

SCICOM Progress Report 2010

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



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1 Introduction (SCICOM Chair)

SCICOM has established a number of mechanisms 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** – to introduce innovative and interdisciplinary thinking to ICES on topics that are cross-cutting and require 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 organisation; 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.

At the May 2010 meeting of SCICOM it was agreed that a report summarising the work along the above mechanisms would be useful for the organisation to monitor and evaluate progress in relation to the implementation of the Science Plan. The report was produced by the Chairs of the different SCICOM structures, and compiled by the Chair of SCICOM. This report will be prepared annually.

2 Report of Science Steering Groups

2.1 SCICOM Steering Group on Ecosystem Function (SSGEF, Pierre Petitgas, France)

2.1.1 Vision/ Objective

SSGEF was created to pilot and nurture the suite of Expert Group activity which relates to Topic 1 of the Science Plan “Understanding Ecosystem Functioning”. Under that mandate, SSGEF takes actions to:

- Map the activity of EGs on the Science Plan (SP)
- Help EGs focus their ToRs in relation to the SP
- Monitor the activity of EGs
- Facilitate inspiration and communication between EGs
- Identify cross-cutting issues and extract EG science highlights

2.1.2 Expert Groups

Acronym	Expert Group Name	Year established	Main contribution to Science Plan	Notes
WGOH	Working Group on Oceanic Hydrography	1977	1.1, 3.2	Renamed from WGOHYD in 2000
WGPME	Working Group on Phytoplankton and Microbial Ecology	2009	1.1, 1.2, 1.6, 2.4	
WGZE	Working Group on Zooplankton Ecology	1991	1.1, 1.2, 1.6, 2.5, 3.2	Renamed from SGZE in 1993
WGPBI	Working Group on Modelling of Physical/Biological Interactions	2000	1.1, 1.3, 1.4, 3.2	Renamed from SGMPI in 2001 and from SGPBI in 2003
BEWG	Working Group on Benthos Ecology	1985	1.1, 1.2, 1.3, 1.5, 1.6, 2.3, 2.4	
WGCRA B	Working Group on Biology and Life History of Crabs	1993	1.4, 2.1, 2.5, 3.1	Renamed from SGCRA B in 2006
WGCRA N	Working Group on Crangon Fisheries and Life Histories	1992	2,1	Renamed from SGCRA N in 1994
WGCEPH	Working Group on Cephalopod Fisheries and Life History	1994	1.1, 1.3, 1.4, 1.6, 1.7, 2.4	
WGSPEC	Working Group on Small Pelagic Fishes, their Ecosystems and Climate Impact	2009	1,1	

Acronym	Expert Group Name	Year established	Main contribution to Science Plan	Notes
WGRECORDS	Working Group on the Science Requirements to Support Conservation, Restoration and Management of Diadromous Species	2008	1.1, 1.3, 1.4	Renamed from TGRECORDS in 2009
WGFE	Working Group on Fish Ecology	2002	1.1, 1.2, 1.7	
WGSE	Working Group on Seabird Ecology	1991	1.1, 1.2, 1.6, 1.7, 2.1, 2.3, 2.4, 3.1	Renamed from SGSE in 1993
WGBIODIV	Working Group on Biodiversity Science	2006	1.1, 1.2, 1.3, 1.6, 1.7, 2.4, 3.1	Renamed from SGBIODIV in 2009
SGIMT	Study Group on Integrated Morphological and Molecular Taxonomy - Linked to WGZE	2009	1.2, 1.6, 2.4, 2.5	
SGCBNS	Study Group on Climate related Benthic Processes in the North Sea - Linked to BEWG	2009	1.1, 1.6	
SGBALANST	Study Group on data requirements and assessment needs for Baltic Sea trout - Linked to WGRECORDS	2007	1.3, 1.4, 3.1	
SGBICEPS	Study Group on Biological Characteristics as Predictors of Salmon Abundance - Linked to WGRECORDS	2008	1.3, 1.4, 3.1	
SGIPEE	Study Group on International Post-Evaluation on Eels - Linked to WGRECORDS	2009	1.4, 3.1	
SGSSAFE	Study Group on Salmon Stock Assessment and Forecasting - Linked to WGRECORDS	2008	1.4, 3.1	
SGAESAW	Study Group on Anguillid Eels in Saline Waters - Linked to WGRECORDS	2008	1.3, 1.4, 3.1	
WKMOR	Workshop on Understanding and Quantifying Mortality in Fish Early/Life Stages: experiments, observations and models - Linked to WGPBI	2008	1.1, 1.4, 3.1	

2.1.3 Roadmap for 2011

- In 2010 procedures to implement the Science Plan were initiated. The topics of the Science Plan were coded and the narrative for each topic was converted into bullet points that were also coded (72 bullets in all). The remit of each EG was mapped using these codes. Also, the ToRs were associated to these codes. The reporting of EGs to the SSG was made topical to address cross-cutting issues.
- In 2011, we aim to complete procedures. The ToRs will be coded to reflect their association to the Science Plan as well as their origin, e.g., whether they originate from a request or the EG. The coded ToRs could be assem-

bled in a simple data base to ease the monitoring of the activity of the EGs in the long run and also help the Chairs focus their ToRs in relation to the Science Plan. The procedures are aimed to serve at monitoring the activity of EGs as well as compiling the highlights of their results on topics of the Science Plan.

- Communication between EG Chairs will be increased by regular WebEx meetings, to define cross-cutting issues on which to report jointly at next ASC, either across compartments of the ecosystem or across scales (life history parameters, community level, basin scale).
- Also, synthesis products elaborated by the SSG based on EG results will be discussed and actions taken to extract highlights in the results of the EGs.
- Also the Strategic Initiatives on Biodiversity and Climate Change are expected to develop in 2011, which are of concern to SSGEF.

2.1.4 Cross-cutting issues (with other SSGs, SIs)

- As seen on the Table of EGs above, most of the contributions concern theme 1. But themes 2 and 3 are also important for SSGEF, in particular topics 2.3, 2.4, 3.1 and 3.2. Therefore, collaboration with other SSGs is necessary.
- Many groups under SSGEF compile data at regional scale to assess populations or environmental status and some produce regular status reports. These are a resource for developing indicators of ecosystem health, which can serve regional assessments performed in SGRSP.
- Cross-cutting issues identified among SSGEF expert groups were climate change impacts, spatio-temporal pattern analysis and habitat characterization.

2.1.5 Issues to the attention of ACOM

- Models, data and knowledge are available that could be useful in the design of benchmarks for, in particular, predicting larval survival, environmentally-induced life history parameters or assessing habitat quality.

2.1.6 Recommendations from the Chair

- Stronger interaction between SSG chairs to properly address cross-cutting issues.
- Coding the ToRs of EGs and storing these in a simple data base would help monitor the activity of EGs on a longer time frame than from one year to the next.
- The reporting format of EGs whether at the ASC in the SSGs or in the executive summary could be revisited allowing greater emphasis on research highlights in relation to the SP.

2.2 SCICOM Steering Group on Sustainable Use of the Ecosystem (SSGSUE, Mark Dickey-Collas, The Netherlands)

2.2.1 Vision/ Objective

The Steering Group on Sustainable Use of the Ecosystem is tasked with the development and the delivery of science within the ICES thematic research area “Development of options for sustainable use of ecosystems”. Its central approach is to integrate

across scientific disciplines and regions. It must work closely with the advisory side of ICES to ensure that the science in this core research area is relevant, forward looking, challenging and also rewarding to EG scientists.

Key to this vision is ensuring that we have the right expertise, tools and data to allow provision of science and management advice at all levels including single-stock fishery advice, fleet-based fishery advice, ecosystem based management and integrated management advice for ocean use. It must also facilitate the uptake of knowledge in the advisory process.

SSGSUE considers its four research topics (described in the ICES Science Plan) as themes that underpin and guide its science, rather than as four separate research directions. To achieve the goals of SSGSUE scientists must operate within a range of these research fields and also actively collaborate with scientists working in other ICES steering groups.

2.2.2 Expert Groups covered by SSGSUE

SSGSUE has eight working groups and three study groups. In 2010 is also had the following workshops:

- ICES WK on Reviews of Recent Advances in Stock Assessment Models Worldwide (WKADSAM)
- Joint ICES and Pelagic RAC WK on Pelagic Fisheries within the Marine Ecosystem (WKPELECO)
- MARIFISH-ICES Joint WK on Integrated ecosystem modelling; building our capacity to understand and manage marine ecosystems in a changing world (WKIEM)

Acronym	Name	Year Established	Operational modelling of ecosystem	Marine living resource management tools	Socio-economic understanding	Marine spatial planning	Notes
WGMHM	WG Marine Habitat Mapping	1998	Providing products of descriptors	Products for MSFD		Providing products and data	
WGEVO	WG Fisheries Induced Adaptive Evolution	2007	Providing genetic models	Providing tools and conceptual approaches	Viewed as important for next steps		Renamed from Study Group on Fisheries Induced Adaptive Change (SGFIAC) in 2009
WGOOFE	WG Operational oceanographic products for fisheries & environment	2008	Providing data and access products			Provide data	
SIMWG	Stock Identification Methods WG	1992	Provide spatial and connectivity data	Provide information for management		Provide information for spatial management	

Acronym	Name	Year Established	Operational modelling of ecosystem	Marine living resource management tools	Socio-economic understanding	Marine spatial planning	Notes
WGSAM	WG Multispecies Assessment Methods	2003	Providing data and conceptual approaches	Providing tools and conceptual development	Viewed important for next steps, developing ideas		Renamed from Study Group on Multispecies Assessments in the North Sea (SGMSNS) in 2006
WGQAF	WG Quantifying All Fishing Mortality	2003	Providing information	Providing data and conceptual approaches	Conceptual ideas on fisheries & fish interactions		Renamed/established in 2007 from Study Group on Unaccounted Fishing Mortality (SGUFM)
WGFS	WG Fishery Systems	1999			Providing conceptual approaches and systems analysis		
WGMG	WG Methods of Fish Stock Assessment	2000	Providing species interactions, natural mortality	Providing tools and conceptual development		Developing predator/prey spatial products	
SGVMS	Study Group on VMS data, its storage, access and tools for analysis	2009	Providing fisheries dynamics understanding	Providing tools for VMS analysis	Fleet dynamics and effort tools	Provision of spatial activity	
SGHIST	Study Group on the History of Fish and Fisheries	2008		Providing data	Providing conceptual understanding		
WKADSAM	ICES WK on Reviews of Recent Advances in Stock Assessment Models Worldwide	2009		Providing overview of the development of tools			
WKPELECO	Joint ICES and Pelagic RAC WK on Pelagic Fisheries within the Marine Ecosystem	2009			Providing conceptual ideas and participation of stakeholders		

Acronym	Name	Year Established	Operational modelling of ecosystem	Marine living resource management tools	Socio-economic understanding	Marine spatial planning	Notes
WKIEM	MARIFISH-ICES Joint WK on Integrated ecosystem modeling.	2009	Highly focused on this issue	Providing tools		Providing tools	
SGHERWAY	Study Group on the evaluation of assessment and management strategies of the western herring stocks	2007		Providing tools and development of concepts			

2.2.3 Roadmap for 2011

- **Marine living resource management tools** - This issue is being well covered by SSGSUE and linked to the developing strategic initiative on stock assessment methods (SISAM), the steering group felt that ICES was making appropriate progress. The need to “go spatial” was emphasised by many of the members of SSGSUE.
- **Operational modelling combining oceanographic, ecosystem, and population processes** - Operational integrated ecosystem modelling is a growth area. The ICES Science Plan highlights this area as a high priority research topic. Thus SSGSUE should develop a strategy to engage in this research and make it operational within ICES with the long-term aim of providing advice.

