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SCICOM PROGRESS REPORT 2013

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SCICOM Progress Report 2013

An annual report to the ICES Council to describe the development and implementation of the ICES Science Plan

ICES International Council for the Exploration of the Sea

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1 Introduction (SCICOM Chair)

The SCICOM Annual Report to Council intends to review the activities of the ICES science structures in their efforts to implement the Science Plan (2009–2013), which is now coming to the end. It is important to emphasize that the role of SCICOM is to ensure that ICES remains the most relevant, credible and respected marine science organization, something that requires a strong, active and innovative science agenda.

The report follows the structural mechanisms that SCICOM utilizes to deliver the Science Plan:

- **Science Steering Groups** – to manage the Expert Groups portfolio and ensure their delivery is coordinated and driven by the needs of the ICES Science Plan as well as bottom up developments.
- **Strategic Initiatives** – a mechanism to introduce innovative and interdisciplinary thinking to ICES, on topics that are cross-cutting and requiring additional partners outside the ICES constituency. Aimed at increasing the profile and relevance of ICES in a rapidly changing scientific and policy landscape.
- **Operational Groups** – to develop data policies and access mechanisms as driven by the scientific needs of the organization; to develop a training programme for the ICES constituency; to ensure consistent publications and communication strategies and products.
- **Annual Science Conference** – To provide a relevant and stimulating venue for the ICES community to meet and discuss their science, and to bring new participants in ICES activities.

In addition, this document presents a summary of the new science plan (2014–2018), which is currently in draft form. It is expected to be completed and delivered to Bureau before the end of the year, coinciding with the term of the current SCICOM Chair. This summary is followed by a report of a well-attended open discussion at the 2013 ASC on the main challenge of the science plan: integrated ecosystem understanding.

In the concluding remarks to this report the SCICOM Chair will summarize the main achievements of SCICOM in the period 2010–2013, and the major challenges for the new term.

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2 Science Development – The ICES Science Plan (SCICOM Chair)

2.1 Summary of the plan objectives and goals

A Science Plan is an essential element to reinforce and demonstrate the nature of ICES as a marine science organization. In drafting a new science plan the Science Committee wanted to ensure that it was not simply a collation of the science strategies of member countries, or a summary of their common needs. The idea of a "catch-all" plan was discarded because it would not allow prioritization of the work and because the unique nature of ICES would not be evident. A "minimum common denominator" plan was not favoured because it would limit innovation and scope. Instead SCICOM wanted to deliver a plan that was uniquely ICES by providing:

- A coordinated and objective-driven vision, which is
- Innovative, ambitious and responsive to clients,
- Capable of identifying science priorities in the context of limited resources, and
- Where the ICES added value stands out

The new SP has a number of important principles that need to be understood to appreciate the objectives of the plan:

- One Challenge: to achieve Integrated Ecosystem Understanding of North Atlantic ecosystems.
- One Aspiration: to produce Integrated Ecosystem Assessments of ICES regional seas.
- One Enabler: Integrated Ecosystem Observation and Monitoring programmes in the ICES area.

It is expected that the new plan will provide:

- A vision and a path to that vision that indicates the direction of travel.
- An opportunity for the ICES science community to demonstrate what makes us collectively unique.

Bearing in mind the urgent need to facilitate the transfer science developments into advisory products, SCICOM and ACOM have agreed on an enhanced "Benchmarking" process that would expand the current stock benchmarks to incorporate geographically based ecosystem benchmarking exercises.

The structural elements of the new science plan are presented in the figure below. The plan has been extensively discussed at SCICOM, as well as Bureau and ACOM. It has been circulated to all science expert groups for feedback and comments, as well as to attendees to the ASC. We are currently considering the last round of comments before completing the document.

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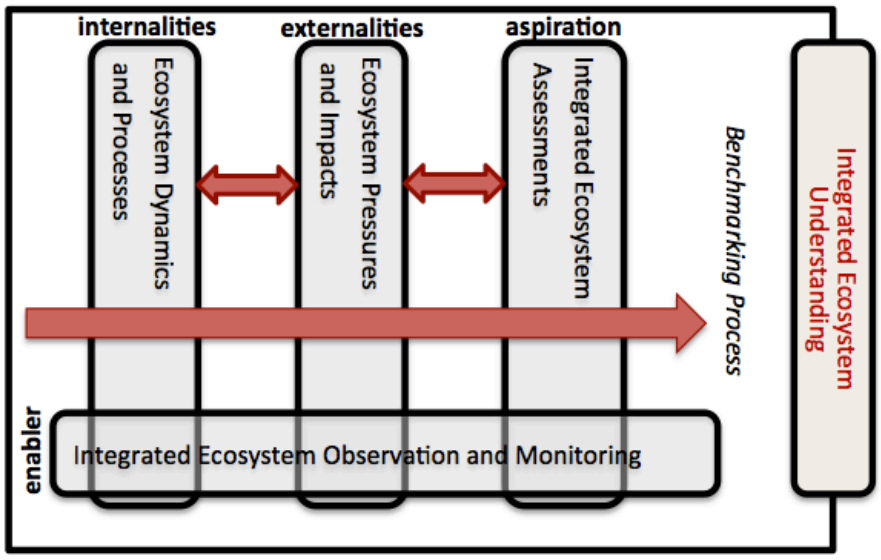

SCICOM has already started the process of implementation, and the transition from the current Steering Groups to the four new steering groups has been prepared, and a mapping exercise of expert groups against the structures has been completed. SCICOM and ACOM are working through the details of implementation of the benchmarking process.

2.2 ASC Open Session: The Challenge of Integrated Ecosystem Understanding (Chair: Manuel Barange, UK, SCICOM Chair)

Wednesday, 25 September, Reykjavik, Iceland

The ASC provides a unique opportunity to explore the concepts behind the science plan and the changes that it would demand from scientists and science leaders. To facilitate this a special 3-h open session was held on Wednesday 25th September, on the "Challenge of Integrated Ecosystem Understanding", with the following programme of presentations:

- Policy needs concerning advice about marine ecosystems (Kenneth Patterson, DG Mare, EC)
- Integrated Ecosystem observations
    - Integrated Ecosystem Observation and Monitoring (Nils Olav Handegard, IMR, Norway)
    - Integrated Ecosystem Modelling (Geir Huse, IMR, Norway)
- Integrated Ecosystem Assessments
    - Options for Delivering Ecosystem-based Marine Management (Leonie Robinson, University of Liverpool, UK)
    - Potentials and limits of Bayesian Believe networks (Vanessa Stelzenmüller, VTI, Germany)
    - The REGNS approach (Andrew Kenny, Cefas, UK)
- Linking science and advice via an ecosystem benchmarking process (Carmen Fernandez, ICES ACOM Vice Chair, Spain)

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The talks were followed by significant discussions, and some of the messages received are summarized as follows:

- It is clear that at least European policies (reformed CFP and the MSFD) will increasingly demand "ecosystem considerations" in the advice. In the case of the CFP these demands are not specified but would have to be serviced.
- The new plan will increase the demands on data availability and access, which justifies the enhanced role of the ICES Data Centre.
- The IEA vision assumes the inclusion of social and economic considerations. Currently the science needs are well considered in the science plan, but the policy advice is currently in the hands of STECF. There is no expectation of this to change in the immediate future.
- The plan places a lot of emphasis on modelling and quantitative assessments. It was agreed that the diversity of model platforms and approaches need to be tensioned against the need for consistency in outputs. Consideration is needed for all the scales of ecosystem variability.
- The new focus on ecosystem assessments and ecosystem understanding provides a clear and new goal to the science structures, which was lacking up to now.
- It would be important if the benchmarking process involved stakeholders and partners, so that the buy-into increases. The benchmark process is essential and needs to focus on methodologies and approaches.
- Benchmarking per se may not be enough. Operational Integrated Advice is the ultimate need.
- Importance to ensure that the "governance" layer, which is not in the hands of ICES, mirrors the science vision.
- As capacity is limited, we may need to drop some things in order to address the IEA considerations.
- Such a strong focus on modelling will identify data gaps. I guess that is when the integrated monitoring programme comes into its own.

The above is not a complete or comprehensive summary of the discussions, but provides a flavour of the level of conversation. The session was very well received, particularly for two reasons: a) it brought a large part of the community to the starting blocks and clarified the direction of travel and, b) provided a fairly unstructured opportunity for participants to brainstorm issues and thoughts. Overall, it was an essential process in preparation for the implementation of the new science plan.

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3 Reports of Science Steering Groups

3.1 SCICOM Steering Group on Ecosystem Function (SSGEF, Graham Pierce – in the new science plan SGEDP)

3.1.1 Vision/objective

SSGEF exists primarily to facilitate and monitor progress and deliverables, as well as upward and downward communication, interactions and collaborations, involving those groups mainly involved in ecosystem science, i.e. the structure and functioning of the ecosystem, including living and non-living components, as well as the life history and ecology of individual taxa. The science objectives of the groups map onto several components of the current Science Plan, especially topics under 1.1, 1.2, 1.4, 1.6, 2.1, 3.1, 3.2, 3.3 and 3.4, thus overlapping with the remit of other SSGs and including in some cases significant advisory components. Essentially these collective objectives emerge from a combination of bottom up (individual Expert Group aspirations) and top down (Science Plan and advice-driven ToRs).

SSGEF organized a session at the 2013 and had the stated aim to generate a synthesis relevant to IEA and MSFD. However, in practice this objective was superseded by the need to discuss the content and implications of the new Science Plan.

3.1.2 Expert groups

A list of expert groups under SSGEF appears below, identifying whether they have already adopted multi-annual ToRs and summarizing progress and issues.

