ICES Annual Report for 2003

International Council for the Exploration of the Sea Conseil International pour l'Exploration de la Mer

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Part I

Annual Science Conference

Hotel Olümpia, Tallinn, Estonia 24 September 2003

The assembly was addressed by the **President of ICES**, **Pentti Mälkki:**

The Annual Science Conference, which is our biggest regular event, has returned back to normal business. After a four years' range of special occasions due to the Centenary of ICES, we again have a meeting with a full set of theme sessions, committee meetings and many informal ad hoc meetings for solving either ICES or bilateral problems. The changes made a few years ago in scheduling the events of the Conference have been well accepted by the ICES community and routines have become well-established.

During the past years, we have developed the work of Science Committees to enable the widest possible participation in the Theme Sessions, by choosing the timing of the business meetings of the Committees properly. In the same vein, we have planned the themes to cover issues of importance to the work of the Committees, so that the Committees could benefit from the newest results of science in their specific field when planning future activities. Traditionally, the Committee meetings are open for all conference participants. We hope that their agendas will raise the interest of even those here who usually do not participate in the ICES meetings.

One more big change has taken place in this Annual Science Conference: The Council meeting has been compressed to the beginning of next week. This - we believe - has predominantly positive effects: It enables the Delegates to participate actively in the sessions of science as well as in Committees, thus improving also the communication on national level during the ICES Annual Science Conference. It is encouraging to see many Delegates here at the opening meeting. This weakens the fear that putting the business matters to the end would hinder their participation in the ASC and that they would lose contact with the science. Of course, there is also a weak point, and that is that we are unable to inform you at the end of this week what the Council has decided about the 2004 ICES programme. You will have to look at the ICES web page to get that information. At this meeting, however, we are online.

The President then introduced **Minister of the Environment, The Honourable Mr Villu Reiljan**:

It is my pleasure to welcome you on behalf of the Estonian Government. This is the first time that Estonia hosts the Annual Science Conference and the Statutory Meeting of ICES. Today, Estonia is the youngest ICES Member Country. However, we can look back to a much longer period of collaboration as Estonia acquired the status of free membership in ICES in the 1920s.

Estonian shorelines are relatively long and the spheres of action connected with the sea are fairly important for our

population. Fisheries is one of our priorities. The assessment and management of the main fish resources, herring and cod, have caused serious problems as in the young and brackish Baltic Sea they have developed low populations which should be treated separately to introduce a reasonable exploitation pattern. Also, the coexistence of fishery, tourism, and seaside resorts, sea transportation, seafaring, agriculture, traffic and the industry require integrated management of the marine ecosystems on the most sophisticated level. We are well aware that the ICES has coordinated and developed marine science during the course of a century, in support of the best management of resources. We are assured that ICES will develop methods to successfully treat problems which are not yet solved today.

The Baltic Sea is a small part of the ICES area, but, the wellbeing of the majority of the Estonian coastal population directly depends on the quality of ecosystems in this region. Therefore, Estonia is interested in having marine resources in good condition everywhere in the ICES area and elsewhere in the world ocean, but our special interests are connected with the Baltic Sea, which is under heavy and many-sided exploitation and human impact. It is obvious that a strong scientific background is decisive in the improvement of the management of marine resources and the life of coastal populations.

I wish fruitful and stimulating scientific discussions for the marine scientists at the conference in Tallinn, and creative decisions for the bodies organising and coordinating the studies of the sea.

Thank you for your attention.

The President of ICES resumed his speech:

In all scientific activities, communications between scientists, as well as between scientists and other stakeholders - like the fishery people that the Minister mentioned - including the wider public, is the key to progress. Selecting themes and conveners for the meetings is one of the cornerstones of the work of our Consultative Committee and it is encouraging to see again success in accomplishing this duty. We have a good foundation for this selection, in the thorough work done by our Science Committees in developing the Action Plan, which is now being implemented. No more only *planning*, now more *doing*. The planning process was tedious, but it resulted in a good Action Plan, which the Delegates were pleased to accept last year. If some of you have not yet been praised for work well done, you hear it now.

The year after our big Centenary celebrations has been very active for ICES officers and Secretariat staff, and so

it has been for the numerous, close to one hundred Working Groups during the intersessional period. Our working relations with other stakeholders have been strengthened through the work on new Memoranda of Understanding. In particular, I would on this occasion like to mention a very good and cooperative dialogue with our global partner, the Intergovernmental Oceanographic Commission, which at its June meeting accepted a resolution on cooperation with ICES and our Pacific Ocean counterpart, PICES (named Pacific ICES, formally North Pacific Marine Science Organisation). In both cases we see very much synergetic cooperation, which will certainly lead to a number of success stories in the coming years.

On advisory issues, the advice given by ICES has been accepted with appreciation. With regard to fisheries, the advice has not been so positive, but our clients have understood the reasons for this. The continuing crisis in cod and other fish stocks in European waters has highlighted the important role played by ICES in advising on the status of the North Atlantic marine ecosystem. ICES fully intends to continue to be at the forefront of meeting managers' needs for credible, nonpolitical, sound and responsive scientific advice on the marine ecosystem.

The Government of Germany commissioned a comprehensive report from ICES on the status of the European Seas for the Ministerial Conference held in Bremen last June. The report is written in a language understandable by laypeople and clearly presents the problems concerned. It is an excellent summary of the state of the European seas. I take this opportunity to thank all those who were actively involved in this substantial and productive work. The report was very well received and strengthens the image of ICES as an objective and competent organisation for scientific advice.

In addition to the Annual Science Conference, symposia are the other visible fora for ICES science. This year we had two excellent symposia:

"The role of zooplankton in the global ecosystem dynamics" was organised jointly by ICES, PICES and GLOBEC in Gijon, Spain, at the end of May. Again, here we see the value of cooperation with our stakeholders.

The symposium on "Fish behaviour in exploited ecosystems" was held in Bergen at the end of June. Although fully ICES-organised, the international Steering Committee, with members from all around the world, guaranteed the success of the symposium.

I will not go through all the developments and activities of ICES during the year; you will find it in the Document, Gen:2, as well as on the ICES website. It is fair to reflect the recent developments in a few words:

We have changed ICES a lot during the past years: the committee structure, the organisation of the Annual

Science Conference, the strategy, and the advisory structure, to mention a few. There have been obvious reasons for these changes, as our scientific as well as our physical environment has changed. No organisation can be allowed to stagnate if it wants to thrive, or even survive. We believe that these changes have been positive and we are working for further improvement. An indication of the success of increased interdisciplinary activity can be seen in the popularity of the Theme Session on physical-biological interactions. This session is the most successful session in Tallinn accounting for nearly 20% of all contributions.

We often hear people say: ICES could do this or ICES could do that, why does not ICES do that... I want to turn this question back to you: We are ICES, what have I done to promote this thing? Do I feel that *I* have done enough, or asked for opportunities to do enough? Do I feel that we are asking the right question? I think that there is a lot of space for discussion on the values of our work. Current debates on fisheries and environment issues indicate that our science does have an impact. Do we, as individuals as well as an organisation, have the courage to say things as they are, or do we wrap the things in scientific jargon, understandable only to likeminded colleagues? We have to be objective, but the choices made on our focus of study is based on the values we set. It has to be debated. We can certainly say that there is - despite of all we have already done - a need for development, if not a change. I have a relevant quotation for this: "We must be the change we want to see". This was said by Mahatma Gandhi more than half a century ago, but it is valid everywhere, even for ICES.

It is my sad duty to inform you of the death of three former ICES colleagues.

Dr Stig Fonselius passed away on January 19 at the age of 81 years. He was born and educated up to graduate studies in Finland, but he spent practically all his active life in Sweden, working in marine chemistry first in the University of Stockholm, after that in the Board of Fisheries and Swedish Meteorological and Hydrological Institute. Stig was one of the leading people in the Baltic Sea cooperation, both in ICES and in other forums. He attended the ICES Annual Conferences without interruption from 1964 to 1992 as a Swedish expert and member of the Hydrography Committee. He was well known for his pioneering work on long-term environmental changes in the Baltic Sea and as the initiator of large cooperative programmes in the Baltic. He was one of the honourees at the Mariehamn and Edinburgh Decadal Symposia. Stig was known for his devotion to his work, his open and friendly personality and his encouraging and sound advice.

Mike Nicholson of CEFAS, Lowestoft died suddenly as a result of a mountain biking accident in France. He was Chair of the Working Group on the Statistical Aspects of Environmental Monitoring from 1993 to 1996 and a member of this group until his untimely death this summer. He was an outstanding colleague and will be sadly missed. Within ICES, Mike is probably best known for his meticulous and authoritative approach to the analysis of time-series and their use in assessing environmental impacts. The immediate impression he gave was of quiet, attentive courtesy and he was an excellent, highly respected Chairman. He had worked for many years at Lowestoft, but earlier in his career had also worked at the Marine Laboratory in Aberdeen – one of very few scientists to have moved from Scotland to England.

He died on the descent from the Col du Ventoux, which he had just cycled up. Cycling and music were among his passions in life. He collected bicycles, played bass guitar in various bands and had a wide knowledge of world music. A conversation with Mike nearly always ended in laughter and some new insight into a problem or view of the world.

Jean Paul Troadec died a few days ago. He was born in 1934; he was FAO Director of Living Resources. In 1982, he became Director of the Institute Scientifique et Technologique de Pêche Maritime. He created IFREMER in 1984; he was Deputy Director and Director of Living Resources. He served ICES as French Delegate in 1982, 1983, and 1984. During his career, he tried to include environmental aspects in fisheries science as well as economics, something which was finally achieved in developing the current Strategic Plan, so he was a pioneer in this aspect.

We offer our condolences to their families and our sincere thanks for their contribution to the ICES

community. Please rise and join me in paying our respect with a minute of silence.

This Annual Science Conference is held in Tallinn, in the beautiful capital of Estonia. We started with one of my favourite choirs, Ellerhein, and we are very honoured to have our first ever ASC here. The choice of Tallinn automatically implied choosing as one of the focal themes of the Conference, the Baltic Sea, one of the most intriguing home seas of ICES. Altogether, we have four theme sessions which directly or indirectly deal with the Baltic problems. Also, our guest speaker, whom I will introduce in a moment, will deliver the Open Lecture on the Baltic Sea.

Dear colleagues, dear friends. I am glad to note the excellent work done by our local Estonian organising committee for this Annual Science Conference. They have done their best to guarantee the success of the Conference, now it is our turn to do our share. Please enjoy the Conference.

The President then introduced the Open Lecture by Professor Fred Wulff, on "Management of the Baltic: opportunities for enhancement".

The Chair of the Baltic Committee, Brian McKenzie responded to Professor Wulff's lecture.

Abstracts of Professor Wulff's lecture and Brian McKenzie's response appear on the following pages.

The President thanked Professor Wulff for the Open Lecture and adjourned the session.

Open Lecture Management of the Baltic – Opportunities for Enhancement

Marine pollution has, until recent decades, been considered as a relatively localized problem, primarily due to the vast dilution effect of the oceans. The Baltic Sea was the first case where environmental changes to an entire marine ecosystem were described.

For the Baltic, the virtual elimination of top predators such as eagles and seals, the development of anoxia in deep basins, and toxic algal blooms are examples of large-scale environmental effects, caused by toxic substances and nutrients. The bans on use of various toxic substances, particularly DDT and PCBs in the 1960s in the entire Baltic region, have resulted in drastic reductions of concentrations found in biota and a recovery of bird and mammal populations. This is clearly an example where sciences have played a leading role in improving the environment. However, there has been no corresponding improvement in the state of large-scale eutrophication, in spite of massive, very good research. The Baltic Sea remains severely eutrophicated.

Efforts to reduce nutrient inputs, i.e. through improved sewage treatment, have had considerable effects on a local scale, but little effect on a larger, basin-wide scale, where non-point sources of nutrients dominate, i.e. through agriculture and traffic. There are many spatial and temporal lags between cause and effects. True, interdisciplinary research is needed to understand and

Delivered by Fredrik Wulff Professor in Marine Systems Ecology, University of Stockholm, Sweden

describe these interactions, in many cases between disciplines and institutions that do not traditionally cooperate.

It is, however, clear that good science is not enough for establishing a successful management of natural resources. A sustainable governance of the Baltic Sea also requires efficient communication of science to managers. Adaptive management requires that scientists are more engaged in the governance process than just submitting reports and publishing papers. It requires that we do things that many of us are uncomfortable with, have not developed skills for, do not like to spend time on. These tasks are usually not acknowledged by peers and superiors, such as making predictions that are not yet solidly founded on data and interacting extensively with stakeholders and managers. Examples on how synthesis, in terms of integrated ecological-economical models, can be used to form decision support systems were given.

Such models may then describe and communicate the future effects of various management alternatives both in terms of environmental effects and economic costs. We can then provide management with the best possible scientific advice; one essential component in the decision process where also legal, political, and other aspects have to be considered.

Open Lecture Management of the Baltic – Opportunities for Enhancement

Response by Brian R. MacKenzie Chair of Baltic Committee

It is a pleasure and an honour to be invited to respond to Prof. Wulff's stimulating presentation.

As you have just heard, marine ecosystems such as the Baltic Sea are under pressure from activities such as fishing, pollution, and species introductions. Giving advice to managers and stakeholders on how ecosystems respond to anthropogenic impacts, and more importantly what to do about it, is becoming more and more challenging. It is also consuming larger and larger amounts of ICES' resources. Developing tools which condense our knowledge into concise and clear messages would seem to be an effective way to translate that knowledge into advice and communicate it to managers and decision makers.

The presentation we have just seen is an excellent example of how this can be done for the particular case of eutrophication. Fred Wulff has shown how different kinds of basic science, as well as the costs for society to implement different actions, can be linked to produce outputs useful for decision makers and managers. Frameworks such as these can potentially improve the scientific basis for making management decisions: all basic components are assembled in an integrated framework, including the costs of various actions. This allows the user to express the consequences of decision choices in a clear and highly visual way, even though the decision support system itself is based on a huge amount of complex scientific information.

These aspects are all very appealing attributes of any decision support system (DSS).

In many ways, the DSS, like the one presented by Fred Wulff, address one of the key issues of ICES, which is how to provide long-term integrated and interdisciplinary advice. This topic is currently under intense discussion within ICES and is particularly relevant to the Baltic: ICES and the Baltic Sea Regional Project are in the process of setting up new study groups to provide the basis for ecosystem assessment and management.

Indeed, one could visualize decision support systems being developed, or perhaps expanded, to address many other issues and temporal-spatial scales than those represented in the Mare system. For example, ICES is right now dealing with a request for advice from the International Baltic Sea Fisheries Commission on whether closed areas should be implemented in the eastern Baltic Sea in order to conserve the cod stock. This request arose from the fact that the spawning biomass is presently very small, and a major inflow from the North Sea to the Baltic occurred last winter for the first time in 10 years. The inflow could lead to improved conditions for egg survival in 2004 in previously anoxic layers of the Baltic. The issue boils down to whether the few spawners in those areas should be given the opportunity to produce surviving eggs. However, we presently have no structured quantitative approach for answering this question and are dealing with it on a rather ad hoc basis.

An issue facing ICES is what role, if any, it should have in developing decision support systems – their development certainly requires a large amount of input from the natural sciences which ICES can provide. But in addition decision support systems require strong links to fields such as economics and sociology, and people who are able and willing to link these various disciplines together in a quantitative, modelling framework. ICES is already having difficulties linking fields such as physical, biological, and fisheries oceanography, so establishing lasting links to fields outside the natural sciences may also be difficult.

The ability of decision support systems to deliver and communicate complex messages in concise and visual formats is an approach that ICES may have to consider in the future.

Clearly there are needs for integrating our knowledge in better ways than at present. What we must do in future is be open to the opportunities for improvement in management that decision support systems, like those presented by Fred Wulff, can provide.

Once again, I thank you for this presentation which demonstrates that potential.

Invited Lecture 1 Challenges and opportunities for dealing with complex fisheries

Delivered by Randall M. Peterman (Canada)

Mixed-stock and multi-stock fisheries create not only serious challenges for scientists and managers, but also opportunities. Opportunities arise because stock assessments that simultaneously use data from multiple stocks can produce more precise estimates of model parameters and biological reference points than separate analyses of each stock. Challenges arise from variation across stocks in productivity and in abundance relative to reference points, which require managers to make difficult trade-off decisions. Such challenges call for clear management objectives and comprehensive stock assessments for managers to make well-informed decisions. Numerous sources of uncertainties in multistock situations also create challenges, but risk assessments, Bayesian decision analyses, and risk management procedures help deal with them. Qualitycontrol procedures for these methods should include thorough consideration of uncertainties, such as (1) alternative hypotheses about structural forms of underlying models, (2) ranges of possible parameter values, (3) implementation error, which causes deviations from desired goals, and (4) various management objectives, including different types of trade-offs among stocks. For instance, it is now possible to develop multi-stock models with numerous uncertain parameters and to assume time-varying productivities.

Furthermore, performance of proposed management strategies and stock assessment methods can be thoroughly tested via simulations using "operating models". However, more research is needed on characteristics such as movement of vessels and discarding behaviour to incorporate harvesters into models as dynamic, not static, components. Finally, recent research in cognitive psychology suggests ways to more effectively communicate results concerning uncertainties and risks among scientists, decision makers, harvesters, and the public.