While ICES is not a leader in the development of operational modelling many of its members contribute to novel developments in this area. ICES has an opportunity to facilitate and provide focus for North Atlantic modelling needs, benefiting from many ongoing projects in the region (CAMEO, SCORE, EUROCEANS, MYOCEAN etc). and bringing existing expertise and models into its science and advisory arena. ICES can also play a role pointing out the need for capacity building for skills to develop integrated ecosystem modelling. It should also be a pro-active facilitator, encouraging communication between scientists developing operational models, researchers from other disciplines and stakeholders. SSGSUE felt that strong collaboration with SSGRSP was core to the successful engagement of ICES in this field, particularly through the adoption of regional case studies.

Existing models that combine oceanography, ecosystem, and population processes (and occasionally humans) are at an early stage of development, and are used to simulate scenarios rather provide forecasts. ICES has started engaging with this community through WKIEM, and SSGSUE spent much time at the ASC working ideas about operational modelling, which will be presented to SCICOM at their spring 2011 plenary meeting.

- **Marine spatial planning, including the effectiveness of management practices (e.g. MPAs), and its role in the conservation of biodiversity** - This topic is highly relevant to the strategic initiatives of ICES. SSGSUE did not however give much attention to the subject in 2010 as it was felt that the new strategic initiative on marine spatial planning would lead SSGSUE on the subject.
- **Contributions to socio-economic understanding of ecosystem goods and services, and forecasting of the impact of human activities** - This is another developing area of research under ICES. At the moment WGFS is leading development of ideas (see report from 2009 on the role of ICES within this area). Once the Council working group has reported, SSGSUE should initiate a strong drive to encourage this work either within or in collaboration with ICES.

ICES needs to develop an approach that goes beyond adding on extra modules on social and economic issues onto fisheries models (“building with lego”). Getting fisheries scientists, sociologists and economists to work together in developing tools relevant to them all is not easy. The ICES constituency is dominated by biologists and the ASC has so far struggled to become an audience for social and economic scientists. However ICES does have strengths: its ability to provide integrative views for both scientific evidence and advice must be used to attract social and economic communities.

- **Changes in groups in relation to the Science Plan** - SGHERWAY has now finished and reported. It will produce an ICES CRR of their main findings. The European Commission has expressed great interest in their findings.. Also the Workshop on Implications of Stock Structure (WKISS), chaired by Hintzen (NL) and Kerr (USA), has been spawned from the SGHERWAY work and will meet in 2011. This will synthesise the findings of SGHERWAY and other studies to provide advice for the management of interconnected populations.

A new study group on Designing Marine Protected Area Networks in a Changing Climate (SGMPAN) lead by Brock (USA), Kenchington (Canada) and Martinez (Mexico) will progress our understanding in 2010 and 2011. It is clear that both of these groups work towards the aims of the Science Plan. However SSGSUE, should in 2011, consider carefully how the Science Plan goals on operational modelling and social and economic science can be delivered.

2.2.4 Cross-cutting issues

- All of the work of SSGSUE can be considered cross cutting with other science steering groups and the strategic initiatives. The development of spatial products is key to ICES moving from providing single species fish stock advice to integrated advice and indicators of good environmental status. This requires innovative science lead by SCICOM, and SSGSUE working with many groups, but in particular with SSGRSP.

2.2.5 Issues to the attention of ACOM

- SSGSUE is surprised to see a resolution for the establishment of A Study Group on Recruitment Forecasting (SGRF), chaired by Sam Subbey, Norway, under ACOM for 2011. The terms of reference appear to ignore any

role for biology, and also ignore all the progress that ICES has made in the last 30 years about understanding stock to recruitment relationships in non-stationary systems. The suggested ToRs for this group are viewed by SSGSUE as naive and lacking a good ecological basis.

2.2.6 Recommendations from the Chair

- SSGSUE recommends a new ICES training course for “Social science and economics for natural scientists” to encourage multi-disciplinary collaboration and understanding. This is particularly necessary when developing true end to end models.
- SSGSUE also requested a Joint meeting with SSGRSP at the ASC.

2.3 SCICOM Steering Group on Human Interactions on the Ecosystem (SSGHIE, Erik Olsen, Norway)

2.3.1 Vision/ Objective

The Steering Group on Human Interactions on the Ecosystem (SSGHIE) was established to address the thematic area “Understanding Interactions of Human Activities with the Ecosystem” in the Science Plan. Within this thematic area SSGHIE was appointed the responsibility of following up the following topics:

- 3.1. Carrying capacity and ecosystem interactions associated with mariculture
- 3.2. Influence of development of renewable energy resources (e.g. wind, hydropower, tidal and waves) on marine habitat and biota
- 3.3. Population and community level impacts of contaminants, eutrophication, and habitat changes in the coastal zone

The objective of SSGHIE is to implement the ICES Science Plan by ensuring that all relevant themes (listed above) are addressed by its expert groups.

The management of the impacts of human activity on marine ecosystem, and the science underpinning this management, are moving towards integrated ecosystem-based approaches, including spatially-explicit management practices (e.g. MSP, zoning plans). To support such integrated management through cross-cutting and integrative science is the overall and long-term vision of the SSGHIE. To achieve this vision will require determined and sustained effort as ICES science is traditionally very focused along highly specialized topical EGs. This specialization is both ICES strength but also a challenge to address the cross-cutting issues that current ocean management requires. SSGHIEs foremost role is therefore to act as a networking mediator between EGs to analyze and handle the difficult questions associated with the ecosystem-based approach.

2.3.2 Table with EGs and connection to Science Plan

Acronym	Name	Year established	Contribution to Science Plan section on HIE
WGMASC	Working Group on Marine Shellfish Culture	2002	3.1, 3.3
WGEIM	Working Group on Environmental interactions of Mariculture	1992	3.1, 3.3
WGPDMO	Working Group on Pathology and Diseases of Marine Organisms	1977	3.1

WGMPCZM	Working Group on Integrated Coastal Zone Management (WGICZM, renamed to Working Group for Marine Planning and Coastal Zone Management from 2010)	2002	3.1, 3.2, 3.3
MCWG	Marine Chemistry Working Group	1969	3.3
WGMS	Working Group on Marine Sediments in Relation to Pollution	1980	3.3
WGAGFM	Working Group on Application of Genetics in Fisheries and Mariculture	1993	3.1
WGBEC	Working Group on Biological Effects of Contaminants	1987	3.3
WGEXT	Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem	1995	3.3
WGFCCIFS	Joint PICES/ICES Working Group on Forecasting Climate Change Impacts on Fish and Shellfish	2008	Climate change - crosscutting
WGHABD	ICES – IOC Working Group on Harmful Algal Bloom Dynamics	1992	3.3
SGONS	IOC – ICES Study Group on Nutrient Standards	2009	3.3

2.3.3 Road Map for 2011

Implementation of Science Plan

- Map EG activities (ToRs and reports) in relation to the themes and sub-themes of the Science Plan using a similar approach as SSGEF to analyze how Science Plan themes are covered, where there are cross-cutting issues and where there are gaps.
- Initiate a process of internal SSGHIE review of EG reports. EG chairs will be asked to review one other EGs report each year and prepare a short review report to SSGHIE.
- Stimulate theme sessions and workshops on Science Plan thematic areas.
- WGFCCIFS role in the future of the Climate Change Strategic Initiative is being discussed and not resolved at the time of reporting.

Modus operandi

- A key task for SSGHIE will be to establish an efficient yet inclusive way to work. At the ASC we proposed having the steering group open to all EG chairs and experts appointed by Chairs. SSGHIE meetings at ASC should be public, while intersessional meetings will be for members or by invitation only.
- For topical issues (i.e. Aquaculture) the relevant EG chairs will be called to topical videoconference meetings.
- Intersessional meetings of SSGHIE will in 2011 be conducted by videoconference.
- SSGHIE would like to have two face-to-face open meetings at ASC in Gdansk in 2011.

2.3.4 Cross-cutting issues with other SSGs, SIs

- Developing the scientific basis for Coastal and Marine Spatial Planning by giving support and advice for the ACOM/SCICOM Strategic Initiative on Area-Based Science and Management.
- In collaboration with SSGRES initiate work on scoping (developing) methods for evaluating the cumulative effects of human activities on the ecosystem. This task is initiated in 2010 as a ToR for SGEH, and based on their report to SSGHIE and SSGRES, plans will be made to improve the science of cumulative assessments. The SGEH report will be reviewed and serve as a basis for discussion of the issue at the SSGHIE meeting during ASC in 2011.
- Socioeconomic issues in relation to aquaculture is an emerging issue identified by SCICOM. A new SG (SGSA) has been set up to explore this topic and give advice on whether a permanent EG should be created.
- Stimulate and support for cooperation between EGs within ICES and between EGs and relevant organizations outside of ICES (e.g. PICES, European Aquaculture Society).

2.3.5 Issues to the attention of ACOM

- SGIMC has expressed a wish to report to SSGHIE, as was the case in 2009 but discontinued in the recent year. The co-chairs from SGIMC attended the SSGHIE meeting and pointed out that topics of SSGHIE EGs are very relevant to their work.

2.3.6 Recommendations from the Chair

- Stronger interaction with the other SSGs;
- Closer collaboration with the other SSGs chairs on common issues;
- WebEx meetings between the SSGs Chairs to discuss common issues and prepare for the ASC;
- Discussion of generic terms of references and a common structure for the SSGs;
- Give the SSGs autonomy to evaluate and approve the specific ToRs and details of their respective EGs (thus without the need for having each detail in EGs ToR approved by SCICOM).

2.4 SCICOM Steering Group on Regional Sea Programmes (SSGRSP, Yvonne Walther, Sweden)

2.4.1 Vision/ Objective

The Science Steering Groups vision is to create real world application of science with a spatial interest at Regional Sea level to support ICES advice.

An important issue for SSGRSP is to create a network of groups that are stimulating and communicating with each other. By achieving this, the Regional aspect of its EGs will not be seen as a limitation but an asset to the development and communication of science. Structures, initiatives and investment of resources in one Regional Programme can thus be transferred to others. Results should also be transferred between Regional Groups to create added value.

SSGRSP aims to facilitate production of tangible products for science and advice in ICES, e.g. guidelines based on the scientific results and development of methods and processes in the Expert Groups. By bringing expertise from the different Regional Expert Groups the guidelines created will not be a “one size fits all” solution but a toolbox to suit specific Regional requests.

Included in the vision is a strong communicative aspect of the science within ICES but also to External Organisations. However, communication resources are very limited. The ASC is potentially an opportunity to communicate on a broader scale. SSGRSP’s objective for next year’s ASC is to double the participation in the Steering Group meetings, particularly from non SSGRSP members as well as SSGRSP members that do not attend SSG meetings.

2.4.2 Table with EGs and connection to Science Plan

Acronym	Name	Year established	Contribution to Science Plan	Notes
WGIAB	ICES/HELCOM Working Group on Integrated Assessments of the Baltic Sea	2006	1.1, 1.3, 1.7, 2.1, 3.1, 3.2, 3.4	
SGEH	Study Group for the Development of Integrated Monitoring and Assessment of Ecosystem Health in the Baltic Sea	2003	1.3, 2.4, 3.4	
WGHAME	Working Group on Holistic Assessments of Regional Marine Ecosystems	2008	1.1, 1.5, 1.7, 2.1, 3.1, 3.2	Renamed to WGINOSE in 2010
WGNARS	Working Group on the Northwest Atlantic Regional Sea	2009	1.1, 1.3, 1.4, 1.7, 3.2, 3.3	
WGLMEBP	Working Group on Large Marine Ecosystem Program Best Practices	2009	1.1, 3.1, 3.2, 3.4	
WKIMM	Workshop on Introducing Coupled Ecological-Economic Modelling and Risk Assessment into Management Tools	2009	3.1, 3.2, 3.4	Renamed to SGIMM in 2010
WKANSARNS	Workshop on Anchovy, Sardine and Climate Variability in the North Sea and Adjacent Areas	2009		
ICESAS	ICES/ESSAS Workshop on Ecosystem Studies of Sub-Arctic Seas	2009	1.1, 1.3, 1.6, 3.2	
WKSECRET	Workshop on Including Socio-Economic considerations into the Climate-recruitment framework developed for clupeids in the Baltic Sea	2009	1.1, 1.2, 3.1, 3.4	Continuation of WKCSMPB/ 2008

- The EGs under SSGRSP represent interest in very wide range of topics described in the Science Plan. The strongest link to the Science Plan is 1) Development of options for sustainable use of ecosystems and 2) Understanding ecosystem functioning. The weakest link is 3) Understanding interactions of human activities with ecosystems.