ACRONYM	EG NAME	START OF M-A ToRs	Chair(s)	Commentary
WGBIODIV	Working Group on Biodiversity Science	2013	Simon Greenstreet, UK	Good progress but old format reporting
WGCRAN	Working Group on Crangon fisheries and life history	2013	Marc Hufnagl, Germany	Good progress (there were no year 1 deliverables)
WGMBRED	Working Group on Marine Benthal and Renewable Energy Developments	2013	Jennifer Dannheim, Germany, and Andrew B. Gill, UK	Work continues on year deliverables
WGPME	Working Group on Phytoplankton and Microbial Ecology	2013	Xosé Anxelu G. Morán, Spain, and Alexandra Kraberg, Germany	Has reported. There were no year 1 deliverables
WGERAAS	Working Group on Effectiveness of Recovery Actions for Atlantic Salmon	2013	Dennis Ensing, UK	Progress apparently good. Report arrived during ASC
WGRECORDS	Working Group on the Science Requirements to Support Conservation, Restoration and Management of Diadromous Species	2013	Niall Ó Maoiléidigh, Ireland, and Atso Romakkaniemi, Finland	Met at ASC

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WGSPEC	Working Group on Small Pelagic Fishes, their Ecosystems and Climate Impact	2013	Jürgen Alheit, Germany, and Priscilla Licandro, UK	Going according to plan (Year 1 deliverable is complete)
BEWG	Benthos Ecology Working Group	2014	Steven Degraer, Belgium	Excellent progress
WGCEPH	Working Group on Cephalopod Fisheries and Life History	2014	Marina Santurtún, Spain	Good progress but low attendance
WGCRAB	Working Group on the Biology and Life History of Crabs	2014	Jan H. Sundet, Norway (to 2013), incoming Chair: Jean-Paul Robin, France	No report available. Jan has stepped down.
WGOH	Working Group on Oceanic Hydrography	2015	Stephen Dye, UK, and Kjell Arne Mork, Norway	Good progress
WGZE	Working Group on Zooplankton Ecology	2015	Piotr Margonski, Poland	Good progress
WGSE	Working Group on Seabird Ecology	?	Richard Veit	Due to meet in 2014. No activity in 2013
SGCBNS	Study Group on Climate Related Benthic Processes in the North Sea	N/A	Silvana Birchenough, UK, and Henning Reiss, Norway	Terminated. Recommendations carried forward into BEWG
SGIMT	Study Group on Integrated Morphological and Molecular Taxonomy	2014 (as WGIMT)	Ann Bucklin, USA	Excellent work
WKBALTEEL	Workshop on BALTic EEL	N/A	Willem Dekker, Sweden	(Pending)
WKSERIES	Workshop on Synthesis of hydrographic, phytoplankton, microbial plankton and zooplankton time-series in the North Atlantic and adjacent seas	N/A	Lidia Yebra, Spain, and Alexandra Kraberg, Germany	(Pending)
WKSICCME-Spatial	Workshop on Global Assessment of the Implications of Climate Change on the Spatial Distribution of Fish and Fisheries	N/A	Myron Peck (Germany, ICES), Anne Hollowed (USA, PICES) and Suam Kim (Korea, PICES)	Very successful
WKTRUTTA	Workshop on sea trout	N/A	Stig Pedersen, Denmark, and Nigel Milner, UK	(Pending)

3.1.3 Roadmap for 2014

Most EGs under SSGEF either already have defined ToRs for 2014 or have submitted resolutions. To a large extent the plan is "Business as Usual". As the new Science Plan kicks in and as progress is made towards IEA it is very likely that some updating of ToRs will become desirable and this will need to be discussed with chairs.

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In terms of SSGEF itself, the 2013 objective of generating a synthesis for the EGs should be adopted again, with the aim to address how the EGs see themselves contributing to IEA, advice and to policy drivers such as MSFD.

3.1.4 Cross-cutting issues

The first iteration of the new EG evaluation process (i.e. monitoring by SSG chairs, in relation to deliverables) highlighted several generic reporting and communication issues

- Some groups continue to follow the old reporting style, providing lengthy text and lacking explicit references to deliverables;
- Unsurprisingly some EG chairs are more responsive than others; in a few cases it was necessary to rely on examination of written reports;
- Some reports were missing and overdue at the time of the review

Specific to SSGEF, it is clear that much ICES science activity related to ecosystem function takes place outside SSGEF, e.g. within groups under the current Sustainable Use of Ecosystems and in Regional Seas/Integrated Ecosystem Assessments (e.g. generation of new models) and indeed within assessment EGs. It would be useful to have input from such groups, into SSGEF, about their science work.

Discussion of how EGs work during the open session led to several other relevant comments and suggestions about communication and information flow within ICES:

- As frequently commented, few science EGs sit easily under a single SSG, with most undertaking activity relevant to both SCICOM and ACOM, relevant to data provision and publication, and relevant to more than one Steering Group. There is still a need to improve the flow of information beyond the parent SSG. Similar comments could be made about advisory EGs.
- Much can be achieved by the EGs though (proactive) informal communication between groups and indeed by reaching out to other people across the ICES structure, but
- There is probably a need for a mechanism to steer relevant information contained within EG reports and deliverables to relevant groups and higher committees (in addition to the parent Steering Group) without the need for formal Recommendations (i.e. "for information" rather than just Action Points).
- EG chairs are often unfamiliar with the ICES structure and all its components (and currently lack a good tool to find such information)
- There was general uncertainty about how the new Science Plan will be implemented (and indeed if it can be implemented).

3.1.5 Issues for attention of ACOM

Work under WGCRANGON and WGCEPH has helped inform the exploration by WKCCM about the desirability and feasibility of assessment and management for these groups. In both taxa there is genuine concern about the long-term viability of unregulated fishing.

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3.1.6 Recommendations/aspirations from/of the Chair

As already mentioned during SCICOM, a regular(-ish) WGCHAIRS type-event could do much to solve some of the issues raised by EGs chairs during the open Session, and indeed to move closer to good practice in science delivery.

The new Science Plan almost certainly needs to be adaptive and one possible rationale for spending money from the proposed Science Fund is to bring in innovative ideas about the science which will be needed to underpin advice.

It is evident that ICES needs to find a new way of working to allow it/us to embrace IEA and the prospect of offering "ecosystem-based" advice, to generate advice products which will meet policy-driven needs, all against a background of limited resources. Possibly useful initiatives to help achieve this include working to minimize duplication of effort by different EGs, and to find better ways of delivering the vast amount of knowledge generated by ICES EGs to end-users (within and outside ICES). This may need both more top–down coordination and facilitation of bottom–up generated ideas on new ways of working.

If one elephant in the room is the dwindling resource available to achieve exponentially expanding ambitions for the scope of advice, another one is the likelihood that ecosystem-based "biological" advice will be harder to communicate to stakeholders, managers and politicians than single stock "biological" advice. The availability of scientific advice on probable economic and social consequences of management actions could do much to avoid the familiar scenario that politically motivated socio-economic "advice" trumps scientifically sound "biological" advice.

3.2 Joint report from SCICOM Steering Group on Human Interactions on the Ecosystem (SSGHIE, Erik Olsen, Norway) and SCICOM Steering Group on Sustainable Use of the Ecosystem (SSGSUE, Daniel Duplisea, Canada – in the new science plan both groups coalesce into the SGEPI)

3.2.1 SSGHIE Objective and Vision

The Steering Group on Human Interactions on the Ecosystem (SSGHIE) was established in 2009 as a direct follow-up to the ICES Science Plan where "Understanding Interactions of Human Activities with the Ecosystem" is one of three thematic areas.

The objective for SSGHIE is to ensure the implementation of the ICES science plan through ensuring that all relevant themes are treated in a relevant manner by the expert groups (EGs) reporting to SSGHIE.

Human impacts work on the ecosystem in an integrated manner, and management is similarly moving towards more integrated and ecosystem-based approaches (e.g. MSP, zoning plans). Developing cross-cutting and integrating science to support such integrated management is the overall long-term vision of the SSGHIE. Achieving this vision will require determination and sustained effort as ICES science is traditionally very focused and specialized. SSGHIEs foremost role is therefore to act as a networking mediator between EGs to analyse and organize the difficult questions associated with ecosystem-based approach.

In 2013 there are 15 EGs reporting to SSGHIE. These can be grouped in three broad topical categories: 1) aquaculture, 2) MSP and industrial development and 3) Pollution.

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SSGHIE expert groups

	Expert Group Acronym	Expert Group Name	MA ToRS	Chairs
Aquaculture	WGAQUA	Working Group on Aquaculture	2013	Pauline Kamermans, Karin Kroon Boxaspen, Peter Cranford
	WGPDMO	Working Group on Pathology and Diseases of Marine Organisms	2013	Neil Ruane
	WGAGFM	Working Group on Application of Genetics in Fisheries and Mariculture	2015	Dorte Bekkevold
	SGSA	Study Group on Socio-Economic Dimensions of Aquaculture	N/A	Gesche Krause
	WKFGMI	Workshop on Fisheries Genetics for Management Issues	2014	TBA
Pollution	MCWG	Marine Chemistry Working Group	2014	Katrin Vorkamp
	WGBEC	Working Group on Biological Effects of Contaminants	??	Matthew Gubbins, UK, John Thain, UK (incoming Chairs: Bjorn-Einar Grøsvik, Norway, and Ketil Hylland, Norway
	WGMS	Working Group on Marine Sediments in Relation to Pollution	2015	Lucia Vinas, C. Robinson
	WGEXT	Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem	2014	Ad Stolk
MSP and industrial development	WGHABD	ICES – IOC Working Group on Harmful Algal Bloom Dynamics	2015	Bengt Karlson
	WGMPCZM	Working group on Marine Planning and Coastal Zone Management	2014	Andreas Kannen
	SGWTE	Study Group on Environmental Impacts of Wave and Tidal Energy	N/A	Michael Bell
	WGMRE	Working Group on Marine Renewable Energy	2014	Finlay Bennet. First meeting in 2014
	WGRMES	Working Group on Resilience and Marine Ecosystem Services	2014	Sebastian Villasante. First meeting in 2014
	WKRASM	Joint Rijkswaterstaat/DFO/ICES Workshop: Risk Assessment for Spatial Management	N/A	Rob Gerits, Roland Cormier. First meeting in 2014

3.2.2 Cross cutting issues SSGHIE

Ensure that pollution and mariculture issues are given due attention and brought into the Integrated Ecosystem Assessment at an early stage and on equal footing with the more traditional ICES disciplines of fisheries biology and oceanography

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3.2.3 Overview of Science Steering Group on the Sustainable Use of Ecosystems (SSGSUE)

SSGSUE contains many expert groups that have close linkages with the advisory side of ICES be it with ACOM groups, advice drafting groups or the benchmarking groups. Groups such as stock assessment method (WGMG) and stock identification methods (SIMWG) have clear links with advice aspects of ICES. Other groups have a more pure scientific development work flow (e.g. WGIPEM, WGSAM) but are researching methods and producing results that also can be taken up by ACOM group and in advice in the medium term. SSGSUE groups are often attended by experts who are also actively involved in assessments which provides a practical flow towards application. The new science plan will bring together groups from SSGSUE and SSGHIE (not fully) under a new banner of Ecossystem Pressure and Impacts (EPI). The division between SSGHIE and SSGSUE was somewhat artificial at times and this will solve that issue. There is a continued emphasis on methodological development in EPI though over a much broader subject area. It is hoped that common work areas or approaches can be found between expert groups in EPI.

SSGSUE expert groups

Group	Full Name	MA TOR	Chairs
SIMWG	Stock Identification Methods Working Group	2014	Stefano Mariani UK to be replaced by Lisa Kerr, USA, in 2014
WGMARS	Working group on Maritime Systems	2013	Dorothy Dankel, Norway
WGEVO	Working Group on Fisheries-Induced Evolution	2013	Ulf Dickeman, Austria, Mikko Heino, Norway, and Adriaan Rijnsdorp, the Netherlands – A. Rjnsdorp to be replaced by Bruno Ernade, France, in 2014
WGSAM	Working Group on Multispecies Assessment Methods	2013	Daniel Howell, Norway, and Steve Mackinson, UK
WGHIST	Working Group on the History of Fish and Fisheries	2012	Ann-Katrien Lescrauwaet, Belgium, andGeorg Engelhard, UK
WGSFD	Study Group on VMS data, its storage, access and tools for analysis	2013	Heino Fock, Germany – to be replaced by Josephine Egekvist, Denmark, in 2014
WGMG	Working Group on Methods of Fish Stock Assessment	2014	Jose DeOlivera, UK to be replaced by David Miller, the Netherlands
WGMHM	Working Group on Marine Habitat Mapping	2015	Pål Buhl Mortensen, Norway
WGOOFE	Working Group on operational oceanographic products for fisheries and environment	2012	Rosa M. Barciela Fernandez, UK, and Barbara Berx, UK
WGIPEM	Working Group on Integrative, Physical-biological, and Ecosystem Modelling	2015	Myron Peck, Germany, and and Rubao Ji, USA

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WGVHES	Working Group on the Value of Coastal Habitats for Exploited Species	2013	Rom Lipcius, USA, Ingrid Tulp the Netherlands and Håkan Wennhage, Sweden
WGRFE	Working Group on Recruitment Forecasting in Variable environment	2014	Samuel Subbey, Norway, and Elizabeth Brooks USA. To hold first meeting in 2014.

