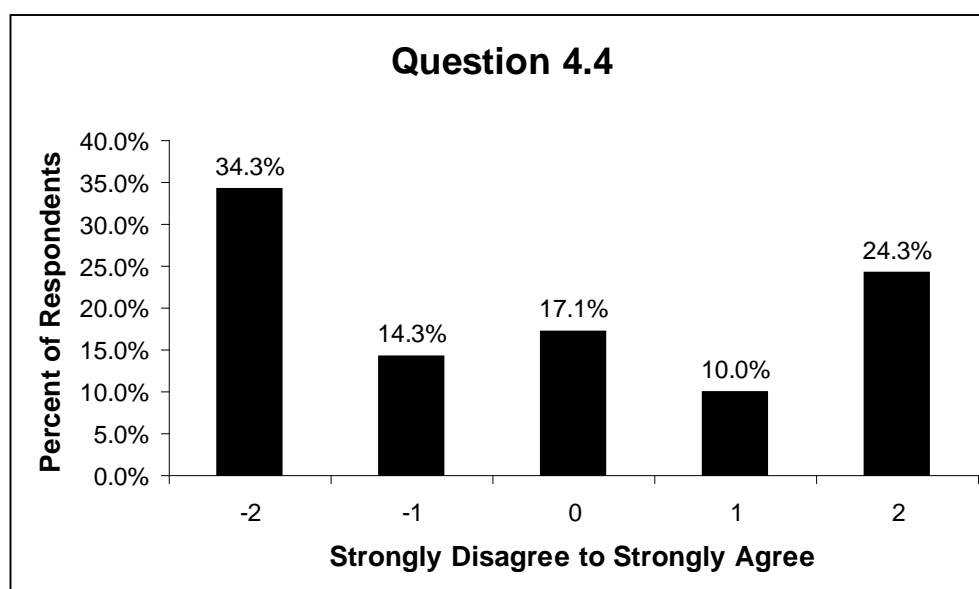
- The EAFM is a difficult concept which is not yet fully defined, *inter alia*, due to gaps in knowledge;
- The available data is either not used or too restricted;
- The focus on single species assessments and TAC/MSY hinder a proper development towards implementing EAFM.
- Customers do not ask for the application of EAFM and the restricted provision of ICES advice delay the developments of knowledge and tools;

Indications of what would have to be changed are very limited. Where clear points were made, they focus on conceptual and organisational elements of “integration”.

Question: 4.4: The scope of ICES advice should be expanded to include social and economic advice.

Mean score: -0.243

Number of responses: 70

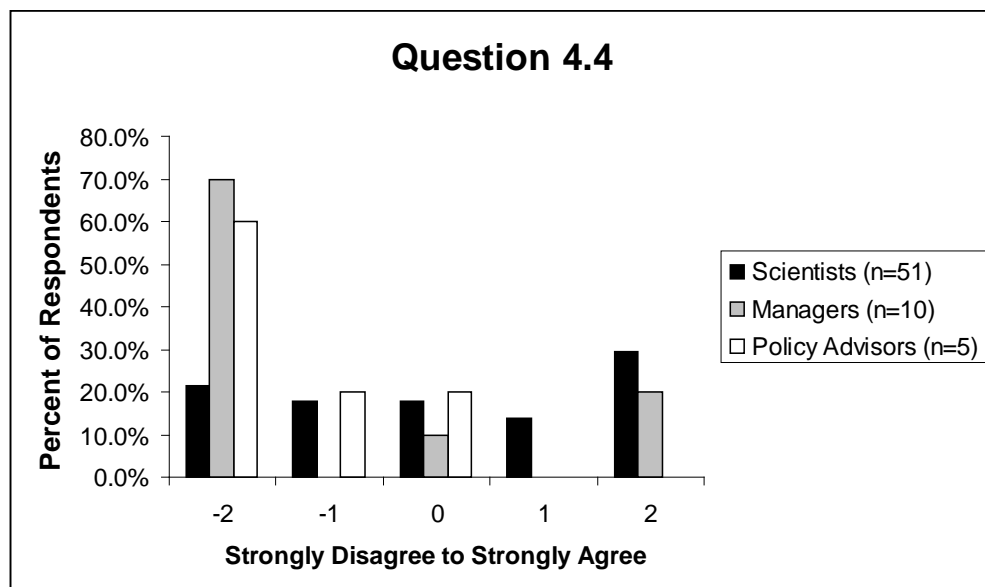


The overall distribution of scores indicates that respondents have a wide range of opinions with respect to this question. There are more negative views (48.6%) than positive (34.3%), with a peak at strongly disagree and a secondary peak at strongly agree. At 17.1%, there are relatively few neutral opinions.

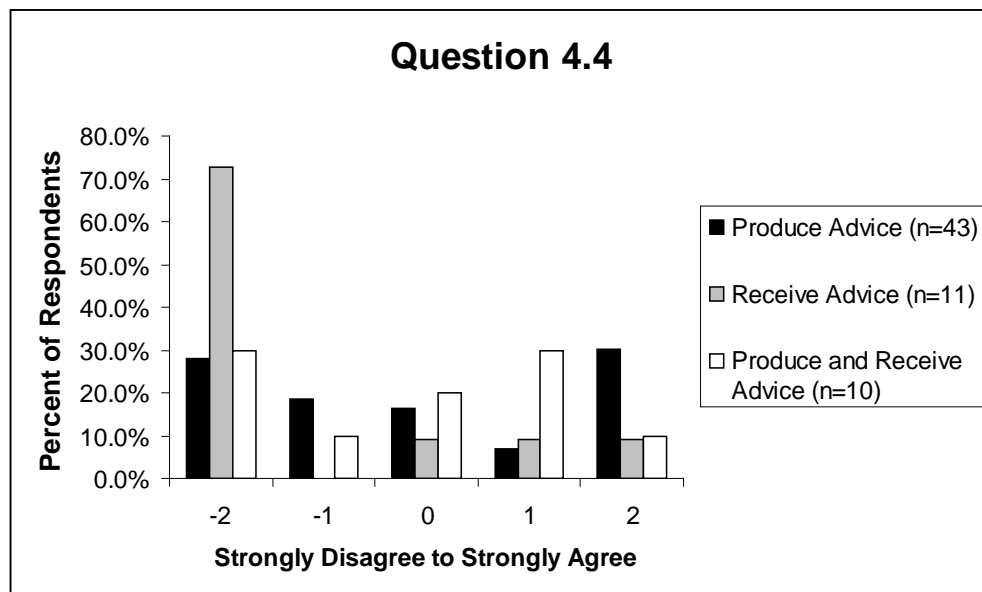
Comparisons among groups based on average scores are summarized in the table below. The average scores for most of the groups are negative. Managers, policy advisors, respondents that receive advice, stakeholders, and members of client commissions all have average scores at slightly disagree or lower. Average scores from respondents that produce advice and respondents from ICES member states or cooperating institutions are between neutral and slightly disagree. The only average scores between neutral and slightly agree are from SCICOM members and scientists.

Group	Number of Respondents	Average Score
Scientists	51	0.12
Managers	10	-1.00
Policy Advisors	5	-1.40
Produce Advice	43	-0.07
Receive Advice	11	-1.19

Group	Number of Respondents	Average Score
Produce and Receive Advice	10	-0.20
ICES Member or Cooperator	57	-0.14
Stakeholders	6	-1.00
Client Commission	4	-1.25
SCICOM members	6	0.50



The opinions of managers and policy advisors have major peaks at strongly disagree on this question. The opinions of scientists are broadly distributed, with a minor peak at strongly agree.



The scores from respondents who produce advice and those who both produce and receive advice are broadly distributed with no real peaks. In contrast, respondents who only receive advice have a major peak at strongly disagree.