2.4.3 Road Map for 2011

- The SSGRSP has three EGs working on Integrated Ecosystem Assessments: WGIAB, WGINOSE (former WGHAME), WGNARS, and one IEA EG starting in 2011 (WGEAWESS). In the ongoing work of the active groups and formation of the new groups the communication has been very fruitful. The EG chairs have had active discussions on ToRs for the new groups and

some EGs will have cross cutting participation between the groups and in some cases the EG chairs will rotate to another group.

- An important event in 2011 is the start of the benchmarking the work of integrated ecosystem groups by holding a Workshop. The aim is to initiate work by correspondence and meet in November 2011. The group will contain the chairs of IEA EGs and other related experts. It will be the first of a series of workshops that will include ICES Advice Experts and eventually stakeholders, to create an iterative and developing process.
- Due to financial implications the WGHAME will not meet this year. SSGRSP has decided to reconstruct the ToRs for the group to create a more focused scope for the North Sea. In addition to this, SSGRSP has assigned two new chairs to the group (Christian Möllmann and Gerd Kraus) and will leave open the possibility to take in another chair for geographical balance. This means that Christian Möllmann will be rotating from WGIAB and be replaced by Martin Lindegren.
- WGEAWESS will start up with two chairs (Pascal Laffargue and Dave Reid), if possible there will be experts from WGIAB participating in this EG.
- The WKIMM will develop into a Study Group (SGIMM) and are investigating the possibilities to make a joint EG with the International Institute of Fisheries Economics and Trade (IIFET). The case studies that will be used for modelling in the SG will be formed in cooperation with ACOM and potentially SSGHIE.
- SGEH will have its last operative year in 2011 and discussions on how to continue the work have started. This also relates to the Benchmarking of Integrated Ecosystem Assessments as a full cycle of Integrated Ecosystem Assessment in the Baltic will need input from SGEH. The SG will have new input from the finishing BONUS project BEAST. A connection will be established between the SI on Biodiversity and SGEH.
- EGs terminating in 2010 are ICESAS Workshop, WKSECRET and WKANSARNS.
- Cooperation between LMEs and ICES will continue through a new Workshop in July 2011 and a Theme Session in ASC 2011.
- During ASC there has been interest for formation of new Regional Programmes and discussions will commence during 2011.
- In 2011 the SGEH will have its last meeting. It will also be the end of BONUS BEAST project where new information will be made available. SSGRSP will discuss in what form the work of SGEH will carry on. The results on monitoring of contaminants, biological effects and biodiversity will be of great interest to the completeness of an Integrated Ecosystem Assessment cycle and needs to be incorporated IEAs.
- In the benchmarking work the overall structure of an IEA cycle should be discussed. How will the operative system function best (e.g. large overarching EGs or small interactive groups successively feeding in the results in the IEA cycle) will be discussed.

2.4.4 Cross-cutting issues with other SSGs, SIs

- SSGRSP–SSGSUE: Draft resolution for a Study Group on Introducing coupled ecological – economic modelling and risk assessment into management tools (WKIMM). Managed by SSGRP and reporting to both SSGs.
- The SGEH has by request from SGHIE been asked to start discussing how to identify possible guidelines for evaluating cumulative effects of impacts from differing human resources. SGEH will inform and communicate with SGIMC (ACOM) during the process.
- The SGEH has shown interest to increase their work on biodiversity. The SGEH chair will contact SIBAS coordinators to discussing possible SIBAS contributions from SGEH.
- Cooperation with SSGHIE could be enhanced, through for example SGIMM.

2.4.5 Issues to the attention of ACOM

- SSGRSP and ACOM should communicate the operational structure for updating ecosystem overviews and linkage to advice. The forming Regional Sea Programmes can provide the needed updates when relevant.
- The SGIMM will in 2011 work on coupled economical-ecological case studies set up in cooperation with ACOM/ SSGHIE.
- The WK on Benchmarking Integrated Ecosystem Assessments would benefit from an interaction with ACOM when starting developing the conceptual framework for guidelines.
- To enhance the cooperation with the above-mentioned expert groups it would be beneficial if ACOM assign contact persons for communication with each EG.

2.4.6 Recommendations from the chair

- WebEx meetings between the SSGs Chairs to discuss common issues.
- Discussion of generic terms of references and a common structure for SGs.
- Stronger interactions with SGSUE and SGHIE.
- A discussion on reconstructing the meetings in next ASC, including interaction between the SGs, meeting facilities, marketing of meetings to draw a wider audience.
- During the SSGRSP meeting in ASC a discussion with BONUS representatives started to investigate if it is possible to create for example ICES Workshops based on BONUS projects to facilitate creation of advice based on their results. It is recommended that this discussion continues.
- HELCOM Secretariat was represented in SSGRSP and showed interest in SSGRSP progress on Integrated Assessment. Communication with HELCOM groups working on Holistic Assessments should be investigated.

2.5 SCICOM Steering Group on Ecosystem Surveys, Science and Technology (SSGESST, Bill Karp, USA)

2.5.1 Vision/ Objective

Facilitate Implementation of the ICES Science Plan by:

- Developing, maintaining, standardizing, consolidating and advancing assessment surveys as necessary and appropriate;
- Encouraging and supporting creativity and innovation which focuses on applications of advanced technologies for observing, monitoring and surveying marine ecosystems;
- Improving and advancing existing survey capabilities to develop and implement integrated surveys and monitoring systems in support of the EAM;
- Evaluating and mitigating the impacts of fishing on marine ecosystems through innovative conservation engineering, with a particular focus on by-catch reduction and development of fishing and survey gears which minimise fuel consumption and habitat damage; and
- Encouraging cooperation and collaboration with the fishing industry and other stakeholders in addressing these objectives

2.5.2 SSGESST Expert Groups

Acronym	Expert Group Name	Year Established	Contribution to Science Plan	Notes
WGFAST	Working Group on Fisheries Acoustic Science and Technology	1984	1.2, 1.3, 1.6, 1.7, 2.1, 3.1, 3.2, 3.3	New chair for 2011
SGCAL	Study Group on Calibration of Acoustic Instruments in Fisheries Science	2009	1.7, 3.1	3 year term
SGFARV	Study Group on Fish Avoidance of Research Vessels	2006	1.7, 3.1	Concluded in 2010 still working on CRR
JFATB	Joint WGFAST/WGFTFB Workshop on Fish Behavior and Survey Methods	1980s	1.3, 1.7, 2.1, 3.1	Occurs biennially
WGFTFB	ICES-FAO Working Group on Fishing Technology and Fish Behaviour	1983	1.6, 1.7, 2.1, 3.1	New Chair for 2011
SGTCOD	Study Group on Turned 90° Codend Selectivity, focusing on Baltic Cod Selectivity	2008	2.1	Should dissolve in 2012
WKPULSE	Workshop to Assess the Ecosystem Effects of Electric Pulse Trawls	2009	1.7, 2.1, 3.1	SGELECTRA will replace WKPULSE (2010), 3 year term
SGEM	Study Group on combining gear parameters into effort and capacity metrics	2007	2.1, 3.1	Should dissolve in 2011
WGISUR	Working Group on Integrating Surveys for the Ecosystem Approach	2009	1.7	Established as TGISUR in 2009
WKCATDAT	Workshop on Cataloguing Data requirements from surveys for the EAFM	2009	1.7	New in 2010

Acronym	Expert Group Name	Year Established	Contribution to Science Plan	Notes
WGMEGS	The Working Group on Mackerel and Horse Mackerel Egg Surveys	1985	1.1, 1.2, 1.3, 1.7, 3.1	EG name has changed several times
WGEGGS	Working Group on North Sea Cod and Plaice Egg Surveys in the North Sea	2001	1.1,1.2, 1.3,1.7, 2.1	Renamed from PGEGGS in 2009
SGSIPS	Study Group on Standards in Ichthyoplankton Surveys	2009	1.2, 1.3, 1.7, 2.1	Dissolves in 2012
WKEPM	ICES – FRESH Joint Workshop on Egg Production Methods for Estimating Fish Biomass	2009	1.2, 1.3, 1.7, 3.1	Held in 2010, single event
WGACEGG	Working Group on Acoustic and Egg Surveys for Sardine and Anchovy in ICES Areas VIII and IX	2004	1.1,1.2, 1.3, 1.7, 3.1	
SGNEPS	Study Group on Nephrops Surveys	2008	1.7, 3.1	Dissolves in 2012, will likely be continued as a WG
WKNepEdge	Workshop on Edge Effects in Nephrops Surveys	2009 but delayed	1.7, 3.1	Single event, postponed
WGIPS	Working Group for International Pelagic Surveys	1991	1.1 1.2, 1.3,1.7, 3.1	Replaced PGIPS in 2009, which was formerly know as PGHERS.WGIPS will combine with WGNAPES in 2012
WGNAPES	Working Group on Northeast Atlantic Pelagic Ecosystem Surveys	1985	1.1, 1.2, 1.3, 1.7, 3.1	WGNAPES replaced PGNAPES in 2009, which was formerly known as PGSPFN. WGNAPES will combine with WGIPS in 2012
WGRS	Working Group on Redfish Surveys	2000	1.1, 1.2, 1.3, 1.7, 3.1	Preceded by PGRS and SGRS .
WKTAR	Workshop on the Determination of Acoustic Target Strength of Redfish	Planned for 2012	1.3, 1.7	WKTAR II will continue the work of WKTAR.
WGNEACS	Working Group for North-east Atlantic Continental Slope Survey	2007	1.1, 1.2, 1.3, 1.7, 2.1	New chair in 2011, WGNEACS replaced PGNEACS in 2009.
IBTSWG	The International Bottom Trawl Survey Working Group	1992	1.1, 1.2, 1.3, 1.7, 2.1	
WGBEAM	Working Group on Beam Trawl Surveys	1991	1.1, 1.2, 1.3, 1.4, 1.7, 3.1	Formerly SGBEAM. New chair for 2011
WGBIFS	Baltic International Fish Survey Working Group	1995	1.1, 1.2, 1.3, 1.4, 1.7, 3.1	

Acronym	Expert Group Name	Year Established	Contribution to Science Plan	Notes
IGWG	ICES GOOS Working Group	1998	1.1, 1.3, 1.7, 2.4, 3.2, 3.3	Replaced IGSG and SGGOOS. Dissolved, new EG will be proposed.
WKRESTIM	Workshop on the Estimation of DEPM-based Spawning Stock Biomass of Sardine and Anchovy using R	2009	1.2, 1.3, 1.7, 3.1	

2.5.3 Roadmap for 2011

- The Survey EGs will meet as scheduled to plan fieldwork and address issues associated with methodology;
- Several workshops and study groups will meet to address specific methodological issues such as ichthyoplankton identification, target strength estimation, and statistical methods for designing surveys and interpreting results;
- WGFASST will focus on several topics in 2011, including:
 - Acoustic and complementary methods for benthic and pelagic observations;
 - Methods and standards for creating and validating indicators and metrics derived from acoustic and complementary methods;
 - Observing systems integrating acoustic and complementary technologies;
 - Models and measures of target strength for classifying and enumerating living marine resources;
 - Behavioural metrics, indices and indicators of the status of fish populations derived from acoustic information;
 - Emerging technologies, methodologies and protocols for single, multispecies and ecosystem surveys;
 - The impact of the use of active acoustics for studying marine ecosystems in comparison with other natural and anthropogenic sources.
- WGFTFB will focus on several topics in 2010, including:
 - Incorporation of fishing technology issues/expertise into management advice;
 - Provision of advice on gear technology and performance relative to trawl fisheries for redfish;
 - Review selectivity and catch comparison data from small and larger vessels and identify likely causes of differences in selectivity;
 - Review current technological developments and initiatives in gear technology and provide examples of successful developments;

- Consider contributions of fishers and scientists in the process of collaboration and identify conditions allowing rapid uptake of new technology without the risk of introducing new adverse ecosystem effects;
- New WGFTFB Study Group SGELECTRA - Study group on electrical trawling;
- New WGFTFB Workshop WKSEINE - Workshop on seine net selectivity.
- WGISUR and WKCATDAT will hold their 2010 meeting in November. In addition to addressing ToRs that focus on integrating surveys for the ecosystem approach, they will develop new ToRs (for 2011) that address the broad SSGESST goal of developing, maintaining, standardizing, consolidating and advancing assessment surveys as necessary.