3.2.4 Cross cutting issues SSGSUE

The new sceince plan makes cross-cutting issues explicity to the achievement of a goal. A common goal or issue that affect all science expert groups is determining how they can fit into the overarching goal of integrated ecosystem understanding. It is very important right now for all those in chairing positions to be sensitive to different expert groups and facilitate their easing into the new science plan. Communication is clearly the main issue – but being effective at it is easier said than done.

3.2.5 Recommendations from Chair of SSGSUE

It is necessary to express to delegates the need to maintain expert participation in groups. There has been a tendency for Science groups to be slightly more voluntary and less core for member countries than ACOM groups. With the new Science Plan, there are now clear linkages with advice generation throughout the plan and it needs to be supported.

The Working Group on Spatial Fisheries Data has requested participation from countries with both interest and expertise in analysing VMS data. Recent OSPAR requests brought to this group increases the need to expert participation.

3.2.6 SSGHIE and SSGSUE shared Roadmap 2014 Ecosystem Pressures and Impacts

- Make sure that all of the groups under SSGSUE and SSGHIE feel that they have an equally valid place in the new steering group and their work is valued as a contribution to integrated ecosystem understanding.
- Find areas where groups in this steering group can potentially contribute to each others work.
- WebEx calls among EG chairs and/or personal communications between SSGSUE chair and EG chairs.
- Reporting at the 2014 annual science conference.

3.3 SCICOM Steering Group on Regional Sea Programmes (SSGRSP, Dave Reid, Ireland – in the new Science Plan SSGIEA)

The Regional Sea Programmes defined a vision in ICES ASC 2009, to identify real world applications of science with a spatial interest at Regional Sea level.

SSGRSP was strongly involved in developing the new Science Plan (presented at the ICES ASC, and in particular chapter 4.3.The encapsulating objective: Integrated Ecosystem Assessments (IEA). This translated the vision first produced in 2009, and focused on a series of overarching objectives for the IEA:

- Develop consensual objectives for IEA in ICES regional seas in response to current and future scientific and advisory needs:

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- Identify objectives for a holistic IEA in relation to ecosystem stability and health, according to ecological, social and economic sustainability goals, and recognizing multi-scale issues.
- Identify issue-based ecosystem questions that can be provided by the development of IEA, relevant to science and management needs.
- Provide priorities and specifications for data collection frameworks supporting IEAs.

- Advance an IEA methodology and approach in the ICES context:

- Conduct pilot studies in data-rich areas for alternative IEA approaches, linking qualitative and quantitative methods at appropriate spatial and temporal scales.

- Develop approaches that will allow forecasting within an IEA and evaluation of the effectiveness and trade-offs of alternative management options.

- Determine and demonstrate what modelling and analytical approaches would allow projections for ecosystem state in IEA.
- Use of IEA to assist in the management of cumulative pressures, additive and non-additive impacts, including analysis of trade-offs between sectoral objectives, and the inclusion of risk evaluations.
- Comparisons of IEA and single-issue approaches in terms of their utility to inform management and governance advice on sectoral and multi-sectoral use of the oceans.

This vision brings together the work of the various EG under SSGRSP, and also integrates them with the wider range of work under other SSGs. The vision also includes a link to the advice pillar of ICES in envisaging a roadmap to the provision of advice, initially in a proactive context, but transitioning to reactive and potentially, recurrent advice as the needs of client commissions becomes clearer.

SSGRSP Expert Groups

Expert Group Acronym	Expert Group Name	MA ToRS	Chairs
WGNARS	Working Group on the Northwest Atlantic Regional Sea	2014	Sarah Gaichas, USA, Catherine Johnson, Canada (incoming Chair: M. R. Anderson, Canada
WGIAB	ICES/HELCOM Working Group on Integrated Assessments of the Baltic Sea	2013	Lena Bergström, Sweden, Maciej Tomczak, Sweden and Martin Lindegren, Denmark (incoming Chair: Christian Möllmann, Germany)
WGINOSE	Working Group on Integrated Assessments of the North Sea	2014	Andy Kenny, UK, and Christian Möllmann, Germany
WGEAWESS	Working Group on Ecosystem Assessment of Western European Shelf Seas	2014	Enrique Nogueira, Spain, Dave Reid, Ireland; Pascal Laffargue, France, Maria de Fatima Borges, Portugal

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WGINOR	Working Group on the Integrated Assessments of the Norwegian Sea	2013	Geir Huse, Norway and Guðmundur J. Óskarsson, Iceland
WGIBAR	Working Group on the Integrated Assessments of the Barents Sea	2014	Edda Johannesen, Norway, and Jury Kovalev, Russia First meeting in 2014
WGECOMEDA	Working Group on Comparative Analyses between Mediterranean and Atlantic marine ecosystems to move towards an EAFM	2013	Marta Coll, Spain, Manuel Hidalgo, Spain
WGLMEBP	Working Group on Large Marine Ecosystem Programme Best Practices	N/A	Hein Rune Skjoldal, Norway, Nico Willemse, Namibia
SGIMM	Study Group on Integration of Economics, Stock Assessment and Fisheries Management	N/A	Jörn Schmidt, Germany, J. Rasmus Nielsen, Denmark, and Eric Thunberg, USA
SGSPATIAL	Study Group on Spatial Analyses for the Baltic Sea	N/A	Michele Casini, Sweden, and Stefan Neuenfeldt, Denmark

In 2013 SSGRSP included five regionally focused EGs for the Baltic, North Sea, Western Shelf Seas, Norwegian Sea and Northwest Atlantic (WGIAB, WGINOSE, WGEAWESS, WGINOR, WGNARS). Each of these groups have taken forward the concept of Ecosystem Overviews, and have translated these into the framework proposed by WKECOVER (Workshop on Ecosystems Overviews).

- Links with the wider Large Marine Ecosystem community have been covered by WGLMEBP
- Wider integration with economics, stock assessment and Fisheries management will be covered by SGIMM who will meet in late 2013
- An initial approach to the provision of advice and benchmarking of that advice was addressed by WKBEMIA

3.3.1 Activities planned for 2013

In 2013, the IEA groups will continue to take forward the work of developing this approach to science and advice. Full details can be found in the resolutions for each of these EG, but presented in brief here:

- WGNARS will focus on evaluate relationships among ecosystem level management objectives and identify candidate objectives for analysis. Identify key large-scale drivers that influence the whole NW Atlantic and vet indicators for these drivers and responses.
- WGEAWESS will develop metadata compilation for major ecosystem components following the ODDEM framework, and explore running an analysis on specific sector/pressure/component combinations.
- WGINOSE will update the integrated ecosystem trend analysis for the North Sea and also further develop the use of the dynamic Bayesian Belief Network model as a tool for integrated and combined effects assessments.
- WGIAB will continue research into Baltic Sea ecosystem structure and functioning, especially species interactions and trends over different tem-

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poral and spatial scales. They will also continue to develop a framework for integrated advice for fisheries management.

- Two new groups WGINOR and WGIBAR will begin the development of an operational approach to integrated assessment of the Norwegian Sea and Barents Sea leading to an operational analysis over 3 years.
- Another new EG – WGECOMEDA will start its work to develop a comparative synthesis of current data and tools available to move towards an EAF in Atlantic and Mediterranean Seas, and to identify sensitive ecological species and processes to climate variability and fishing impact in both ecosystems. This will link with WGEAWESS

All the IEA groups have produced their Ecosystem Overviews in the context of subregions within their larger area of competence. As an interim approach this has proved useful, but there will need to be a move to (as it were) integrate these integrated, but sub regional analyses. Another advantage of the subregional approach is that it allows the development of pilot but formal IEA to be carried out more locally, and with a smaller participation than would be required to do this at the ecoregion level.

The approach to ecosystem overviews and in particular the aim for short and easily digestible versions of these will be explored further within the proposed follow up group to WKECOVER entitled WKDECOVER (Workshop on Drafting Ecosystem Overviews). In particular, there is a need for such short versions to be available on the web with dynamic linking to the more detailed information contained in the larger previously drafted overviews, and indeed to work within the IEA EGs themselves.

The comparative approach initiated by WGECOMEDA for linking Atlantic and Mediterranean is a promising approach. This has been approached less formally by SSGRSP by actively encouraging the IEA groups to meet and work together. Examples from WGINOSE and WGIASB in 2011, and WGINOSE and WGEAWESS in 2012 were very successful, and SSGRSP will continue to encourage this.

A key element of the way forward will be the approach to benchmarking of the IEA work. This will follow the basic approach that is already being used for the stock assessment advice. In the IEA context, the assessments are still at an early stage, and the advice as yet mainly proactive. The benchmarking process should seek to underpin this process, and help provide standardized and robust methodologies, without constraining the development of the science in this field. Equally, the format and nature of advice has yet to be properly determined. The groups will seek to explore what is wanted or needed by clients, and then benchmark on the basis of this.

SGIMM and SGSPATIAL will continue their work to provide both a wider context and an improved spatial understanding in the latter case. SSGRSP will continue to look for appropriate workshops or short-term study groups where appropriate to further place the IEA work in context, and to address specific and focused questions. A Workshop on Linking Contaminant Issues to Integrated Ecosystem Assessments (WKLINCON), will be held in late 2013. The aim here will be to help include information from contaminant research, and associated datasets into the wider context of the IEAs. Similar linking workshops could be envisaged on other disciplinary areas currently neglected or overlooked in existing IEA approaches.

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3.4 SCICOM Steering Group on Ecosystem Surveys, Science and Technology (SSGESST, Nils Olav Handegard, Norway)

3.4.1 Vision/objective

Facilitate Implementation of the ICES Science Plan by:

- Identify and prioritize ICES monitoring and data collection needs

  - Identify monitoring requirements for science and advisory needs in collaboration with data product users, including a description of variables and data products, spatial and temporal resolution needs.
  - Develop a cost–benefit framework to evaluate and optimize monitoring strategies in the context of the capabilities of, and requests from, ICES Member Countries and clients.

- Implement integrated monitoring programmes in the ICES area.

  - Allocate and coordinate observation and monitoring requests to appropriate survey expert groups, and monitor the delivery of data products.
  - Ensure the development of best practices through capacity building opportunities across expert groups.
  - Further develop the ICES Series of Survey Protocols and promote external reviews of the monitoring programme outputs.

- Develop methodology for observation and monitoring of marine ecosystems in the ICES area.

  - Identify knowledge and methodological monitoring gaps, and develop strategies to fill these gaps.
  - Promote new technologies and opportunities to observation and monitoring, and assess their capabilities in the ICES context.