Nearly half of the replies to the question whether ICES advice should be expanded to include social and economic are strong to slightly negative. In this group, several respondents indicate that this would lead to an unwanted mix of science and politics which should be left to STECF. Others stipulate that it should in any case not be given priority and that ICES should focus on its current core business.

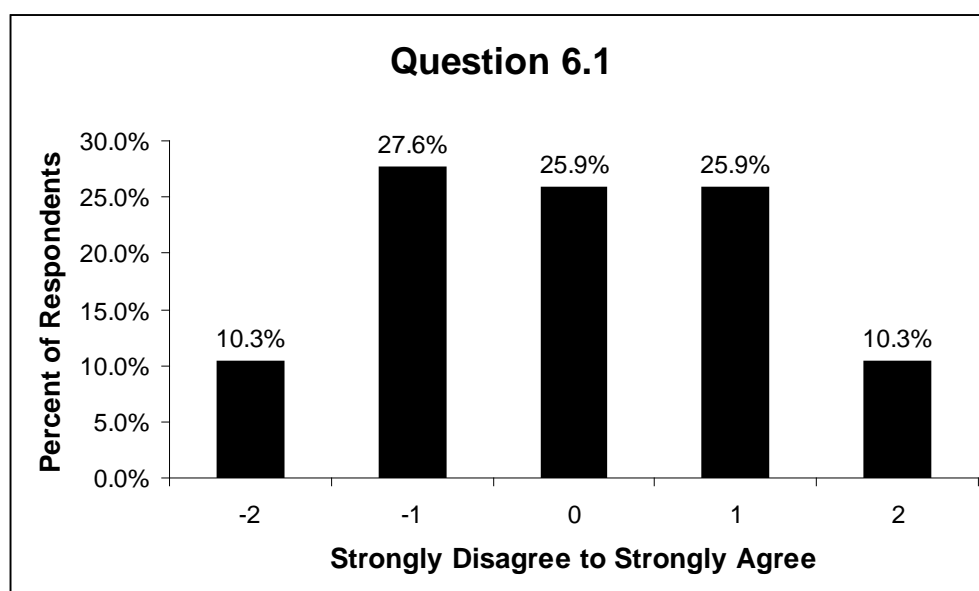
About one third of the replies are strong to slightly positive. This view is very often driven by statements that only by taking account of social and economic aspects, the advice would be holistic contribute to sustainability.

Points regarding what changes should be made include the coordination with STECF and the development of tools to be used by managers.

Question 6.1: The present advisory commitments of ICES are commensurate with available human resources.

Mean score: -0.017

Number of responses: 58

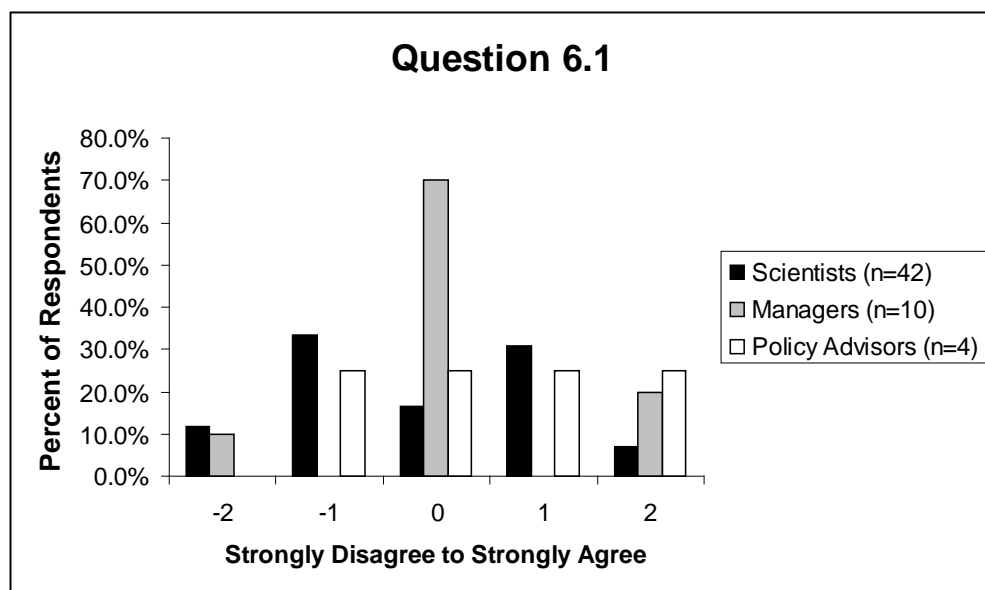


Overall, 79.4% of the opinions on this question fall among slightly disagree, neutral, and slightly agree, with the scores nearly evenly divided among the three categories. In addition, 10.3% of respondents strongly disagree and 10.3% strongly agree.

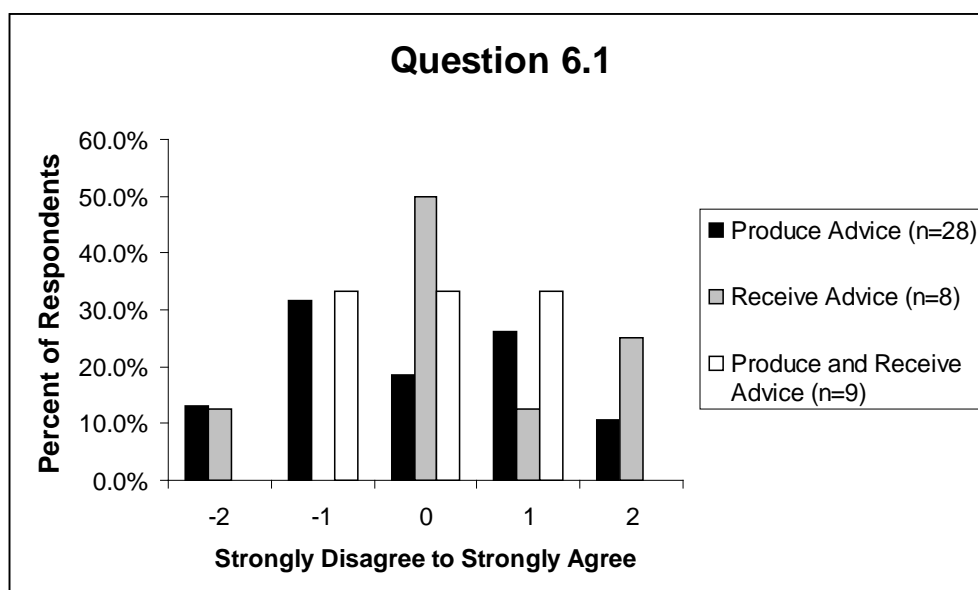
Comparisons among groups based on average scores are summarized in the table below. Most of the averages are close to neutral. Scores for scientists, respondents who produce advice, respondents from ICES member states or cooperating institutions, and SCICOM members are between slightly disagree and neutral, with SCICOM members being the most negative. The average scores for most of the rest of the groups are between neutral and slightly agree, including managers, policy advisors, respondents that receive advice, stakeholders, and members of client commissions. The average score for respondents that both produce and receive advice is exactly at neutral.

Group	Number of Respondents	Average Score
Scientists	42	-0.12
Managers	10	0.20
Policy Advisors	4	0.50
Produce Advice	38	-0.11

Group	Number of Respondents	Average Score
Receive Advice	8	0.38
Produce and Receive Advice	9	0.00
ICES Member or Cooperator	49	-0.10
Stakeholders	3	0.33
Client Commission	4	0.75
SCICOM members	5	-0.40



The distribution of opinions from scientists spans the entire range from strongly disagree to strongly agree. There is a minor peak at slightly disagree and another minor peak at slightly agree. There is a substantial peak for managers at neutral, though some of this group chose strongly agree and strongly disagree. Policy advisors are evenly split from slightly disagree to strongly agree.