2.5.4 Cross-cutting issues (with other SSGs, SIs)

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

- Provision of extensive information on 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.

Linkage, and the need for ongoing communication with SSGEF, SSGHIE, SSGSUE, SSGRSP, SIASM, SISAM and SIBAS is clearly apparent.

2.5.5 Issues to the attention of ACOM

The need for improved communication and coordination with ACOM has become increasingly apparent. The following specific examples have been identified:

- Interaction with WGFTFB relative to advice provided directly to ACOM and to other entities;
- Support for monitoring requirements associated with prospective Baltic initiatives;
- Coordination regarding SDSGESST participation in current STECF survey review process;
- Development of coordinated ICES input for future survey review cycles;
- Role of survey EGs in supporting stock assessment and other ACOM information needs, and improving feedback from ACOM to the EGs;
- Evaluation of abundance indices derived from surveys.

2.5.6 Recommendations from the Chair

- Closer collaboration with other SSGs and SIs chairs is necessary to make sure we are all pulling together in support of the Science Plan. This could be facilitated through WebEx meetings although an intercessional direct meeting or an extra day during the SCICOM midterm meeting would be helpful.
- Consistency in some terms of reference and the approach for referencing Science Plan elements among the SSGs would be advantageous.

- Allowing SSGs to approve EG ToRs should be considered although awareness of ToRs among SSGs and national SCICOM members is important
- ACOM participation in SSGESST meetings (and vice versa) is highly recommended. Formal ACOM membership in SSGESST should be considered.
- Intercessional meetings (WebEx) between the SCICOM Business group and ACOM Leadership should be seriously considered
- WGDIM membership of, or participation in, SSGESST meetings would be beneficial
- The chair will encourage WGFAST and WGFTFB to work more closely with survey EGs on a range of issues including gear mensuration and intercalibration.

3 Report of SCICOM Operational Groups

3.1 ICES WGDIM Working Group on Data and Information Management (Helge Sagen, Norway; Richard Ayers, UK)

WGDIM's transition to a group providing strategic and tactical advice is now complete. The group focused its 2010 work on issues that impact the wider ICES community along with specific tactical advice on data management issues. The group's mission statement is guiding the group's further work: To provide ICES with advice on all aspects of data management including data policy, data strategy, data quality, technical issues and user-oriented guidance. In 2010 the group has:

- proposed a new ICES data strategy;
- recommended the adoption of a generic data quality flagging system that can be applied across all of ICES' data holdings.

Generally WGDIM is working towards becoming more involved in the:

- continuing development and maintenance of international standards with greater interaction with GBIF and MarineXML.

The detailed description of the group's work is documented in the expert group report at <http://www.ices.dk/reports/SCICOM/2010/WGDIM10.pdf>. A short summary is given below.

3.1.1 Data accessibility

- Year of the stomach: The completed database can be found at <http://ecosystemdata.ices.dk/stomachdata>;
- Multidisciplinary data: This system allows users to overlay a variety of data- sets from multiple disciplines, e.g. fishery survey and oceanographic data, via a user friendly GIS style interface. The EcoSystem Data system is accessible through <http://ecosystemdata.ices.dk>;
- Egg/larval database: Currently, there are a number of data sets which are not readily available to the wider marine community but coordinated by ICES groups and used in ICES stock assessments; Mackerel and horse mackerel eggs Northeast Atlantic (WGMEGS), Cod and plaice eggs North Sea (WGEGGS), Herring larvae North Sea, herring larvae Western Baltic (both PGIPS) Herring larvae North Sea (MIK- IBTSWG). These data are considered a good starting point for the development of an ichthyoplankton database within ICES and create an action plan to collate these data.

3.1.2 Quality

- Quality flags: WGDIM discussed quality flagging in ICES databases on the data level and recommends that assessment and science groups discuss, review and provide advice on the quality flagging descriptions as proposed by WGDIM. Within ICES data holdings there are 3 types of quality control flags:
 - Contributor' s quality control flags – Keep flags generated by the data contributor in their original form. Ideally ICES should also hold information regarding the QC/QA checks that were undertaken to produce these flags.
 - Objective quality control flags – Flags that are assigned based on automatic quality control tests.

- Subjective quality control flags – Flags assigned by data managers or experts based on visual inspection of the data. They can be assigned from within ICES or from an advisory or science group.
- Interoperability: WGDIM discussed continuing development and maintenance of international standards with interaction with GBIF and MarineXML. The group agreed to continue and expand these relations in the future work.
- Transparency: The group supports the need for a data user to be able to understand and document the provenance of the data used. There is also the need to be able to reanalyse a data set as it existed at a given point in time (e.g. when a stock assessment group met). These needs are often very important where advice is being given on the basis of analysis of raw data. A method for applying a consistent approach to data audit trails and version control needs to be investigated with a view to implementation within the ICES data management systems.

3.1.3 Data Strategy

- The data strategy proposed is based on analysis of the ICES Science Plan, the ICES Strategy documents and input from a wide range of scientists within the ICES community and representatives from the ICES Data Centre. The strategy has 3 main themes: “Support for the advisory and science groups”, “Leading best practice in data management” and “ICES as a data resource”. The Data Strategy should be a ‘living’ document and be subject to regular review along with updates on progress in each of the themes.
- Proposal for the new Data Strategy: ICES will be a leader in marine data and information management, providing best practices, data mobilisation and services for its advisory and science groups and the wider marine community. As a result of the above mission statement, the onward strategy should develop around three focal points:
 - A service for ICES advisory and science groups;
 - A leader for best practice in the management of marine data;
 - A regional resource and marine data and information node.

3.1.4 VMS (Vessel Monitoring System)

- WGDIM circulated a series of four questions to ICES member countries within the northeast Atlantic area. For those that are also member states of the EU, the questions were framed in terms of the obligations of the EU data collection framework (DCF - Council Regulation (EC) No 199/2008). For non-EU states and autonomous states, the questions were similar, but made no reference to EU regulations. Briefly, the responses indicate that:
 - With only a couple of exceptions, there seem to be no ‘formal’ policies governing the provision of VMS data to ICES. Replies instead made reference to the need to follow “the legal requirements”;
 - It was commonly stated that access would have to be negotiated on a case by case basis;
 - A lay-man’s interpretation of the different responses is that data protection principles and regulations will create ‘shades of grey’ about access to VMS;

- data even where things look black and white to non-lawyers – even in the case of the DCF that obligates EU Member States to provide VMS data to appropriate end users. It will be different for the non-EU states, but it is not clear whether that means it would be a lighter or darker shade of grey.
- WGDIM felt that it did not have a wide enough base of experience or skills to fully address the task and proposed a short-term study group to take the task forward. The proposal was accepted and the group (SGVMS), chaired by Heino Fock will have its first meeting in Hamburg during September 2010. WGDIM will review the first report of SGVMS and provide feedback.

3.1.5 User engagement plan

- The user engagement plan was evaluated during the meeting, progress on some items was negligible, it was felt that the plan was over-ambitious with an excessive time-scale. A new user engagement strategy was written (WGDIM 2010, Annex 8), this strategy has achievable goals and a 1 year lifetime. WGDIM will review and update the engagement plan on an annual basis. Essential elements of the plan are that the users are in 3 distinct groups:
 - *Data contributors*: essentially as this group is already engaged and submitting data the emphasis should be on improving the ICES / Data Submitter interface and actively seeking new data streams to incorporate into the ICES Data Portfolio.
 - *Internal ICES Users*: There are 3 threads suggested for increasing user engagement within this group. An effective process for requesting, developing and releasing new data products. Improved traceability of data products and data audit trails. Increasing the user group's awareness of the data sets, data products and systems available from ICES.
 - *Wider marine and maritime research communities*: This is a much more difficult group to engage as they have a vast range of needs and scientific insight. The initial steps should be to increase awareness of the data portfolio and from there increase its access and exploration.

3.1.6 DATRAS

- IBTSWG and WGBEAM recommended the establishment of a DATRAS User Group to evaluate the functionality of the DATRAS database, to provide feedback by data submitters and data users, to suggest updates of the system where needed, and to prioritize future developments. In October 2009, the Datras User Advisory Panel (DUAP) was established as a group under WGDIM. Main task for DUAP is to provide feedback, guidance and advice on the ICES DATRAS system, specifically to include liaison with data submitters and data consumers.

3.1.7 Other items

- ICES Secretariat staff receive training in the use and promotion of EcoSystemData and the ICES data portfolio and are encouraged to actively promote these to the expert and advisory groups.

- A small (A4 3-fold) leaflet is produced highlighting EcoSystemData and the ICES data portfolio, this leaflet to be dispatched to each expert and advisory group chair for distribution at their meetings.
- A protocol is developed for users (initially, internal ICES users i.e. expert and advisory groups) to request development of new data products. A draft of this protocol was developed by WGDIM (WGDIM 2010, Annex 11). This protocol should be further developed interessionally between WGDIM, the Data Centre, advisory and science groups.

3.2 ICES Training Programme (Gerd Kraus, Germany)

Based on inputs from ICES member countries, the ICES SCICOM Training Group developed training courses for 2009 and 2010 and established a short list for courses to be held in 2011. Course instructors and detailed arrangements on course material and costing have been agreed.

In 2010, ICES offered six training courses held at the ICES Headquarters, Copenhagen, Denmark and one joint ICES-ICCAT training course held at CETMAR, Vigo, Spain.

- Stock Assessment (Introduction) (was run twice in 2010)
- Stock Assessment (Advanced)
- Ecosystem Modelling for Fishery Management (Ecopath–Ecosim–Ecospace)
- Joint ICES-ICCAT course on Management Strategy Evaluation (incl. FLR)
- Introduction to Bayesian Inference in Fishery Science
- Opening the Box: Stock Assessment and Fishery Advice for Stakeholders, NGOs, and Policy-makers

In addition to training in stock assessment methodology ICES TG saw a need to cover a broader range of scientific questions i.e. covering advice on “ecosystem considerations” including field techniques as well as on communication of science and advice. Although a course on ecosystem modelling has already been established in 2009, a clear need to expand further into ecosystem advice issues was identified by the TG and courses addressing these questions have been taken up in the programme for 2011. To expand into research areas beyond the classical ICES domain of fish stock assessment and advice there is a need to further engage the marine science community as well as a wider range of experts from universities, research organisations outside the ICES community and national and European agencies involved with marine resource management. ICES Training has currently following training courses under development in response to these emerging needs:

- Integrated Ecosystem Assessment
- Communicating Science and Advice
- Survey Design and Evaluation (survey harmonization and assimilating data)
- Fishery Management to meet Biodiversity Conservation Needs
- Climate Impacts on Marine Ecosystems

3.2.1 SCICOM Training Group - Status Report

The summaries of meetings in the Training Group can be found at the Training share point site under Documents "Meeting Summaries". The link to the Training share point site is: <http://groupnet.ices.dk/TRAINING/default.aspx>

Seven training courses were run in 2010 with a total number of 197 students from 30 countries. Training course reports are available under "Previous Courses" at the Training Programme web-page:

<http://www.ices.dk/iceswork/training/training.asp>

3.2.1.1 Challenges and lessons learned

For the instructors the diverse background of the trainees presented the challenge of setting the right level of ambition to the courses. To strike the balance of challenging the more experienced trainees while not losing the less experienced is a central issue in guaranteeing the long-term successes of the ICES training programme. A final solution to this problem will however not be easy to find, as it is the policy of ICES to select and distribute course spots equally among applicants from the 20 ICES member countries with diverse educational backgrounds. In addition spots are open for applicants from outside the ICES area in accordance with the objective to disseminate knowledge throughout and outside the ICES community.