3.4.2 SSGESST Expert groups

Acronym	Name	MA ToR	Chair(s)
WGFAST	Working Group on Fisheries Acoustics Science and Technology	2014	Nils Olav Handegard, Norway and Verena Trenkel, France
WGMEGS	Working Group on Mackerel and Horse Mackerel Egg Surveys	2015	Cindy van Damme, NL and Finlay Burns, UK
WGISDAA	Working Group on Improving use of Survey Data for Assessment and Advice	2015	Colm Lordan, Ireland to be replaced by David Reid, Ireland, and Stephen Smith, Canada
WGBIFS	Baltic International Fish Survey Working Group	2015	Olavi Kaljuste, Sweden
IBTSWG	International Bottom Trawl Survey Working Group	2013	Anne Sell, Germany
WGFTFB	ICES-FAO Working Group on Fishing Technology and Fish Behaviour	2014	Mike Pol, USA, Frank Chopin, FAO Italy, to be replaced by Pingguo He, USA, and Petri Suuronen FAO Italy
WGBEAM	Working Group on Beam Trawl Surveys	2014	Brian Harley, UK to be replaced by Kelle Moreau, Belgium

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SGELECTRA	Study Group on Electrical Trawling	2014	Bob van Marlen, the Netherlands and Bart Verschueren, Belgium
WGEGGS2	Working Group on North Sea Cod and Plaice Egg Surveys in the North Sea	2013	Christophe Loots, France
WGNEACS	Working Group on North-east Atlantic continental slope surveys	2014	Elvar H. Hallfredsson,Norway to be replaced by Rasmus Hedeholm, Greenland
WGACEGG	Working Group on Acoustic and Egg Surveys for Sardine and Anchovy in ICES Areas VIII and IX	2014	Jacques Massé, France
WGNEPS	Working Group on Nephrops Surveys	2013	Colm Lordan, Ireland
WGIPS	Working Group of International Pelagic Surveys	2016	Karl-Johan Stæhr, DK, and Ciaran O'Donnell, Ireland
WGALES	Working Group on Standards in Ichthyoplankton Surveys	2013	Cindy van Damme, the Netherlands, and Maria Manuel Angélico, Portugal
WGTC	Working Group on target classification	2014	Rolf Korneliussen, Norway. To hold first meeting in 2014.
JFATB	Joint Session of the ICES-FAO Working Group on Fishing Technology and Fish Behaviour (WGFTFB) and the Working Group on Fisheries Acoustics Science and Techology (WGFAST) – JFATB	N/A	Paul Winger, Canada and Kresimir Williams, USA. First meeting in 2014.
SGCal	Study Group on Calibration of Acoustic Instruments in Fisheries Science	N/A	David A. Demer, USA- group to be dissolved in 2014
WGRS	Working Group on Redfish Surveys to be renamed the Working Group on International Deep Pelagic Ecosystem Surveys (WGIDEEPS)	2014	Benjamin Planque, Norway to be replaced by new Chair and Kristján Kristinsson, Iceland
SGTCOD	Study Group on Turned 90° Codend Selectivity, focusing onBaltic Cod Selectivity	NA	Bent Hermann, (DK) Norway and Waldemar Moderhak, Poland group to be dissolved in 2014
WGISUR	Working Group on Integrating Surveys for the Ecosystem Approach	2014	Ingeborg de Boois,the Netherlands
WKNAMM	Workshop on Northeast Atlantic mackerel monitoring and methodologies including science and industry involvement	NA	Leif Nøttestad, Norway, and Martin Pastoors, the Netherlands
WKDATR	Workshop on DATRAS data Review Priorities and checking Procedures	NA	Ingeborg de Boois, the Netherlands, and Neil Holdsworth, ICES
WKFATHOM	Workshop on Egg staging, Fecundity and Atresia in Horse mackerel and Mackerel	NA	Cindy van Damme, the Netherlands
WKIDCLUP	Workshop on the identification of clupeoid larvae	NA	Cindy van Damme, the Netherlands,, and Matthias Kloppmann, Germany
WKESST	Workshop of SSGESST expert groups chairs	NA	Karl-Johan Stæhr, Denmark, and Nils Olav Handegard, Norway

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3.4.3 Roadmap for 2014

SSGESST will focus on several topics in 2014, including:

- Develop and finalize guidelines for the survey protocols. These guidelines will form the basis for the development of the new SISPs and will also be used as guidance to the revierwers when reviewing the SISPs.
- Continue the process of reviewing, establishing and publishing the survey protocols.We aim to have most of the protocols submitted for review during 2014.
- Implement the new steering group structure where subgroups of EG chairs are established to address methodological and area focused questions (e.g. methods like ichtyoplankton surveys, acoustic surveys, and area overlapping with the regionals sea definitions).

The Survey EGs will meet as scheduled to plan fieldwork and address issues associated with methodology and update their survey protocols following the new guidlines. Several workshops and study groups will meet to address specific methodological issues.

WGFAST will over the next 3 years (2014-2016) focus on the following topics:

- Produce a list of papers originating from the community of the WGFAST working group
- Present recent work within the topics “Applications of acoustic methods to characterize ecosystem”, “Acoustic properties of marine organisms“, “Behaviour“, and “Emerging technologies, methodologies, and protocols“.
- Write a review to showcase the work of WGFAST with particular emphasis on its relevance to the ICES/ACOM strategic plans
- Organize international acoustic symposium
- Organize joint sessions at ICES ASC

WGFTFB will over the next 3 years (2014-2016) focus on the following topics:

- Present recent investigations into and synthesize current knowledge of topics related to: “Design, planning, and testing of fishing gears used in abundance estimation”; “Selective fishing gears for bycatch and discard reductions”; “Environmentally benign fishing gears and methods” and summary of research activities by nation
- Organize an FAO hosted FAO-ICES mini-symposium with thematic issues as described in the Barange-Matthiesen exchange of letters
- Present recent investigations into topics of mutual interest between WGFTFB and WGFAST
- Every second year, describe changes in EU fishing fleets and effort relevant to assessment working groups
- Organize an ICES-sponsored international fishing technology Symposium
- Develop survey and gear expertise support for survey working groups via ASC and survey group meetings

WGISUR will over the next 3 years (2013-2015) focus on the following topics:

- Provide guidance on the adaptation of existing surveys to provide ecosystem data

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- Provide guidance on the development of an ICES ecosystem survey approach
- Identify issues common to all surveys, set up workshops and manage them as appropriate
- Liaise with IEA groups, and others as appropriate (e.g. CWGMSFD), over data product needs and specification

WGISDAA will focus on several topics in 2014, including:

- Developing multifunction surveys and their impact on fish stock data acquisition.
- Develop a framework and methodology for the analysis of fishery-independent survey information for stock assessment and advisory purposes.
- Explore and suggest refinements to current survey designs that will improve the quality of data used to support assessment and advisory processes.
- Investigate methods of combining and or improving indices across multiple surveys and other ways of consolidating survey-derived data.
- Develop methods for use of survey derived indices and other survey data products as a basis for scientific advice.
- Request priority case studies from assessment working groups to support the initial activities of the WG.

3.4.4 Cross-cutting issues (with other SSG, SI)

SSGESST EGs support many activities of the other SSGs and the SIs. These include:

- Provision of extensive information on biodiversity, distribution, abundance, life history and environmental parameters
- Development of advanced observation and sampling technologies
- Development of improved fishing gears and evaluation of the ecosystem, impact of fishing
- Collaboration with new steering group on ecosystem processes may provide a framework for developing a more integrated monitoring programme
- A close collaboration with the Integrated Ecosystem Assessments SG is required to ensure that the relevant data products are available for the wider role of the IEA.

3.4.5 Issues to the attention of ACOM

- The new science plan outlines a new structure and SSGESST will be one part of a new ACOM/SCICOM steering group. Work is needed to harmonize the science and advisory plans that address this group, and to develop the plan for the operation of the group.
- The new ACOM/SCICOM steering group needs to address the new EC Multi-year Data Collection Framework and DCF
- Interaction with WGFTFB relative to advice provided directly to ACOM and to other entities

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- The development of a process to review surveys and how surveys are fed into the assessment working groups is needed, either as a part of the benchmark process, an external review process ofthe surveys or by using existing expert groups. This is partly the objective of WGISDAA, and the potential of this group should be explored to address the linkage between modellers and survey specialists.

3.4.6 Recommendations/ Aspirations from the Chair

- There are many potential cross cutting activities between the EGs within SSGESST, and we have identified themes that are relevant for sub sets of EGs (see the WKESST report). This will be used in the operation of the SG to avoid including EG chairs to unnecessary meetings/webex that does not concern their daily operation.
- The review process of the Series of ICES Survey Protocols (SISP) has been successful in engaging survey experts external to the survey EGs, and has mobilized expertise within the SSGESST technological groups. This process will continue in 2014.
- To achieve the goal of an "integrated observations and monitoring programme", a more theoretical framework is needed. Parts of this work is taking place in WGISUR.
- A workshop was held for the SSGESST EG chairs prior to the ASC 2013, and more details can be found in the report (WKESST report due October 30th 2013)
- It is important to encourage science production within the survey groups. Survey groups that actively publish results and methodologies will be more exposed to the current trends and developments and can more easily pick up new approaches. It is also important for increasing the awareness and increasing impact for the ICES monitoring programme.

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4 Reports of SCICOM Operational Groups

4.1 Data and Information Group (DIG; Helge Sagen, Norway; Ingeborg de Boois, Netherlands)

The annual plenary DIG meeting was from 22 to 24 May 2013 at ICES, Copenhagen. 24 participants attended the meeting, including 8 members from ICES Data Centre.

During the 2013 plenary meeting, the group mainly focused on (1) the contribution for the Data Plan as part of the ICES Strategic Plan 2014-2018, (2) data publication and digital citation, and (3) communication with ICES Data Centre.

4.1.1 Data Plan

The Data and Information Plan (2014–2018) has been approved by SCICOM and is available on the SCICOM SharePoint site.

4.1.2 Data Publication and Digital Citation

DIG spent time getting up to speed on the relatively new practice of assigning digitally persistent identifiers (DPI) to a dataset, in a similar way that a Digital Object Identifier (DOI) is assigned to a scientific paper, book, or other published document. This makes it possible to refer to a collection of data in a consistent and well defined way. In addition, the data themselves can be retrieved, creating an environment where the data can be readily shared throughout the scientific community. At the same time, the originators are given the credit for producing the dataset, in a similar manner as getting credit for a published paper. DIG and PUBCOM are working on an easy-to-read document for SCICOM to explain the main issues in DOI world.

4.1.3 ICES Data Centre

New tools that have been developed by the ICES Data Centre were presented. The egg and larvae database has now been established and is online, available on the ICES data portal (http://www.ices.dk/marine-data/data-portals/Pages/Eggs-and-larvae.aspx). Furthermore, progress has been made in relation to data quality checking, as a quality check database has been established. Also, the regional database FishFrame, RDB-FF (http://www.ices.dk/marine-data/data-portals/Pages/RDB-FishFrame.aspx), is now hosted by ICES and has a steering group responsible for its strategic improvement and development. Finally, a tool providing summary information on climatic conditions in the North Atlantic (ICES Report on Ocean Climate, IROC) will be available online when the ICES Report on Ocean Climate (2013) has been published. From this report it is will be possible to download the most recent associated dataseries by station. Interactive maps and graphs make it possible to get quick and easy access to the data.