Respondents that produce advice have a wide range of opinions, spanning the entire range from strongly disagree to strongly agree. There is a minor peak at slightly disagree and another at slightly agree for this group. The opinions of respondents who receive advice peak at neutral, but the scores range from strongly disagree to strongly agree. The scores from those who both produce and receive advice are evenly split among slightly disagree, neutral, and slightly agree.

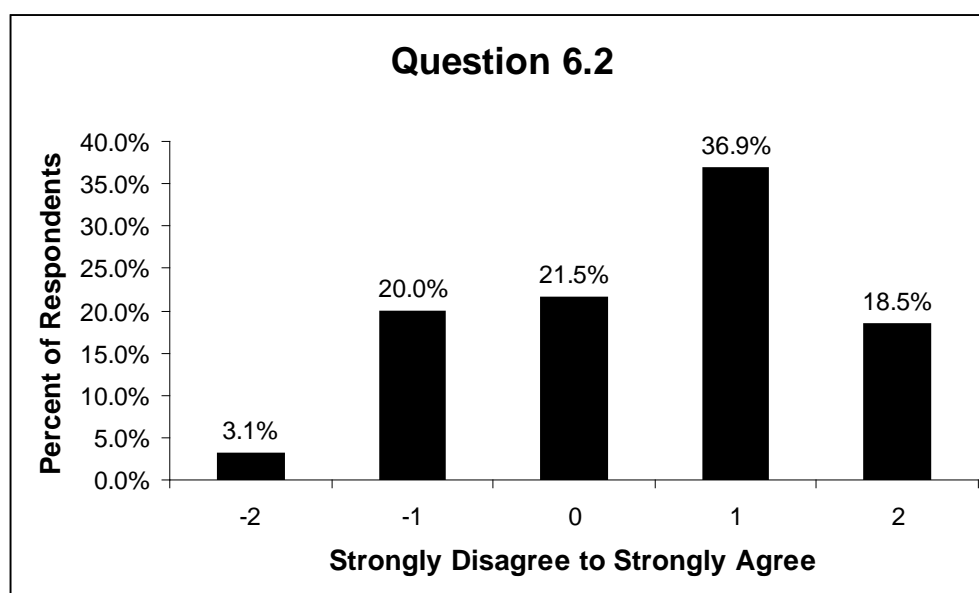
There was a clear consensus in the written answers regarding why problems exist in the availability of human resources. Over half of all respondents to this question, and a substantial majority of those who provided a written answer, stated that the work load on the scientists involved with the ICES advisory process is too high, especially because they are volunteers. A few pointed to inadequate funding or suggested that duplicative activities could be reduced.

Respondents had numerous recommendations for addressing the work load problem. Many involved changing the ICES business model to allow compensation for the services provided, such that ICES would function like a consultancy. This would provide a financial incentive for scientists to take on ICES work and for their home institutions to provide these services. Others suggested reducing the work load by either prioritizing the requests for services that ICES accepts in keeping with available resources, or by reducing the frequency that advice is given or the number of stocks requiring advice. A smaller group of respondents suggested adding personnel or increasing training or recruitment.

Question 6.2: The present advisory commitments of ICES are commensurate with available science expertise.

Mean score: 0.477

Number of responses: 65

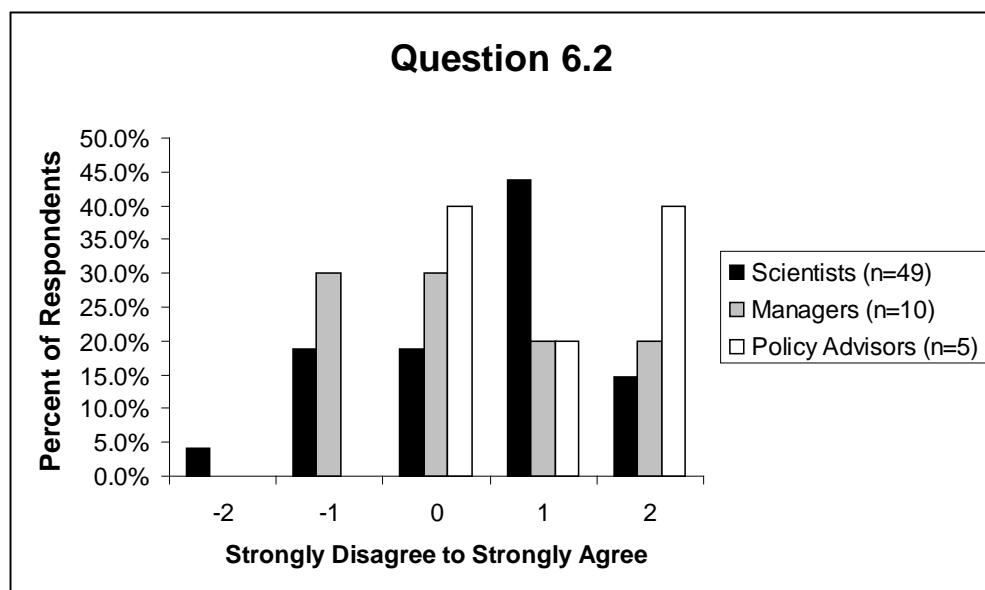


Overall the scores tend toward agreement, with 55.4% of respondents expressing some level of agreement. The peak of the distribution is a slightly agree. However, 23.1% of the respondent expressed some level of disagreement, primarily at slightly disagree.

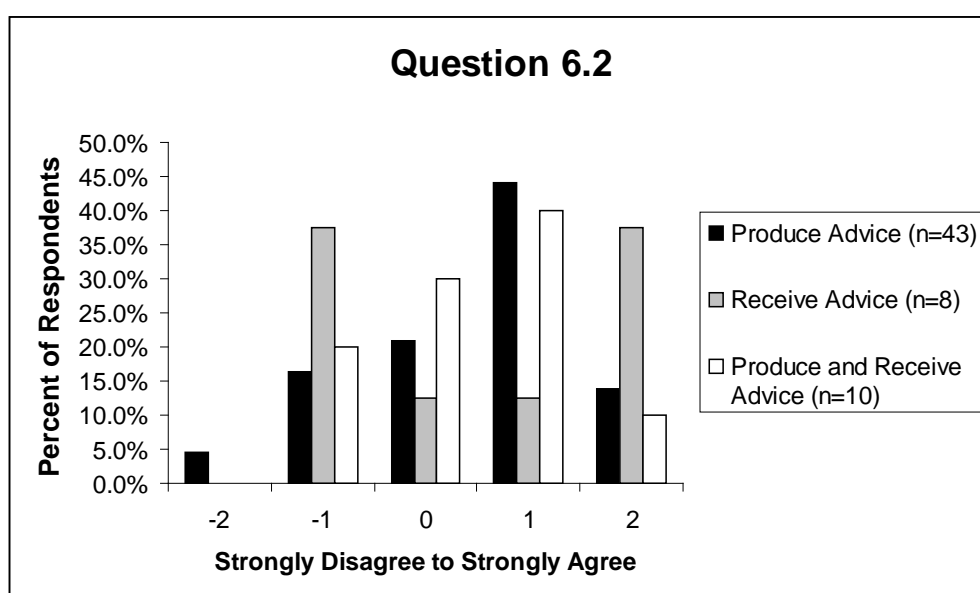
Comparisons among groups based on average scores are summarized in the table below. Nearly all of the averages range from neutral to slightly agree, the exception being SCICOM members, with an average score between neutral and slightly disagree. Stakeholders have the next lowest average, at exactly neutral, while policy advisors and members of client commissions have the highest averages, at exactly slightly agree. Average scores for scientists; respondents who produce, receive, or both produce and receive advice; and respondents from ICES member states or cooperating institutions are between neutral and slightly agree.