Invited Lecture 1 Challenges and opportunities for dealing with complex fisheries

Thank you, Dr Peterman, for a thought-provoking lecture. You have travelled nearly halfway around the world to bring us a message of hope. I call it a message of hope because not only have you described six challenges for dealing with complex fisheries, but more importantly have described how you and others have arrived at possible solutions to these challenges. As ICES begins its second century, we should remember that we have made many advances in science by viewing challenges as opportunities. Let us continue to move forward by not just acknowledging that our job is difficult, but striving to find solutions to our complex problems.

Dr Peterman noted six particular challenges that he has encountered during his illustrious career. Many of these challenges dealt with uncertainty, not only the means of quantifying it, but also how to appropriately convey the level of uncertainty in our work. As we know, nothing in life is certain, especially in our field where fish, fishers, and fisheries never seem to behave quite as expected. We must not let this uncertainty constrain our thinking, though. Rather, as Dr Peterman encouraged, we should continue to expand the use of decision tables and operation models to explicitly account for this uncertainty.

The challenges described by Dr Peterman are applicable to all of us, because all of us deal with complex problems, as mentioned by Jake Rice in his introduction. The use of advanced mathematics, such as hierarchical modeling, can not only deal with these complexities, but actually take advantage of the complexity. These approaches can be used not just in traditional fisheries stock assessments, as demonstrated by Dr Peterman, but can be applied to the full range of topics that fall under the umbrella of ICES. For example, interactions between biological and physical processes are highly complex but share many similarities throughout the world. Continued application of hierarchical models can be used to apply knowledge gained in one specific area to inform problems encountered an ocean away.

We in ICES must continue to look to other fields for new ideas that can be applied to our problems. One solution mentioned by Dr Peterman is the use of the Kalman filter for time-varying parameters. The Kalman filter was developed by engineers to quantify the signal to noise ratio in their work. Dr Peterman described some of his own work which utilized this method to estimate timevarying parameters in stock recruitment relationships. It is exactly this sort of application of ideas from other fields that will allow us to continue to advance our own field by standing on the shoulders of giants in other fields.

ICES has been fully involved in many of the approaches described by Dr Peterman, from the use of the precautionary approach to development of new graphical technique to convey multiple responses, as noted in the lecture. Here at this meeting we continue to see the development of new ideas and the application of old ideas in new ways. At this meeting, we have sessions on mixed and multi-stock fisheries, evaluation of fisheries management scenarios, scope and effectiveness of stock recovery plans, and reference point approaches to management within the precautionary approach, to name just a few examples. A quick glance through the reports of previous meetings will show clearly that ICES is a world leader in development of new methods. Let us continue our work encouraged by the words of Dr Peterman as we pursue a deeper understanding of our world.

Invited Lecture 2 Recovery plans for depleted fish stocks: an overview of global experience

The primary and grey literature as well as the WWW were searched for information on recovery plans implemented for marine fish stocks globally. Although information sources are generally incomplete, especially on the managerial aspects, nine examples are focussed on here that provide some information on details of the plan followed, and fragmentary information was located for other stocks, but it is clear that a full review of the subject will require international cooperation. Evidence of success or otherwise was not always provided by these reports, and in some cases it was clear that a reversal of preliminary results may have occurred subsequently. Experience with recovery plans mostly stems from the1990s onwards, so that results presented in this review are still inconclusive. Nonetheless, the present study could provide a starting point for an internationallycoordinated attempt to build a database of recovery plans, which is recommended to ICES as a high priority objective. The present paper provides a broad-brush overview of scientific and managerial issues involved. A second paper by Caddy and Agnew to be presented at this meeting provides more complete documentation on sources, and discusses issues relative to the duration of recovery plans.

We recall that the concept of a recovery plan first originated for rare terrestrial organisms, and an example of a recovery plan for an endangered wetland bird is briefly reviewed. This shows that broad multidisciplinary approaches are required, and it is believed this applies for marine finfish recovery plans also. Given the increasing number of marine fish stocks in difficulty due to overexploitation documented by FAO, the distinction between endangered and common (but now depleted) marine resources is disappearing, and the CITES process is now more frequently being invoked for conservation of formerly commercial species. Transitional examples are low fecundity, slow-growing depleted stocks such as rays, sawfish, and sharks, which with depleted marine mammal and turtle stocks, include the growing number of protected species, often of low commercial value, which are affected incidentally by fishing operations. Also transitional to finfish recovery plans are relict populations impacted by anthropogenic environmental change such as the endangered Atlantic whitefish, an example showing the importance of public outreach and stakeholder participation.

The first fishery recovery plans historically were fisheries closures, principally for herring stocks, and the success of many of these single-species fisheries led to misplaced optimism that recovery of groundfish could similarly be achieved. Closures have rarely been implemented for groundfish taken in multispecies trawl fisheries, and this approach is reluctantly adopted and often treated as a last resort. The collapse of Canadian groundfish stocks made closure inevitable, but revealed that this measure is not inevitably successful, and the suggestion followed up in the companion paper that regime shifts are in part responsible for slow recovery. The problem of technical and multispecies interactions for recovery of trawl-fished resources remains difficult or intractable without involving the whole species complex harvested.

Early experience following extension of jurisdiction, suggests that quota management without regulation of access/capacity is unlikely to be successful. Some key features of the better-documented recovery efforts are briefly reviewed, and some common features extracted to form a draft set of Guidelines for recovery planning included in an annex. Single-species approaches have generally been followed, using COMFIE-type decision rules, with fishing mortality control often implemented through quotas, though doubts are raised that approaches using quotas to fine-tune fishing mortality targets will be successful at low stock sizes. In a few cases a constant low quota was used, and the characteristics of different approaches are compared in the light of increasing uncertainty and variance in stock and fishery indicators, and the chaotic behaviour and poor performance of retrospective analysis and surveys at low stock sizes.

It is usually supposed that a return to a 'normal' exploitation strategy will follow once the recovery 'target' has been achieved, but experience shows that growing disputes over stock status between stakeholders occur as some recovery becomes evident. Experience also suggests that in order to avoid continual repetition of earlier stock collapses, a more precautionary approach to 'routine' management will be needed which incorporates some features of the recovery plan.

Multispecies and technical interactions have been given little consideration in most finfish recovery plans, although there is some evidence that 'spontaneous' recovery of a number of overfished invertebrate stocks can be linked to declines in finfish predators. Placing a priority on conserving long-lived top predators or 'keystone' species (e.g. Pacific halibut) may be an effective multispecies strategy. A review of biological criteria for initiating stock recovery plans focuses mainly on %SPR considerations, and reveals an apparent paradox, in that species with low natural mortality rates may have recovered from very low stock sizes relative to shorter-lived, and pelagic species; presumably under favourable environmental conditions. This suggests that longevity in large demersal fishes is a strategy for surviving periodically unfavourable regimes, and that 'fishing down the age structure' does not equip populations to survive subsequent and perhaps prolonged unfavourable recruitment conditions. A tentative conclusion for most groundfish is that it is precautionary to avoid %SPR levels falling below 30-40+% of virgin stock size, and similar high values also seem limiting for small pelagic, cephalopods, abalone, and large crab

populations. Restoring age structure as well as stock biomass is suggested as an appropriate rebuilding approach for groundfish, using the refugium approach or MPAs supplementary to conventional controls on exploitation rate and technical measures. It is warned that focussing solely on improving juvenile survival through supplementary mesh size increases or minimum sizes in a recovery plan based on quotas, may increase pressure on the few remaining large spawners. Ensuring that a significant proportion of older spawners survive in the population, and that source populations and critical habitats are protected, become important supplementary objectives of recovery plans. Area closures are suggested as an important supplementary measure to protect critical habitats, nursery areas, and spawning refugia, and the need to protect metapopulation structure is emphasized, since it is suggested that simplification of metapopulation structure may not be easily reversible.

Experience suggests that successful recovery depends more on management infrastructure and socio-economic context than on stock calculations, whose accuracy has often been overestimated, especially where there has been a heavy reliance on retrospective analysis of age structure. The cooperation of industry and stakeholders in co-management approaches seems indicated, and consultation within co-management and rights-based approaches in setting up the recovery plan is essential. In contrast to this, once a stock is declared overfished or depleted, decision-making within a formal recovery plan must be rapid, and rapidly implemented. Apparently relevant here is that a majority of the small number of successful recoveries documented world-wide, occurred in United States waters under the jurisdiction of the Magnuson-Stevens Act. This suggests that overriding non-discretionary legislation is of critical importance, and should incorporate overfishing definitions and reference points. It should also require recovery to MSY conditions or their equivalent when these limit reference points for biomass and fishing mortality are infringed. At the same time, the inclusion of a broader range of fisheries indicators in the decision process, especially those measuring the environment and changing productivity of the ecosystem, seems important. The traffic light approach is suggested as one way of monitoring regime change and avoiding the erroneous assumption that future recruitment will remain at the levels observed during past favourable regimes.

From our analysis, we have derived a draft set of principles and working procedures for further discussion that may assist in formulating future recovery plans. These deal with aspects of resource biology and stock but discuss socio-economic assessment, also appropriate management considerations, and the frameworks which have proved important for several successful stock recoveries. These are appended to the paper as a set of draft guidelines for future discussion of best practices in fisheries recovery planning.

Invited Lecture 2 Recovery plans for depleted fish stocks: an overview of global experience

Thank you, John, for your comprehensive overview of stock recovery issues, which contained many important points. From an ICES perspective, the background to this paper is that recovery plans are a direct consequence of the application of the Precautionary Approach. When stocks fall outside biological safe limits, ACFM advises a recovery plan, and then in effect hands over the problem to managers. Currently, in the European Union alone, there are 14 stocks on the list. As John said, and I think will become clear from the Theme Session on the Scope and Effectiveness of Stock Recovery Plans in Fishery Management (U) that follows this lecture, subsequent stock rebuilding is extremely difficult to accomplish in practice. In the EU for example, formal plans are still being negotiated, and in the absence of agreement, management has been dominated by emergency measures, which although very painful, have not yet succeeded in restoring stocks. In response to Johns suggestion to develop a road map for the stock recovery process, the Theme Session will have the opportunity to consider carefully whether ICES could develop its position on recovery plans, particularly in relation to the definition of objectives, the desired rate of recovery, problems of estimation and monitoring under uncertainty, and concerns about the role of regime shifts and the effects of multispecies interactions. Johns lecture

contained many signposts for the road map, as the following bullets that I noted during the talk illustrate:

Changing human behaviour Clarifying the causes of stock decline Embedding the criteria and objectives in the primary legislation, as in the USA Using robust non-discretionary harvest control rules Developing fishery-independent monitoring Avoiding fixed deadlines when environment is very variable Resolution of estimating and monitoring problems Developing equity rules for mixed-species situations Recognising the importance of early and significant catch reductions Keeping fishing effort down once recovery is achieved

We could add one thing: we will not succeed unless we get stakeholder compliance, and this requires their acceptance of the science and the recovery plan process, including consideration of social factors. Thank you very much for your insights, John. In the case of many of our stocks we don't appear to have too much time to play with, so we should get on with this process as quickly as we can. Let's get to it! **Reports of Theme Sessions**

Theme Session J

The Role of Benthic Communities as Indicators of Marine Environmental Quality and Ecosystem Change

Conveners: Heye Rumohr (Germany) and Chris Frid (UK) Rapporteur: Eric Jagtman (the Netherlands)

Background

This Session was organized with the aim to discuss progress in the development of marine environmental quality indicators based on data of benthic communities.

Marine environmental quality indicators are in great demand following recent developments in the marine regulatory framework. At the fifth North Sea Ministers Conference it was agreed that marine quality indicators should be operational by the year 2005. Against this background speakers were invited to give up-to-date information on the development of indicators and discuss advantages and limitations in the use of these indicators.

Summary of presentations

During the Session criteria were listed that are crucial for the development of good indicators. Ideally, indicators should demonstrate the capability to measure change, they should enable us to understand cause-effect relationships, and they should support effective communication. However, there was a need for monitoring in relation to oil and gas activities, sludge and dredging disposal and dredging of marine aggregates. Consequently, indicators were developed in order to be able to properly describe the complexity of the ecosystem investigated.

A wide range of examples of indicators were given, including a marine biotic index based on five functional groups sorted by sensitivity to organic enrichment, biodiversity and community indices as well as an index for commercial stock value. The underlying data for the marine indicators were collected by bottom sampling, scuba diving, and digital image analysis. Examples of the indicators presented can be seen at http://www.azti.es/

In all presentations, case studies demonstrated what use could be made of the indicators discussed. Most commonly, indicators were used to describe temporal and spatial changes in the ecosystem, and it was effectively demonstrated that indicators are suitable to differentiate between impacted and non-impacted sites under the influence of human activities. Limitations discussed related to the limited geographical range in which indicators can be safely used and the ability to distinguish between nature/climate-driven changes and human impacts. It was therefore suggested that the use of benthic indicators should be linked to rigorous quality procedures.

Conclusion

Taking into account the limited number of presentations (seven, including two posters), it was not feasible to get a full overview of developments in constructing marine environmental quality indicators. However, it is considered that, since developments in the (marine) regulatory framework are ongoing (e.g. EU Marine Strategy), there is a strong need to stimulate further work in this field. This will be necessary to enable ICES to advise OSPAR and the EU on these issues.

Theme Session L

Plankton Monitoring: Better Coverage by Ship-of-Opportunity and Remote Sensing Methods

Convener: Seppo Kaitala (Finland)

Background

Plankton monitoring at fixed stations has its obvious limitations. Phytoplankton monitoring of the Baltic Sea has for the past ten years benefited from continuous (Ship-ofmeasurements by commercial vessels Opportunity) on passage across the Baltic Sea. Furthermore, remote sensing is necessary in order to expand the limited information provided by ships to cover larger areas. On the other hand large sets of calibrated Ship-of-Opportunity (SOOP) data provide assured ground-truth data for remote sensing applications. At the moment these studies are approaching a stage where algal biomass and main taxonomical groups of algae (including cyanobacteria and other harmful algae) can be described and quantified using their characteristic pigment signatures. These developments will provide a new insight into spatial and temporal variations of phytoplankton

Summary of presentations

SOOP methods

The "Ferrybox" dataset (1999–present) provides a context for detailed process studies in an estuarine environment. This autonomous system records plankton blooms, with reduced aliasing of timing and peak biomass, in the hypernutrified system of Southampton Water. A ferry, making up to 16 crossings a day, records temperature, salinity, fluorescence, position, and turbidity data every second and relays 10 minute summaries of data back in near real-time.

Net heat flux, high tidal range (up to 5 m), eutrophication gradient data gave interesting observations to study in interannual variability in the timing and magnitude of spring bloom development. This study promotes the understanding of the importance of stratification for phytoplankton community succession.

Plans to establish an integrated operational system for the Baltic Sea as an operational observation system of harmful algal blooms were described. These would consist of a cyanobacteria-specific SOOP flow-through monitoring system, development of satellite image calibration for cyanobacteria-specific pigments, and a joint sample programme of harmful algae and algal specific toxicants. The information will be delivered as fast as possible through the BOOS web page.

The Alg@line system, which began in 1992 as a single monitoring route across the Baltic Sea, has now developed into a joint operational monitoring and information service in the Baltic Sea. The SOOP approach forms the backbone of Alg@line. The main objective of Alg@line is the monitoring of the phytoplankton community and harmful algal blooms. In addition to an almost real-time reporting on algal blooms, the collected data is used for scientific research.

Temperature and salinity data collected automatically at 4- to 5-m depth along the SOOP transect Tallinn-Helsinki have been used for the identification of upwelling events near the opposite coasts of the Gulf of Finland. The upwelled water, since it originates from the deeper layers below the seasonal thermocline, is usually cold and rich in nutrients. The upwelling appears when along-shore winds are blowing: in the Gulf of Finland, the eastern winds cause upwelling near the Estonian coast and the western winds - near the Finnish coast. A method was developed to estimate the intensity of upwelling events (upwelling index) for every crossing. The integrated upwelling index (calculated as a cumulative sum of indexes starting from 1 May) can be used in a model to forecast the intensity of blue-green algae blooms in the Gulf of Finland.

An advanced SOOP monitoring system is now in operation on the route between Cuxhaven (Germany) and Harwich (UK). The FerryBox system has sensors and analysers for the parameters salinity, pH, oxygen, turbidity, fluorescence, ammonium, nitrate/nitrite, ophosphate, and silicate. Strong gradients in both nutrients and turbidity were observed in the coastal vicinity on both sides of the transect. Data for different algae groups measured by excitation with different wavelengths are also analysed and compared with pigment analysis and cell counting.

Development of phytoplankton was strongly influenced by the physical environment. The observations in the North Sea clearly show low winter values in chlorophyll *a* over most part of the transect, nearby coastal effects of riverine loadings, and patchy distribution of algal blooms along the transect in spring and summer. The recording systems of physical and chemical parameters are highly advanced, but optical detection of phytoplankton is under development.

Remote sensing methods and data assimilation

It was demonstrated that SeaWiFS satellite measurements of ocean colour did not correlate at all well with chlorophyll *a* concentrations in the North East Atlantic waters.