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4.2 ICES Training Programme (Steven Cadrin, USA)

In response to the needs for enhanced scientific capacity to give advice on human activities affecting, and affected by, marine ecosystems ICES has, in 2009, initiated a Training Programme[1] to help building capacity to support scientific advice. ICES needs to ensure that scientists who do work related to the advisory process, have the necessary skills to deliver the best available science-based information to the advisory process. ICES offers training courses by high-profile scientists and instructors. Specifically the training programme should:

- Ensure that participants in expert Working Groups and other parts of the advisory process have the skill needed to deliver high quality advice,
- Ensure a common understanding of ICES advisory practice,
- Disseminate insight throughout and outside the ICES community,
- Intensify cooperation with expertise from other organizations to bring in new disciplines and perspectives in ICES science and advice.

The ICES training links in to national expertise on teaching (national institutes, universities) and will add to existing training programs. The ICES training program should not compete with existing national universities and institutions but should rather fill the gaps of marine scientists operating in the advisory process.

National laboratories, universities, and other institutions or research networks are invited to develop courses on specific topics and recommend course instructors, including chairs of relevant ICES Expert Groups. The Training Group will review and select the courses to be offered. New courses will be added and the existing courses will be evaluated regularly, based on feedback from the participants, and the course's relevance to the needs of the ICES Advisory and Science Programmes.

In 2013 ICES training offered 11 training courses for close to 150 trainees.

List of courses offered under ICES Training Programme 2013.

Date	Course title	Number Participants
27 – 31 May 2013	Stock Assessment Introduction	26
18 – 20 June 2013	Fisheries Management to Meet Biodiversity Conservation Needs	25
26 – 30 August 2013	Ecosystem Modelling for Fisheries Managementcosystem Modelling for Fisheries Management	22
19 – 20 September 2013	How to Lead an Effective Technical Meeting	postponed
20 – 21 September 2013	Comunicating Science and Advice	postponed
16 – 17 October 2013	The state space assessment model SAM and its online user interface	postponed
04 – 08 November 2013	Trawl Survey Design and Evaluation	postponed
11 – 15 November 2013	Analysing and visualization of VMS using the VMStools R package	20
18 – 22 November 2013	Stock Assesment Advanced	20

[1] http://ices.dk/training

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02 – 06 December 2013	Application of Geostatistics to analyse spatially explicity Survey data in an Ecosystem Approach	TBC
09 – 13 December 2013	Management Strategy Evalutation (Including FLR) ICES-ICCAT	TBC

4.3 Publications and Communications Group (PUBCOM, Myron Peck, Germany)

PUBCOM met and worked by correspondence during the last 12 months. During the last year: 1) the newly launched website has been continually updated based upon constructive feedback, 2) ICES historic documents (symposia series, CM and working group reports) continue to be digitized and added to our online library, and 3) extended abstracts were used for the first time by presenters at the 2013 ASC in Reykjavik. In terms of publications, there have been 4 ICES JMS symposium volumes, 4 CRRs, 3 TIMES, 2 disease leaflets, 1 SISP (Series of ICES Survey Protocols), and 108 popular advice sheets. PUBCOM and the secretariat continue to identify ways to decrease traditional hardcopy printing in lieu of better, more interactive online / digital printing. The membership of PUBCOM was also expanded to include four new members including more representatives from ACOM and SCICOM. A recurrent theme that was expressed in this summary was one of "smooth sailing".

ICES Journal of Marine Science – All metrics indicate that the flagship journal of ICES is outpacing other peer-reviewed journals in the field of marine science. The journal's Impact Factor rose from 2.007 to 2.277 in 2012. Its ranking also rose from 12th out of 48 titles to 7th out of 49 titles in the ISI Fisheries category. Submissions are increasing (up 12% from last year), handling times have decreased (~43 days, and are very competitive), a significant number of submissions was solicited for inclusion within 9 themed article sets (becoming available online) and a number of editor's choice articles. For the latter, a page was created on the ICES website and papers provided free access.

Several new editors were recruited to the editorial board during the past year and the current number is 35. The editorial board has broad topical coverage as well as some needed redundancy in core areas. OUP reported that production times were competitive with publishing industry leaders but that the average time from receipt at Oxford Journals to online publication increased slightly from 6 to 7.1 weeks in 2012 to 2013 ytd. A priority for 2014 will be for OUP to reduce this.

Cooperative Research Reports – CRRs are edited by Emory Anderson. Four CRRs were published since the 2012 ICES ASC (No. 315, 316, 317, 318), three reports have been edited but not yet published, while 2 additional submissions have been received by the secretariat. In keeping with policy, all approved CRR resolutions that were greater than 2 years old were recommended to be cancelled. All resolutions are now less than 2 years old. There was some discussion regarding how to make publication of CRRs more attractive to authors – a discussion item for PUBCOM in 2013/2014.

Techniques in Marine Environmental Science – TIMES are edited by Paul Keizer. Three times were published during the last year. The topics were i) determination of PCBs in sediments, ii) Oyster embryo bioassays, and iii) measuring dioxin-like activity using in vitro reporter gene DR-Luc assays. Two additional TIMES publications have been received and are awaiting editing. In keeping with policy, all approved TIMES resolutions that were greater than 2 years old were recommended to be cancelled. All resolutions are now less than 2 years old.

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Identification Leaflets for Diseases – Leaflets are edited by Stephen W. Feist. Two ID leaflets were published and promoted on the ICES website. A variety of ID leaflets are available online. The organization of this publication on the website was highlighted for its ease of access and clarity. A number of ID leaflets (7) will be updated next year.

Other Publications

The ICES Annual Report 2012 was published in April 2013. The publication has a new thematic approach, a new design and the inclusion of French translations. The Annual Report 2013 will retain the new look and approach, but the page number will be greatly reduced (ca. 30 or 40) by utilizing the website more e.g. QR codes. Material previously included in the Annual Report will continue to be made clearly available on the ICES website.

ICES Insight: Issue no. 50 was published in September 2013 and it was redesigned to reflect the new ICES brand. The contributor base was broadened to include other organizations such as CIESM so that the magazine can be used as an outreach document throughout the year (e.g. ESOF 2014 in Copenhagen).

4.3.1 Communications

Website: PUBCOM has maintained close contact with the Secretariat since the launch of the new website in February 2013. A detailed review of the website and feedback received has been received from the Secretariat and discussed by PUBCOM. This report is detailed further in the Secretariat progress report. PUBCOM recognizes that the new website offered additional opportunities and has an improved look, but notes that there are still additional and considerable improvements to be made.

Digital Communications – The Inside Out Newsletter has been revised as a HTML e-newsletter, published six times a year to nearly 700 subscribers. Additional promotional material, including the new ICES display banner and topical brochures have been developed.

4.3.2 Other Items

Popular Advice: ASGPOP provided a progress report on the "Popular Advice". Recognizing that this has been produced upon request by a client, PUBCOM supports the following measures if the next version of the product is developed: 1) a thematic and geographic broadening of the issues covered, to reflect this as an ICES product, 2) a new title, and 3) an evaluation and feedback from the target audience as to the usefulness of the products. PUBCOM noted the popular advice production process needs to be improved and, as a communication product, the Secretariat would be an appropriate place for facilitating future development with input from SCICOM and ACOM.

Big Data Open Theme Session: A joint DIG PUBCOM theme session proposal "*Big (Ocean) Data Journey – all aboard?"* was recommended by SCICOM to be a topic of the open theme session at the 2014 ASC. PUBCOM is actively working with DIG to draft a plan for an exciting and insightful event.

ASFA database: ASFA has requested a decision from ICES on whether it will continue to contribute to the ASFA database. PUBCOM recommends that, in light of the new search capabilities and availability of documents on the new ICES website, the Secretariat reviews the ASFA contract and, if possible, cancels the agreement.

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Hardcopy Printing: Continued reduction in hardcopy printing is recommended and is being explored in light of opportunities for more dynamic and interactive web-based publications and communications. Investment in improved archiving solutions, multi-media channels (including video) will help ensure that ICES remains on the cutting-edge of communications and publications in the rapidly evolving environment of electronic media. As such PUBCOM recommends phasing out printed publications of *Cooperative Research Reports (CRRs)* and *Techniques in Marine Environmental Sciences (TIMES),* beginning with resolutions submitted in 2015.

A Renewed Strategy: In connection with the new ICES Strategic Plan, a new communications strategy (internal and external) is under development. PUBCOM has provided feedback on a draft version and it will be submitted for Bureau's approval.

4.4 ASC 2013, Reykjavik, Iceland (Head of Science Programme)

The venue was the Harpa Conference Centre in Reykjavík.

Opening Session and Plenary sessions:

The Minister of Fisheries and Agriculture, Sigurður Ingi Jóhannsson, attended the Opening Ceremony.

The 2013 Outstanding Achievement Award was presented to Odd Nakken, from the Institute of Marine Research (IMR), Norway.

The session was followed by the Open Lecture on "*Global fisheries and fisheries management: accomplishments and challenges" by Professor Ragnar Arnason from the University of Iceland.*

Dr Richard Feely, Tuesday's plenary speaker from the NOAA Pacific Marine Environmental Laboratory, USA, gave a lecture on "*Ocean acidification over the next 100 years: implications for marine ecosystems".*

On Wednesday morning **Professor Emeritus Doug Butterworth** from the University of Cape Town, South Africa, addressed the audience with the Plenary lecture on *"Factoring uncertainty into management advice–have fisheries scientists got their act together?*"

The programme continued during the week with 18 theme sessions in five parallel sessions. In total there were 311 oral presentations. The programme also included a number of business and side meetings.

On Wednesday afternoon there was an Open Session on *The Challenge of Integrated Ecosystem Understanding* open to all registered participants. The session included presentations and discussions, with the outcomes to feed into the new ICES science plan and its implementation.

Poster presenters were given the opportunity to present their work with one or two slides in the theme sessions as well as during the Poster Session held on Tuesday evening. 123 posters were put up on display which is the highest number ever.

During the Closing Session on Friday afternoon, the SCICOM Chair presented the Best Poster, Best Presentation, and Early Career Scientist Awards and also handed out Service awards to outgoing chairs.

25 early career scientists received travel funds this year. The funds varied from EUR 300 to EUR 600 depending on if the candidate had raised other travel funds.

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The conference material handed out to registered participants at the venue included a programme, conference handbook and a USB stick with electronic copies of extended abstracts and posters as well as expert group reports.

That special conference application for mobile phones that was introduced during the 2012 ASC was also available to conference participants during the 2013 ASC. With this application, participants could access the schedule, speakers, sponsors, exhibitors, floor plan and they could build their own agenda.

Updated information about the conference was posted on social media such as Facebook, LinkedIn, and Twitter during the conference week.