In order to improve the training performance in relation to this issue feedback from course participants was solicited using an evaluation questionnaire. The questionnaire responses mainly confirmed the dilemma of trainees at different levels, but some useful suggestions on how to improve were made, as well. In future, more effort will be made by instructors to prepare the course materials and the exercises well in advance of the courses. In addition, communication between the training programme coordinator and the instructors about detailed course contents, level of ambition as well as expectations from ICES and participants was intensified. Specifically, the following measures have been taken:

- More details and guidance to potential applicants regarding the level of familiarity or experience required from the candidates to participate successfully in a particular course are provided with the announcement of the courses.
- More effort was devoted to preparation of course materials and the exercises. All material is made available to participants well in time before the courses start to enable best possible preparation of trainees.
- The level of communication between training coordinator and course instructors during the development of new courses has been increased
- Trainees are informed well in time before the courses about the level and details of preparation necessary for successful course participation.
- More effort was devoted to check the required computer programming skills of trainees to prevent courses becoming simply computer programming exercises rather than teaching the principles.

3.2.1.2 Discussion on ICES Advanced Stock Assessment courses

The Training Group has considered a different approach to training advanced courses in stock assessments based on course feedback and requirements as outlined by ACOM in subsequent discussions. It was concluded that a single course would be too overloaded to cover most recent advances in stock assessment methodology.

Consequently, ICES TG will develop an advanced course focusing on principles and theory, which will be accompanied by one or a number of additional courses addressing specific issues:

- 1) Advanced assessment course based on first principles and grounded in theory
- 2) Courses on alternative stock assessment approaches including:
 - FLR within ICES
 - AD modelbuilder
 - Stock Synthesis
 - Gadget
 - Bayesian stock assessment (already covered by the Bayesian course)

(these are not alternative software packages, but represent in most cases completely different approaches to stock assessments e.g. Gadget = multi-species, FLR = Management Strategy Evaluation including XSA for the assessment module. So this could by no means be handled in one course!)

3.2.1.3 Business model

During its last meeting at the ICES ASC in Nantes in September 2010, TG has identified four important steps towards a business model for the ICES training programme, which will substantially reduce the costs towards self-sustainability and provide a great level flexibility by establishing a “two tier” approach to training. However, TG recommends that the ICES Council considers the necessity of financial support beyond SIF funding, which would cover potential minor deficits once the business model is established. Specifically, the steps towards a business model are to:

- Implement the “two tier” approach, i.e., separate a core set of courses/topics to be kept under any circumstances from “added value” courses to be run when funding allows
- Transform face-to-face courses into e-learning modules, which can be offered at a reduced fee
- Develop synergies with other organisations/institutions offering training (or funding of training activities), e.g., EU Marie Curie; FP7 Peoples Program, FAO, Scientific Committee on Oceanographic Research (SCOR), COST-Actions
- Approach potential sponsors, e.g., European Commission (DGMare/DGEnv/DGResearch), national funding agencies, trusts & foundations, private sponsors

Council members are invited to contribute with ideas for the funding of ICES training in the future.

3.3 Publications and Communications Group (PUBCOM, Pierre Pepin, Canada)

The role of PUBCOM is to advise SCICOM and ACOM on matters related to the dissemination of information, as well as ensuring that recommendations are targeted to the approaches that are to be taken rather than dealing with operational aspects unless essential. The Group still requires clarification from both Committees as to whether the Group had a decision making role, and of what elements, or whether it is to remain strictly an advisory body, as in the past.

3.3.1 The ICES Communications Strategy

The Chair outlined revisions to the Draft Communications Strategy. Broader communication with the Marine Science Community, the Regulatory and Policy sector and the general Public are focal features of the document, but there is clear mention of the importance of dealing differentially with non-controversial matters relative to communications that require consensus among Member Countries and identification of appropriate spoke-person(s). Of concern is the lack of definition of clear responsibilities for PUBCOM. It is essential that the mandate of the Group be clearly defined by SCICOM and ACOM, what is expected of the Group and whether the entirety of the Communication Strategy is under its purview. A key aspect of the Communication Strategy is the need for ICES to identify the constituencies to communicate with, an aspect which PUBCOM is already initiating. Finally, the current draft Strategy document recognizes the needs of the Secretariat requirements in terms of personnel and finances to implement the emerging communication strategy; this should provide the Secretariat with flexibility to deliver the recommendations from both the committees.

3.3.2 Review Group of the ICES Position Paper on Climate Change

The Review Group (members of PUBCOM) has received 8 chapters and two annexes of the ICES CRR volume on Climate Change in the North Atlantic. Two chapters (Acidification and Modelling) are still to come, along with the Foreword, Introduction and Conclusion. A draft copy of the Executive Summary was received during the ASC. External independent reviewers, specialized in the field of each chapter, have been contacted. The RG anticipates that all reviews will be completed by late October 2010, with the exception of outstanding chapters. The RG will forward comments to the Guest Editor (P.C. Reid) and Position Paper coordinators (L. Valdes, J. Alheit) along with a summary of key concerns that must be addressed before each chapter can be considered suitable for publication. The RG will prepare an overview of critical issues for distribution to SCICOM and provide an evaluation of the overall document. RG will evaluate the response to key concerns and finalize recommendations on the technical merit of the report for SCICOM. Given the current delays, we anticipate that publication of the Cooperative Research Report could be sometime in April 2011.

The RG has already identified a number of issues that could ease the review process of reports that are to serve as the scientific basis for Position Paper. Coordinators of Position Papers should decide on the overall structure of the document at the outset of the project to guide the development required by each contributing Expert Group. There should also be agreement with the EG Chairs on the timelines for completion of each element, and authors should be willing to remain available to deal with revisions until the process is complete. The structure of contributing chapters should have as much commonality as possible. If chapters are to be submitted separately, the document submitted should be complete and in its final form for review; marginal comments, highlighted section outlining gaps or required changes should not be part of the submission and reference lists should be complete. Further recommendations will be provided once the process is complete.

More information relevant to this topic is available under point 4.1 in this report.

3.3.3 Website

Revisions to the ICES website were initiated as a result of recommendations from this Group in 2009. Ease of access to information, the lack of a clear logical structure ow-

ing to a highly hierarchical format, terminology that was overly internal and the lack of policies as to what should and should not be supported on the website were at the root of the recommendations.

PUBCOM felt that developments were positive and that the project was at a stage where it was essential to clearly identify who the website is to serve, what are the functional properties ICES wants to offer its users, how we want to make information available and accessible, and what information we wish to disseminate to our audience beyond ICES. At this stage, SCICOM and ACOM involvement in the development has to be increased to ensure that the needs of both Committees are satisfied. Also, a much broader survey base than was available in the WebSec report must be developed in order to ensure that the results are reflective of the community of users.

There was strong agreement that WebSec must ensure that information is not lost in the creation of the new website. It was recognized that management of the current website, which has become overloaded with material, has become a challenge, and that identifying the value of material on the current site may prove to be an insurmountable task. Development of a library feature, in which documents are searchable and tied to an indexed database, was viewed as a critical part of the new website. Access to interactive online functions was also raised as an area of special consideration if a call for proposals for a consultant on web design is to be developed.

WebSec outlined the need to consult on the development of policies for the use and structure of the website. Control rules have to be developed to assist in content management, whether the development of EG websites is acceptable, and the role of social media will have to be considered carefully in the renewal of the site.

Public outreach, which currently represents approximately 10% of visits to the site, is an issue that requires careful consideration. ICES will have to judge carefully what investment it will make to “build understanding of ICES science and marine issues through a programme of communication within ICES and with the wider public” (draft Communication Strategy). The ICES website is not intended to provide the general public with a fundamental information source concerning marine science but rather to make the outcome of ICES’ work understandable, accessible, visible and easier to find based on the application of search engine optimization techniques.

3.3.4 Publication Activities

3.3.4.1 ICES Publications

Publication activities in the last year were strong and have reached the maximum capacity of the series editors and Secretariat. A record number Cooperative Research Reports and Techniques in Marine Environmental Science were published, and both series editors indicated that greater volumes of material would require added assistance. Concern was expressed at the large number and volume of outstanding resolutions (~ twice the annual production capacity) for which no response has been received from contributors. As a result, PUBCOM *recommends* that all outstanding resolutions prior to 2008 be given a 6 month timeline for completion, otherwise the resolution is considered to have lapsed and will require reapplication. Resolutions from 2008 onward will be afforded a two-year timeline from the date of the resolution, after which the resolution will lapse. To address the issue in future, and with immediate effect, newly submitted resolutions will be evaluated and ranked in terms of their relevance to the Science and Advisory Plans, and recommendations for acceptance linked to capacity. The latter is particularly important in order to balance the activities of the publication group at the Secretariat.

3.3.4.2 ICES Journal of Marine Science

The Journal was faced with substantial challenges during 2009/2010 owing to a considerable backlog of accepted manuscripts that would have delayed publication of materials. To clear the backlog, drastic action had to be taken: Substantial extra pages allocated to 2010 page budget by OUP; Size restrictions on individual manuscript submissions introduced; Appendices moved wherever possible to Supplementary material (electronic publication only); No suites to be considered until further notice unless strongly lobbied for by ICES SCICOM or ACOM; Primary (unassigned to editor) rejection rate more than doubled with immediate effect and net rejection target to be set at 60–65% if current submission rates continue (> 300 manuscript per year); Symposium issues to be limited to 200 pages unless prior commitments were made or strong motivation provided; Fixed annual page budget raised by 150 pp. from 2011. These procedures are now operational and appear to have prevented the backlog from reoccurring. Although some have expressed concern over the new policies, most contributors have responded positively to the changes.

3.3.5 Outreach

Although the Communication Strategy has yet to be finalized, the Group felt that the long-standing concern about the lack of participation from members of the Academic community should be addressed. With the assistance of SSG Chairs, PUBCOM will identify target Expert Groups and Strategic Initiatives that can provide greatest point of contact with targeted elements of the Academic Community (Institutions or individual researchers) that can contribute substantially to Strategic issues linked to the Science Plan. The Group will develop short descriptive documents (1–2 page), with the assistance of EG/SI Chairs, highlighting the Science end of the activities (e.g. workshops), their outcomes (e.g. publications) and potential applications (e.g. advice) that will be distributed electronically to a wide audience with the aim of increasing participation. This will serve as a first step in fashioning a positive and professional picture of ICES and enhance the profile and awareness of ICES science in marine issues of interest to a broader scientific audience.