The main problem is that the NASA calibration algorithms were developed for open ocean waters (Case I waters), and there are large areas of coastal and polar waters, where these algorithms do not work well. Attempts were made to avoid these problems by using



Figure L1: Chlorophyll *a* concentrations plotted against the corresponding satellite predictions, with a regression line superimposed. R^2 is only 10%, indicating a poor correlation between SeaWiFS and bottle data. From CM2003/L:04. "Prediction of the annual cycle of phytoplankton production in the North East Atlantic" by E. D. Clarke, S. N. Wood, M. R. Heath, D. C. Speirs, W. S. C. Gurney, and S. J. Holmes.

three-dimensional thin plate regression splines to estimate *in situ* (bottle) measurements as a function of SeaWiFS estimates. The presentation and Figure L1 clearly demonstrate the need to develop a special calibration algorithm to estimate chlorophyll aconcentration in the Northeast Atlantic waters. Methodology has been established to develop an empirical algorithm of chlorophyll a for MODIS satellite data with an automated flow through fluorometer measurements (Alg@line system). In the Baltic Sea, the concentrations of coloured dissolved organic matter (CDOM) and suspended material from allochthonous sources are high and create a need to apply locally developed band ratio algorithms. Although the available

data was only for three days, the study gave promising

results to develop a special algorithm for the Baltic Sea

(Figures L2 and L3).



Figure L2. Scatter plots between ship-measured chlorophyll *a* and MODIS reflectance band ratios. From CM2003/L:07. "Remote sensing of chlorophyll *a* in the Baltic Sea together with automated fluorometer measurements". By T. Takio, J. Vepsäläinen, S. Kaitala, and V. Fleming.



Figure L3. Alg@line measured chlorophyll concentrations vs. algorithm estimated values. From CM2003/L:07. "Remote sensing of chlorophyll *a* in the Baltic Sea together with automated fluorometer measurements". By T. Takio, J. Vepsäläinen, S. Kaitala, and V. Fleming.

Satellite data are spatially continuous observations whereas the Alg@line data include transect observations. The data assimilation technique optimally combines these two data sources by taking into account the spatial autocorrelation function of chlorophyll *a* concentration estimated from the transect data. Kriging interpolation is used for the extrapolation or interpolation of Alg@line observations for any location outside the employed transects. The developed method takes an advantage of the high accuracy of Alg@line transect data together with the full spatial coverage of satellite observations. It is shown that the introduced technique significantly improves the quantitative regional water quality assessment accuracy when compared with the use of only the transect data or only the space-borne data.

Unattended flow-through fluorometers are currently operationally employed in the Baltic Sea to provide information on chlorophyll *a* concentration and distribution. However, the spatial coverage of these SOOP data is restricted to transects cruised by vessels. Space-borne optical spectrometers, such as SeaWiFS and MODIS, provide daily remote sensing reflectance observations correlated to chlorophyll *a* concentration of the surface water layer. However, their accuracy is limited in the brackish waters of the Baltic Sea due to the relatively high turbidity and yellow substance (CDOM) level. The optimum method to apply satellite data is the assimilation of remote sensing observations with *in situ* data.

Phytoplankton quantification methodologies

The seasonal variability in spectral absorption and fluorescence characteristics of living phytoplankton in the northern Baltic Sea and studies on their relation to the phytoplankton community structure was reviewed. Phycoerythrin and phycocyanin fluorescence were found to be relevant indicators for picocyanobacteria and filamentous cyanobacteria. To derive algal biomass from the spectral groups using the spectral fluorescence of multicomponent natural phytoplankton samples, multivariate validation was found to be superior to univariate methods, e.g., the classical least squares regression. With experimental data, the partial least squares (PLS)-model was noted to give the best predictions for all spectral taxonomic groups. The information needs for satellite data calibrations of specific pigments of phytoplankton groups were also addressed.

Sampling and evaluation of filamentous cyanobacteria has been considered a problem in studies of phytoplankton ecology. The influence of hose diameter was investigated when collecting surface-water integrated samples of filamentous cyanobacteria and image analysis as a tool for estimating the total length of filaments during a summer bloom in the Northern Baltic Proper. The hose diameter did not have any effect on integrated samples of filamentous cyanobacteria. Also image analysis gave the same estimates of filament length as traditional manual counts. Such results are also important for the monitoring of harmful algal blooms and as ground-truth data for satellite image validation.

Concluding remarks

SOOP systems on commercial ferries can cover larger areas than is possible by research vessels and mooring stations. These systems function also during cloudy weather, when most satellite sensors cannot "see" the sea surface. During clear days satellite sensors produce good images, but the comparison of ocean colour data produced with global calibration algorithms, with ground-truth data has given unsatisfactory results in many areas of the Northeast Atlantic, including the Baltic Sea. As shown in this Session, the development of local calibration algorithms are needed. SOOP systems produce the necessary ground truth for these calibrations. The detection of different phytoplankton groups is under development.

Theme Session M

Biological Effects Monitoring in the Baltic Sea

Conveners: Kari K. Lehtonen (Finland) and Doris Schiedek (Germany)

Introduction

Monitoring of the state of the seas has traditionally been almost entirely based on measurements of concentrations of harmful substances in seawater, sediments, and biota. However, with the already enormous and continuously increasing number of potentially toxic substances present in and released into seas this approach alone is no longer considered meaningful, cost-effective, or even possible. During the past decades, molecular, biochemical, cytological, immunological, and physiological techniques have been under dynamic development for the detection of effects of contaminants in marine organisms. More recently a strong emphasis on their further development and application in marine monitoring programmes has emerged within the EU, resulting in research programmes such as BEEP (Biological Effects of Environmental Pollution in Marine Coastal Ecosystems).

The risk assessment approach presently taken, i.e. concluding toxicity data for safety limits in the environment obtained from laboratory experiments with one contaminant, is bound to be invalid due to the presence of a mixture of various pollutants, in addition to all the natural stress factors. Seasonal variability influences the exposure of marine organisms to contaminants and even temporary oxygen deficiency leads to the release of various sediment-bound contaminants and increases exposure. In spring, an increased riverine runoff elevates the concentrations of pesticides and herbicides used in agriculture. Furthermore, the behaviour of organisms is dependent on, e.g., seasonal variability in temperature, nutritional conditions, and reproductive cycle.

The current approach in the Baltic Sea and its limitations

In the Baltic Sea, eutrophication has been classified as the greatest threat to the marine environment. Owing to limited resources, the studies and monitoring of contaminants and, in particular, their effects have received much less attention. According to the prevailing view, the effects of contaminants are anyway masked by the effects of eutrophication. This belief may remain valid if one uses indicators that are related to changes observed at population or community levels, where they can usually be directly related to increased concentrations of nutrients and the resulting pathways of biological processes. However, there exists a large suite of methods developed to indicate biological effects of pollutants, some of which are more general stress indicators and some indicating exposure to specific groups of contaminants.

The EU Water Framework Directive requires the application of biological effects methods over chemistrybased ones in the monitoring of the state of marine coastal ecosystems. This has generally been interpreted as methods that describe changes at population or community levels, measured as changes in abundance and biomass of species, and interspecies relations. The successful application of such an approach requires (1) time-series long enough to catch the natural internal fluctuations often occurring in populations, as well as (2) "undisturbed" reference areas. Of these, the former takes a considerable period of time to be obtained, while the identification of the latter in the Baltic Sea has been proven to be a difficult, or even an unrealistic task.

Objectives

The Session aimed at gaining an overview of ongoing research activities in this respect and to draw some conclusions regarding a future implementation of biological effects monitoring in the Baltic Sea. From the 18 contributions submitted 13 papers and two poster presentations were given during the session, all being well within the focus of the Session. Of the results presented, about 50% were output from the BEEP project mentioned above. One poster dealt with the improvement of wastewater discharges using an example from the Black Sea and giving some indications on how to apply this method in the Baltic Sea.

Presentations

Keynote lecture

K. Cooreman gave an overview regarding the status and use of biological effects techniques in marine environmental areas with focus on studies performed in the North Sea. He showed that biomarkers are a useful concept to estimate environmental stress as early warning indicators for contamination and illustrated this in a graph (Figure M1). He also made clear that biomarkers are good indicators linking several levels of biological organisation in order to predict changes. At the end of his talk he pointed out that there is still a need for the evaluation of biological indicators (biomarkers) in the field.

Application of biomarkers in the field

Based on results from studies on perch, there is evidence that the inner part of the Stockholm archipelago is chronically contaminated and that apparently the perch population in this area has already adapted to this situation.



Figure M1. Response of organisms to chronic environmental stress. (From Larsson, A., Haux, C. & Sjöbeck, M. 1985. Fish physiology and metal pollution: results and experience from laboratory and field studies. Ecotoxicology and Environmental Safety 9, 250-281)

Clear contamination gradients and some resulting biological effects could also be shown for the Lithuanian coast. This work also demonstrated that biomarkers might be suitable to detect recent contamination events, such as a large oil spill due to a tanker accident.

It is evident that there still exists considerable contamination which affects the biota of the Gulf of Gdansk even though the concentrations have been reduced during recent years.

Biomarker responses in mussels and eelpout which appear to be related to the contaminant level were also found in the Wismar Bay, western Baltic. Some biomarkers are particularly promising (AChE, lysosomale membrane stability, micronuclei) to indicate biological effects in blue mussels.

Biological effects on single species

From data, obtained on cod at different locations in the Baltic, from the Kiel Bight up to the Lithuanian coast it is clear that cod physiology is affected by contaminants and that there are regional differences in the biological responses (more pronounced in the southern Baltic), mainly because of differences in contamination level and patterns.

Based on liver histopathology as an indicator for biological effects, it was shown to what extent flounders in the Baltic Sea are affected. Elevated prevalences of toxicopathic lesions were recorded in an area on the Lithuanian coast contaminated with PAHs.

The usefulness of measuring bile PAH-metabolites as an indicator of PAH exposure was demonstrated by laboratory experiments on perch and salmon and field measurement in the northern Baltic Sea. At some locations in this area the fish are already chronically exposed, indicated by the fact that only 1-OH-pyrene, a persistent metabolite, was measurable in the fish bile.

From studies on perch in Estonian waters, it is obvious that life status and age of the fish has to be taken into account when studying contamination and resulting biological effects.

Findings in blue mussels from various BEEP locations in the Baltic Sea, clearly show that micronuclei frequency is a sensitive indicator for genotoxic effects. Using data from laboratory experiments there are indications about the time period needed until mussels may recover genotoxically from contaminant exposure.

Experiments showing the impact of TBT on creatine kinase in fish spermatozoa raised the question whether the TBT concentrations, chosen in the experiment, realistically reflect the exposure situation in the field.

Environmental health indicators

Different concepts were presented in order to develop overall environmental health indicators.

Based on a comparative study on two bivalve species, *Macoma balthica* and *Mytilus edulis*, an example was given on how to use the biomarker responses obtained in applying an "Integrated Biomarker Response Index" (IBR). Integrated biomarker response indices were calculated using four different biomarkers and comparing them with chemical data of different contaminants.

The "Bioeffect Assessment Index" (BAI), offers a somewhat different approach. It has been developed for the integration of several pathological endpoints, based on investigations on flounder in the North Sea and its application for Baltic Sea specimens.

Both concepts were discussed and it was considered that such indices are needed and should be further developed when applying biomarkers in the assessment of ecosystem health.

Conclusions

The results presented in the Session clearly indicate that the present contaminant levels in different parts of the Baltic Sea are causing biological effects in various species, and in some cases leading to chronic stress. It also could be demonstrated that examining the health of organisms has many advantages. Physiological effects of environmental pollutants are often rapidly manifested, and the observations on disturbance during a health check may be used quickly to direct more detailed chemical analytical work to the potential problem area. Although many of the effects of toxicants are reversible, causing no permanent damage to the organisms or reduce their fitness or reproductive capacity, a great number of them do have potential links to genotoxicity, disease, and reproductive disorders which are features that may strongly affect populations and communities.

The current concept for the Baltic Sea aiming at assessing environmental health in an integrative mode, lacks such an approach – looking at the health of organisms that form the ecosystem and resolving which factors are causing the problems.

Agreement on the necessity of biological effects monitoring was reached. The following issues were raised regarding the general strategy to implement biological effects monitoring in the Baltic Sea:

- Clear definition of the purpose of biomonitoring and optimising the strategy accordingly.
- The need for different sets of biomarkers for different areas (regional approach).
- The need to apply a set of biomarkers representing different levels of biological organisation.
- The need for continuous monitoring of biological effects for estimating the health status of the ecosystem.
- Implementation of an integrated chemical and biological monitoring as a meaningful tool in assessing ecosystem health.
- When developing environmental health indicators, their limitations should be taken into account to avoid oversimplification of the complex interactions within an ecosystem such as the Baltic Sea.
- Development already made in OSPAR regarding the monitoring of biological effects should be utilised when designing a similar programme for the Baltic Sea.
- Development of Ecological Quality Objectives (EcoQOs) based on knowledge of the biological effects of contaminants with the aim of reducing their concentrations to non-effective levels.
- ICES should continue to have a leading role in the further development of EcoQOs. A good opportunity is the implementation of the Baltic Sea Regional Project (BSRP) and its associated ICES Study Groups.
- ICES may act as mediator to HELCOM in regard to implementation of biological effects methods in the COMBINE programme.

Theme Session N

Size-Dependency in Marine and Freshwater Ecosystems

Conveners: Henrik Gislason (Denmark) and John Pope (Norway)

Background

Marine and freshwater ecosystems are typically organised according to size. Most species have to grow through a series of sizes and many of the processes to which aquatic organisms are subject may depend as much on their size as on their species (e.g., mortality and growth). Hence, the size of the individual may largely determine its biological characteristics.

Size dependency is seen in the processes affecting individuals. However, emergent properties of the ecosystem that are size-related (e.g. regular size spectra, distribution of life history characteristics) are apparent, but the linkages are not well understood. This suggests that renewed studies of size-dependent processes and interactions in aquatic ecosystems and the construction of size-based models would further understanding. They would further our understanding of how aquatic ecosystems are structured and how they might respond to exploitation.

In introducing the Session, John Pope outlined simple ways in which size was important and a very natural nomenclature or currency in biological processes and hence in ecosystem structuring and modelling.

Presentations

Sized-based processes

Four papers were presented that described diverse sizebased biological processes relating to the migration and distribution of Norwegian spring-spawning herring, sprat eggs in the Baltic, recruitment, adult survival and spawning of anchovy in the Bay of Biscay, and the diet of stranded cetaceans in the English Channel.

Two posters were also introduced concerning size-based preference models for North Sea demersal species and feeding patterns of herring, sprat, and three-spined sticklebacks in the Gulf of Finland.

One of the main points raised from the discussion of these presentations was that size is clearly not necessarily the primary factor influencing some of the processes that were presented. In particular, interactions between age and size as well as condition (as subcomponent of size) may additionally influence spring-spawning herring migration patterns. The occurrence of apparent preferences for northern over-wintering areas but more southern spawning areas (for fish in better condition), could be the result of an energetic trade-off. The consideration of bioenergetics approaches, perhaps in combination with size-based methods could be useful. Physical oceanographic differences among areas may mask size effects and this was shown in the paper on sprat eggs in the Baltic. Seasonal trends were detected for a decline in sprat egg size for all parts of the Baltic except the Bornholm Basin, where there are differences in oxygen level. It was suggested that differences in the buoyancy of smaller eggs across areas may provide some additional insight. The possibility of seasonal mixing with other populations was also suggested as a potential mechanism for this observation. The size-selective processes for anchovy were discussed and it was felt that growth of anchovy and their pattern of survival are consistent with a "live fast die young" trade-off. The discussion on the diets of stranded cetaceans concluded that the prey size of common dolphin was lower than expected and suggested that common dolphin could be a competitor with many finfish. The issue of sample size was discussed, which is very low for cetacean diet studies due to the reliance on strandings and bycatch data. Various methods apart from stomach analysis, as well as the comparison of bycatch and stranding results were suggested as possibilities for future comparison. The importance of observational data was thought to be very useful from a modelling perspective, as this helps to clarify what types of modelling assumptions may or may not be realistic, especially given that many modellers prefer to embrace more simplified views as tractability is also important.

Size-based metrics

Three presentations dealt with size-based metrics and various aspects of community size structure for the Celtic Sea and North Sea and feeding ecology of trophic guilds in the eastern Baltic. Striking similarities between the Celtic and North Seas were noted in that increases of small fishes accompanied declines in size structure.

It was discussed that the presentation of fishing mortality in these studies was useful as opposed to presuming declines in size structure definitely emerged from the direct effect of fishing, without consideration of trends in fishing mortality. Fishing mortality indices would be particularly useful if available by size and by functional groups and areas to further this type of work. The availability of discard data would also be useful for getting a better idea of fishing mortality for smaller sizes. There is clearly a need for additionally examining total production. The correspondence with literature of some of the observations presented was noted, such as predatory release. It may be that we are observing a shift in species with smaller $L_{\mbox{\scriptsize max}}.$ Teasing apart environmental effects and fishing effects was also discussed as well as looking at data from lower trophic levels in these areas. Overall effects across the other parts of the marine ecosystem were discussed. It was thought that the

availability of comparable time-series may impede a comprehensive examination of comparing these.

Size-based models

Two very interesting modelling papers were presented, one incorporating a combination of trophic and sizebased approaches, and the other a model of continuous size-spectra which involved simulation of fishing effects, and production oscillations on slopes of the overall numerical size spectra. The first demonstrated that given the assumptions of the model, the degree of predation had an effect on biomass distribution. The inclusion of ontogenetic shifts and diet shifts of species were suggested as a potential for contrasting results. The second paper on size-spectra suggested, through clearly presented simulations, that slopes from linear size spectra may provide a weak indicator of changes in size structure and there could be departures from linearity.

Conclusion

One of the major points of this Session was the need for modellers to make simplifications to make their models tractable but that observations of processes from biologists would help to guide modellers when size effects are subtler. Bringing together researchers focussing on species-based ecosystem modelling and those that focus on size-based approaches would be useful for consideration of the difference in these approaches.