Group	Number of Respondents	Average Score
Scientists	48	0.46
Managers	10	0.30
Policy Advisors	5	1.00
Produce Advice	43	0.47

Group	Number of Respondents	Average Score
Receive Advice	8	0.50
Produce and Receive Advice	10	0.40
ICES Member or Cooperator	55	0.42
Stakeholders	3	0.00
Client Commission	4	1.00
SCICOM members	5	-0.40



Most of the scores for scientists range between slightly disagree and strongly agree, with a peak at slightly agree. Scores for managers range between slightly disagree and strongly agree, with highest percentages at slightly disagree and neutral. Scores for policy advisors range between neutral and strongly agree.



Most of the scores from respondents that produce advice are between slightly disagree and strongly agree, with a peak at slightly agree. The scores for respondents that receive advice range between slightly disagree and strongly agree, with highest percentages at slightly disagree and strongly agree. The scores from those that both produce and receive advice range between slightly disagree and strongly agree, with a peak at slightly agree.

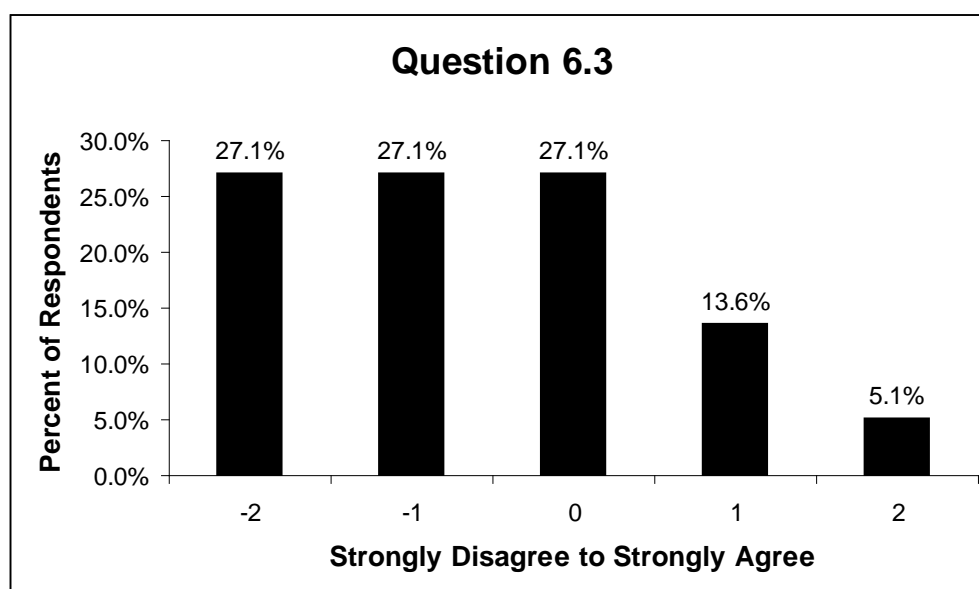
With regard to the written responses, approximately 1/3 of the answers indicated that the respondent think that ICES' advisory commitments are well aligned with available scientific expertise. However, several respondents expressed opinions that the available expertise is stretched too thinly due to over commitments and/or a lack of funding, or that the available expertise does not meet the need. Respondents with this latter opinion identified some fields beyond traditional fisheries science where this need is apparent: ecology, ecosystem approaches to fisheries management, and integrated ecosystem assessments; socio-economics; marine planning; statistics; and biogeochemistry.

Respondents provided numerous suggestions for ways to improve ICES' ability to improve access to scientific expertise. Many suggestions involve incentives. One approach would be to provide financial incentives, such as by paying national institutes to provide experts. A different approach is to provide professional incentives. The respondents with this perspective pointed out that scientists, and the institutes that employ them, are typically evaluated by the number of peer-reviewed publications they produce. The products of the ICES advisory process do not meet this need. Also, there could be an effort to make the advisory process more attractive to academic scientist, perhaps by focusing on issues of greater scientific interest. Another prominent category of suggestions is to prioritize the work load for the advisory system to reduce the work load on participating scientists.

Question 6.3: There are sufficient mechanisms in place for ICES to obtain the needed human resources from Member States.

Mean score: -0.576

Number of responses: 59

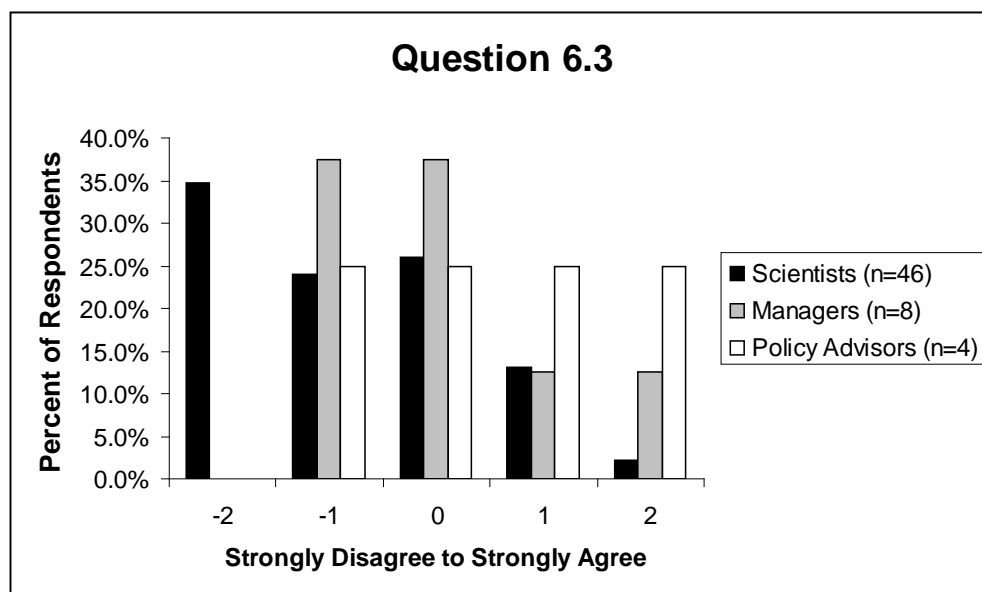


Overall negative responses total 54.2%, while positive responses total only 18.7%. There is no peak, with equal percentages for strongly disagree, slightly disagree, and neutral. The percentages for slightly agree and strongly agree are lower, especially for strongly agree.

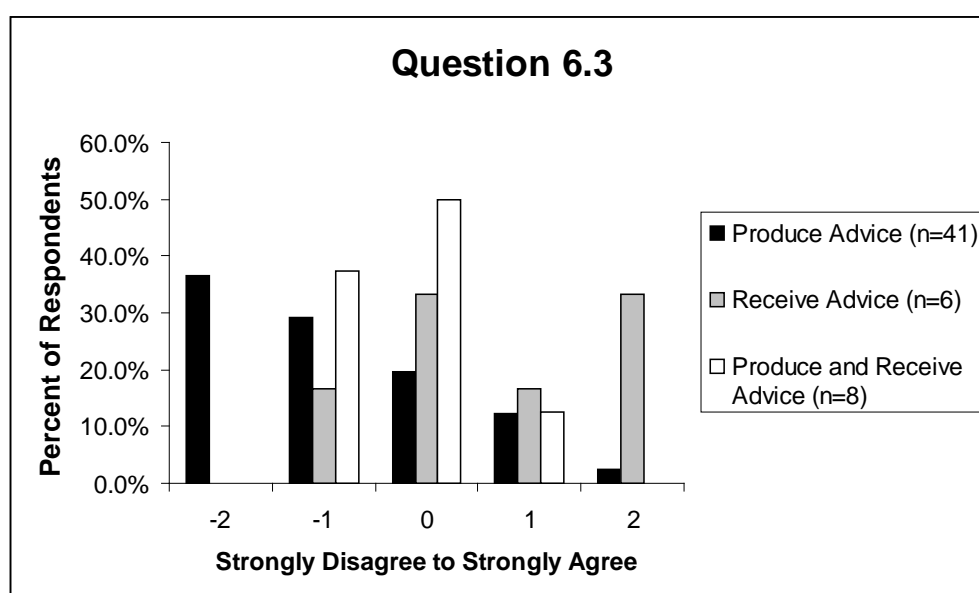
Comparisons among groups based on average scores are summarized in the table below. Groups most closely associated with the work of generating the advice, i.e., respondents that produce advice, scientists, and respondents from ICES member states or cooperating institutions, have the most negative scores, averaging near slightly disagree. Respondents that both produce and receive advice and SCICOM members also average somewhat below neutral, while the average for managers is exactly at neutral. The rest of the groups have averages between neutral and slightly agree, including policy advisors, respondents who receive advice, stakeholders, and members of client commissions.