3.4 ICES ASC 2011, Gdansk, Poland

3.4.1 Theme sessions

The focus of the 2011 ASC is the Baltic Sea. The hosts have not asked for any other specific scientific steering. A call for theme session proposals was released before the summer with a deadline of 6 September 2010. Additional proposals, elaborated during SSGs meetings at the 2010 ASC, were considered. The following theme sessions were approved by SCICOM, in consultation with ACOM:

- 1) Atlantic redfish and Pacific rockfish: Comparing biology, ecology, assessment and management strategies for *Sebastes* spp. Chairs: Benjamin Planque (Norway), Paul Spencer (USA), Christoph Stransky (Germany), Steve Cadrin (USA)
- 2) Ecological response of phytoplankton and other microbes to global change processes in ocean basins, shelf seas and coastal zones. Chairs: William Li (Canada), Xosé Anxelu G. Morán (Spain), Katja Metfies (Germany)
- 3) Harmful Algal Blooms in the Baltic Sea. Chairs: Bengt Karlson (Sweden), Emil Vahtera (USA)

- 4) Linking the history to the present: understanding the history of fish, fisheries and management. Chairs: Andy Rosenberg (USA), Max Cardinale (Sweden), Bo Poulsen (Denmark)
- 5) Upwelling events, coastal-offshore exchange and links to biogeochemical processes in various parts of the oceans. Chairs: Kai Myrberg (Finland), Andreas Lehmann (Germany), Tom Anderson (UK)
- 6) Applications of optical and image based technologies in the ecosystem approach to fisheries management. Chairs: Eirik Tenningen (Norway) and Bill Michaels (USA)
- 7) Habitat mapping for better assessment and monitoring of our seas. Chairs: Jacques Populus (France) and Roger Coggan (UK)
- 8) Recruitment processes: Early life history dynamics – from eggs to juveniles. Chairs: Richard D.M. Nash (Norway), Ed Houde (USA), tbd.
- 9) Integrating top predators into ecosystem management. Chairs: Begoña Santos (Spain), Mark Dickey-Collas (The Netherlands), Stefan Neuenfeldt (Denmark).
- 10) Climate and fisheries related influences on marine ecosystems at regional and basin scales. Chairs: Webjørn Melle (Norway) and Erica Head (Canada)
- 11) Integrating micro- and meso-zooplankton in marine food web research. Chairs: Jamie Pierson (USA), Steve Hay (UK) and Sigrún Jónasdóttir (Denmark)
- 12) Biophysical modelling Tools and Spatial Management of Marine Resources: A Strategic Dialogue. Chairs: Myron A. Peck (Germany), Pierre Petitgas (France), tbd (from the management side)
- 13) Assessment and Management of Large Marine Ecosystems. Chairs: Michael O'Toole (Ireland), Kenneth Sherman (USA), Gotthilf Hempel (Germany) and Yvonne Walther (Sweden)
- 14) The future of marine fish stocks and food webs – advancing methods for projections in the face of uncertainty. Chairs: Anna Gårdmark (Sweden) and Christian Möllmann (Germany)
- 15) Surplus Production Models: Quantitative Tools to Manage Exploited Fisheries and Compare the Productivity of Marine Ecosystems. Chairs: Ken Drinkwater (Norway), Jason Link (USA), Jennifer Boldt (Canada)
- 16) The interface between management and science - moving forward. Chairs: Kjartan Hoydal (NEAFC), Ásmundur Guðjonsson (NMC), and Hans Lassen (Denmark)
- 17) Atmospheric forcing of the Northern Hemisphere ocean gyres, and the subsequent impact on the adjacent marine climate and ecosystems. Chairs: Jürgen Alheit (Germany), Hjálmar Hátún (Faroe Islands), Emanuele Di Lorenzo (USA), Ichiro Yasuda (Japan)
- 18) Integration of multidisciplinary knowledge in the Baltic Sea to support science-based management. Chairs: Sakari Kuikka (Finland), Michael Gilek (Sweden), Kari Lehtonen (Finland), Markus Meier (Sweden)
- 19) Extracting energy from waves and tides – what are the consequences for ecosystems, physical processes and other sea users. Chairs: Jonathan Side (UK), Michael Bell (UK)

The following keynote speakers were selected and will shortly be approached by the Secretariat:

- Prof. Jan Marcin Węśławski, Department of Marine Ecology, Institute of Oceanology PAS, Powstancow Warszawy 55, 81-712 Sopot, Poland
- Prof. Carl Folke, Department of Systems Ecology, Stockholm University, SE-106 91 Stockholm, Sweden
- Prof. Jordi Bascompte, Estación Biológica de Doñana, CSIC, Sevilla, Spain

4 Report of SCICOM/ACOM Strategic Initiatives

4.1 Strategic Scientific Initiative on Climate Change (SSICC, compiled by SCICOM Chair based on the midterm report by the SI chairs, Luis Valdes, France; Jürgen Alheit, Germany, and discussions at the SCICOM September meeting)

The ICES Steering Group on Climate Change [SGCC] was created by the ICES Council in 2007 to look at the research, services and operational issues related to Climate Change supported by ICES in their expert groups, to assess the quality and adequacy of the assessment process, and to manage the start up transit of ICES toward the establishment of a programme in Climate Change. The lifetime of the group was 3 years, ending in December 2010. The group was renamed as the **Strategic Initiative on Climate Change** in 2009 (Res 2009/2/SSGEF01), as part of the implementation of the new science structure of ICES, under the shared Chairmanship of Luis Valdes (France) and Jürgen Alheit (Germany). The report of the group for 2010 ("Report of the Science Strategic Initiative on Climate Change", SCICOM May 2010 Doc 15) describe the achievements of the group, including its intersessional activities, the ICES Position paper on Climate Change, and proposals for the future of the SI.

4.1.1 Intersessional activities

Intersessionally the SSICC promoted 4 Theme Sessions during the 2009 ASC and two during the 2010 ASC. It also ran two workshops:

- The Workshop How Models help us to understand Climate Change Evolution and Impacts in the Regional Oceans' [WKMCCEI] (Res 2009/2/SSGEF04), chaired by Stephanie Ponsar, Belgium.
- The editorial Workshop for the Position Paper on Climate Change Science [EWPPCC], with Philip C. Reid (UK) as chair.

The workshops, and the feedback from the theme sessions, were used to commission and compile a CRR publication on Climate Change in the North Atlantic. The executive summary of the CRR is intended to form the basis for an ICES Position Paper on Climate Change, to be evaluated by SCICOM and released as an ICES statement.

The group also coordinated:

- the '2nd PICES/ICES/IOC International Symposium on the Effects of climate change on the world's oceans'. 14–18 May 2012, Yeosu, Korea, and the
- 'ICES/NAFO Symposium on Hydrobiological variability of the North Atlantic marine ecosystems during the first decade of the XXI century' (10–12 May 2011, Santander, Spain).

4.1.2 ICES Position Paper (see also PUBCOM report above)

The CRR volume is currently in review as per the following table:

Chapter	Lead Author	Status
Foreword	Luis Valdes	
Introduction	Luis Valdes	
Hydrography/ Climate variability	Penny Holliday	In review
Sea level	Sarah Hughes	Drafted
Sea-ice	Sarah Hughes	In review

Acidification	Liam Fernand	Drafted
Primary Productivity and Chlorophyll	Antonio Bode	In review
Plankton	Priscilla Licandro	In review
Benthos	Silvana Birchenough	In review
Fish	Dave Kulka	In review
Sensitivity and Regime shifts	Juergen Alheit	In review
Introduced spp	Judith Pedersen	Drafted
Modelling	Stephanie Ponsar	Drafted
Conclusions	Ken Drinkwater & Harald Loeng	In preparation
Annex 1 Circulation	Penny Holliday	In review
Annex 2 Atmosphere	Markus Quante	In review

The volume is due to be completed and launch by December 2010. However, delays in completing manuscripts may delay the process by 3–4 months.

4.1.3 Next developments

SCICOM has reviewed the achievements of the SSICC as well as a roadmap for the continuation of this initiative beyond its current term, prepared by the SSICC leadership. SCICOM agrees that a cross-cutting programme on Climate Change must continue as the main instrument of ICES work on climate change, but did not approve the roadmap prepared by the SSICC.

At the same time SCICOM reviewed the achievements of the Joint PICES/ICES Working Group on Forecasting Climate Change Impacts on Fish and Shellfish [WGFCCIFS], and noted a number of synergies with the objectives of the SSICC. It recommended that this EG should contribute to the development of a new phase of the strategic initiative on climate change, as a collaboration between ICES and PICES. Guiding principles for such a strategy are that:

- Climate change is a global problem requiring broad structures to respond to it in innovative ways with significant buy into from diverse constituencies;
- Action is needed to improve our ability to provide evidence-based scientific advice on the effects of climate change in marine ecosystems;
- Interdisciplinary research is required to make progress in our ability to assess, predict and respond to climate change;
- As the largest marine science organisations in the northern hemisphere ICES and PICES are the logical organisations to facilitate communication and collaboration between scientists working on climate impacts on marine ecosystems;
- Furthermore, the diversity of expertise in both organisations (PICES is particularly strong in the climatology, physical oceanography and ecosystem modelling, while ICES is particularly strong in management and adaptation measures) suggests that a strong alliance will add value to the individual efforts of both organisations. A strong partnerships between ICES and PICES will accelerate the development of climate change scenarios, projections and risk assessments;
- The SSICC and the WGFCCIFS have both helped elevate the recognition of the importance of climate change issues in ICES and PICES, and the energies of both groups need to be harnessed in driving this agenda forward;

- As PICES and ICES already co-sponsor symposia organised under SSICC and WGFCCIFS, a stronger connexion would formalise and help manage this cooperation.

SCICOM proposed that the ICES Strategic Initiative on Climate Change (whose planned activities conclude in December 2010), and the ICES-PICES Working Group on Forecasting Climate Change Impacts on Fish and Shellfish (WGFCCIFS, whose mandate expires at the end of 2011), be combined to create an ICES-PICES Strategic Initiative on Climate Change (SSICC), which would build on the successes of both initiatives.

SCICOM requested the Chairs of ICES-SSICC and P/ICES WGFCCIFS to develop a plan for a revised P/ICES Strategic Initiative on Climate Change, with specific terms of reference, to be tabled at the 2011 meetings of the ICES SCICOM and PICES Science Board, either in May/June or in September/October. This process will be steered and coordinated between the chairs of the WGFCCIFS (Hollowed, Barange, Kim, Loeng) and the co-chair of SSICC (Alheit). The second chair of SSICC is unable to continue leading this initiative due to professional obligations at IOC. Membership of the new structure will have to be revisited to encourage sustained participation and ensure active connexions with other regional and international organisations.

4.2 Strategic Initiative on Area-Based Science and Management (SIASM, Erik Olsen, Norway; Eugene Nixon, Ireland)

4.2.1 Background

This initiative is jointly managed by SCICOM and ACOM and should be seen as the start of a process to facilitate new interest and thinking, at all levels in ICES, on integrated area-based management and spatial planning. In the short to medium term it is not intended to set up new structures, but rather to modify existing work practices so as to better harness the potential of existing data and expertise within ICES. It is designed to demonstrate to ICES clients, Member Countries and stakeholders alike that ICES is responding to this need and has the expertise and facilities to develop the science and advisory services needed to deliver solid, robust and independent science and advice on marine area based management and spatial planning.

The ACOM/SCICOM SharePoint site

<http://groupnet.ices.dk/ACOMSCICOM/SIASM/default.aspx> contains the text of the Initiative along with the most relevant information and documents relating to it.

A joint SCICOM / ACOM Strategic Initiative Group on Marine Spatial Planning (STIG-MSP) has been formed. This group has open membership with the intention of attracting all relevant expertise such as fisheries, ecology, environment, socio-economic, area based /spatial management and data management.

4.2.2 Progress to date

- The first STIG-MSP meeting took place in Copenhagen on 27/28 May, participation of 10. The report of this meeting is available on the joint SharePoint site. The main outcome of this meeting was a questionnaire to better understand the work currently undertaken by the EGs that is relevant for coastal and marine area based science and management. The results of this questionnaire would help plan for the start up workshop (Nov 2010). At the time of preparing this report ~30 questionnaires have been submitted. It was further agreed to convene a meeting of STIG at the ASC.

- The leaders of the initiative met with DGMare on 7 July in Brussels to discuss how ICES and DGMare could cooperate on MSP. DGMare were very supportive of the Initiative, recognised the benefit of the trans-Atlantic element of the ICES involvement in MSP, and the importance MSP has in delivering the MSFD.
- The 2nd meeting of the STIG-MSP took place from on Tuesday, 21 September 2010 at the ICES ASC. The main focus on this meeting was the further planning of the Lisbon kick-off workshop. A brief update was provided at the joint ACOM/SCICOM meeting on 25 September.
- The start up workshop is organised for the 1–4 November in Lisbon and the draft programme is available on the SharePoint. Registration is open until 15 October at <http://www.ices.dk/workshopreg/> and so far there are 30+ registered attendees.