Theme Session O

Transport of Eggs and Larvae Relevant to Cod Stocks of the North Atlantic

Conveners: Joel Chassé (Canada) and Bjørn Ådlandsvik (Norway)

Background

Ocean currents transport the eggs and larvae of cod and other gadoid species. In some areas this transport is over 1000 km or more and is essential for the maintenance of certain stock components (e.g. the West Greenland offshore stock appears to be dependent upon Icelandic production of cod eggs and larvae). For other stocks, transport is important to move them into areas of high food production (e.g. the Baltic). The importance of variability in transport on recruitment has been more elusive, however. Understanding the relative importance of transport on cod recruitment was the aim of the ICES Workshop on the "Transport of Cod Larvae" (ICES CM 2002/C:13). Circulation models coupled with early life history models were used to determine the drift of cod eggs and larvae and to examine possible physical and biological processes responsible for the transport or retention of cod larvae. In addition, observational information about egg and larval transport was presented. It was also hoped to develop interannual transport indices based on physical variables that reflect the magnitude of the larvae drift or retention and attempt to incorporate these indices into the cod assessment process. Unfortunately this was not achieved. The ICES/GLOBEC Working Group on "Cod and Climate Change" meeting following the Workshop drafted a proposal to hold a Theme Session as a follow-up to the Workshop. Its objective was to improve our understanding of the role and relative importance of transport in controlling the recruitment of cod, other gadoid fishes, and prey species of cod such as capelin. The Theme Session would provide an opportunity to emphasize the major findings from the Workshop to the broader ICES community, to hear about other work on the same topic and, hopefully, present some transport indices for comparison with recruitment.

Presentations

Prior to the formal talks, J. Chassé presented a brief introduction on the connectivity of marine populations and the possible effects of transport. He stressed the nonlinearity of many of the processes involved, and hence the need for models to address these issues.

There were a total of seven talks and one poster. Six of the papers considered the transport of eggs and/or larvae for five different cod stocks. The last paper considered the important problem of determining the age of fish eggs, which is needed to obtain validation data for egg transport models.

A circulation model of the Baltic was used to track the movement and drift of larvae. A coefficient of overlap between model larvae and idealized prey distributions was determined from the probability of predator-prey overlap, which depended upon the hatching time of eggs. From model runs for 1979-1998, a relationship was found between the overlap index and the variability of recruitment success.

On Georges Bank, annual egg mortality rates of cod and haddock were found to be dependent upon the local wind stress. Model simulations of egg drift based upon climatological mean circulation flow fields plus timedependent wind-driven flow suggest wind-driven flow off the Bank was a major factor in the interannual variability of egg mortality for both cod and haddock.

In the southern Gulf of St. Lawrence, simulations of egg and larval drift of cod also indicate the importance of the mean and wind-driven components of flow on the drift of larvae and showed large interannual variability in this drift. Survival indices for comparison with recruitment could be calculated using the number of settling larvae within an area divided by the number of eggs produced in the same area. Such survival indices will need to take into account import of larvae from other regions of the Gulf, however.

For the Northeast Arctic cod, two models were presented that tracked the eggs and/or larvae from their spawning grounds in the Lofoten area in Norway up into the Barents Sea. One showed that, in warm years, the larvae were transported to the southern Barents Sea with a high year-class survival, as compared to cold years when the survival rates were low. The other model showed how temperature along the drift paths determines growth rates and can explain the observed size difference in larvae in the Barents Sea.

Concerning the stock structure of the cod off Greenland, their relationship through migration and larval transport was described. There were several stock components, including on the shelf, around the coastal regions and in the fjords. From tagging experiments it was shown that cod from all three regions off West Greenland migrated to East Greenland and Iceland.

Discussion

John Steele provided some comments and views based on the presentations during the Session as well as from some of the presentations in Theme Session P on biophysical modelling that were directly relevant. He highlighted some characteristics related to the transport of eggs and larvae for the five cod stocks that were presented. He noted the lack of any over-riding hypothesis associated with transport, as different processes appeared important for different stocks. As proven from the dominance of cod in the ecosystem after the last glaciation, their adaptation to environmental change was relatively fast in terms of geological time. How important was the transport of cod eggs and larvae in this colonization? He also noted that there were two conflicting hypotheses regarding the control on the recruitment of gadoids that were presented within Theme Sessions O and P. Within Theme Session O most assumed that survival during the drift of eggs and larvae determines the recruitment of young fishes, whereas in one of the papers on haddock in Theme Session P it was suggested that post-settlement processes determine recruitment. It was generally agreed that it is too early to discriminate which hypothesis is the most plausible, although both may be important and perhaps speciesdependent. None of the models of cod presented included settlement, but it was noted that it is more difficult to model cod settlement than haddock. Cod appears to be more flexible than haddock in choosing bottom habitat for settlement. This might be examined through modelderived indices.

Egg and larval surveys suggest that larvae drift from Iceland to West Greenland in most years and that recruitment may depend less on the variability in larvae transported from Iceland to West Greenland, but more upon how many of those larvae make it onto the West Greenland Shelf or survive once they are there. The participants were reminded that one must not simply look at mean drift, but also at its variability when making comparisons to recruitment. The causes of recruitment variability may be frequency dependent, differing between interannual and decadal and even from one year to the next. For example, one year it might be egg and larvae mortality that determines recruitment and the next year it might be post settlement mechanisms. A promising approach might be to study the life history of the survivors. Identifying when and where the survivors are from and the route they followed would be helpful.

It was agreed that more information on zooplankton is likely needed in order to better understand the mechanisms leading to recruitment. Processes controlling the over-wintering population of *Calanus finmarchicus*, an important food for cod, are important and that there is a large variability in these populations. Some efforts are being directed towards the modelling of zooplankton with cod larvae on Georges Bank, in Norway and elsewhere.

In conclusion, the study of transport processes for fish larvae is progressing rapidly. The combination of physical circulation modelling with particle tracking and individual-based temperature-dependent growth is becoming a mature and standard tool for handling such problems. Further work on developing transport indices for comparison with recruitment indices is needed. From the models presented, it appeared that different processes were important for different stocks. However, further comparisons between stocks is needed and encouraged, especially using similar models. Models require more realism (i.e. food availability and predation) to better account for egg and larval mortality. Future model developments must be extensively validated against field observations.

Theme Session P Physical-Biological Interactions in Marginal and Shelf Seas

Conveners: Wolfgang Fennel (Germany), Henn Ojaveer (Estonia), and Charles Hannah (Canada)

Introduction

Ecosystems of marginal and shelf seas, among them the Baltic Sea, are characterized by pronounced gradients spatio-temporal variability and high of both oceanographic (salinity, temperature, oxygen) and biotic (e.g. food-web structure, productivity, taxonomic composition) characteristics. In addition, the structure and extent of human impacts (eutrophication/pollution, fisheries bio-invasions) differs between and within the seas. Better understanding of the physical-biological interactions which control the dynamics of the systems and the responses of the systems to natural and anthropogenic forcing is of essential importance for proper management of natural resources ranging from environmental quality to commercial fish stocks.

Presentations

At the meeting 34 papers were presented, 20 talks, and 14 posters. The papers covered the globe from the Baltic to Australia and the topics ranged from a laboratory study of sardine eggs to a comparison of fishing and climate effects on biomass yields across a large marine ecosystem. The sessions were very well attended and both the speakers and the audience were lively and enthusiastic.

Several themes emerged from the presentations:

- Comprehensive coupled circulation and ecosystem models have become useful for addressing complex ecosystem level issues.
- Many questions related to a single species can be addressed using a circulation model without explicitly addressing predator-prey interactions.
- A large amount of observational work is still required to provide the basic biological and life history information for all species of interest and to quantify the basic physical-biological interactions (e.g. what controls the vertical distribution of a particular species?).
- The importance of the deep-water renewal to the Baltic Sea ecosystem.

The Session opened with a presentation from the ICES Study Group on "Modelling Physical-Biological Interactions" on their strategy for future developments in modelling physical/biological interactions. Many of the ideas presented, in particular the need for more basic biological information and the need for focussed data sets to rigorously validate the models, were reflected in papers presented during the Session. The strategy paper also identified a need to develop a common notation and conceptual framework for assessing the similarities and differences between any two models. This was addressed in the second paper which developed a common mathematical framework for both continuous models and particle models.



Figure 1. Modelled abundance of copepod nauplii in spring-summer 1999. (From: *Thomas Neumann*, *Wolfgang Fennel, and Christine Kremp*: A stage resolving model of copepods coupled with a 3-dimensional biogeochemical model of the Baltic Sea CM2003/P:20)

Coupled circulation and ecosystem models

The coupled circulation and ecosystem models came of age at this meeting. These models provide spatially and temporally resolved simulations of the hydrodynamics, nutrients, and lower trophic levels. Generally the surface fluxes are obtained from numerical weather prediction models and the river inputs include nutrients from landbased sources. The development of such models is well advanced in the Baltic. In one study, a model was used to simulate the algal succession in cyanobacteria blooms in the Baltic and it showed how different species can dominate the bloom in different years depending on whether upwelling or downwelling dominates during the summer. Another paper showed how deep winter mixing provides the excess phosphorous required to support large cyanobacteria blooms and that the summer weather controls the details of the summer bloom. The importance of the winter mixing provides the mechanism to explain the observed correlation between the NAO and cyanobacteria blooms. In other Baltic applications the models provided the circulation and phytoplankton biomass required to support a stage resolving model of copepods (Figure P1) and to simulate interannual variability in the drift of cod larvae. In the North Sea such a model was used to provide an estimate of the 'state of the ecosystem' for 2000 and 2001. The state included estimates of the annual primary production,



Geographical entities

phytoplankton biomass, oxygen levels, and the state of eutrophication. The model was also used to estimate the impact of a 30% reduction in nitrate input from landbased sources.

Single-species models and other models

The quest for simple models that capture the essential dynamics and provide explanatory power was well represented in the Session. In the Bay of Biscay, circulation model output is being analysed using statistical techniques in a search for characteristic patterns in the physical environment (Figure P2). If the patterns can be simply related to the physical forcing (e.g. winds, river runoff) then this can be used in the interpretation of biological data and to hindcast the physical environment in times when sufficient information is not available for numerical model simulation. On the Scotian Shelf, a simple model was able to capture the qualitative features of the spatial structure of the plankton community and recent changes in the plankton community structure.

Substantial progress in modelling a single species can be made using detailed circulation models without explicitly modelling the rest of the ecosystem. Biological processes such as growth, mortality, and predator-prey interactions can be parameterised. A biophysical model of anchovy

- 1. high estuary,
- 2. low estuary,
- 3. coastal,
- 4. river plume,
- 5. near coastal,
- 6. central shelf,
- 7. open shelf,
- 8. north-western shelf

Each region (group) is related to a specific type of hydrological succession during the period March-June.

Figure P2. Zonation of the continental shelf of the Bay of Biscay. (From: *Benjamin Planque*, *Pascal Lazure, and Anne-Marie Jégou*: Interannual variability in spring hydrological changes. A method for typological classification and an application to the Bay of Biscay continental shelf. CM2003/P:30).

recruitment in the Bay of Biscay has provided simulated recruitment indices in reasonable agreement with the ICES assessments for 1997/1998/1999. Simulated stockrecruitment relationships for haddock in the North Sea were shown to be very sensitive to the assumed settlement dynamics, highlighting the need for improved understanding of this life stage. In the Baltic, simulated drift and temperature-dependent growth of Pseudocalanus shows increased advection out of the Bornholm Basin in the 1990s relative to the 1980s, consistent with the observed decrease in Pseudocalanus population in the 1990s.

The use of individual-based models for simulation of zooplankton and larval fish continues to be widespread. There is active research in the techniques for simulating the interaction of spatially variable turbulence with particles and for efficient ways to incorporate the interaction of the individual with its environment. The models of physical-biological interactions are being very successful and are widely used. However, some caution is called for when one considers the massive differences in scale between the environment perceived by a larval fish (or a zooplankter) and that explored by our sampling (and modelling) techniques. The resulting uncertainties need to be carefully considered when using simulations to search for relationships between the environment and larval fish growth and mortality.

Basic biology and physical-biological interactions

Marine ecosystems are complex entities and the field of physical-biological interactions is still an emerging field. As such observations are an important source of new ideas and fundamental information. The studies ranged in scale from single eggs to entire ecosystems.

At the scale of individual organisms, it was shown that sardine eggs readily adapt to the local fluid density, whereas anchovy eggs do not (this affects the vertical distribution of the eggs). The difference is the volume of the perivitelline space. Mackerel larvae in the Bay of Biscay show increased growth and condition with increases in wind speed for low wind speed; consistent with the theory on turbulence mediation of prey encounter rates.

The U.S. GLOBEC program on Georges Bank continues to provide interesting information on physical-biological interactions. In the Gulf of Maine, there are two sibling species of *Pseudocalanus* that are practically identical morphologically, but distinct genetically. They have different but occasionally overlapping patterns of seasonal abundance. Here it was shown that one species prefers the upper water column and one the lower; this probably leads to the different patterns of abundance. New sampling techniques allow an assessment of both the total zooplankton biomass and the copepod abundance. The comprehensive data set collected in the Gulf of Maine may force a reassessment of the roles of large scale physical forcing and local plankton dynamics on the plankton community. At the population level in the eastern Baltic, it was shown that phytoplankton population strength was more related to nutrient dynamics whereas zooplankton dynamics is more related to hydrological conditions, and that sprat spawning and recruitment success is mainly governed by climate variability such as winter severity and wind direction.

Frontal zones are widely accepted as areas of persistent accumulation of organisms at all trophic levels. It is widely assumed that planktivorous fish aggregate near fronts to take advantage of the high levels of plankton. However, the hypothesis is difficult to prove. A combination of observed hydrographic parameters and model output was able to explain up to 50% of the variance in the clupeoid data from North Sea survey cruises in the 1990s. The importance of various types of frontal zones was supported by observations in the Gulf of Riga (Baltic), and it was argued that the high density of organisms at intermediate and higher trophic levels in frontal zones should be taken into account when designing monitoring programmes which are expected to track ecosystem productivity.

At the level of entire ecosystems there were two interesting results. Off the coast of Western Australia, the apparent biological desert of the warm Leeuwin Current was shown to be moderated by high productivity along the coast during the summer upwelling season and by high productivity at the base of the Current. On the Faroe shelf, the cod stocks appear to be limited by the carrying capacity of the shelf, as the cod recruitment is tightly coupled with the phytoplankton production.

The renewal of the deep waters of the Baltic

The renewal of the deep waters of the Baltic with inflows from the North Sea is important for the Baltic Sea ecosystem as the inflows provide high salinity and oxygen levels which are important for many species. The 1993 renewal event (the first after 17 years of stagnation) was simulated with a 3D circulation model to investigate the spatial extent of the spreading.

In the Bornholm Basin, the spreading patterns of a series of renewal events in 2002/2003 were described, based on monthly cruises. These renewal events provided the background for observations using a Video Plankton Recorder of how the differing hydrographic and oxygen levels play an important role in controlling the volume of water accessible to reproducing female *Pseudocalanus spp*. Oxygen levels were also shown to be important to the vertical distribution of sprat and herring. The vertical temperature gradient (rather than absolute temperature) may also be important.

Anthropogenic influences on the environment

In a global study of the forces driving changes in biomass yields in 29 Large Marine Ecosystems (LMEs) it was shown that fishing effort was the principal forcing mechanism in fourteen cases, eutrophication in one, and climate in thirteen. In the cases where climate was the primary mechanism, fishing effort was a secondary driver.

Based on the results of the comprehensive coupled circulation and ecosystem models, the expected response to reduced nutrient loadings from the rivers will be different in the North Sea and Baltic Sea because of differences in the physical/chemical/biological environment. On a much smaller scale, a study of the Vistula Lagoon in the Baltic showed that the recent changes in land use patterns have improved metrics such as biological oxygen demand but have not had a major impact on the plankton community. The introduction of the North-American polychaete *Marenzelleria* into the Baltic is a reminder that shipping-induced bioinvasions are an important source of anthropogenic forcing on the environment.

Theme Session Q

Regional Long-Term Changes in the Spatial Distribution, Abundance and Migration of Pelagic and Demersal Resources

Conveners: Carmela Porteiro (Spain), Colin Bannister (UK), and Dave Reid (UK)

Background

As stocks of key commercial species decline and fisheries are subjected to strong management measures, including closed spawning and juvenile areas, assessments are deteriorating, due to the declining quality of fisheries data and the reduced availability of samples from the closed areas. Assessments and the monitoring of recovery plans will therefore be increasingly dependent on the results of survey series. Also, as stock abundance declines, spatial patchiness, and the likelihood of changes in the distribution of species due to species interactions and climate change, become increasingly important.

In order to address these issues, contributions were invited on:

- The spatial distribution and heterogeneity of abundance of individual species among areas, using survey data and fisheries logbook data.
- How the spatial distribution and heterogeneity of abundance of individual species change through time.
- Evidence for the occurrence of environmental shifts by comparing changes in relative abundance across species within regions, and within species across regions.
- The implications for assessments and for the monitoring of a recovery plan.

Presentations

The Session covered a wide range of types of research within the broad theme of long-term distribution and migration change. In general terms presentations were divided as follows:

Spatial distributions and change

A global overview of the changes in wild fish stocks and the broad pattern of decline and area reduction, as well as some controversial solutions, was presented. Changes and stability in the spatial distribution of stocks and, of particular sections of a stock e.g., juvenile *vs.* adult fish, were also demonstrated.