The conference proceedings will be available on the ICES website: http://www.ices.dk/publications/our-publications/Pages/CM-documents.aspx

5 Reports of the SCICOM Strategic Initiatives

5.1 ICES/PICES Strategic Initiative on Climate Change effects on Marine Ecosystems (SICCME; Brian MacKenzie, Denmark, Manuel Barange, UK, Anne Hollowed, USA, PICES, and Suam Kim, ROK, PICES)

5.1.1 Introduction

SICCME activities in 2013 are contributing to the overall goals and objectives of both SICCME itself, as well as many of those within the existing and new ICES and PICES Science Plans. This strategic initiative is co-chaired by Drs. Manuel Barange (UK), Anne Hollowed (USA), Suam Kim (ROK), and Brian MacKenzie (DK).

5.1.2 Activities in 2013

SICCME's main activities are networking, coordination and dissemination in relation to climate change impacts on marine ecosystems, populations and fisheries. A compilation of many of these activities in 2013-2015 is in Appendix 1. These activities include several theme and topic sessions and workshops with substantial organizational input from SICCME co-chairs and members, or which have been supported by SICCME via attendance and other participatory roles. SICCME members have also been active in providing scientific advice to policy for a (e. g., IPCC, regional management organizations) and disseminating SICCME-led or –organized scientific results to the wider scientific community.

One of the more significant events that SICCME organized or contributed to in 2013 was the joint ICES/PICES Intersessional Workshop on Global Assessment of the Implications of Climate Change on the Spatial Distribution of Fish and Fisheries, May 22-24, St. Petersburg, Russia (WKSICCME-Spatial; co-chairs Myron Peck, Anne Hollowed and Suam Kim) with terms of reference to:

a) develop and test analytical methods for detecting changes in distribution;

b) assess the skill of different modelling approaches;

c) develop methods for quantifying uncertainty in projected changes;

d) produce design specifications for a global database of marine observations;

e) evaluate the influential factors governing vulnerability to shifting distributions.

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This workshop was partly financed by ICES SCICOM, and was a major success with 67 participants from 13 nations. The workshop was designed to address a number of specific questions in breakout theme sessions, and the subsequent discussions and reporting contributes to all SICCME goals and objectives related to climate change impacts on populations, species and ecosystems, and how these impacts can be modelled and eventually contribute to management advice and policies.

The six theme sessions during the workshop were: 1) Analytical methods for detecting changes in spatial distribution, 2) Skill assessment and model intercomparison, 3) Quantifying uncertainty, 4) Design specification for database of observations of distribution of living marine resources, 5) Vulnerability assessment, and 6) Communicating outcomes to inform decisions regarding management of living marine resources under changing climate. The following provides a very brief overview of key discussion points and findings in each session:

SICCME sponsored a follow-up ICES/PICES Theme Session B on "Responses of living marine resources to climate change and variability: learning from the past and projecting the future". This Theme Sesssion received the largest number of abstract submissions to the 2013 Annual Science Conference.

The co-chairs of the workshop and Theme Session B are planning with authors to submit manuscripts stemming from each session of the WKSICCME-Spatial workshop and selected papers from the Theme Session B to a special volume or theme section of the ICES Journal of Marine Science. The manuscripts will include recommendations of methods to apply to assess regional and latitudinal differences in the vulnerability of species or species groups to climate change induced shifts in ocean conditions. An additional recommendation is to create a synthesis of climate-driven changes in distribution (by creating new, merged datasets and applying novel methods in specific case studies). The future activities discussed at the WKSICCME-Spatial and the Theme Session will better inform future decisions regarding the governance and management of marine resources in light of climate change and variability.

In 2013, SICCME members continued to contribute scientific papers that advance our understanding of climate change impacts on marine ecosystems. These papers were completed in time for consideration by author teams of the IPCC. The IPCC report is planned to be released in 2014. This report will provide updated scientific knowledge of the extent of climate change, and how it is impacting marine ecosystems, and their ability to provide goods and services to society.

A 3rd activity that SICCME is involved in is the identification of scientific content and sessions for the 3rd Symposium on Climate Change on the World's Oceans symposium, Brazil, 2015. ICES SCICOM has been asked to provide suggesions for theme sessions of the symposium, and these were presented and discussed at the SICCME Open Session and SCICOM meetings at the 2013 ASC. This invitation therefore gives SCICOM and the wider ICES community an opportunity to assist with planning the conference and the selection of topics to be presented and discussed. Consequently, ICES has an opportunity to highlight what it considers to be its medium-long-term priorities and needs in the area of climate change impacts on marine ecosystems, populations and their management.

The SICCME Open Session on Monday morning of this year's ASC was well attended (ca. 35–40 participants, including all co-chairs from PICES and ICES). Participants were informed about activities during 2013 and those planned for 2014–2015 (e. g., symposium in Brazil), new major research climate change-related programs which started in 2013.

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5.1.3 Activities in 2014–2015

SICCME is co-organizing workshops at the PICES FUTURE workshop, and theme sessions at the 2014 ICES ASC and PICES ASC. SICCME will also continue to contribute via its ICES membership of the Convenor and Scientific Steering groups to the organization of the 3rd Symposium on Climate Change Effects on the World's Oceans in Brazil in 2015.

A major scientific event in 2014 will be the release of the climate impacts report by the IPCC. SICCME is planning to invite some of the authors of marine-related chapters to present key findings at the SICCME open session meeting at next year's ASC. These presentations will provide the ICES climate change community with direct insight to the report's contents and to discuss the findings with report authors.

5.1.4 Conclusions

SICCME activities in its first 2 years have primarily been oriented to scientific documentation of impacts on biota and ecosystems and how these impacts can be modelled. These activities will continue in future. However as the the SI progresses, it will increase its focus on additional SICCME goals and objectives related to, for example, the development of global ocean prediction networks, improving predictive skill of modelling climate impacts, and the development of strategies for sustainable delivery of ecosystem goods and services and biodiversity preservation.

Summary of SICCME activities in 2013-2015.

ACTIVITY
SICCME–LED COMMUNITY PUBLICATIONS, INVITED TALKS, LEADERSHIP ROLES, ETC.
SICCME Joint synthesis manuscript (Projected impacts of climate change on marine fish and fisheries; Hollowed et al. 2013; ICES JMS 70: 1023-30)
Contributions to IPCC reporting
STUDY GROUPS, WORKSHOPS, SYMPOSIA:
ICES WG IPEM, Paris, Feb. 25 – Mar. 1, 2013.
WK-SICCME-spatial, St. Petersburg, Russia, May 2013
2013 THEME AND TOPIC SESSIONS
B. Responses of living marine resources to climate change and variability: learning from the past and projecting the future (co-sponsored by PICES). Convenors William W. L. Cheung, Canada, PICES, Myron A. Peck, Germany, Vincent Saba, USA
M. Identifying mechanisms linking physical climate and ecosystem change: Observed indices, hypothesized processes, and "data dreams" for the future (co-sponsored by PICES). Convenors: Emanuele Di Lorenzo, COVE-AP; USA, PICES; Arthur J. Miller, USA, PICES; Marc Hufnagl, Germany, ICES
PICES ASC Workshop W1. Comparison of size-based and species based ecosystem models. Co-sponsored by ICES. Co-Convenors: Jeffrey Polovina (USA), Anne Hollowed (USA), Shin-ichi Ito (Japan) , Myron Peck (Germany)
PICES ASC Workshop W2: Identifying mechanisms linking physical climate and ecosystem change: Observed indices, hypothesized processes, and "data dreams" for the future. Co-sponsored by ICES. Co-Convenors: Jack Barth (USA), Emanuele Di Lorenzo (USA), Marc Hufnagl (Germany), Jacquelynne King (Canada), Arthur Miller (USA), Shoshiro Minobe (Japan), Ryan Rykaczewski (USA) , Kazuaki Tadokoro (Japan)
2014 THEME AND TOPIC SESSIONS, WORKING GROUPS
ICES WG IPEM, Netherlands, March, 2014.

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Physical and biological consequences of exchanges between the Atlantic Subarctic and the Arctic; ICES ASC, Spain, 2014. Conveners: Olafur S. Astthorsson (Iceland), Ken Drinkwater (Norway), and NN(Canada).
Strategies for ecosystem management in a changing climate. PICES FUTURE Open Science meeting, April 15-18, Hawaii. Co-conveners: Manuel Barange, A. Hollowed, Suam Kim
Climate change and ecosystem-based management of living marine resources: Appraising and Advancing key modelling tools, PICES FUTURE Open Science meeting, April 15-18, Hawaii. Co-conveners: M. Peck (S-CCME, ICES), A. Hollowed (S-CCME, PICES), T. Essington (University of Washington)
Recent Assessments of Climate Change Impacts on Marine Ecosystems. PICES 2014 Annual Science Meeting, Korea. Convenors: Anne B. Hollowed (USA), Jake Rice (Canada), Sukgeun Jung (Korea), Hans Pörtner (Germany)
Dynamics of pelagic fish in the North Pacific under climate change; PICES 2014 Annual Science Meeting, Korea, 11 or 12 October. Convenors Gerard DiNardo (ISC) and Suam Kim (PICES)
2015 AND BEYOND:
Co-planning and -organising 3rd Effects of Climate Change on the World's Oceans symposium, Brazil, 2015. SICCME involved in identification of relevant topics for sessions.

5.2 Strategic Initiative on Biodiversity Science and Advice (SIBAS; Henn Ojaveer (SCICOM) and Han Lindeboom (ACOM))

5.2.1 Introduction

In order to ensure that ICES work remains current and correctly focused in a changing policy environment, ICES established a Strategic Initiative on Biodiversity Advice and Science (SIBAS) in 2010. As a major response to this initiative, an ICES Workshop on Marine Biodiversity (WKMARBIO) was arranged in February 2011. Partly based on WKMARBIO outcomes, SIBAS plan was developed and agreed upon in 2012. The following part of the document outlines items from the SIBAS plan addressed and describes the actions performed and suggests future development, if applicable.

5.2.2 Internal developments

5.2.2.1 Identification of relevant ICES EG's.

To obtain better overview on internal potential, list of ICES Expert Groups with ToR's containing biodiversity components was created, based on the EG ToR's for the most recent year (2012 or 2013). The list of ToR's below cannot be taken as absolutely exhaustive and complete (as the term 'biodiversity' is very broad), but both the EG's and ToR's list should be considered as sufficiently indicative in terms of SIBAS scope and aims. The list below includes both SCICOM and ACOM-affiliated expert groups arranged in alphabetical order.

- ✓ Benthos Ecology Working Group (BEWG)
- ✓ International Bottom Trawl Survey Working Group (IBTSWG)
- ✓ Study Group on Integrated Morphological and Molecular Taxonomy (SGIMT)
- ✓ Working Group on Aquaculture (WGAQUA)
- ✓ Working Group on Beam Trawl Surveys (WGBEAM)
- ✓ Working Group on Biodiversity Science (WGBIODIV)
- ✓ Working Group on Cephalopod Fisheries and Life History (WGCEPH)
- ✓ Working Group on the Biology and Life History of Crabs (WGCRAB)
- ✓ Working Group on Crangon fisheries and life history (WGCRAN)
- ✓ ICES\NAFO Joint Working Group on Deep-water Ecology (WGDEC)

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- ✓ Working Group on the Ecosystem Effects of Fishing Activities (WGECO)
- ✓ Working Group 2 on North Sea Cod and Plaice Egg Surveys in the North Sea (WGEGGS2)
- ✓ Working Group on Fisheries-Induced Evolution (WGEVO),
- ✓ ICES - IOC Working Group on Harmful Algal Bloom Dynamics (WGHABD)
- ✓ Working Group on Introduction and Transfers of Marine Organisms (WGITMO)
- ✓ Working Group on Marine Habitat Mapping (WGMHM)
- ✓ Working Group on Marine Mammal Ecology (WGMME)
- ✓ Working Group on Pathology and Diseases of Marine Organisms (WGPDMO)
- ✓ Working Group on Phytoplankton and Microbial Ecology (WGPME)
- ✓ Working Group on Multispecies Assessment Methods (WGSAM)
- ✓ Working Group on Seabird Ecology (WGSE)
- ✓ Working Group on Zooplankton Ecology (WGZE)

In summary, at least 22 ICES EG's have biodiversity-related ToR in their agenda. All ecology-related EG's, together with WGBIODIV and WGECO should be considered as major players in and contributors to SIBAS (please see underlined EG's in the list above). The SIBAS leadership should periodically review the ToR's of the above groups.