4.3 Strategic Initiative on Biodiversity Science and Advice (SIBAS, Simon Jennings and Mark Tasker, UK; Paul Snelgrove and Jake Rice, Canada)

Biodiversity can be defined as the variety, quantity and distribution of life. It is fundamental to the function and resilience of ecosystems and the goods and services they provide. There are many political commitments to conserving biodiversity and managing impacts on it. All science and advisory activity in ICES relates to biodiversity issues but most ICES activity is not brigaded as 'biodiversity' and ICES is not recognized as a major force in biodiversity science or advice.

The limited engagement of ICES with the wider debates on biodiversity conservation and the role of biodiversity means that ICES is missing opportunities to conduct and engage with many of the main players, in the development of useful and influential science. ICES is in an outstanding position to inform the debate about biodiversity and the tradeoffs between conservation and sustainable use, by recognising differences in the demands from customers supporting conservation and sustainable use agendas and by making tradeoffs explicit in science and advice, in a consistent way, to both groups of customers.

To raise the profile and capacity for biodiversity science and advice in ICES, the Council requested a joint initiative between the Science and Advisory sides to address biodiversity issues. For administrative links to SCICOM and ACOM, SIBAS is managed by Simon Jennings (SCICOM) and Mark Tasker (ACOM), but SIBAS science and advisory activities are co-led with Jake Rice and Paul Snelgrove (Canada). SIBAS management will be supported by 2 additional appointments from SCICOM and ACOM in the future.

The objectives of SIBAS are to:

- a) Ensure that ICES develops and promotes a niche that links marine biodiversity science and advice;
- b) Position ICES to ensure that it is regarded as an effective and reliable source of biodiversity advice in the ICES Area, with relevance to wider seas;
- c) Ensure that ICES understands its customer's needs and can link effectively with partners and others holding biodiversity information;
- d) Catalyse new research on marine biodiversity that increases profile and relevance of ICES;

- e) Improve capacity of ICES to provide rigorous, consistent and legitimate advice relating to biodiversity;
- f) Ensure that ICES is proactive in identifying science and advisory needs relating to biodiversity through monitoring policy development and co-ordinating its expert groups.

The full rationale for the formation of SIBAS, links to other organisations and plans for activities are outlined in the SIBAS prospectus available on the SIBAS sharepoint site.

SIBAS has tactical and strategic commitments. Tactical commitments will help position ICES as a recognised adviser on marine biodiversity (e.g. to support the reporting requirements of the Marine Strategy Framework Directive and Convention on Biological Diversity). Strategic commitments will establish a long-term direction for biodiversity science and advice in ICES, to co-ordinate, and to provide a forum for, scientific research to address biodiversity issues.

The tactical issues to be addressed by a workshop and expert groups in the first 1–2 years of this initiative are:

- a) Develop methods to describe and to the extent possible predict the trade-offs between meeting management objectives for harvested populations and meeting objectives for biodiversity.
- b) Develop protocols, data handling systems and indicators for reporting on the state of biodiversity.
- c) Identify the changes in biodiversity that may lead to instabilities in marine ecosystems that compromise sustainable use and then to identify management strategies that minimise the possibility of such changes.
- d) Develop and assess the performance of tools that are intended to help manage the tradeoff between human benefits from sustainable use of marine ecosystems and the impacts on biodiversity (e.g. spatial planning, closed areas, gear technology)

The strategic issues to be addressed will be scoped at a second workshop to be held in 2012, but a preliminary list of issues would be:

- a) Biodiversity and ecosystem services: the role of biodiversity in supporting ecosystem services and the social and economic consequences of human impacts on biodiversity
- b) Diversity and ecological processes: The extent to which the diversity of a community influences (a) 'stability', (b) productivity, (c) resistance to invasion or disease, and (d) ability to recover from natural and human impacts, and interactions between these factors. The changes in production among systems that differ in biodiversity. The role of biological invasions in altering system production and energy flow.
- c) State of biodiversity: patterns and trends in biodiversity and the structuring roles of evolution, ecology and environment.
- d) Functional significance of biodiversity: the functional significance of genetic, species, population and ecosystem diversity. Redundancy and the extent to which species in a functional group are interchangeable. Comparisons of system function and biodiversity.
- e) Measuring biodiversity in ways that provide information needs on genetic, species, and ecosystem biodiversity and the biases and errors associated

with these measurements. The effects of errors on understanding of ecosystem structure and function, and on the consideration of biodiversity in advice on decision-making.

- f) Biodiversity futures: projecting future changes in biodiversity in response to projected human and environmental drivers

To address the tactical issues, SIBAS propose a first workshop in early 2011 that will identify and support the biodiversity information needs of the ICES community and clients. The objective of this workshop is to gain a full understanding of the targets relating to international marine biodiversity obligations and commitments, and select the scientific tools and mechanisms, including appropriate suite of indicators, that would enable and improve reporting against them. The workshop will allow ICES to identify and report on the needs for biodiversity science and advice among existing and potential ICES clients and to select the scientific tools and mechanisms that would enable or improve reporting on trends in biodiversity. This will increase the visibility of ICES in biodiversity science and advice and to reduce duplication of work and increase the efficiency of monitoring, assessment and reporting on marine biodiversity issues.

The workshop will have resource implications, as an explicit aim of the workshop will be to engage clients and biodiversity scientists outside the existing ICES community. A category 4 resolution has been submitted to request support for the workshop.

Terms of Reference have been given to WGDEC, WGEF, WGFE, WGMHM, SGVMS, BEWG, WGSE and WGMME for 2011 to take the outputs of the workshop and address them in the context of their areas of expertise. This is intended to begin the process of engaging a wider range of Expert Groups in biodiversity issues. These Expert Groups will take the outputs of the Workshop, further develop the indicators proposed, consider appropriate ways of monitoring to report on the state of the indicators and consider how relevant indicators might be used in clarifying the trade-offs in policy and management decisions impacting both biodiversity conservation and sustainable use of ecosystems. In addition WGECO and WGBIODIV are receiving terms of reference to develop the strategic aspects of this initiative.

Outputs from the first workshop and the Expert Groups will be reviewed in 2012 at a second workshop. This will not have the same resource implications as the first workshop as the participants will come predominantly from the ICES existing community and their main responsibility will be to plan the strategic priorities for biodiversity science and advice in ICES.

We intend that the workshops and activities of the Expert Groups will deliver a step change in ICES capacity to deliver well founded and well recognised biodiversity science and advice.

4.4 Strategic Initiative on Stock Assessment Methods (SISAM, Mark Dickey-Collas, The Netherlands, and Steve Cadrin, USA)

SISAM has progressed in 2010, both in terms of logistics and content. The workshop to kick off the initiative (WKADSAM) and the invitations to the world fish stock assessment community to join the initiative has gone well. A formal leadership of the initiative under Mark Dickey-Collas and Steve Cadrin is now being constructed with input from across the world. A Steering Committee consisting of Doug Butterworth (South Africa), Rick Methot (US), Carmen Fernandez (Spain), Benoit Mesnil (France), Mark Dickey-Collas (the Netherlands) and Steve Cadrin (US) has been established.

The SISAM leadership and Steering Committee will draft fresh terms of reference for SISAM. These developments are expected to occur within the next 3 months.

4.4.1 Background and rationale for SISAM

There have been many recent advances in fish stock assessment methods and techniques. Many of these advances are conceptual and others are technological. ICES seeks to further advance and incorporate many of these developments into its advisory system in order to be among the world leaders in the development of stock assessment methods. This will allow better use of the available data resources, particularly in cases where the lack of standard catch-at-age and classic fisheries independent time series has in the past precluded analytical assessments, even when potentially useful information for these “data poor” stocks existed. As the client organisations of ICES require a broader portfolio of fisheries advice, as well as integrated regional advice, ICES need to ensure that the stock assessment methods it uses are able to provide the necessary basis for such advice.

The Initiative is a means by which ICES can reinvigorate the stock assessment methods it uses, and stimulate the development of new techniques and concepts. As this must be done without re-inventing the wheel, ICES requires a review of methods used around the world for fish stock assessment. It is hoped that this review will advance not just ICES knowledge but also the operation of its stock assessment experts and the advisory system as a whole. It is also hoped to make stock assessment software freely available to all fisheries scientists.

4.4.2 The Suggested Process

The final process has yet to be agreed by the steering group, however the current proposal is described below.

The objective of the Initiative is to carry out a review of state-of-the-art stock assessment methods used around the world. The review will result in a major publication of the findings and a repository of online, free, robust and tested stock assessment methods.

The initial framework for the initiative will be developed at a workshop in Nantes, France (WKADSAM) which met 27 September to 1 October 2010 (a report of this workshop was not available at the time of producing this report). The key techniques and approaches will be identified and the sections of the review will be allocated to contributors (as work packages). Importantly the review will not just list the stock assessment methods, but will focus and comment on their advantages and disadvantages.

Following this initial meeting, planning will start for the large world workshop set for 2012 on stock assessment methods with invited and contributing scientists. The objective of the conference would be to determine the state-of-the-art for stock assessment methods around the world. It is likely that each session will be method based, but importantly the session will combine presentations with active workshops to determine the approaches for major chapters in the final publication.

The final product will be a series of published papers (the ICES Journal of Marine Science has agreed to consider a selection of papers), an ICES Cooperative Research Report (CRR) review of state-of-the-art stock assessment methods and a repository of stock assessment methods. It is intended that this will be delivered early in 2013. Once set up, the steering committee can adapt these final outputs.

4.4.3 The invitation letter to join SISAM

An invitation letter was sent out to individuals to join the September 2010 workshop and to fisheries organisations to join the initiative. There was a lot of interest in the workshop and over 30 scientists participated. The organisation letter was sent to FAO, ICCAT, IATTC, CCSBT, NAFO, IPHC, NASCO, NOAA, DFO, PICES and the regional fisheries organization hosted by FAO. Positive responses were received from nine organizations. A welcoming letter was sent to those nine responses. The steering committee will build on these approaches.

4.4.4 ICES Workshop on Reviews of Recent Advances in Stock Assessment Models Worldwide "Around The World In AD Models" (WKADSAM)

The workshop has yet to report but some key findings related to SISAM have already been passed to the SISAM leadership.

- i) The steering group should involve representatives from all the participating organisations, not just ICES.
- ii) It was felt that there was a desire to hold a workshop with case studies prior to SISAM (the report of this workshop would be a big focus of at least one session in SISAM). This would consist of case studies of a representative sample of ICES stocks (maybe 10) from the full range of the data-availability spectrum – the aim would then be for experts in some of these different assessment approaches to compare their models with the standard ICES approaches to see what could be learned from changing to a new system. The workshop would therefore use real data instead of simulated data, and the majority of case studies would focus on data-limited situations (e.g. not just traditional age-based assessments).
- iii) The workshop on case studies could keep momentum from this meeting through 2011 to the symposium in 2012.
- iv) Some WKADSAM participants also thought that combining a large symposium with a smaller workshop immediately afterward would be productive - possible topic for follow-on workshop would be the "model of the future", with the focus on modelling approaches instead of software packages
- v) One important point is that these approaches need not be limited to the traditional single-area, single-species approach, but could (and should) be much more inclusive.