An important conclusion was that analysis of long-term distributions can reveal changes that fail to be emphasised when looking in short temporal windows (e.g. < 10 years). It also showed that, while abundance distribution may not change, there can be substantial changes in the population make-up and biology within those areas.

Migration changes

Changes in recent years in relation to changes in current path, and a dramatic change in mackerel migration in the NE Atlantic based on commercial data, were demonstrated.

Vertical distributions

Changes in vertical fish distribution and particularly their impact on survey analysis were presented. This emphasises the fact that distribution change is generally seen in a geographical sense, but that vertical distribution changes can have profound impact.

Small spatial scale studies

Presentations emphasised the need to observe fine-scale distributions of fish in enclosed waters (fjords). The main observation tool was acoustics. Fjords can represent major refuges or nursery areas and should be emphasised in the future.

Methods for studying distributions

The value of resource mapping was emphasised, both GIS-based analysis and mapping with variography. The need to map the biological variability in a stock and to understand the variability between years was emphasised. Both methods have broad relevance to many distribution studies.

Population dynamics

Presentations on population dynamics in relation to spatial distributions demonstrated the importance of considering changes in the basic population dynamics underlying the observed changes in distribution. This raises the question of whether the changes in distribution or the changes in dynamics are the primary factor.

Biodiversity issues

These studies shifted the focus from the generally monospecific distributions presented in the earlier papers to the issue of changes in distribution of many species in the same observation window. The major point was that similar or complementary changes in many stocks can emphasise a functional trend. The importance of noncommercial species was also emphasised. Many of the routine surveys are able to deliver data on these species, and the value of these data should be emphasised.

Posters

The seven posters addressed most of the topics described above and confirmed many of the conclusions described.

Conclusions

The Session showed that there was considerable interest in long-term changes in distribution and migration. This should be seen, particularly in the context of climate change. Implicit in many of the stock assessment surveys and methods is the assumption that there are no major changes in distribution or migration. This Session has emphasised the need to consider both distribution and migration changes in this context. An important conclusion was the need to look over as long a time period as possible. There is a tendency in the community to perceive the last decade as being the "norm", notwithstanding our awareness of climate change. Studies over a multi-decadal time span show that such perceptions can be seriously flawed or at least misleading. The need to consider changes in components of the stock was also clear, e.g. juveniles *vs.* adults, and also to consider vertical as well as horizontal distribution changes. Both of these emphasise the observation that long-term changes are comprised of more than just abundance decline (generally) and distribution change in time and space.

Finally, the impression gained was that there was a good body of work in this area currently being carried out. However, the approaches were diverse, and no obvious standard tools were yet available. One result of this was that direct comparison between different pieces of work would be difficult, and application directly to management decisions would tend to be *ad hoc*. A coherence of approach and output would be a clear advantage and should be encouraged. Much of the work was of direct relevance to subject area, and the strong interest in this Session reflected the importance of the field.

Theme Session R

Freshwater and Diadromous Fishes in the Baltic Sea

Conveners: Toomas Saat (Estonia) and Erkki Ikonen (Finland)

Background

The Baltic Sea is one of the largest brackish water basins in the world. Due to its very low salinity, freshwater species can survive there. However, this low salinity, even in the Baltic Proper, decreases the survivability of marine species. In addition to diadromous species, many freshwater species are common and abundant in the brackish water of the Baltic Sea. They constitute a permanent and important component of the coastal ecosystems of the Baltic Sea. Some of these species (pikeperch, pike, perch, several cyprinids) are important for the commercial and recreational fishery. Some have been recently included among the species for which populations have to be monitored in the sea by the EU member countries. Traditional stock assessment methods are often not applicable for freshwater species, especially as they will be too expensive in comparison with the value of catch due to complex stock structures.

Presentations

Diadromous species

Hatchery-reared salmon, a strain originating from the Neva River, were studied by smolt tagging in the Estonian rivers in the Gulf of Finland. Tag recapture rate was found to be very low, varying between 0 and 5%. The main reason for the weak result was estimated to be high post-smolt mortality. Short feeding migration, mainly restricted to the Gulf of Finland, has been typical for this salmon strain. However, in this experiment a significant part (45%) of feeding salmon were caught in the Baltic Proper during the second year after release. This suggests that feeding grounds in the Gulf of Finland have deteriorated so much that the major part of Neva salmon post-smolts meet with high mortality, and only migration out from the Gulf to the Baltic Proper offers enough food for survival.

Tagged Neva salmon smolt were also compared to the widely-migrating salmon strain originating from the River Tornionjoki, which discharges into the northernmost part of the Gulf of Bothnia (Subdivision 31). Two-year-old Tornionjoki salmon and Neva salmon smolts were reared, tagged, transported, and released in the Kymijoki mouth in 1998 and 1999. Their life history before entering the sea was similar within both strains. Tag recovery percentages of Neva salmon varied between 1 and 3%, while tag recoveries from the Tornionjoki salmon releases were 9-12%. The yield given by 1 000 released Neva salmon smolts varied between 50 and 200 kg, while in Tornionjoki salmon the yield varied between 500 and 700 kg. Also in this experiment feeding fish of both strains were mainly caught in the Baltic Proper.

This suggests that Neva salmon, which has been shown to be a genetically short migrating strain feeding mainly in the Gulf of Finland area has lost the good survival rate observed from the 1980s to the mid-1990s. The widemigrating salmon strain (Tornionjoki) has typical feeding grounds in the Baltic Proper and when released in the Gulf of Finland, these post-smolts migrated to the Baltic Main Basin and did therefore not suffer from high postsmolt mortality.

The reason for the changed nature of salmon feeding grounds in the Gulf of Finland is not clear but the evidence suggest that it is a question of changed ecosystem and especially the food web of salmon postsmolts. Large-size marine plankton species are less common nowadays in the Gulf of Finland and abundance of 0+ herring and sprat in the Gulf is poor compared to the Baltic Proper, where abundance of marine plankton and young herring and sprat is much greater.

It was shown that both sea temperature and river temperature affected salmon spawning migration time in the River Dalälven in the period 1960-2002. The river mouth opens into the Bothnian Sea (Subdivision 30). It was shown that the timing of the spawning migration highly correlates with sea temperature, in the southern Main Basin. Depending on seawater temperature in April, May, and June, the timing of the spawning migration may vary 18-20 days. Higher seawater temperature induces an earlier run. It was also seen that seawater and river temperatures were highly correlated and therefore large-scale climatic processes determine the temperature regime in the Baltic Sea region. Female salmon migration time showed stronger correlation to temperature compared to males. It was shown that females enter the river 14 to 18 days earlier than males. The discharge of the River Dalälven had no effects on the timing of migration, and the entering time was not correlated with the ovulation dates of females.

This suggests that seawater temperature and the timing of the salmon run could be used in predicting the size of the salmon run. This kind of tool might be very useful for salmon fishing management purposes.

A tagging experiment using the delayed release technique, in which salmon smolt were kept in net pens for three months before releasing, was carried out on the Danish islands of Bornholm and Møn in 1995-1999. A total of 600 000 salmon smolt were released of which about 2% were Carlin-tagged. The aim of this experiment was to study possibilities to increase the harvesting potential of reared salmon near release sites and at the same time decreasing the fishing pressure on wild salmon. The tag recovery percentages for the Bornholm experiment was 15.8%, and for the Møn experiment 9%.
Tag recoveries were obtained from the Baltic Sea (97.5%), the rest were caught in Kattegatt and the Atlantic Ocean and, in part, in freshwater. Straying to the Swedish west coast rivers was studied and results show that seven tagged salmon were caught in these rivers. When scaling these findings according to the total number of releases a rough estimate suggests that less than 800 salmon entered these rivers, mainly the river Göta. A clear increase was detected in the proportion of catches being made near Bornholm. This delayed release technique resulted in a higher post-smolt survival compared to traditional releasing techniques, thus resulting in more harvestable fish. However, homing of salmon released by this technique is weaker compared to traditional releasing techniques. Therefore, strayers that enter rivers with a weak salmon population may cause genetic changes in these salmon populations.

In a study of the likely origin of ascending salmon with a malformed dorsal fin in the River Umeälven it was demonstrated that dorsal fin damage is very common during smolt rearing. Salmon smolts released in the River Umeälven have always been adipose fin-cut, but the salmon with malformed dorsal fins had normal adipose fins. The likely origin of these strayers was studied using mtDNA and six microsatellite loci. The results indicated that a considerable part of these fish originated from the releases in River Ångermanälven and River Luleälven. It was estimated that 10-12 strayers from these two rivers annually enter the River Umeälven. Releases in the rivers Ångermanälven and Luleälven were made 10-15 km upstream of the mouth. However, these fish suggest quite a high straying behaviour. This amount of straying might change the genetic structure salmon in the case of a very weak salmon population.

In the Kymijoki River, in 1980, the salmon run was estimated at 100 000 individuals and the present run is probably a bit greater due to improved water quality in the river. However, catches have been quite small. Low catches are most probably related to the difficult fishing conditions in the strong currents. The low appreciation of the value of lamprey in the region may have decreased the fisheries for this species. Nevertheless, during the most recent years marketing of lampreys has not met with difficulties.

Monitoring of coastal fish and fisheries

Freshwater fishes represent an important component of fish assemblages in many coastal areas of the Baltic Sea, and in several countries they are intensively exploited both by the commercial and the recreational fishery.

In an overview on monitoring of the coastal fishery in Sweden specific attention was paid to stock identification. Data on fisheries yield are gathered from logbooks, an enlarged EU sampling programme, and fishermen's reports. As in other Nordic countries, recreational fishery is of great importance, and a new programme to gather data on the recreational fishery was initiated in 2003. The importance of fisheries independent data for management was stressed. For example, mark-recapture data was used to validate inquiry data from a pikeperch fisheries.

Fisheries-independent data (monitoring with gill nets) and improvements of the existing system, elaborated in Sweden and adopted by HELCOM (and widely used in Sweden, Finland, and Estonia) showed that stratified random sampling with Nordic multi-mesh size gill nets better reflects the true species composition of coastal assemblages and size spectrum of fish than the existing system. An overview on coastal gill net monitoring in Estonia, which is conducted yearly in seven permanent research areas, and improvements to the existing system applied here (random sampling, enlargement of the mesh size spectrum, etc.) was presented. In conclusion, it was stressed that any modifications to the existing system must be undertaken with care so as not to lose the existing long-term data series. Due to high selectivity of gill nets, additional sampling methods (seining, etc.) seem valuable.

Analysis of long-term changes in coastal fish assemblages and populations, and spatial distribution of fish showed that long-term changes in freshwater fish assemblages and populations in the Baltic Sea are induced by different factors, both anthropogenic (fishery, eutrophication, pollution, uncontrolled stocking, introduction of alien species) and natural (temperature changes, abundance of predators).

Freshwater species

Data from laboratory experiments have revealed that growth of pikeperch and perch in brackish water is better than in freshwater at higher summer temperatures (~20°C), which is probably related to seasonal migrations of these species between the freshwater Curonian lagoon and brackish water. It was also shown that the embryonic development of giebel carp is enhanced in brackish water, and salinities along the Estonian coast do not limit the reproduction of this alien freshwater species. Explosive distribution of giebel carp in coastal waters of Estonia in recent years is probably due to high water temperature in recent summers and low abundance of predators.

Conclusion

It is clear that the importance of freshwater and diadromous species in the Baltic Sea is very high. Due to low salinity, marine species are scarce and therefore, diadromous and freshwater species play a remarkable role in the Baltic Sea fishery. The decreasing status of some marine species increases the importance of freshwater species. Also, the development of market prices suggests that the value of these species is increasing. These species play an important role in the ecosystems of the Baltic Sea and therefore they are good indicators of changes in the Baltic ecosystem.

Theme Session S

Ecosystem Consequences of Cyanobacteria in the Baltic Sea

Convener: Markku Viitasalo (Finland)

Background

Cyanobacteria blooms belong to the most alarming signals of the changing status of the Baltic Sea. While the cyanobacteria have occurred in the Baltic during its present brackish-water stage (ca. 7000 years), it is assumed that their frequency, duration, and spatial coverage have increased along with eutrophication. Global warming and its potential consequences increases of water temperature, precipitation, and freshwater runoff - may also make conditions more favourable for the cyanobacteria. However, relatively little is known at present about the impact of cyanobacteria blooms on the ecosystem as a whole, especially about their effects on the highest trophic levels, i.e. the fish. In addition to reports on case studies, the Session welcomed modelling and theoretical studies from the Baltic as well as other marine ecosystems.

Presentations

During the phenomenal cyanobacteria bloom 2002 on the Estonian flounder stocks, flounder catches were small, but after the bloom the adult flounder catches increased again, suggesting that these had migrated into deeper water during the bloom. In contrast, one-year-old flounder practically disappeared that year. This suggests that, since the young flounder mainly feed in shallow waters, they may be more strongly affected than the older ones. This is in keeping with the fact that the highest nodularin concentrations found in Baltic fish are found in flounder (Kankaanpää, Sipiä et al.). This is probably due to flounders feeding on blue mussels, which accumulate cyanobacteria toxins through their filtering activity. An evaluation of the effects of the cyanobacteria-exposed food web on two planktivorous animals, a fish larva (pike, *Esox lucius*), and a mysid shrimp (*Neomysis integer*) showed contrasting results. The growth of pike larvae was slower when larvae were fed with zooplankton exposed to cyanobacterial filtrates, despite the fact that the fish had no direct contact with cyanobacteria. Parallel results have recently been found for herring larvae. In contrast, no effect on mysid growth was observed. This shows that the cyanobacteria effects found in one species cannot be directly generalised to others, even though they would be utilizing the same resources.

Allelopathic effects of Baltic cyanobacteria on other phytoplankton species demonstrated that the Baltic cyanobacteria have negative effects on certain phytoplankters, and that allelopathy may affect phytoplankton succession. The known hepatotoxins are probably not involved in the allelopathic effect, since the non-hepatotoxic *Aphanizomenon flos-aquae* had a stronger effect than the toxic *Nodularia* strains.

Conclusion

The Session gave interesting new information on cyanobacteria effects in the Baltic. The scarcity of submissions dealing with ecosystem effects of cyanobacteria can be taken as an indication of the paucity of information on their effects on a system level. In this sense the marine research lies behind that done in the limnetic ecosystems. The indirect and sub-lethal effects of harmful algae remain to be more thoroughly studied.

Session T

On the State and Stability of the northern North Atlantic: Patterns and Trends

Conveners: Alicia Lavin (Spain), Harald Loeng (Norway), and Tom Rossby (USA)

Background

The objective of this Session was to provide a forum for a survey and discussion of our knowledge of the northern North Atlantic, including the Nordic Seas.

Presentations

The ten papers scheduled for presentation spanned a wide variety of topics: environmental factors that affect recruitment of gadoids, long-term variability of water mass characteristics and water mass transport, connections between wind-stress curl variations and transport, and the possibility of lunar forcing of high latitude climate.

While the Session was shorter than hoped for, there was broad agreement that the papers were of high quality and relevant to the ICES community. There certainly exist other forums where physical oceanographers can present and discuss their research, but only the ASC provides an opportunity for a direct dialogue between physicists and the ICES community, a dialogue that will surely continue to strengthen given the growing interdisciplinary character of marine research.

Environmental factors that affect recruitment of gadoids

In this spirit a couple of papers addressed physical conditions that may affect spawning and recruitment of gadoid species on the North Atlantic. While these two extensive studies noted that certain areas (the North Sea and the Grand Banks) exhibited greater levels of recruitment success than others, they noted that other factors such as water temperature and winds can also influence the level of recruitment success. Often, the correlation with physical parameters could be expressed in terms of the NAO index. Interestingly, not only temperature but also temperature variability could influence growth rate and recruitment success pointing to more complex or subtle physical mechanisms at play in controlling the reproductive lifecycle of gadoid species. We can anticipate the further development of interdisciplinary studies of this type.

Long-term variability of water mass characteristics and water mass transport

Two presentations addressed the hydrographic state of the North Atlantic in two areas, the northern North Atlantic and the southern Bay of Biscay. Both studies examined the long-term variability of water mass characteristics, from a general climate point of view as well as with respect to how these may impact fish stocks. Significantly, both studies brought out the enormous value of tracking environmental conditions on interannual, decadal, and longer time scales. Every effort should be made to continue these. Increasingly, we are seeing greater attention given not only to the state of the ocean and changes over time, but also to the circulation of the ocean, i.e. fluxes and their variability. Knowledge of transports can help shed light on why changes in the hydrographic state take place. Not always or necessarily directly, but as constraints that need to be understood and included in numerical syntheses of ocean circulation. For example, to what extent do changes in hydrographic conditions result from advective versus diffusive processes? – an old and continuing ambiguity that direct measurement of currents can help to resolve. One study, of the Gulf Stream, noted that variations in Gulf Stream transport were significantly smaller than what has been reported in the past, perhaps due to inadequate sampling (Figure T1). Another study focused on the leakage of freshwater transport from the East Greenland Current into the Greenland and Norwegian Seas. Quantification of these fluxes is extremely important for a proper understanding of the mechanisms and rates at which dense waters are produced in the Nordic Seas. If fresh waters can suppress the production of dense waters, the supply of salty waters from the south can enhance deepwater production.

A re-examination of the overflow of dense water from the Faroe-Shetland Channel into the Rockall Trough established much larger rates of overflow across the Wyville-Thomson Ridge than previously estimated. This study, which is preparatory to a longer programme to monitor overflows directly, highlights several important points: first, that assumptions about what we think we know about the ocean are always subject to review and revision: second. that direct and continuing measurements can help remove uncertainties (and biases) due to inadequate sampling; and finally, and more specifically, that the overflow of dense waters may have a significant influence on the remarkably deep mixed layer structure of the Rockall Trough region.