5.2.2.2 Attendance at internal meetings.

To ensure progress in achieving SIBAS aims and effective delivery of contributions, SIBAS leadership attended meetings of two expert groups considered as a primary contributors: WGBIODIV and WKECOVER.

5.2.3 External linkages and visibility of SIBAS

5.2.3.1 Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)

ICES has received a response letter from IPBES, which formally welcomes ICES wish to establish a strategic partnership with IPBES. By now, the following activities were undertaken: i) representation of ICES at IPBES pan-European Stakeholder consultation meeting (Leipzig, Germany, 16-18 July 2013). Among others, it was ensured that marine matters are included into IPBES agenda; ii) registration of ICES for the second stakeholder conference (IPBES-2; Antalya, Turkey, 9-14 December 2013). Participation at this meeting seems to be very important, as might significantly influence further cooperation.

The SIBAS leadership should continue dialogue with IPBES, including attending the IPBES-2 meeting.

5.2.3.2 Convention of Biological Diversity (CBD)

Establishing effective links and achieving MoU between ICES and CBD has been one of the priority tasks since the initial stages of SIBAS. Head of the Science Programme is currently leading communications with CBD to finalize MoU.

5.2.3.3 World Conference on Marine Biodiversity (Quingdao, China, 12–16 October 2014).

Currently, there are formally not yet options available to externally suggest theme session proposals. However, the conference convenors have preliminarily indicated that such options will be opened soon and tentatively welcomed ICES SIBAS session.

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The SCICOM-nominated SIBAS co-chair will continue dialogue with WCMB organizers with an aim to organize and convene ICES-SIBAS session.

5.2.3.4 Promotion of SIBAS in various projects

EUR-OCEANS Hot Topics Conference - A changing ocean (Gran Canaria, Spain, 6-8 November 2013). SIBAS presentation was accepted by the meeting organizers. ICES will be represented at this meeting by a Secretariat member (Head of the Science Programme).

Communication with EC COST action on 'Development and implementation of a pan-European Marine Biodiversity Observatory System (EMBOS)'. SIBAS will be represented at these meeting either by the newly appointed core-group member (Herman Hummel, also coordinator of COST EMBOS) or SCICOM-nominated co-chair (also member of COST EMBOS).

5.2.3.5 Links with stakeholders

ICES secretariat member (Claus Hagebro) and ACOM-nominated SIBAS co-chair (Han Lindeboom) attended the EC biodiversity workshop early November 2012. The meeting allowed to exchange views and better understand EC wishes.

Suggested action: interaction with stakeholders should be significantly activated.

5.2.4 Leadership

Herman Hummel (Centre for Estuarine and Marine Ecology, Netherlands Institute of Ecology) was invited to join the SIBAS core-group (to fill in the vacant position). Herman is coordinator and/or leader of various marine biodiversity programs and projects, and thus will be a great assistance to contribute to SIBAS, incl. promoting it externally.

5.3 Strategic Initiative for Stock Assessment Methods (SISAM; Mark Dickey-Collas, the Netherlands, and Steve Cadrin, USA)

The ICES Strategic Initiative for Stock Assessment Methods was designed to assure that scientists can apply the best stock assessment methods when developing management advice for fisheries. This aim is shared by many RFMO and national fisheries organizations. The World Conference on Stock Assessment Methods (WCSAM) was organized as a milestone for the initiative. This was the main focus for 2012/2013.

At the conference (17–19 July 2013), many of the world's leading stock assessment experts met to test and discuss stock assessment methods. Over 220 participants from 27 countries participated in the conference. The conference provided a forum for presentations on the application and future of stock assessment methods. It considered single stock approaches for data rich and poor stocks, and also multispecies and ecosystem based approaches. A two day workshop preceded the conference (15-16th July) and provided the most comprehensive comparison among assessment methods to date.

The workshop found that with recent developments in stock assessment methods, a new set of "good practice" guidelines was required. It proposed an iterative route to create the guidelines. These guidelines should first target stock assessment methods but guidelines were also required for simulation testing. New assessment methods should be tested via simulation (applying the new assessment method to data simulated from the same or from alternative models). The workshop further highlighted

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that there are many challenges still to be resolved when applying multiple models to a single stock, or using generic tools. There was a tension between research groups that were pursuing the generic package approach with those constructing models tailored to particular assessments. The workshop agreed that more robust use of statistical analysis was required when investigating the performance of stock assessment methods. The model comparison exercise showed that although trends in biomass were often similar across models, the scaling of absolute biomass was not consistent across models. Similar types of models tended to perform similarly (e.g. age based or production models). Self-testing and cross-testing of models is a useful diagnostic approach and suggested that most bias occurred in the most recent years of time-series.

Results from the simulation exercise provide a basis for guidance on future large-scale simulation experiments and demonstrate the need for strategic investments in the evaluation and development of stock assessment methods. A clear message from the conference is that a global initiative is needed to synthesize developments in stock assessment methods. Whereas the majority of research is conducted regionally to meet local objectives, these developments need to be brought together to benefit all RFMO and national efforts so as to ensure that parallel efforts add to our knowledge. A step in this direction could be establishment of stronger connections between the various regional methods working groups (see notes on GAME below).

The fact that the environment varies is well appreciated throughout the stock assessment community. The evolution of assessment methods needs to account for variation in fish productivity and fishery behaviour across space and time. Stock assessment methods should evolve to include information from additional sources (e.g. genetics, tagging, climate and predation). Pure research without application to improve operational stock assessments will not meet the needs of society. Thus developers need to account for changes in management objectives, e.g. incorporation of an ecosystem approach. The need for active feedback loops between research, application and management decisions was demonstrated by many case studies from around the world. Despite the tendency to focus on fishery challenges in well-developed regions, many of the major problems for fisheries management are in developing countries. One session of the conference offered high resource, or high skills solutions that may not be applicable in developing countries. This illustrates that there are still major challenges in the development of methods appropriate across the globe. The contributions of young scientists to the conference were striking, suggesting a strong demographic wave of talented stock assessment scientists joining the research community, which promises to rise to the challenges before us in fisheries science.

5.3.1 Recommendations

1) **Substantial coordinated strategic investment** is needed to support stock assessment research. Issues related to stock assessment regularly hit the world headlines, and some researchers seem to benefit from this exposure. However those at the conference felt that the researchers involved in the methods development and application do not receive the investment required. The conference felt that
   a) Most strategic research should be conducted regionally (e.g. within RFMOs) to meet objectives that vary among regions.
   b) Global initiatives are required to help with sharing information and tools to promote parallel advancement of effective methods.

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This investment should not only focus on "traditional single species stock assessment" but also consider the dynamics of fish populations and fisheries through space and the linkages with management needs for the ecosystem approach. A finding of the conference is that multispecies models are already blurring the distinction between ecosystem and single species assessments.

2) **The development of 'good practice' guidelines.** The need for guidelines is clear. WCSAM proposes the following approach for their development. The most intensely researched case studies (finfish, target species, age-based, data-rich, TAC systems, developed nations) should be used to provide initial guidance on good practices. At the same time, research should be expanded to represent other taxa, size- or stage-based approaches, and data-limited together with data-poor situations, as well as other management systems. Guidelines should be developed through topical workshops and account for global needs, thus considering both high resource and low resource solutions.

3) **A multi-organizational Global Assessment Methods Working Group for Sustainable Fisheries (GAME)** should be formed. This will provide a forum to bring regions together to compare developing methods and test new ideas. It will also be able to lobby for investment in research into stock assessment methods. Advances by modelling experts should be effectively communicated to practitioners through training programmes.

5.3.2 Next Steps

The SISAM Steering Committee will consider information published in the special issue of the ICES Journal as well as the development of a complementary Cooperative Research Report to supplement the proceedings.

A second iteration of SISAM is to be set up with ICES, FAO, RFMO, JRC and national participation to lead the development of "good practice" guidelines and coordinate initiation of GAME (the Global Assessment Methods Working Group for Sustainable Fisheries). Specific leadership for GAME still needs to be addressed but it was hoped that ICES will maintain a leadership role in setting this up. GAME could meet alongside the quadrennial World Fisheries Congress or bi-ennial FAO COFI meeting. **ICES needs to discuss and decide the leadership that will take SISAM into GAME.**

Results from simulation exercises suggest that meaningful investment is needed to support stock assessment research. Future simulation exercises should be refined to ensure that simulations produce all of the data needed for each model category. The process should promote ease of participation (common data formats, etc.).

'Good practices' guidelines should be developed through topical workshops (e.g. the CAPAM selectivity workshop that was summarized at WCSAM) and by GAME. The issue of applying many models/approaches or designing the "best" model to each stock was discussed. This needs to be addressed in the "good" practice guidelines. The workshop agreed that more robust use of statistical analysis was required when investigating the performance of stock assessment methods.

All workshop presentations can be found online through the ICES WCSAM workshop page, or via http://bit.ly/12GRzJ2. Most presentations from the conference will be available online soon. Several papers on simulation results from the workshop will be submitted to the special issue of the ICES Journal of Marine Science. Supplementary analyses and results may also be published as an ICES Cooperative Research Report.

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6 Conclusions (SCICOM Chair)

The outgoing SCICOM Chair, editor of this report, would like to use this opportunity to reflect on the major achievements during his tenure (2010–2013) and on the challenges for the next term of the SCICOM Chair. This reflection is personal and does not necessarily reflect the views of SCICOM.