Potential talks at the symposium/conference could be:

- Reports of development since the workshops
- RFMO summaries of models they use and why.
- Recent methodological advances in stock assessment,
- Ecosystem approach and/or climate change.
- Incorporating new types of data into assessments (e.g. physical oceanography)
- Education and where is the field going

5. Conclusions and Recommendations

General remarks

- The ICES Science Committee (SCICOM) has delegated responsibilities on science matters from Council. SCICOM members are increasingly appreciating the change in mandate from the old ConC, and are developing a more strategic view of and for ICES science. Support from Council members is essential to ensure that the mandate of SCICOM is fully implemented.
- SCICOM has taken note of some key objectives in the ICES Science Plan:
 - To enhance [ICES] role as a leader in the coordination of research in the North Atlantic,
 - To establish new alliances with non- member countries, organizations and conventions,
 - To recognise that “ecosystem considerations” require a broader range of scientific expertise in ICES, and
 - To further engage the marine science community, including a wider range of experts
- To deliver the Science Plan and the above objectives SCICOM has established a toolbox of activities. While ICES does not fund science, some of the activities in the toolbox will be requiring additional funding if ICES is to re-gain its status as the main provider of science and advice on North Atlantic marine ecosystem issues. More effective, equal and innovative partnerships are required for this to be achieved, particularly in the areas targeted by strategic initiatives (Marine spatial planning, Biodiversity, Climate Change, Stock assessment). Seed funding from the SIF to assist SCICOM in the development of this ambitious agenda will continue to be necessary.
- SCICOM conducts its business through two annual meetings in May and September. In addition, WebEx conferences are used to approve resolutions intercessionally. In addition, SCICOM has appointed an **Operational Group** to recognize the collective responsibilities of a number of SCICOM members over and above their statutory obligations. The SCICOM operational group includes the Chairs of Scientific Steering Groups (SSG) and Strategic Initiatives (SI), the Chair of SCICOM, and the Head of Science (ex-officio). The creation of the Operational Group does not reduce the responsibilities of SCICOM as the only delegated ICES body on science matters. The duties of the operational group include coordinate the implementation of SCICOM decisions, assist the SCICOM Chair in all strategic matters, and engage with the ACOM Leadership Group in preparing ACOM/SCICOM discussions and joint activities.
- SCICOM should start exploring avenues to provide scientific advice to ICES clients, in close cooperation with ACOM. This development, already proposed by EC DG Res would provide support for the development of the ICES Science Programme.

SCICOM business

- SCICOM SG Chairs should continue to increase their coordination and communication to:
 - Monitor their delivery of the Science Plan;
 - Develop synergistic approaches, including reporting;
 - Ensuring adequate cross-fertilization between EGs.
- A new viable business model for the ICES Training programme is required. It is proposed that a two-tier system (consisting of ICES-funded core programme and a self-sustaining additional programme) be developed.
- Communication remains a challenge to conduct ICES business. This includes internal and external communication. Given the fast-changing landscape under which ICES operates adequate communication to reflect the extent, dynamism and effectiveness of the organisation, is essential.

SCICOM-ACOM issues

- SCICOM and ACOM must improve the way they collectively deliver the ICES Strategy, increasing the level of communication, interaction and active engagement. For example, along the following issues:
 - ACOM benchmarking exercises;
 - Monitoring requirements associated with prospective Baltic initiatives;
 - Better coordination regarding ICES participation in current STECF survey review process;
 - Development of coordinated ICES input for future survey review cycles;
 - Science EGs involvement in supporting stock assessment and other ACOM information needs, and improving feedback from ACOM to the EGs;
 - Involvement of SCICOM in updating ecosystem overviews for ACO;
 - Potential duplication of ACOM/ SCICOM EGs.
- ICES should consider mechanisms to facilitate ACOM/ SCICOM interaction, such as:
 - Face to face SCICOM Operational/ ACOM Leadership group meetings, including during the ASC;
 - Consider whether all Science Expert Groups (including science groups spawned from advisory expert groups) should be coordinated through SCICOM, to avoid duplications and maximise available brainpower.
 - Incorporate Science and Advice in MoU with clients, when appropriate, so that the agendas of both arms of ICES develop in synergy.

Annex 1: List of ICES SCICOM Expert Groups that were dissolved, established, changed committee or were renamed in 2010

Type of Action	Name	Chair – Outgoing	Chair – Incoming
<i>Established</i>	<i>SCICOM Steering/Operational Groups</i>		
	ACOM/SCICOM Strategic Initiative on Biodiversity Science and Advice (SIBAS)		Simon Jennings and Mark Tasker
	ACOM/SCICOM Strategic Initiative on Area-Based Science and management (SIASM)		Eugene Nixon and Erik Olsen
	ACOM/SCICOM Strategic Initiative on Stock Assessment Methods (SISAM)		Pending
<i>Change of Chairs</i>	<i>SCICOM Steering/Operational Groups</i>		
SCICOM	SCICOM Steering Group on Sustainable Use of Ecosystems (SSGSUE)	Mark Dickey Collas, The Netherlands	Daniel Duplisea, Canada
SCICOM	ICES Training Group (ITG)	Gerd Kraus, Germany	Steve Cadrin, USA
SCICOM	Working Group on Data and Information Management (WGDIM)	Richard Ayers, UK	Ingeborg de Boois, the Netherlands (Co-Chair)
<i>Established</i>	<i>Expert Groups</i>		
SSGSUE	Study Group on designing Marine Protected Area Networks in a Changing Climate (SGMPAN)		Robert J. Brock, USA, Ellen Kenchington, Canada and Amparo Martinez, Mexico
SSGESST	Study Group on Electrical Trawling (SGELECTRA)		Bob van Marlen, the Netherlands
SSGEF	Study Group on Effectiveness of Recovery Actions for Atlantic Salmon (SGERAAS)		Tim Sheehan, USA, and Jamie Gibson, Canada
SSGRSP	Working Group on Ecosystem Assessment of Western European Shelf Seas (WGEAWESS)		Pascal Laffargue, France; Dave Reid, Ireland; Maria de Fátima Borges, Portugal; and Enrique Nogueira, Spain
SSGRSP	Study Group on Integration of Economics, Stock Assessment and Fisheries Management (SGIMM)		Jörn Schmidt, Germany, and Rasmus Nielsen, Denmark
SSGHIE	Study Group on Environmental Impacts of Wave and Tidal Energy (SGWTE)		Michael Bell, UK

Type of Action	Name	Chair – Outgoing	Chair – Incoming
SSGHIE	Study Group on Socio-Economic Dimensions of Aquaculture (SGSA)		Gesche Krause, Germany
<i>Change of Chairs</i>			
<i>Expert Groups</i>			
SSGESST	Joint Workshop of the ICES-FAO Working Group on Fishing Technology and Fish Behaviour (WGFTFB) and the Working Group on Fisheries Acoustics Science and Technology (WGFAST) (JFATB)	Paul Winger, Canada	Alex De Robertis, USA
SSGESST	Working Group on Fishing Technology and Fish Behaviour (WGFTFB)	Dominic Rihan, Ireland	Mike Pol, USA
SSGESST	Working Group on Fisheries Acoustics, Science and Technology (WGFAST)	Rudy Kloser, Australia	Nils Olav Handegard, Norway
SSGESST	Working Group on Beam Trawl Surveys (WGBEAM)	Ingeborg de Boois, the Netherlands	Brian Harley, UK
SSGESST	Working Group on North-east Atlantic continental slop surveys (WGNEACS)	Leonie Dransfeld, Ireland	Elvar Halldor Halfredson, Norway
SSGEF	Working Group on Seabird Ecology (WGSE)	Jim Reid, UK	Richard Veit, USA
SSGEF	Working Group on Cephalopod Fisheries and Life History (WHCEPH)	Graham Pierce, Spain	Marina Santurtun, Spain
SSGRSP	Working Group on the Northwest Atlantic Regional Sea (WGNARS)	Alain Vezina, Canada	Catherine Johnson, Canada
SSGRSP	Working Group on Integrated Assessments of the North Sea (WGINOSE - former WGHAME)	Andrew Kenny, UK; H. R. Skjoldal, Norway	Christian Möllmann, Germany; and Gerd Kraus, Germany,
SSGRSP	ICES/HELCOM Working Group on Integrated Assessments of the Baltic Sea (WGIAB)	Christian Möllmann, Germany	Martin Lindegren, Denmark
SSGHIE	Working Group on Biological Effects of Contaminants (WGBEC)		Matt Gubbins, UK (Co-Chair)
SSGHIE	Working Group for Marine Planning and Coastal Zone Management (WGMP CZM)	Beatriz Morales-Nin, Spain	Andreas Kannen, Germany
<i>EGs renamed</i>			
SSGESST	Workshop on Mackerel and Horse mackerel Egg staging and Identification (WHMHMES) will be renamed the Workshop on Egg Staging, Fecundity and Atresia in Horse mackerel and Mackerel (WKFATHOM)		
SSGEF	Working Group on Biodiversity (WGBIODIV) will be renamed Working Group on Biodiversity Science (WGBIODIV)		

Type of Action	Name	Chair – Outgoing	Chair – Incoming
SSGRSP	Working Group on Holistic Assessments of Regional Marine Ecosystems (WGHOME) will be renamed Working Group on Integrated Assessments of the North Sea (WGINOSE)		
SSGHIE	Working Group on Integrated Coastal Zone Management (WGICZM) will be renamed the Working Group for Marine Planning and Coastal Zone Management (WGMPCZM)		

EGs transferred to new SSG

None

Dissolved Expert Groups

SSGSUE	Study Group on the evaluation of assessment and management strategies of the western herring stocks (SGHERWAY)	Emma Hatfield, UK
SSGESST	ICES GOOS Working Group (IGWG)	Jonathan A. Hare, USA
SSGESST	Study Group on Fish Avoidance of Research Vessels (SGFARV)	Julia Parrish, USA and François Gerlotto, France
SSGEF	Study Group on Biological Characteristics as Predictors of Salmon Abundance (SGBICEPS)	Ian Russell, UK
SSGEF	Study Group on Anguillid Eels in Saline Waters (SGAESAW)	Non
SSGHIE	IOC-ICES Study Group on Nutrients Standards	Michio Aoyama, Japan, and David Hydes, UK

New Workshops

SSGSUE	Workshop on the Implications of Stock Structure (WKISS)	Niels Hintze, the Netherlands and Lisa Kerr, USA
SSGESST	Joint AcousMed project/ICES WGACEGG Workshop on Geostatistics (WKACUGEO)	Marianna Giannoulaki, Greece and Pierre Petitgas, France
SSGESST	Workshop on seine net selectivity (WKSEINE)	Dominic Rihan, Ireland and Barry O'Neill, UK

Type of Action	Name	Chair – Outgoing	Chair – Incoming
SSGESST	Workshop on the identification of clupeoid, flatfish, gadoids and other fish larvae (WKIDFL)		Cindy van Damme, the Netherlands and Matthias Kloppmann, Germany
SSGSUE	Workshop on Biodiversity Indicators for Marine Management (WKBIMM) c		Mark Tasker, UK and Simon Jennings, UK
SSGEF	ICES/PICES Workshop on the Reaction of Northern Hemisphere Ecosystems to the Climate Events: a Comparison (WKNORCLIM)		Jürgen Alheit, Germany; Christian Möllmann, Germany; Sug-Geun Jung, Rep. Korea; and Yoshiro Watanabe/Yongyun Tian [TBA], Japan
SSGEF	Workshop on Basin-wide Impact of Atlantic Multidecadal Oscillation (WKAMO)		Jürgen Alheit, Germany; Ken Drinkwater, Norway; and Janet Nye, USA
SSGEF	Workshop on Salmon Tagging Archive (WKSTAR)		Lars Petter Hansen, Norway
SSGRSP	Workshop on Benchmarking Integrated Ecosystem Assessments (WKBEMIA)		Steve Cadrin, USA, and Christian Möllmann, Germany
SSGHIE	The (SIASM/STIG-MSP) Workshop on 'The Science for area-based management: Coastal and Marine Spatial Planning in practice (WKCMS)		Erik Olsen, Norway, and Eugene Nixon, Ireland
SSGHIE	Workshop on Biological Consequences of a Decrease in Sea Ice in Arctic and Sub-Arctic Seas (WKBCASAS)		Harald Loeng, Norway, and Anne Hollowed, USA