Figure T1. Measurements of Gulf Stream transport at 52-m depth from 1993 to 2002 (93 to 102). The solid line shows annual averages. (From "Spatial and Temporal Modes of Variability of the Gulf Stream in the NW Atlantic" by Tom Rossby. CM 2003/T:06).

Connections between wind-stress curl variations and transport

A very interesting presentation showed a tight correlation between wind stress curl in the North Atlantic and mass transport at the Svinøy section in the Norwegian Sea (with a 15-month lag). Even if, at this point, the mechanism needs to be better understood, the finding points to the possibility of forecasting transport variations in the Norwegian Atlantic Slope Current, one of the two major inflows into the Norwegian and Nordic Seas. Another paper focused on the transport of warm water flowing into the Norwegian Sea between Iceland and the Faroes (this is the other major branch of warm waters flowing into the Norwegian Sea). Whereas the previous presentation noted significant variations in transport related to wind stress curl, this presentation emphasized the remarkable stability of the transport with little or no seasonal variation. The differences in their variability may in part be attributed to their very different properties; the first one is significantly barotropic whereas the latter one is highly baroclinic, but these are questions worthy of further study.

Conclusions

The presentations addressed a number of topics of interest to the ICES community. Interestingly, not only hydrographic conditions were discussed, but also fluxes and processes that can help condition or alter the state of the ocean. In the past, we have per force focused on the state of the ocean and as it shifts, gradually or suddenly, attempted to back out what processes might have been responsible for the observed changes. In more recent years there has been an expanding effort to measure transports directly. This expansion is likely to continue, particularly at high latitudes in the North Atlantic where the dynamic method by itself fails to capture the substantially barotropic and topographically steered flow patterns. This is essential for a quantitative description and understanding of mass, heat and freshwater fluxes, all of which play an important role in defining the state and stability of the ocean.

Theme Session U

The Scope and Effectiveness of Stock Recovery Plans in Fishery Management

Conveners : Paul Connolly (Ireland), Colin Bannister (UK), and Jean-Jacques Maguire (Canada)

Background

This Theme Session reviewed the origin, structure, and implementation of recovery plans for a wide range of stocks and locations in order to provide the opportunity to identify their common features and the factors relevant to success. The ultimate aim was to provide a historic record, and to develop the basis for guidelines on recovery planning.

Invited Lecture

The Session was linked to the Plenary Invited Lecture by John F. Caddy, titled "Recovery Plans for Depleted Fish Stocks: an Overview of Global Experience". The invited lecture and the two sessions, comprising a total of 12 presentations and two posters, were extremely well attended, and provoked substantial discussion which later feedback suggested was widely appreciated by participants, including non-specialists.

The Plenary Invited Lecture was based on a search of the primary literature, the grey literature, and the world wide web, and covers mainly the period since the 1990s. In many cases the literature is incomplete, especially on management issues that tend not to be in the public domain. It was noted that recovery plans started with rare terrestrial organisms, but are now dominated by marine fish stocks. Early examples were pelagic fisheries, which were closed and which tended to recovery quickly, whereas most of the recent examples refer to a range of groundfish fisheries where success has generally been very poor. The examples included in the Session presentations ranged across herring in the Celtic Sea and the Norwegian sea, cod in the Northwest Atlantic and in the North Sea and Irish Sea, groundfish in New England and other areas of the United States, and North Atlantic salmon.

Presentations

There was considerable similarity between the relevant factors identified by Caddy and those identified in the Session presentations. The early pelagic stock recovery programmes appear to have been successful because it was easier to close and divert fishing effort from singlespecies fisheries, and because recovery was aided by rapid increases in recruitment, possibly aided in some cases by favourable environmental conditions. The failure in the demersal stocks is partly because the initial measures were inadequate, or were taken too late, or have been undermined by mixed fishery issues, the failure of output controls and technical measures due to compliance issues, or by environmental variation and ecological changes. Predicted recovery times for severely depleted demersal stocks tend to be prolonged, on the order of a decade or more, perhaps because long-lived slowgrowing demersal species require a significant age structure to bridge across periods that are unfavourable for recruitment. Thus, the cod stocks in Canada show little or no signs of recovery despite a ten-year moratorium. Demersal stock recovery plans based on retrospective analysis invariably suffer from problems of overestimation, which together with the combination of misreporting and estimation uncertainty in the most recovery effectively in the short term. This emphasises the need for credible fishery-independent monitoring methods.

Failure appears to be particularly likely in the case of straddling stocks, where the effectiveness of implementation depends heavily on achieving consensus across divergent national and gear/fleet segments. Discussions indicated that in this context the themes of distrust and criticism of the science by stakeholders were remarkably similar on both sides of the Atlantic and Pacific oceans. Caddy suggested that from the scientific viewpoint it was essential to change human behaviour towards a culture of sustainability, rather than a culture of harvest, and that this was most likely to be achieved when the criteria for action, and the recovery plan objectives, are pre-agreed in the legislation. Further, he suggested that the present problems would be reduced if action was taken much earlier, and that implementation was made more secure by using robust non-discretionary harvest control rules that achieve a significant immediate reduction in catches rather than by a gradualist approach to protect short-term economic interests, which simply prolongs the recovery time. It could also be suggested that since there is no absolute certainty that recovery will occur, it might be better to use the term 'emergency plan' rather than the term 'recovery plan' (which implies that recovery will occur).

Conclusion

As ever in fisheries management, the overarching causes of failure seem to be a combination of management implementation, coupled with scientific issues such as concern about the precision of many age-structured stock assessment procedures, and the frequent difficulty of distinguishing between fishing, environment, multispecies interactions, and non-fishery factors (e.g., seal predation, seismic surveys, gravel extraction) as causes, which can be used by stakeholders as reasons to impede implementation that is truly precautionary.

Theme Session V

Mixed and Multi-Stock Fisheries – Challenges and Tools for Assessments, Prediction, and Management

Conveners: Laurie Kell (United Kingdom), Walter Crozier (United Kingdom), and Christopher Legault (USA)

Background

Fleets and fisheries that harvest multiple stocks, and stocks harvested by multiple fisheries, face a number of complexities. Less productive stocks in a mix of stocks may suffer unsustainable mortality, while more productive stocks continue to support sustainable catches. Stocks harvested together may be at a very different status relative to safe biological limits, which would make different harvest strategies necessary in the same fisheries. Where fisheries take multiple stocks of the same species, uncertainties about allocating catches to stocks present special assessment problems. Projections to guide advice on effort levels appropriate for different stocks in the harvested complex can also thwart traditional approaches, management strategies produce results that are either incompatible across stocks or not straightforward to apply. Therefore, the objectives for this Theme Session were to describe developments in assessment, and projection methods for multi-stock and multi-fleet fisheries, and to discuss opportunities for applying new concepts more widely.

Invited Plenary Lecture

The Session was prefaced by a plenary lecture given by Randall Peterman (Canada), entitled "Possible solutions to some challenges facing fisheries scientists and managers", in which he posed six challenges that we had to face when dealing with fisheries in general and mixed fisheries in particular. These were:

- Pervasive uncertainties
- Probabilities for uncertain quantities
- Time-varying parameters
- Evaluating management options
- Communication management
- Objectives and tradeoffs

Peterman pointed out the benefits of using simulation to evaluate the robustness of management to the wide range of uncertainties encountered. He also emphasised the importance of providing scientific advice in a way that can be correctly interpreted by stakeholders.

Summary of presentations

A total of 23 papers were presented at the meeting. These dealt with mixed and multi-stock fisheries including those for whales, bluefin tuna, Baltic and Atlantic salmon, while assessment and management of mixed species fisheries were also addressed in a number of presentations.

A number of case studies were presented where management organizations have been formed explicitly to deal with mixed-stock fisheries and multiple fleets and were using the simulation approach. The International Whaling Commission (IWC) has developed the Revised Management Procedure (RMP) through simulation to ensure that management is robust to uncertainty regarding the population dynamics. The management options that perform "best" over all hypothesized population dynamic scenarios were then selected. The International Commission for the Conservation of Atlantic Tunas (ICCAT) manages bluefin tuna in the North Atlantic Ocean. This species has two known spawning areas and some intermixing of the stocks, but the level of mixing is unknown. An approach, allowing assessments of the two stocks independently but then manages assuming some mixing of the stocks, is proposed. There is currently a movement towards using operational management plans for this species. This approach is already in use in South Africa where management procedures explicitly take into account the by-catch of one species in the fishery for a second species. This allows the incorporation of conflicting rights-holder preferences into the management scheme.

Challenges posed by mixed and multi-stock fisheries and some potential approaches to overcome these challenges were proposed. North Sea fisheries have been examined in terms of combining single species advice into mixedspecies management. Tradeoffs among species were examined explicitly as a function of changes in effort levels of multiple fleets under explicitly stated management priorities. The approach illustrated the challenges of managing multiple fleets that catch multiple species as both directed landings and discarded bycatch. The economic tradeoffs that occur when trying to manage multiple fleets have also been examined. Additionally fisheries have also been defined as operational units based on trends in catches over time to forecast and manage mixed-fisheries. The complexity of all these situations is enormous, but relatively simple management advice approaches were recommended for each.

In another case a different approach was taken to examine the effect of fishing on multiple species through fishery-independent data. The ability to detect the effects of fishing on both targeted species and non-commercially important species was demonstrated through the use of time-series analysis. Care must be taken with this approach that an adequate baseline is available, the survey methodology is consistent over time, and the interpretation of trends is correct. A presentation on modelling fisher's behaviour looked at implementation error with a view to including it in the type of simulation framework that is starting to be used in ICES.

The particular problems with providing assessment information for wild salmon stocks in the Baltic Sea, where the majority of captured salmon are of hatchery origin were addressed. Assessing the status of the wild stock is therefore difficult and information is often patchy and partial. In the PROMOS project, Bayesian methodology has been developed in order to combine and synthesise information from a variety of sources, including mark-recapture data of wild and hatchery salmon, stock-recruitment data, data on catches and effort in the fisheries and smolt abundance data. The output of the mark-recapture analysis and a hierarchical metaanalysis of stock/recruitment data provides information on fishing mortality rates and the stock/recruit function, which are used as informative priors in an age-structured life history model (Figure V1) fitted to catch and smolt abundance data, to estimate the status of wild salmon in the Baltic Sea. A particular challenge remains for the estimation and prediction of the sizes of wild smolt runs, with actual smolt census taking place on only two rivers. A combination of three models utilising data on parr (survey) abundance, smolt mark-recapture data, and life history parameters (parr to smolt relationships) improves the precision of smolt run estimates and should enable probabilistic forecast of upcoming smolt runs.

An overview of the mixed-stock fisheries for Atlantic salmon included a case study of the assessment and catch advice procedure for the West Greenland mixed stock fishery. The challenges of providing catch advice for this fishery (which potentially exploits stocks from many hundreds of rivers in N. America and southern Europe) were outlined and the risk framework used to develop the catch advice was explained. Several developments likely to improve the assessment and management of mixedstock fisheries for Atlantic salmon were outlined. These included development of a decision structure for fisheries management by NASCO, application of genetic analysis techniques to identify stock composition in distant water and coastal mixed-stock fisheries, and modelling of recovery trajectories in salmon stocks of different productivity under different exploitation scenarios.

In the SALMODEL project Bayesian hierarchical modelling has been adopted to develop conservation limits for Irish fishery districts, as an alternative to the present method, which utilises a catch-based pseudo stock-recruitment technique at district level and which is subject to bias because of portions of the district catch originating in other districts. Management of the distant water mixed-stock fisheries at West Greenland and Faroes requires forecast of the pre-fishery abundance (PFA) of the stock complexes contributing to these fisheries and progress with developing PFA forecast models for European stocks was described. The difficulties of developing PFA forecasts for these stock complexes lie in obtaining satisfactory indices of either parental stock of juvenile production, and in identifying environmental or other factors that influence cohort survival up to the PFA stage.

A Monte-Carlo approach has been used to derive probabilities of achieving spawning requirements in



Figure V1. Overview of the current assessment methodology for Baltic salmon. (From "Assessment of Wild Baltic Salmon Stocks: How To Combine Different Sources Of Information" by Catherine G.J. Michielsens, Murdoch McAllister, Sakari Kuikka, Tapani Pakarinen, Lars Karlsson, Atso Romakkaniemi, Ingemar Perä & Samu Mäntyniemi. CM2003/V:12).

Atlantic salmon stocks of differing size and biological characteristics that are harvested together. The uncertainty of achieving spawner requirements is greater for small stocks, such that measures of performance are more variable for small stocks. Summing individual river spawner requirements into a regional requirement reduces the probability of meeting the conservation objectives simultaneously in all rivers. In particular, low productivity stocks are likely to suffer under-escapement. Case studies were developed which, in one case, modelled the degree to which regional spawner requirements for Wales should be increased to achieve spawner requirements of all 17 rivers in this region. This technique can be used to evaluate mixed-stock fisheries on a case-by-case basis.

The SALMODEL project also examined conservation of genetic variation in harvested populations of Atlantic salmon. A deterministic population dynamic model was used to examine the combined goals of maximising harvest yield and conserving effective population size in a group of populations interconnected by migration. This indicated that considerable gains could be made in effective population size in a group of populations through strategic harvesting, based on knowledge about genetic structure. However, the optimal harvest strategy varied according to relative size of populations and interpopulation migration rates and directionality. This was demonstrated by a case study based on a group of populations in Western Norway, where the total effective size of a set of ten populations was dependent largely on the effective size of one large river, which was a strong source of migrants to the surrounding rivers.

Software tools that allowed the consequences of management options to be explored are now becoming available. These include "FiSHU@LiS", a game that could be used by stakeholders to understand the dynamics of exploited fish stocks, and tools in Excel and Visual Basic that allow fleet dynamics to be modelled.

Evaluation and discussion

The importance of communication with stakeholders was emphasised. This communication ranges from the development of specially-tailored software to explain fishery dynamics, use of cognitive psychology to explain uncertainty and risk, through to incorporation of individual stakeholder preferences in allocation of quotas for pilchard and anchovy in South African pelagic fisheries. It was agreed that it was important to ensure that the developments in science and their implications for management were explained and understood.

The management of complex systems is not necessarily going to be achieved by making the stock assessment and management more complex. Ideally, simple rules should be devised that are robust to the pervasive uncertainties in such systems. However, it was recognised that the process by which these rules could be found would in itself be complex and ideally would take the form pioneered by the IWC.

Theme Session W

Decision Systems for Eutrophication

Conveners: Markku Viitasalo (Finland) and Fredrik Wulff (Sweden)

Background

In this theme session, arranged jointly with the Session S on "Ecosystem Consequences of Cyanobacteria in the Baltic Sea", presentations dealing with decision support systems were welcomed. Only one presentation was provided. However, the Open Lecture, given by Fredrik Wulff, was an excellent introduction to the theme.

Presentation

Simulations of the effects of reduction of river nutrient loads to the North Sea, undertaken with the biophysical model NORWECOM, demonstrate that a 50% reduction in the loads of nitrogen and phosphorous reduces the primary production by 10-30% in the southern North Sea, and by 5-10% in the Skagerrak and along the Norwegian west coast. Scandinavian rivers only contribute to 1-2% of these reductions. Also, it was noted that this reduction is less than the natural variability of the production of phytoplankton, and that the production in the southern North Sea is phosphorus limited, while nitrogen is the limiting nutrient in the northern North Sea.

Conclusions

Modelling may be used as a tool for acquiring an early warning signal of environmental deterioration. Also, as shown by the Swedish MARE Programme, it may provide cost-effective calculations for decision-making. In the discussion it was noted that one of the most challenging tasks for the present-day ecosystem models is the description of the communities as a group of species with different - often opposite - responses to various environmental factors (such as changes in N:Pratio). Furthermore, although the ideal would be a model applicable for as many areas and situations as possible, local environmental conditions always need to be taken into account. This is highlighted by comparing the results of the recent modelling activities that describe ecosystem responses to nutrient reduction scenarios in the North Sea and the Baltic Sea. In the Baltic Sea, for instance, the simulation of the internal loading during anoxic periods will remain an important major task.

Theme Session X

Evaluation of Fisheries Management Scenarios and the Supporting Data through Simulation

Conveners: John Simmonds (UK) and Martin Pastoors (the Netherlands)

Background

There have been a number of proposed stock recovery plans or major restrictions on fisheries implemented over the last decade (eg. Canadian cod, North Sea and Irish Sea cod, Northern hake, North Sea herring). It is essential to provide the tools to evaluate the potential benefits of a recovery plan and to understand their sensitivity to the input parameters. It is also important subsequently to evaluate whether these tools give valid projections where recovery plans have been implemented. There have also been a number of studies aimed at the evaluation of multi-annual harvesting strategies (eg. MATES and MATACs) and the influence of underlying data (eg. FIEFA, EMAS, SAMFISH and EVARES). These studies have examined a number of simulation methods and have already produced results. The Session brings together the information on both methods and results that have been produced to date.

The Session was aimed at work related to the evaluation of harvest control strategies and recovery plans. In addition to the strategies themselves, the Session served to provide a forum for discussing the influence of the data underlying the assessment models and prediction models and their influence on the main management parameters. This includes evaluation of research vessel surveys, CPUE series, landings data, and their combined influence on the evaluation of the state of the stock and setting of TACs. Investigation of the influence of different assessment and prediction models was considered.