6.1 The Achievements

- **Bringing Science to the forefront of ICES** – In 2008 ICES embarked on a strategic planning process that led to the 2009–2013 Science Plan. In order to be as relevant and productive as it could be ICES identified the need to embrace the increasing use of ocean and the changing climate, and to recognize the scientific needs for an ecosystem approach to management. The implementation of the Science Plan has brought science to the forefront of ICES, leaving its previous status as a "consultative" process in the shadow of the business side of the organization. This has enhanced the credibility of ICES, particularly in academic and outside circles. The Chair believes that continuation of this process is essential to break barriers of misunderstanding about ICES business and processes.
- **Opening ICES to non-governmental scientists and organizations** – ICES has always been opened to non-government scientists, but the perception from the inside did not mirror outside perceptions. A number of specific changes have supported an evolution to a "visibly open" organization: Open and transparent calls and processes to select theme sessions at the ASC, Increased independence of EG Chairs to invite the best experts to their meetings, Implementation of Strategic Initiatives, etc. ICES science meetings now attract >1,200 scientists from 250 research organizations from 40+ countries, facts that ICES must publicize and promote.
- **Implementation of Multi-annual ToR** – The move to implement science Expert Groups as 3-year activities is a major change in the way ICES operates. The move intends to modernise ICES by allowing groups the space and time (albeit limited – an important consideration) to deliver specific and unique outputs that demonstrate the value of ICES networking. This process also attracts academic scientists, who often can only justify participation in ICES if academic outputs are generated. In an era of endless science meetings, establishing clear outputs should enhance participation and commitment from attendees. The changes address the fact that once created EGs had tenure for life, unless the chair decided to close them (an increasingly rare decision the longer the history of a group).
- **Strategic Initiatives –** This new mechanism was established in 2010 to activate cross-cutting activities that require multi-Expert Group support and external collaborations. The first to be implemented were on Area-Based Science and Management (SIASM), Stock Assessment Methods (SISAM), Biodiversity (SIBAS) and Climate Change (SICCME). Three of these are still active and have led to very significant new frameworks of collaboration with fisheries commissions, Biodiversity assessment organizations and North hemisphere climate change researchers. It is expected that some SI evolve to provide new ToR to expert groups (e.g. SIASM and WGMP-CZM), but a small number of SI ensures innovation and dynamism.

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- **Collaboration with partners** – The landscape of marine science organizations in the North Atlantic has evolved rapidly over the last few decades. ICES is not the only major player anymore, and in order to remain relevant and respected ICES needed to reinforce its collaborative arrangements. Some of the key ones that have been established (or strengthened) in the recent past includes PICES, CBD, IPBES and FAO (a long-standing partner). In particular, the link with PICES has developed and there is now a single voice to speak for northern hemisphere science issues.
- **A Science Fund for ICES –** The SCICOM Chair has worked with Bureau and the Secretariat to identify potential savings in the science processes managed through the Secretariat (training, publications, ASC, etc.), and transformed these savings into a small fund for science development. This ICES SF is intended to be devoted to implement some pilot studies in collaboration between academic and government scientists, to demonstrate innovation, dynamism and frontline activity. These projects will be of great help to the the Secretariat to promote ICES as a dynamic, output-driven science organization.

6.2 The Challenges

- **Implementation of the new Science Plan** – the new plan points to a direction of travel that needs to be steered and managed. Implemented as planned would provide ICES with a clear advantage over any other marine science organizations, because it would align the efforts of the network. Ensuring the organization keeps seeing the wood for the trees is essential.
- **Ecosystem Benchmarking –** The new Science and Advisory plans identify a new "Benchmarking process" as the key mechanism to translate science into advice. The principles of the benchmarking process are: a) regionally based, b) encompass all ecosystem aspects and not just specific fish stocks, c) makes use of the IEA process. Other than that, the benchmarking process needs to be developed over the period of the new ICES strategic plan, with the full support of ACOM and SCICOM. The success of this process will determine the success of the strategy as defined by ACOM ad SCICOM. A leadership of this process has been agreed, and implementation processes have started.
- **Management of Expert Groups** – An essential element in the evolution of ICES science structures in recent years has been the time constraints on EGs (3 years, renewable). Groups can request extensions provided a new and clearly defined programme of work is agreed. SCICOM needs to make sure that this process is managed as intended, with clear assessments of EG outputs and plans on the one hand, and significant evaluation of groups at the start of their term.
- **Continue opening the box –** ICES started as an activity linked to government scientists and science structures. The landscape has changed significantly since, and will continue to do so in future. In recent years several government laboratories have become independent agencies and others have been transferred to Universities. In order to remain relevant ICES needs to continue opening the box: facilitating access to EGs, free and public process of ASC theme session selection, collaborative science collaborations with academia through the ICES Science Fund, etc.

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Annex 1: 2013 List of ICES SCICOM Expert Groups that were dissolved, established, changed committee or were renamed

Type of Action	Name	Chair – Outgoing	Chair – Incoming
Change of Chairs	***SCICOM and SCICOM Steering/Operational Groups/Strategic Initiatives***		
SCICOM	Science Committee (SCICOM)	Manuel Barange, UK	Yvonne Walther, Sweden
SCICOM	Steering Group on Regional Sea Programmes (SSGHIE)	Erik Olsen, Norway	
SCICOM	Data and Information Group (DIG)	Helge Sagen, Norway	Ingeborg de Boois, The Netherlands (will continue as Chair)
Established	***Expert Groups***		
SSGSUE	Working Group on Recruitment Forecasting in a Variable Environment (WGRFE)		Samuel Subbey, Norway and Elizabeth Brooks, USA
SSGESST	Working Group on target classification (WGTC)		Rolf Korneliussen, Norway
SSGESST	Joint Session of the ICES-FAO Working Group on Fishing Technology and Fish Behaviour (WGFTFB) and the Working Group on Fisheries Acoustics Science and Technology (WGFAST) – (JFATB)		Paul Winger, Canada, Kresimir Williams, USA
SSGEF	Working Group on Integrated Morphological and Molecular Taxonomy (WGIMT)		Ann Bucklin, USA
SSGHIE	Working Group on Marine Renewable Energy (WGMRE)		Finlay Bennet, UK
SSGHIE	Working Group on Resilience and Marine Ecosystem Services (WGRMES)		Sebastian Villasante, Spain
SSGRSP	Working Group on the Integrated Assessments of the Barents Sea (WGIBAR)		Edda Johannesen, Norway, Jury Kovalev, Russia
Change of Chairs	***Expert Groups***		
SSGSUE	Stock Identification Methods Working Group (SIMWG)	Stefano Mariani, UK	Lisa Kerr, USA
SSGSUE	Working Group on Fisheries-Induced Evolution (WGEVO)	Adriaan D. Rijnsdorp, The Netherlands	Bruno Ernade, France
SSGSUE	Working Group on Spatial Fisheries Data (WGSFD)	Heino Fock, Germany	Josefine Egekvist, Denmark
SSGESST	Working Group on Fisheries Acoustics, Science and Technology (WGFAST)	Nils Olav Handegard, Norway	Verena Trenkel, France
SSGESST	ICES-FAO Working Group on Fishing Technology and Fish Behaviour (WGFTFB	Michael Pol, USA	Pingguo He, USA
SSGESST	Working Group on Beam Trawl Surveys (WGBEAM)	Brian Harley, UK	Kelle Moreau, Belgium
SSGESST	Working Group on North-east Atlantic continental slope surveys (WGNEACS)	Elvar H. Hallfredsson, Nor-	Rasmus Hedeholm, Greenland

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Type of Action	Name	Chair – Outgoing	Chair – Incoming
		way	
SSGESST	Working Group on Improving use of Survey Data for Assessment and Advice (WGISDAA)	Colm Lordan, Ireland	David Reid, Ireland
SSGEF	Working Group on Cephalopod Biology and Life History (WGCEPH)	-	Jean-Paul Robin, France (brand new co-chair)
SSGHIE	Working Group on Biological Effect of Contaminants (WGBEC)	Matthew Gubbins, UK and John Thain, UK	Bjorn-Einar Grøsvik, Norway and Ketil Hylland, Norway
SSGRSP	Working Group on the Northwest Atlantic Regional Sea (WGNARS)	Catherine Johnson, Canada	M. R. Anderson, Canada
SSGRSP	ICES/HELCOM Working Group on Integrated Assessments of the Baltic Sea (WGIAB)	Martin Lindegren, Denmark	Christian Möllmann, Germany
Dissolved	***Expert Groups***		
SSGESST	Study Group on Turned 90° Codend Selectivity, focusing on Baltic Cod Selectivity (SGTCOD)	Bent Herrmann, Norway and Waldemar Moderhak, Poland	
SSGESST	Study Group on Calibration of Acoustic Instruments in Fisheries Science (SGCal)	David A. Demer, USA	
SSGESST	Workshop on Evaluation of current ecosystem surveys (WKECES)	Sven Kupschus, UK	
SSGESST	Workshop on DATRAS data Review Priorities and checking Procedures (WKDATR)	Ingeborg de Boois, NL and Neil Holdsworth, ICES	
SSGESST	Workshop on Northeast Atlantic mackerel monitoring and methodologies including science and industry involvement (WKNAMMM)	Martin Pastoors, NL and Leif Nøttestad, Norway	
SSGESST	Workshop of SSGESST expert groups chairs (WKESST)	Karl-Johan Stæhr, Denmark and Nils Olav Handegard, Norway	
SSGEF	Workshop on Synthesis of hydrographic, phytoplankton, microbial plankton and zooplankton time-series in the North Atlantic and adjacent seas (WKSERIES)	Lidia Yebra, Spain, and Alexandra Kraberg, Germany	
SSGEF	Workshop on sea trout (WKTRUTTA)	Stig Pedersen, Denmark, and Nigel Milner, UK	
SSGEF	Workshop on BALTic EEL (WKBALTEEL)	Willem Dekker, Sweden	
SSGEF	Joint PICES/ICES Workshop on Global Assessment of the Implications of Climate Change on the Spatial Distribution of Fish and Fisheries (WKSICCME-Spatial)	Anne Hollowed (USA/PICES), Suam Kim (Korea/PICES), and Myron Peck (Germany/ICES	

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Type of Action	Name	Chair – Outgoing	Chair – Incoming
SSGHIE	Joint HZG/LOICZ/ICES Workshop: Mapping Cultural Dimensions of Marine Ecosystem Services (WKCES)	Andreas Kannen, Germany; and Kira Gee, Germany	
SSGHIE	ICES/PICES/GEOHAB Workshop on "HABs in a Changing World" (WKHABCW)	Mark Wells, USA, and Raphael M. Kudela, USA	
SSGHIE	Workshop on the Application of Passive Sampling and Passive Dosing to Contaminants in Marine Media (WKPSPD)	Kees Booij, the Netherlands, and Craig Robinson, UK	
SSGHIE	ICES Study Group on Environmental Impacts of Wave and Tidal Energy (SGWTE)	Michael Bell, UK	
SSGRSP	Workshop on Linking Contaminant Issues to Integrated Ecosystem Assessments (WKLINCON)	Kari Lehtonen, Finland, Dick Vethaak, The Netherlands, Matt Gubbins, UK	
New Workshops			
SSGHIE	Joint Rijkswaterstaat/DFO/ICES Workshop: Risk Assessment for Spatial Management (WKRASM)		Rob Gerits, Netherlands and Roland Cormier, Canada
DIG	Workshop on ICES Data Guidelines (WKIDG)		Lesley Rickards*,UK, Sjur Ringheim Lid*, Norway, Taco de Bruin*, Netherlands
DIG	Workshop on Integrated DATRAS Products (WKIDP)		Clara Ulrich* (Denmark)
Joint ACOM/SCICOM	ACOM/SCICOM Workshop to draft advice on Ecosystem Overviews (WKDECOVER)		Darius Campbell, UK
EGs Renamed			
SSGESST	Working Group on Redfish Surveys (WGRS) will be renamed the Working Group on International Deep Pelagic Ecosystem Surveys (WGIDEEPS)	Benjamin Planque, Norway	To be decided