Group	Number of Respondents	Average Score
Scientists	46	-0.76
Managers	8	0.00
Policy Advisors	4	0.50
Produce Advice	41	-0.85

Group	Number of Respondents	Average Score
Receive Advice	6	0.67
Produce and Receive Advice	8	-0.25
ICES Member or Cooperator	51	-0.69
Stakeholders	2	0.50
Client Commission	3	0.33
SCICOM members	5	-0.20



Most of the scores from scientists range from strongly disagree to slightly agree, with the peak at strongly disagree. The highest percentages of opinions for managers are at slightly disagree and neutral, while the scores from policy advisors are evenly distributed between slightly disagree and strongly agree.



The percentage of respondents that produce advice peaks at strongly disagree, and declines steadily through strongly agree. For the respondents that receive advice, there are peaks at neutral and strongly agree. No one in this group strongly disagreed. For respondents that both produce and receive advice, there is a peak at neutral and a secondary peak at slightly disagree.

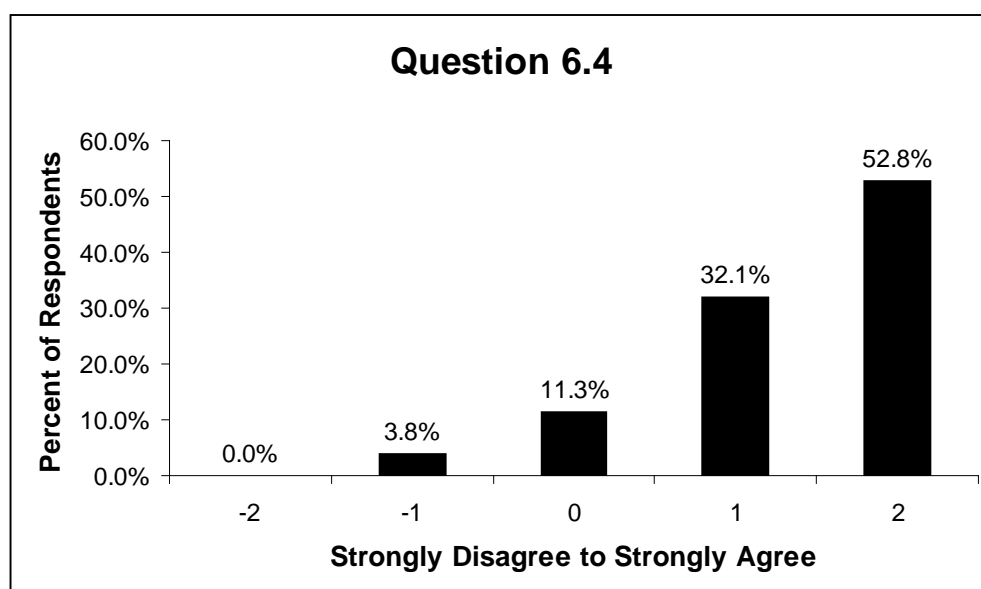
Fifty answers were categorized on why respondents held their opinions on the mechanisms for ICES to obtain needed human resources from Member States. Out of this number about one-third noted that ICES depends on volunteers and lacks the capacity to require participation by Member States. Several respondents noted that national needs for funding and staff resources are often given higher priority by countries than international needs like ICES. A closely related problem, also noted in about one-third of the answers, is that funding is tight, which further constrains the ability of Member States to participate in ICES activities. This means that ICES repeatedly relies on a small number of volunteer experts, who experience very high work loads.

No clear set of recommendations on what to do about this problem can be found in the 53 answers that were categorized for this answer. The most common answer, over one-third of the total, is no answer (e.g., don't know, no comment, or no response at all), even from respondents who identified a reason in their response to the why question for their numerical answer. Several respondents discussed providing additional funding for individual scientists to participate in ICES groups, or for compensating their institutes for their scientists to participate. Other fairly common suggestions were to improve ICES planning and transparency regarding the need for expert group participation, and to strengthen ICES' ability to require or force participation from Member States. A few respondents suggested that participation in ICES groups be made more attractive to scientists, such as by providing more opportunities for professional recognition or career advancement, though how that might be accomplished was not stated.

Question 6.4: The support from the ICES secretariat to the advisory process is sufficient.

Mean score: 1.340

Number of responses: 53

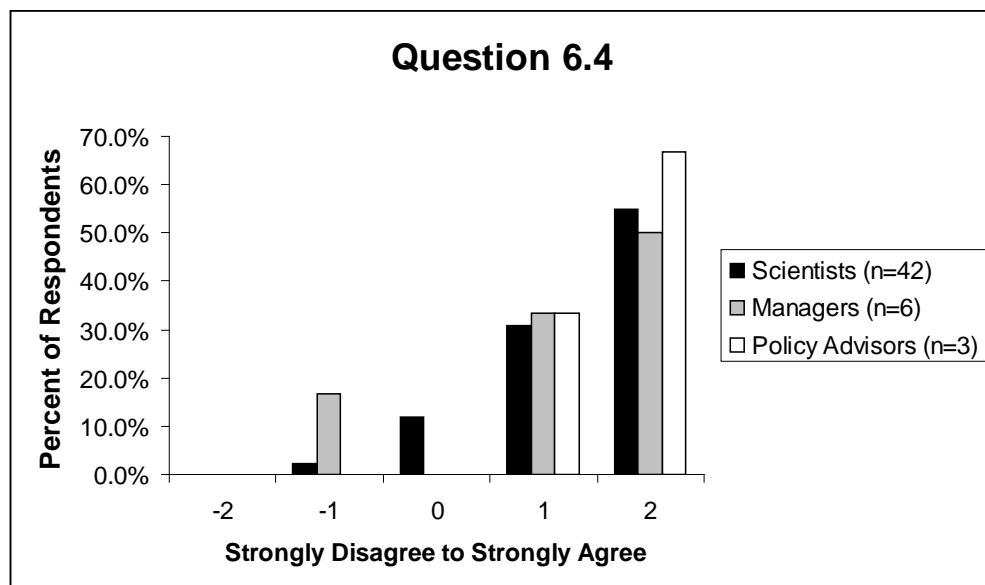


The respondents show a high level of agreement with this question, with 84.9% indicating some level of agreement. The peak of the distribution is at strongly agree, and no one strongly disagrees.