Presentations

Evaluation and comparison between the use of different assessment models

A statistical catch-at-age model incorporating predation and or multispecies interactions was described. The method provides estimates of uncertainty in some of the parameters. Considerations regarding the plus group and evaluation of residual patterns were also provided.

Simulation methods and results for evaluating the influence of basic data in assessment models and predictions

Analysis of egg-survey data and simulation of the effects of stock distribution on catchability were presented, as was an evaluation of the contribution of different sources of information to the assessment uncertainty. The impact of error in the different sources depends on the choice of assessment model. Though a substantial part of the error in assessments is explained by sampling error in the input data, there are also other important sources of error. Where research vessel survey indices are used alone as tuning indices these tend to dominate the uncertainty in the management parameters. An evaluation of discards in the assessment of North Sea plaice provided a method for incorporating data even when only a partial time-series is available.

Simulation methods and results for harvest control strategies

Simulations on the performance of multi-annual harvest control rules were presented for roundfish and flatfish. A toolbox for examining the influence of control parameters on stock development was also described. This tool can provide good illustrations of the impact of different types of control. The suitability of the F_{pa} reference point for NEA cod and a theoretical consideration of the harvest control rules of different complexity comparing their performance against three criteria; average yield, variation in yield, and risk, was also presented.

Theme Session Y

Reference Point Approaches to Management within the Precautionary Approach

Conveners: Per Sandberg (Norway), Frans van Beek (The Netherlands), and Carmela Porteiro (Spain)

Background

ICES has implemented the Precautionary Approach (PA) in its management advice for fish stocks since 1998. The implementation of the PA by ICES has been restricted to maintain or restore the historically observed productivity of the stocks by attempting to prevent recruitment overfishing. To achieve this, PA reference points have been defined to classify the status of the stocks and for formulating advice, for the time being on a single-species basis. The motivation for the Session was to discuss current experience with reference points, how advice based on reference points has been received by ICES clients, and in which direction the PA framework should be further developed.

Presentations

Models

Presentations on models dealt with definitions of the reference points. Some of these addressed the question of whether environmental factors should be explicitly reflected in the reference points. There were different opinions whether reference points should be modified when there are indications of change in the environmental data. It was stated that reference points based on fishing mortality probably were more robust in this sense than biomass reference points. However, biomass reference points and indicators of diversity of biomass may still be required when specific aspects of the ecosystem are addressed in the advice. It was considered that harvest control rules should be evaluated modelling before they are implemented in by management.

Communication of advice to clients and stakeholders

It was considered that the format of advice should, in a better way, address uncertainty of the consequences of various management actions. Concern was expressed on terminology like "outside safe biological limits" because it has been interpreted in different ways by different users in the absence of a definition to these users.

Stakeholders' opinions of fishery regulations

It was noted that measures like closed areas and gear regulations were giving an assessment of stakeholders' opinions on management preferences on habitat and the functioning of the North Sea ecosystem.

From the performance of the management advice of the North Sea fish stocks using the PA it was argued that both spawning stock biomass and fishing mortality should be used as Ecological Quality Objectives (EcoQOs). The evaluation identified that on many occasions the direction of the advice has been wrong. The consistency of the existing reference points between stocks was also discussed.

Ecosystem considerations

It was suggested that the breeding success of sensitive predator species could be used as an indicator of a healthy ecosystem (Figure Y1). It was also suggested that more conservative reference points would result if they were based on multispecies models rather than on singlespecies models.



Figure Y1. Breeding success of Arctic skuas in Shetland (data from JNCC Annual Reports on 'Seabird numbers and breeding success in Britain and Ireland'), in relation to the estimated abundance of sandeels at Shetland (VPA estimate of total stock biomass in tonnes; data from ICES). From: "Reference point approaches for precautionary management of fishing to avoid impacts on top predators" by Robert W Furness. CM2003/Y:01).

Conclusion

It was recognized that the present implementation of the PA in ICES advice is a first step and needs to be developed further. Presently, the reference points are all based on single-species models, which may be incompatible if species interactions are taken into account. The Session indicated that a dialogue between scientists and the clients/stakeholders is useful. With respect to further development of the PA there are a lot of different opinions, which have to be discussed further. It also identified that the ICES implementation of the PA is not unique. It was considered that harvest control rules could also be suitable tools to be used in a PA framework.

Theme Session Z

The Historical and Current use of Technical Conservation Measures and the Evaluation of their Effectiveness, with Special Emphasis on North Atlantic Demersal Fisheries

Conveners: Andy Revill (UK), Bob van Marlen (The Netherlands), and Phil A. Kunzlik (UK)

Background

The recent fishery crises in the North Atlantic have emphasised the importance of technical measures in the conservation of resources. Major changes are occurring in European, Canadian, and American legislation on technical conservation measures. In particular measures are being introduced to control gear design, to reduce fishing effort, or to apply area or seasonal restrictions on fishing. Their aim is to help recovery plans for stocks in waters controlled by the European Union, the Baltic States, Norway, Canada, and the United States.

Objectives

The objectives of the Session were to:

- examine the use of technical conservation measures as a tool to improve the exploitation pattern and management of fisheries;
- develop a framework for the evaluation of any technical measure prior to its introduction into legislation.

Topics addressed were:

- the degree of acceptability of technical measures by the industry, including incentives and obstacles to their introduction, and the degree of enforcement required to ensure effective implementation;
- the effectiveness of analytical models and data to predict the biological and economic effects of technical measures prior to their introduction;
- methods to monitor and evaluate the effects of technical measures after their introduction.

Contributions were invited on:

- Case studies describing technical measures and their implementation, acceptance by the fishing industry, costs including enforcement, and biological or economic benefit to a fishery.
- Pre-implementation models to predict the biological and economic benefits of a measure, including analyses showing sensitivity to input parameters.
- Comparisons of the predicted effects of different types of technical measure.
- Post-implementation monitoring schemes and analytical approaches to evaluate the effects of measures, again with sensitivity analyses.

The central question was whether technical conservation measures do work, with emphasis on gear modifications.

A possible achievement of the Session was the development of a protocol of evaluating the efficacy of technical measures. This Theme Session was considered as a first step in that direction.

Presentations

The BACOMA-project clearly showed the sensitivity of fishermen to short-term losses that might result from implementation of selection windows. Fishermen are entrepreneurs that try to make a living from their activity. Losses of some 50% in income will not be tolerated by any person, and will probably lead to compensating actions such as circumvention of the regulation and/or an increase in effort. Another important finding was that the deck lay-out of fishing vessels and gear handling operations affect the selection characteristics.

Theoretical models are continuously developed and improved to predict the potential merit of introducing technical measures. Such models, if validated thoroughly, can avoid expensive trials at sea on devices that are marginally effective.

Trawling has an effect on the abundance and the size of demersal fish, as might be expected. A study comparing a trawled area (Kattegat) with an area where all towed gears are banned (Sound) revealed that large fish can be removed from the ecosystem.

It appears that the very old problem of measuring mesh sizes is still relevant. An early reference dates back to the year 1291, indicating 712 years of effort on this topic! The methodology of measuring this key variable in fisheries management, with differing instruments in use at present for scientists (the ICES-gauge) and fisheries inspectors (the wedge gauge), is enhanced considerably. A prototype of an objective mesh gauge, based on measuring a longitudinal force that can be pre-set according to the thickness of twines, has been developed. Flaws in the existing legislation were explained, and suggestions for an improved methodology presented. The new gauge, called the OMEGA mesh gauge (Figure Z1) will become available from 2005 (EC-project OMEGA).

The experimental basis of an inclined separation panel in *Nephrops* trawl gears that was designed to reduce the associated bycatch of cod in Irish Sea *Nephrops* fisheries was discussed. This is an example of a gear designed to select on the basis of species rather than length. In both its experimental trials and through subsequent monitoring, it performed well. Nevertheless, one downside to the technical evaluation of the measure was that, although when monitored it worked well, it also proved possible to circumvent its intended effect, and this



Figure Z1. The OMEGA Mesh Gauge. (From: "Review and evaluation of current mesh measurement methodologies and future perspectives" by Ronald Fonteyne. CM2003/Z:03)

may be an issue in cases where the associated cod bycatch would previously have held significant economic value. Nevertheless, in view of the current ICES stringency of advice for cod stocks, it is likely to be methods such as this that provide scope for the continuation of *Nephrops* fisheries in areas where a cod bycatch is considered to be problematic. The challenge is to ensure its effective implementation.

One theme that runs through most discussions of conservation measures is that a pre-requisite for success is the acceptance of the need and utility of the measure(s) by stakeholders. To progress with such measures therefore, there is a need to communicate effectively and agree the need for the measure, to communicate its likely scope and effect, and to ensure that all stakeholders are made fully aware of its outcome.

The successful application of technical conservation measures in the UK sea bass fishery was seen as an example in which such pre-requisites were fully accommodated. A broad recognition of the fact that the fishery was in trouble, as indicated by the targeting of young fish and poor recruitment, was coupled to a clear management aim (to increase the age of first capture by up to two years), and this was achieved by stakeholder consultations that were not only widespread, but effective in their purpose. A range of technical conservation measures were introduced to increase the minimum landings size, to close nursery areas on a seasonal basis, and to increase the minimum mesh size in gillnets. The subsequent evaluation of effects has demonstrated an increase in the age at first capture and yield-per-recruit and of recruitment and spawning stock biomass, although causation of the two latter effects is confounded by the potential benefit of increased sea temperatures to sea bass stocks in UK waters.

Experience is being gained of developing more selective fishing gears in diverse regions such as the New England coastal and offshore mixed demersal fisheries and the Baltic cod fishery. There is a need to accommodate a mixed species fishery in which certain species components had recovered from an earlier depleted state while others had not. A composite mesh cod-end with escape windows has been shown to work well in trials, and has some degree of industry acceptance, although delays in implementation has meant that the necessary post-introduction monitoring or validation of the measure has yet to be undertaken. Importantly, such monitoring forms an integral part of the scheme. There has also been a range of trials covering a number of technical design configurations. Clearly there is a lot that can be done to enhance the selection characteristics of fishing gears, a potential that for a number of reasons remains unrealised.

The recent introduction of the BACOMA panel into the Baltic cod fishery illustrated a number of reasons why the measure failed in that particular case. As the story unfolded it demonstrated a clear failure of implementation despite the obvious incentive on the part of all players to improve gear selectivity and to reduce discarding. Reasons behind the failure were considered to be the failure to involve all the relevant coastal states in the development of the gear itself, a permitted derogation to use an alternative, less selective gear, and the very large step change in selectivity that the particular specification of the BACOMA panel implied. A lack of compliance coupled to a failure in control and enforcement resulted in an emergency measure on behalf of the EC to close its part of the fishery. New legislation is suggested allowing a smaller mesh size in the BACOMA-window (i.e., 110 mm; the present legal mesh size is 120 mm), thus improving the selectivity characteristics of the gear less drastically, with expected higher acceptance by the industry.

A series of forecasts to demonstrate the potential of recent UK and EC gear regulations under differing assumptions of recruitment and implementation was provided. This was set against the pressing need to reduce fishing mortality on North Sea cod, and the requirement to nurture a single year class in the haddock stock. The resultant prognosis was that the gear-based measures could in principle lead to benefits to both yield and spawning stock biomass, but that this depended very much upon species and the degree of uptake of the measures. However, a brief evaluation of earlier changes to North Sea technical gear regulations from 1987-1992 showed little, if any evidence in the data of any improvement in exploitation pattern despite rather large changes in theoretical selectivity.

Conclusion

The problem of enforcement and the fact that legislation should be controlled often leads to court cases. There seems to be a lack of integrated biological-technicaleconomic studies. A plea for studies on the behaviour of fishermen and fleet dynamics was given. Also the problem of communication with the stakeholders was emphasised. The Theme Session was recognised as a first step in developing a 'protocol' for the evaluation of technical measures both before and after implementation.

Closing Session

Saturday 27 September 2003 (16:30-17:00)

Elections

The General Secretary announced the results of the elections of Science Committee chairs that were made during the course of this Conference and Statutory Meeting:

Einar Svendsen (Norway) – Oceanography Committee Heye Rumohr (Germany) – Marine Habitat Committee Dave Reid (UK) – Living Resources Committee

The outgoing Chairs (Franciscus Colijn, Paul Keizer, and Henk Heessen) were warmly thanked for their contributions so far to the work of ICES, including their contributions to the Consultative Committee.

Overview

The General Secretary congratulated the Estonian hosts for providing such excellent facilities which had been thoroughly enjoyed by the 450 or so registered participants. He asked the audience to note the 2004 Conference which would be held in Vigo, Spain, and the 2005 Conference scheduled for Aberdeen, UK. The Aberdeen Conference would be the first Conference to be held separately from the Statutory Meeting, which would be held later in the year at ICES Headquarters.

Awards

The Chair of the Consultative Committee introduced the winners of the best paper, best newcomer, and best poster awards who, in addition to a certificate also received a voucher for free admission to next year's ASC.

Best Paper

This award was won by Eric Benoît and Marie-Joëlle Rochet on "The Meaning of Fish-size Spectra, the Effects of Fishing on them and the Usefulness of their Slope as Indicator of Fishing Impacts" (Doc. N:05). This paper suggested, through clearly presented simulations, that slopes from linear size-spectra may provide a weak indicator of changes in size structure and there could be departures from linearity.

Best Paper Presented by a Newcomer

This award was won by Christine Hanson of the University of Western Australia. She presented Doc. P:16, co-authored by C. B. Pattiaratchi and A. M. Waite, on the "The Unique Continental Shelf Dynamics off Western Australia: Physical Controls on Phytoplankton Productivity".

Best Poster

This award was won by Sanna Suikkanen, Giovana O. Fistarol, and Edna Granéli for Doc. S:03 – "Allelopathic effects of Baltic cyanobacteria". The award panel's criteria for the selection of this poster was that it was "visually striking and a good story told simply".

The President

The President addressed the Session and commended all those who had contributed to the success of the Conference. He concluded by introducing the incoming President, Mike Sissenwine, who made a statement in which he briefly highlighted a few of his priorities for ICES in the future, as follows:

Expanding the size and diversity of the ICES scientific community

The ICES Strategic Plan vision is for an:

"international scientific community that is relevant, responsive, sound and credible, concerning marine ecosystems and their relationship to humanity." This is the scientific community that is needed so that ICES can fulfil its mission "to advance the scientific capacity to give advice on human activities affecting, and affected by, marine ecosystems".

ICES needs to continue its efforts to make its scientific activities attractive to scientists from government laboratories, universities, non-governmental organizations, and the private sector, from ICES member countries and worldwide, from a broad range of scientific disciplines, of both genders, and that are diverse in race and culture.

The quality of ICES publications is an important factor in making ICES attractive to scientists. ICES also needs effectively to use the power of modern information technology to make itself better known, and to provide access to its many valuable products.

Modernising the ICES advisory processes to fulfil today's societal needs

ICES has a long and successful history as a premier provider of scientific advice to underpin societal decisions that affect marine ecosystems. However, societal needs are changing and expanding. Increasingly, advice is needed on more complex issues, and sometimes it is needed sooner than can be accommodated by the typical annual cycle that ICES uses. Also, some advice has tremendous social implications which means that the credibility of the advice is more important than ever before. ICES advisory processes have been evolving for several years. ICES needs to continue the evolution through routine two-way communications with advice users and stakeholders, by implementing quality assurance protocols including more independent peer review, by becoming more transparent without exposing scientists to political or advocacy group pressure, and by recognising that some degree of flexibility is necessary.

ICES must form a coalition with advice users and stakeholders to achieve a better balance between expectations for advice and support for the science that is necessary to meet expectations.

Providing the Secretariat with the tools and work environment it needs to effectively serve the ICES community

ICES is fortunate to have a dedicated and capable Secretariat staff. Those of us who spend considerable

time at the Secretariat facility in Copenhagen consider the staff to be both valuable colleagues and important friends. However, we also recognize that we are demanding more from them than ever before. It is our responsibility to provide the tools they need (e.g., modern IT support, training, and a physical facility that suits the demands being placed on it) so that they can rise to an even higher standard of support for the ICES community. It is also our responsibility to set priorities when we cannot afford to provide the support necessary to fulfil all our desires.

Closure

The President then passed the symbolic "torch", a vase, to the Delegate of Spain who would be hosting the 2004 ASC in Vigo.

The President then declared the 2003 ASC closed.

Part II

91st Statutory Meeting

Chair: Jake Rice

1 Opening

The Chair welcomed the Committee members, all of whom attended all sessions except the Chair of the Publications Committee who was unable to attend the first session, and the Chair of MCAP who was unable to attend the second and third sessions.

2 Adoption of agenda and timetable

The Chairs of Fisheries Technology, Marine Habitat, and Mariculture Committees requested additional items and it was agreed these would be incorporated into the discussion of existing agenda items. The Chair of the Living Resources Committee requested a discussion on possible collaboration with the European Fisheries and Aquaculture Research Organization (EFARO). This item was included in AOB.

3 General arrangements for Annual Science Conference

In the absence of John Ramster, the "Awards Nominations Group" was convened with Pierre Pepin as its Chair. The ANG identifies the winners for the best paper, the best poster, and the best newcomer. Each Science Committee Chair was invited to nominate one representative to participate in the Group. The winners were presented with certificates at the Closing Session. Vouchers for free admission to next year's meeting and a small gift was also presented to the winners.