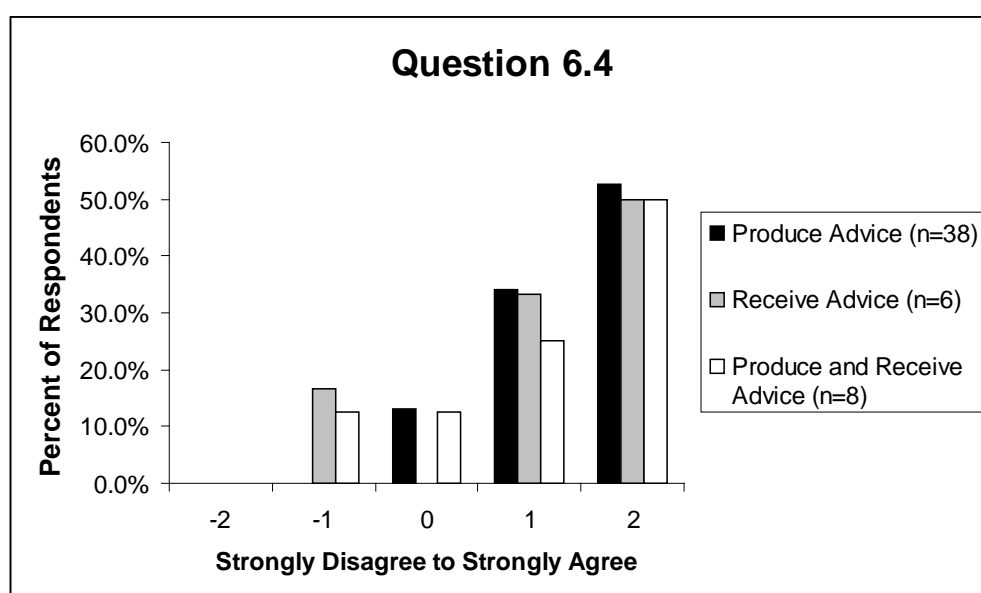
Comparisons among groups based on average scores are summarized in the table below. With the exception of stakeholders, who have an average score between neutral and slightly disagree, the average scores of all other groups are between slightly and strongly agree. These groups are scientists; managers; policy advisors; those that produce, receive, or both produce and receive advice; respondents from ICES member states or cooperating institutions; members of client commissions; and SCICOM members.

Group	Number of Respondents	Average Score
Scientists	42	1.38
Managers	6	1.17
Policy Advisors	3	1.67
Produce Advice	38	1.39
Receive Advice	6	1.17

Group	Number of Respondents	Average Score
Produce and Receive Advice	8	1.13
ICES Member or Cooperator	46	1.37
Stakeholders	2	-0.50
Client Commission	3	1.67
SCICOM members	2	1.50



The peaks for scientists, managers, and policy advisors are all at strongly agree. The second highest percentages for these three groups are at slightly agree. Only a few scores for these groups are at neutral or below.



The peaks of the distributions of opinions for all three groups, those that produce advice, receive advice, or both, are at strongly agree, with the second highest percentages at slightly agree. Only a few scores are at neutral or below.

Out of the 30 answers to why do you have this opinion, over 2/3 of the answers stated that the support of the ICES secretariat was good, very good, or excellent. A few answers cited a need for increased support in areas such as quality assurance and documentation. A few respondents also noted that they thought the secretariat sometimes acted in a directional role or in the policy arena.

Only 16 respondents provided suggestions for change. The most common suggestion is to increase secretariat support for a variety of support functions for the advisory process, including routine quality control, data preparation, report generation, planning/scheduling, advice development, communication, and secretarial services. One suggestion was made to establish a professional publishing service, as opposed to relying on MS Word. There were two other suggestions on more clearly defining the roles and responsibilities of the secretariat and improving transparency to identify when the secretariat might have become involved in policy matters that could affect the advice.

Question 6.5: What could increase the motivation of people to work on producing ICES advice? Please provide a short written answer only.

Number of responses: 58

Because no numerical data were obtained for this question, an overview of the written answers is provided.

A total of 78 responses was evaluated, as many respondents provided more than one suggestion. A wide range of ideas was expressed in the answers, but a few themes were identifiable in the answers.

The two most commonly cited themes involve recognition, either by the home institute recognizing the value of the scientist's participation in the ICES advisory process, or professionally through the production of citable, peer-reviewed, scientific publications. Several respondents mentioned the need to be able to link participation in the ICES advisory process to advancement of scientific careers, and expressed the con-

cern that this is sometimes viewed oppositely, in that the ICES process is less scientific than research that leads to publications in leading journals. This could be addressed through national institutes having a career track or program devoted to providing advice to national and international entities such as ICES.

Somewhat related to the recognition and career concerns is the issue brought out in several answers of enhancing the scientific basis and rigor of the advisory process. This would include broadening the disciplines included, such as by incorporating socio-economic issues, or, as one respondent put it, making the TORs for work groups scientifically challenging.

A significant number of respondents brought out the desire for scientists to be able to know that their work contributed to policies or management decisions. This might involve instituting some sort of tracking system, or a process by which the management decisions would be reported back to the work group that provided the advice. Without this link, these scientists are concerned that the hard work and scientific rigor they provided in the end might not have made any difference.

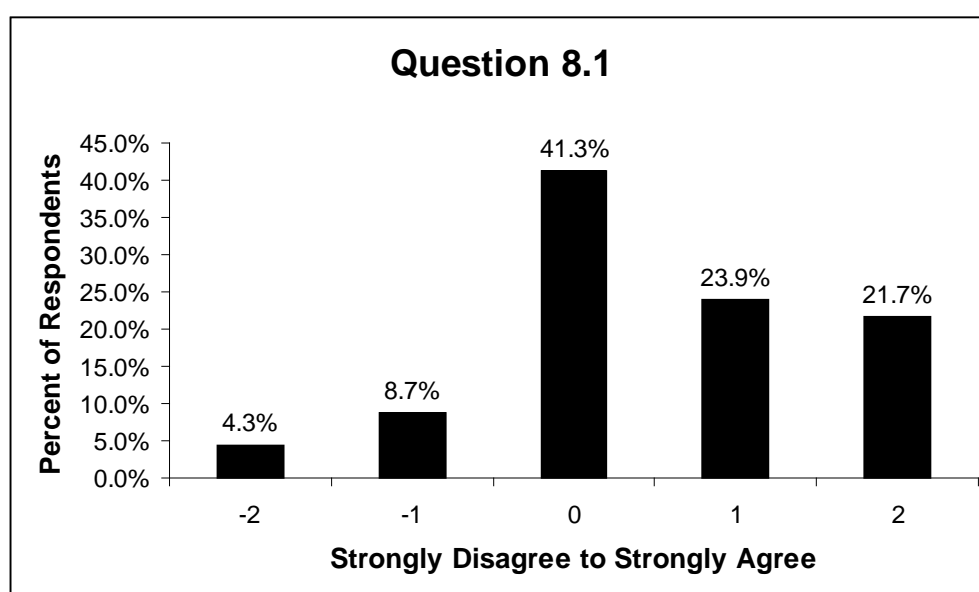
One final substantial class of answers involves economic issues. Common suggestions include paying for experts' travel, especially for academics that might not be able to participate otherwise; paying the scientists directly for their work; and paying the home institution for the time or for the services their scientists provide.

Many more suggestions were provided by one to a few respondents. These include controlling the work load for participating scientists and allocating some of the more routine work to ICES staff, giving awards or other types of expressions of appreciation to scientists who participate in the advisory process, better communication about ICES advice both internally within the ICES community and externally to the public at large, and encouraging the participation of PhD students and younger scientists.

Question 8.1: The ICES advisory process is cost effective.

Mean score: 0.500

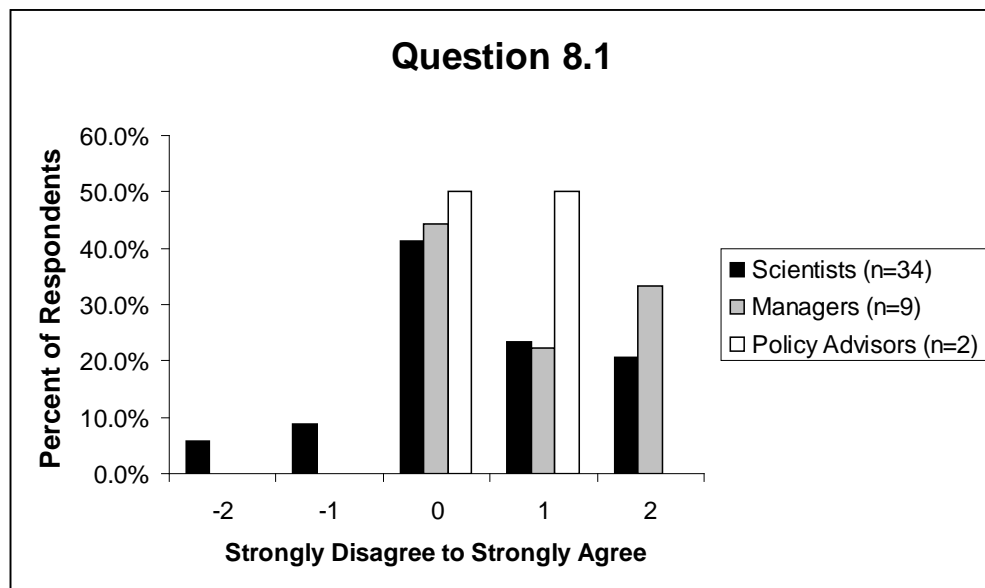
Number of responses: 46



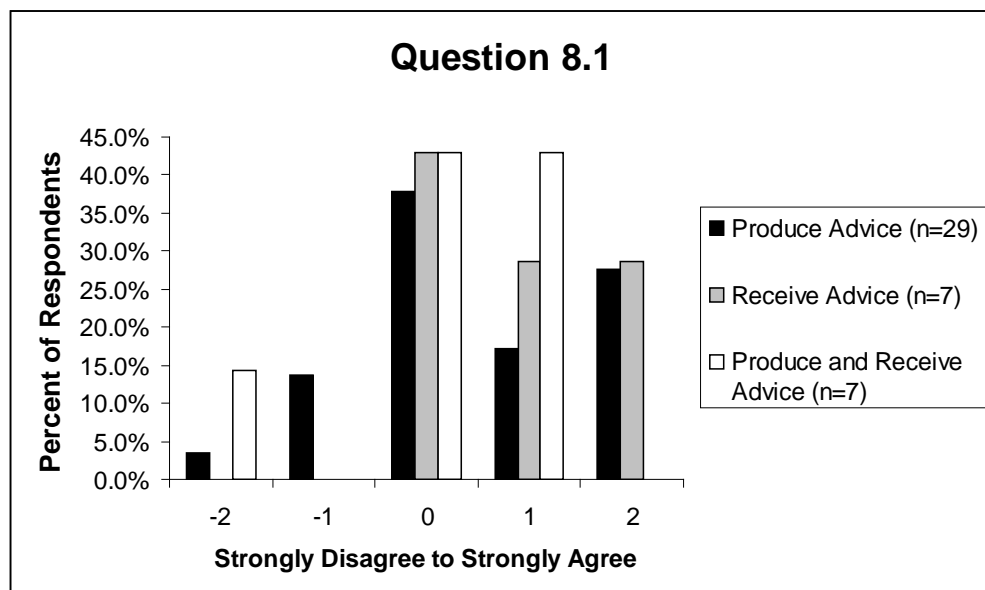
Overall the peak of the distribution is at neutral, and there are more respondents indicating some level of agreement (45.6%) than some level of disagreement (13.0%).

Comparisons among groups based on average scores are summarized in the table below. Stakeholders and members of client commissions have average scores exactly at slightly agree. The average scores for all other groups are between neutral and slightly agree, including scientists; managers; policy advisors; respondents that produce, receive, or both produce and receive advice; respondents who are from ICES member states or cooperating institutions; and SCICOM members.

Group	Number of Respondents	Average Score
Scientists	34	0.44
Managers	9	0.89
Policy Advisors	2	0.50
Produce Advice	29	0.52
Receive Advice	7	0.86
Produce and Receive Advice	7	0.14
ICES Member or Cooperator	40	0.48
Stakeholder	2	1.00
Client Commissions	2	1.00
SCICOM members	5	0.75



For scientists, opinions range from strongly disagree to strongly agree, with the peak at neutral and relatively higher values indicating agreement than disagreement. For managers, opinions range between neutral and strongly agree, with the peak at neutral. No manager indicated disagreement. Only two policy advisors provided an opinion; one expressed a neutral opinion and the other expressed slight agreement.



The peak of the distribution from respondents that produce advice is at neutral, with more of the remainder indicating some level of agreement than disagreement. Respondents that receive advice have equal peaks at neutral and slightly agree. The peak of the distribution from respondents that both produce and receive advice is at neutral, with equal percentages of the remainder indicating slight or strong agreement.

About one third of the total number of respondents to the questionnaire replied with a “Not Applicable” with lack of knowledge on the costs of the process as a recurring reason. One respondent remarked that the ICES Advice heavily subsidised.

Also many respondents with a positive score gave no or a “not applicable” written reply (e.g. as in a response “I do think ICES is quite cost effective looking at the annual balance.”). Some respondents indicate that they are positive because “participation at meetings is paid” or because “the bulk of the work is done voluntary”. There are some replies stating that work can be done more effective.

For the neutral and negative scores, the situation is as with the NA scores. In most cases, there is either no written reply or a not applicable” reply. One respondent indicates that may be the costs are known but not the benefits. One other respondent indicates the process must be cost effective as the EU is paying for it.

One respondent replied that the questionnaire itself was not cost effective and that it should have been shorter and much simpler. One other indicated that the role of the ICES Council should have been addressed as its diminishing role may be a main problem.

4 Appendix IV: Overview of the Advisory Process for Federal Fisheries Management in the United States.

Structure and Function

Most fisheries conducted in the U.S. Exclusive Economic Zone are managed under a system established by the Magnuson-Stevens Conservation and Management Act (MSA), which was most recently reauthorized in 2006 (U.S. Department of Commerce 2007). At the cabinet level, fisheries management is the responsibility of the U.S. Secretary of Commerce, with most activities delegated to the National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NMFS).

The MSA established eight regional fisheries management councils (NMFS 2012a). Each council develops fishery management plans for their region, and develops management measures to implement these plans. The NMFS fisheries science center in the region is responsible for most of the data collection and analysis, while the NMFS regional office is responsible for implementing decisions and management measures developed through the council process. Both of these components of NMFS participate in the council process in their regions. A good overview of the council process is posted on the Alaska Fisheries Management Council's web site (Evans 2012). Council meetings are open to the public, and considerable emphasis is made on facilitating public engagement. The total number of fishery management plans is 56. One (Atlantic Highly Migratory Species) is managed by NMFS' Office of Sustainable Fisheries, the remaining 55 are distributed among the eight councils. Approximately 500 stocks are managed under these plans. These plans and management measures are subject to approval by NMFS, and the NMFS is then responsible for implementation. Councils consist of voting members from state governments, industry groups, and conservation organizations in the region; these members are appointed by the Secretary of Commerce. The regional administrator from NMFS is also a voting member. The councils also have non-voting members from other Federal agencies (e.g., U.S. Coast Guard) and substantial professional staffs to support their activities.

Each regional fishery management council has subordinate committees to conduct the detailed work of the council, such as plan teams for a specific fishery management plan or an Advisory Panel consisting of industry representatives. Key to the advisory process is each council's Scientific and Statistical Committee (SSC). SSC membership consists of NMFS and state professional staff, academics, and other professionals from industry or environmental organizations. The SSC evaluates scientific information (e.g., biological socio-economic data, statistical analyses) that is relevant to fisheries management, and provides their council with their recommendations and conclusions. The 2006 re-authorization of the MSA requires that quotas set by councils cannot exceed the SSC's recommendation, based on the "best available science." These quotas are termed annual catch limits, and must be updated yearly.

Management Advice

Setting annual catch limits for 500 stocks is mandated under the MSA to be based on the best available science, and is a very demanding and labor-intensive process. Out of this total, 230 stocks are included in the "Fish Stock Sustainability Index" (FSSI; NMFS 2012b). The FSSI stocks constitute over 90 percent of total commercial landings, with some FSSI stocks also targeted by recreational fisheries. The status of most FSSI stocks is tracked through stock assessments, which provide the scientific basis for management advice to the councils. A stock assessment is a technical document. The results may have management implications (e.g., determining whether or not a

stock is overfished or projecting future stock status under different fishing scenarios) that will provide the scientific basis for management measures, but the stock assessment itself does not provide management advice.

High-quality stock assessments involve one or more indices of abundance, typically derived from fishery-independent surveys; data on removals by fisheries, such as landings and discard data from catch statistics, observers, and logbooks; biological information, such as age or size structure, growth, and fecundity; and the population dynamics models to analyze all of this information. These assessments also include relevant ecological and environmental information to assist with interpretation, and a socio-economic analysis to inform management decision making. Currently, very few stock assessments explicitly include ecological or environmental factors in the assessment model. As of July 2012, 53.9 percent of the FSSI stocks had “adequate” stock assessments, based on model complexity (minimum of an aggregated production model) and assessment age (no more than 5 years) (NMFS 2012c). Another 35.7 percent of the FSSI stocks had stock assessments below this standard, and the remaining 10.4 percent had not been assessed. Most of the non-FSSI stocks are considered data-poor, and their status is tracked with much less rigor (e.g., commercial catch per unit effort or landings data).

The stock assessment process varies somewhat from council to council, but the Stock Assessment Workshop/Stock Assessment Review Committee (SAW/SARC) process used for assessing the stocks under the purview of the New England Fishery Management Council and the Mid-Atlantic Fishery Management Council is a good example (NMFS 2012d). The SAW/SARC meetings are generally open to the public. More specific information and an archive of SAW/SARC reports is available on the Northeast Fishery Science Center’s web site (NMFS 2012e).

Prior to the start of a SAW/SARC process, the Northeast Regional Coordinating Council chooses the stocks to be assessed and develop Terms of Reference for the assessments. This group consists of senior leadership from the two fishery management councils, the director of the NMFS Northeast Fisheries Science Center, the Administrator of the NMFS Northeast Regional Office, and the Executive Director of the Atlantic States Marine Fisheries Commission

The SAW/SARC process for a stock assessment has three major components, and more than one stock is typically assessed during a SAW/SARC.

- The first component is the preparation of the stock assessment by a SAW working group, which assembles the relevant data and conducts the analyses to estimate the current exploitation rate and the stock size, and compares these figures to the applicable reference points. These working groups consist primarily of working level NMFS scientists from the Northeast Fisheries Science Center, augmented by academic scientists, representatives from NMFS’ Northeast Regional Office, and scientists from some of the affected state agencies.
- The second component is an external peer review by the SARC. The SARC focuses only on the science underlying the stock assessments. Although the SARC does not provide management advice, the assessments under review contain results that have important management implications (e.g., predicted stock trajectories under different management scenarios). The SARC is chaired by a member of the council’s SSC, and contains three external experts from the Center for Independent Experts (CIE). Each CIE panelist writes an individual technical review of the assessments. These reviews focus only on the technical details of the assessments, and state whether or not the Terms of Reference were met and if the assessment represents the

best available science. If these statements are answered in the affirmative, the assessment is judged to be acceptable as the scientific basis for developing management advice. If not, the assessment can be rejected

Started in 1998, the CIE is a unique entity, designed specifically to provide arms-length peer review of NMFS science products (Brown et al., 2006, 2007). The CIE is run under a contract with NMFS, and provides expert reviewers that meet strict standards of independence from the specific products being reviewed and strict conflict of interest standards. The CIE, rather than NMFS, identifies the reviewers and brings them under separate contracts, so NMFS is not directly involved with naming the reviewers, nor is there any contractual relationship between the reviewers and the Agency. The only authority over the CIE reports that NMFS has is to confirm that the reports meet the Terms of Reference. The actual content of reviewer reports, such as the statements and opinions under each Term of Reference, assessments of science quality, and recommendations, are solely under the purview of the CIE.

- The third component is presentation of the assessments by the SAW assessment leaders, including results and associated reports, the fishery management council with jurisdiction over the assessed stocks.

Each SAW/SARC generates a set of reports: the Assessment Report, which is a detailed technical description of each stock assessment; an Assessment Summary Report, which provides a summary of the assessments that is developed to be more accessible to managers; and SARC panel reports, including the separate reports from each of the three individual CIE reviews plus a summary of these individual reports.

Management advice is then developed based on all of these sources of information. The advice is developed by relevant technical committees, fishery management plan teams, and the SSC. The SSC approves the advice for consideration and action by the relevant council. The SAW/SARC advice is delivered to the New England Fisheries Management Council or the Mid-Atlantic Fishery Management Council, depending on which council has jurisdiction for the particular stock.

It should be noted that the SAW/SARC process, as well as the similar processes followed in other regions, is evolving due to the pressures of developing annual catch limits for all federally managed stocks. Funding for this work has not grown along with the increased requirement for stock assessments. For example, the Northeast Regional Coordinating Council is considering a less demanding (and less scientifically rigorous) process for routine updates of assessments, so that the staff resources will be available for more comprehensive benchmark or research assessments (New England Fishery Management Council 2012). Benchmark assessments would be conducted as circumstances demand, such as for stocks with highly variable dynamics or when a routine assessment fails peer review.

References

- Brown, S. K., Shvillani, M., Die, D. J., Sampson, D. B., and Ting, T. A. 2006. The Center for Independent Experts: The external peer review program of NOAA's National Marine Fisheries Service. *Fisheries* 31(12): 590-600.
- Brown, S. K., Shvillani, M., Die, D. J., Sampson, D. B. 2007. The Center for Independent Experts - the U.S. National Marine Fisheries Service's National Peer-Review Program. *ICES CM* 2007/P. 29 p.
- Evans, D. 2012. Introduction to the council process. North Pacific Fishery Management Council. <http://alaskafisheries.noaa.gov/npfmc/PDFdocuments/meetings/IntrotoProcess.pdf>. Accessed 17 July 2012.

- New England Fishery Management Council. 2012. Scientific and Statistical Committee meeting summary, December 13, 2011. New England Fishery Management Council. http://www.nefmc.org/tech/council_mtg_docs/Jan-Feb%202012/1_December%2013,%202011%20SSC%20Mtg%20Summary.pdf. Accessed 17 July 2012.
- NMFS. 2012a. Regional fishery management councils. NMFS Office of Sustainable Fisheries. http://www.nmfs.noaa.gov/sfa/reg_svcs/councils.htm Accessed 17 July 2012.
- NMFS. 2012b. Status of U.S. Fisheries. NMFS Office of Sustainable Fisheries. <http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm>. Accessed 17 July 2012.
- NMFS. 2012c. Species Information System Public Portal. Summary of assessment information. NMFS Office of Science and Technology. <https://www.st.nmfs.noaa.gov/sisPortal/sisPortalMain.jsp>. Accessed 17 July 2012.
- NMFS. 2012d. SAW/SARC review process. NMFS Northeast Fisheries Science Center. <http://www.nefsc.noaa.gov/saw/process.html>. Accessed 17 July 2012.
- NMFS 2012e. Northeast regional stock assessment workshop (SAW). NMFS Northeast Fisheries Science Center. <http://www.nefsc.noaa.gov/saw/>. Accessed 17 July 2012
- U.S. Department of Commerce. 2007. Magnuson-Stevens Fishery Conservation and Management Act as amended through January 12, 2007. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Second printing, May 2007. http://www.nmfs.noaa.gov/sfa/magact/MSA_Amended_2007%20.pdf. Accessed 17 July 2012.