The Committee recalled the success of last year's paperless meeting and was pleased to note the continuation of this at this Conference. The Conference Handbook was, however, distributed as a printed version to all registered participants. As usual the Handbook included timetables of all sessions, and abstracts of all papers and posters. The ASC edition of the CD-ROM of CM2003 documents was again also distributed to registered participants. This is the third year that such a CD-ROM has been provided. Most Statutory Meeting documents were included on the CD-ROM, as were some 72% of the theme session papers. As usual it was expected that a post-meeting CD-ROM containing all the papers would be produced in early 2004. This would also contain the ICES 2003 Annual Report and would be distributed with that report.

The arrangements introduced last year concerning Powerpoint presentations were continued.

The Committee was informed of the arrangements for the completion and submission of reports from the Committee and Theme Sessions, the deadline for which was, as usual, the Sunday following the end of the ASC. Conveners of all sessions had been provided with the "Guidelines on the Preparation of Reports of Scientific Sessions held during the ICES Annual Science Conference" which had been put into use for the first time two years ago in what seems to be a successful attempt to improve the quality of these reports.

The arrangements for the Open Lecture and the two invited plenary lecturers were noted.

Most other features introduced at last year's meeting, such as an internet café, were maintained at this meeting. However, the Committee did express concern about the very limited possibility for holding "fringe" meetings, which were considered an integral and important part of ICES Annual Science Conferences.

At its third session the Committee noted that most Theme Sessions had been considered very successful, and had provided much interest and discussion. A high point was Theme Session U on the "Scope and Effectiveness of Stock Recovery Plans in Fishery Management" and the preceding Plenary Lecture on the same subject. The Theme Session had generated a very animated discussion with many participants expressing the view that management should not wait until a stock is depleted before making decisions about recovery plans. There was a need also to convey a message to the fishing industry that rebuilding a stock was a slow and very hard thing to achieve.

The Consultative Committee therefore recommended that an effective communication of this view to a wide audience, including stakeholders, should be prepared in the form of a press release as soon as possible, preferably by mid-October. This statement should include the main conclusions of the Theme session, and be prepared by the General Secretary with the support of the Fishery Adviser, Communications Officer, the Chairs of Consultative and ACFM, and the Theme Session conveners. It should be consistent with Doc. Del:8 as modified and approved at this Conference.

4 General arrangements for Statutory Meeting (including draft resolutions, requests to Science Committees, and preparation of Committee reports)

Meeting arrangements for the Science Committees have changed as part of the move towards removing the Statutory Meeting element away from the Annual Science Conference, starting in 2005. In particular at least one each of the Science Committee sessions were incorporated fully into the Theme Session programme. The Chair expressed concern that two of the Advisory Committees had arranged for an extra meeting in parallel with the Poster Session, and asked that such an arrangement be avoided in the future. The Committee was reminded of the procedures for handling draft resolutions. Each Science Committee and relevant Expert Group Chair was provided with a set of draft resolutions pertaining to the Committee. These resolutions were considered in detail at the second and third sessions. A significant proportion of the draft resolutions had been reviewed by the Committee at the mid-term meeting and it was not the intention to review again those resolutions which had already been agreed to.

The Committee noted the arrangements for submitting their reports. The Committee also requested that the practice of displaying photographs of all ICES officials and Secretariat members present at the Conference be reintroduced as soon as possible.

5 Elections of new Committee chairs (Doc. Gen:3)

The Committee was informed that Einar Svendsen (Norway) was elected as Chair of the Oceanography Committee, Heye Rumohr (Germany) was elected as Chair of the Marine Habitat Committee, and Dave Reid (UK) was elected Chair of the Living Resources Committee.

6 Action Plan development

The Committee reviewed its decisions made at the intersessional meeting concerning the work required to complete the auditing of the 2002/2003 ICES programme in relation to each Action Plan element and to commence the work of auditing the planned activities included in the 2003/2004 Work Programme.

The Committee discussed various difficulties it had encountered in completing the 2002/2003 audit. These included problems in matching some terms of reference to Action Plan items and difficulties in identifying outputs. It was, however, expected that in time experience would be gained on producing consistent documentation of the audit across all Committees. Indeed it was expected that by next year it would be possible to pass over the responsibility of preparing the basic material for the audit to the Expert Group chairs.

It was expected that a review of this year's audit would result in clear information about what components of the Action Plan were being neglected and which ones had been completed. Any neglected items would be drawn to the attention of Delegates for possible resolution of the difficulty.

The Committee recognises that in order for ICES to be responsive to its Action Plan it was important for its Science Committees to be effective in order to optimise the work of their Expert Groups in particular. However, two Committees, Mariculture and Marine Habitat, are at present encountering similar problems which are impacting the effectiveness and usefulness of the committees. The problems are evidenced by generally poor attendance and limited contributions from committee members and poor attendance of associated Expert Group chairs at the committee meetings and the ASC.

There was general agreement that the Science Committees were not performing to high calibre and that they had very limited capacity to synthesise and quality control the work of the Expert Groups. Very much depends on the capacity of the chair to run the committee, and by and large they run their committees without the support of members. Some committees did attract a number of their Expert Group chairs to the Committee sessions and this greatly improved the quality of these sessions, especially with regard to providing guidance to the work of the Expert Groups. Some committees, however, attracted very few, if any, of their Expert Group chairs.

Consequently the Consultative Committee recommends that all Expert Group Chairs be encouraged to attend the meetings of their parent Committee and Delegates should therefore be asked to give priority to supporting their attendance at Committee meetings.

The Chair noted that this issue is not simply one of attendance at the Annual Science Conference. It is a failure of individuals to respond intersessionally to emails, questions, and documents to comment on. He considered that if ICES is serious about the delivery of the Action Plan, it is the Science Committees in the first instance who are going to deliver that. He gave full credit to all the Science and Advisory Committee Chairs for taking seriously the challenge of delivering the Action Plan, but their ability to work proactively and fill gaps where they perceive them is only as strong as the responsiveness of the Committee members. Particularly, if the Science Committees are moved into a role where they can take on some of the activities that are currently being done at ICES expense this would be a very valuable achievement and of large financial benefit. Minimally, making Science Committee members and chairs take seriously their responsibility to respond to the Committee chairs as long as these Chairs send them serious material with reasonable deadlines is the only way to move forward.

The Committee further noted the apparent overlap in the role of the Science Committees and part of the work of some of the Advisory Committees, especially that component of it which consists of reviews of information that was not specifically requested by ICES clients. However, the Committee was of the opinion that there would be very little saving in excluding such issues from their activities.

7 Development of programme for the 92nd Statutory Meeting/2004 Annual Science Conference (Vigo, Spain)

At its first session, the Committee noted that the programme for Theme Sessions still lacked full details

which had to be completed during the course of the Conference. In particular not all plenary lecture slots had been completed. In addition it was noted that since 26 sessions were already on the programme, no more could be included save for the additional session on phytoplankton which had been identified at the intersessional meeting and was designed to complement the Open Lecture.

At its third session the Committee reviewed the outcome of the Committee discussions concerning this item, and made a number of additions and modifications to the draft programme. The current draft consists of 24 themes which are divided under four general headings related to the four main goals of the ICES Action Plan. The Committee was not concerned about the high number of themes as in general this number is not closely related to the total number of contributions. The Committee also noted that the Open Lecturer has been identified by the Bureau during last year and that one of the Invited Lecturers had confirmed willingness to participate. The other Invited Lecturer, on the topic of cold water coral reefs, has not yet been contacted.

8 Development of programme for the 2005 Annual Science Conference (Aberdeen, UK)

The Committee recalled its decisions with regard to the general arrangements for the 2005 ASC which was to be held apart from the annual Delegates Meeting. The Bureau had endorsed these proposals which consisted of holding all Science Committee sessions between the opening and the closing sessions, requiring that the ASC would be held for the same number of days as usual, if the usual science committee day is taken into account. However, no decision has yet been made about the precise dates for the meeting and the Committee was asked to poll amongst their members for suitable dates in the period late August/early September. It was also decided to canvass opinion at this year's Conference with regard to possible ways that the ASC may be improved.

At its third session the Committee reviewed input received from all Committees with regard to proposals for theme sessions. The current list consists of some 16 sessions which would be further reviewed at the intersessional meeting of the Committee. Details are in the accompanying document. This document also lists possibilities being pursued with regard to the Open and the Invited Lectures. These lectures were chosen for their relevance and connection to the current theme session proposals. The Committee noted the relatively small number of sessions related to physical, chemical, and biological oceanography and mariculture. It agreed that any further proposals made in the course of next year should preferably address these topics in order to ensure a more balanced distribution of themes.

The Committee further reviewed the outline timetable for this meeting. Most Committee Chairs were of the

opinion that they required more session time, partly because they had been unable to fully complete their business, and also because the number of overlaps of relevant parallel sessions was unacceptable. This had happened in spite of the fact that the number of contributions was almost 30% less than the normal for recent years.

Consequently the Committee revised its earlier decision concerning the length of the ASC and recommends that the 2005 ASC be held for six days, not five as previously agreed. This would require that the General Assembly be held on the Monday morning, and the Closing Session late Saturday afternoon. The Committee also concluded that the meeting should take place, as it does now, in the third week of September.

9 Consideration of the programme for the 93rd Statutory Meeting (ICES Headquarters)

The Chair recalled the outline arrangements for this meeting which would consist of the Delegates, Bureau, and Finance Committee meetings being held in Copenhagen some three to four weeks after the ASC. There was no further consideration of this issue.

10 Status of ICES symposia

10.1 Symposia in 2002/2003

The Committee noted the results of ICES symposia (or ICES co-sponsored symposia) held in 2002/2003 and reported on since the 2002 meeting of the Committee. The reports of all such symposia are included in Gen:3, viz:

- NAFO/CSIRO/ICES Symposium on "Elasmobranch Fisheries: Managing for Sustainable Use and Biodiversity Conservation";
- ICES/PICES/GLOBEC Symposium on "The Role of Zooplankton in Global Ecosystem Dynamics: Comparative Studies from World Oceans";
- ICES/FAO Symposium on "Fish Behaviour in Exploited Ecosystems".

The Committee was gratified to learn that all these symposia fully met with expectations and were well-attended.

10.2 Forthcoming symposia (2004)

The Committee noted progress in the planning of symposia in 2004 which have already been approved by Council Resolution, and was content that preparations were well underway. These Symposia are, viz:

Symposium on "The Influence of Climate Change on North Atlantic Fish Stocks", 11-14 May 2004, Bergen, Norway. Conveners: R. Cook (UK), K. Drinkwater (Canada), and H. Loeng (Norway). Website: www.imr.no/2004symposium;

Symposium on "Gadoid Mariculture: Development and Future Challenges", 13-16 June 2004, Bergen, Norway. Conveners: O. S. Kjesbu (Norway), G. L. Taranger (Norway), and E. Trippel (Canada). Website: www.imr.no/gadoid_mariculture.

10.3 Forthcoming symposia (2005)

With regard to the two symposia to be held in 2005, the information provided in the Council Resolutions was updated, viz :

ICES-FAO Symposium on "The Precautionary Approach to Fisheries Management: Lessons Learned and Future Directions", Chile, for four days in 2005. Conveners: Frans van Beek (Netherlands), Jorge Csirke (FAO), and Olle Hagström (EC).

The Committee noted that very little progress had been made in the development of this symposium, but discussions during the course of this Conference had resulted in a firm timetable being developed. It was anticipated that a symposium flyer would be produced by March 2004, following a decision concerning the precise location of the symposium – there was still some uncertainty about whether the symposium could be held in Chile.

Symposium on "The Interactions between Cultivated and Wild Diadromous Fish Species" will be held in Bergen or Trondheim, Norway for three days in August or September 2005. Conveners: Lars Peter Hansen (Norway) and two others to be decided. NASCO will co-sponsor this Symposium.

The Chair of the Diadromous Fish Committee informed that his Committee had discussed the progress in the development of the plans for this symposium. A Steering Group was now being set up, but no decision had been made with regard to additional co-conveners. It was agreed that a member of the Mariculture Committee should be identified as a possible co-convener.

10.4 Proposals for additional future symposia

2006

The Committee recommended the approval of a Symposium on "Marine Bioinvasions" to be held in USA (East Coast) for 3 days in early 2006. The Committee considered this to be an important and timely initiative as marine bioinvasions are a recognized and growing threat to native biodiversity and are a major threat to marine habitats.

The Committee also agreed to a proposal for a Symposium on "Fishing Technology in the 21st Century", to be held in Boston (or New England), USA, for 4 days in November 2006. In supporting this proposal, the Committee noted that commercial fishing

operations are having deleterious effects on many components of the ecosystem, in particular the catching and discarding of large amounts of non-target species and the destruction of sensitive habitats. The situation is now at a near-critical state. It was noted, however, that the ICES scientific community has a great deal to contribute on this issue, and there are genuine opportunities for partnership with other scientific organizations such as FAO.

2007

The Committee recommended approval of a Symposium on "Marine Environmental Indicators: Utility in Meeting Regulatory Needs" to be held in 2007. The Committee strongly encouraged this activity, noting that it would provide strategic insight into the current status and likely future direction on issues related to the translation of indicator development into pilot or operational use.

10.5 Prospects for other symposia

Last year the Committee was informed about an initiative from NASCO about the possibility of a Symposium on "Factors Affecting Mortality of Salmon at Sea". The Chair of the Diadromous Fish Committee advised the Consultative Committee that his Committee considered this proposal premature and that 2007 or 2008 was more appropriate. The Diadromous Fish Committee considered that it would be more appropriate when various research initiatives currently being developed into significant factors contributing to the marine mortality of North Atlantic salmon had generated research and results for presentation.

11 Publications Committee

The Committee briefly considered the activities of the Publication Committee which had met twice during the course of the Conference.

12 Issues from MCAP and the Advisory Committees

The Chair of MCAP updated the Committee on the ongoing discussion within MCAP concerning recommendations and proposals made by SGAWWP. These proposals were being dictated by the timetable set by North Sea ministers for the provision of fully integrated advice (fisheries management in an ecosystem context as well as the effects of fishing on ecosystems) which is to be in place by 2010.

A particular component of this development to which the Science Committees would be required to make input is with respect to the tools required to provide information and advice in an ecosystem context. Another feature of the proposal is that ICES explicitly accepts an obligation to provide fast-track advice. The proposals devise a path in the system for producing this type of advice. This may have major implications for the way the science committees do their work. The Committee noted in particular the proposals for setting up a pilot integrated ecosystem assessment of the North Sea which had already been drafted by REGNS. These proposals were integrated into the terms of reference of a number of Expert Groups concerned with the North Sea fisheries and environmental conditions.

13 Follow-up on other actions agreed at the intersessional meeting of the Committee

13.1 ICES Recognition Programme

The Committee noted the progress made in developing this programme and agreed to return to this item at the next intersessional meeting with a view to coming to a final decision.

13.2 DPSIR

The Committee noted that the plans required to develop an integrated regional ecosystem assessment would absorb consideration of this issue. The Committee appreciated that there were difficulties in applying such concepts to complex ecosystems. However, the Committee would have to examine whether this system offered a clear alternative to the course being followed and invited the Chair of ACE to provide general papers on this topic in order to prepare members for a thorough consideration of this topic at the next meeting.

13.3 Use of environmental status reports in stock assessment

A document on "Development of an ICES Infrastructure Necessary to Further Integrate Environmental Information into ICES Fisheries Advice", prepared intersessionally by the Chairs of ACE and the Publications Committee, was tabled.

Attention was drawn to the main conclusion, i.e., that the list of necessary action items was daunting. It noted that REGNS, PGNSPP, and SGGOOS had all recommended that a full-time coordinator post be established, hosted at the ICES Secretariat, in order to steer and promote these activities, initially with a focus on the North Sea, but expanding to include the entire ICES area. The post of coordinator of ICES Integrated Assessments, could be supported by ICES Secretariat staff, by secondment from a national agency or subscription from ICES member agencies, by Concerted Action support from DG Fish, or by part funding from EuroGOOS.

The Committee accepted that if regional assessments were to be achieved the success of this depended much on having a person dedicated to coordination of the work and recommended that these ideas be pursued.

14 Draft resolutions

Prior to the discussion of the package of draft resolutions the Committee considered two generic issues that it anticipated would have implications on how a number of terms of reference would be determined for a number of groups – these issues were the integrated ecosystem assessments and EcoQOs.

Concerning the integrated ecosystem assessments, the Committee recalled its earlier decision to hold a theme session on integrated assessments in 2005. The expectation was that REGNS would conduct a first attempt at an integrated assessment, and the products would form the basis of the theme session. As part of the planning for this the terms of reference for a number of groups were generated during the Conference by a subgroup of ACE. Some of these had been included in the package of resolutions. However, ACFM considered that the Assessment Groups would not be able to do the work required by REGNS in 2004 because changes in the form of advice had placed extra workloads on a number of its groups, and these workloads had to be given high priority.

The Committee considered various options on how it could respond to this new situation but concluded that it was not appropriate to proceed in the planned way without the fisheries groups. It therefore agreed that the 2005 Theme Session be postponed and that REGNS should attempt to undertake an integrated assessment in the spring of 2006, thus postponing the Theme Session by one year. The Committee also agreed to amend the REGNS terms of reference to accommodate this change, and to request the Chair of that Group to communicate with the various Groups so that REGNS can consider the information needs from other Expert Groups in order to provide the basis for the Theme Session on Integrated Assessments in 2006. In their turn, these Groups would be given a general term of reference to consider how they may respond to the requirements of REGNS and the Theme Session. The Committee also agreed that a flow chart of activities leading up to the 2006 session would be of benefit. This chart (Table 1) would also be distributed to all those Expert Groups which had been charged with preparing for the 2006 Theme Session.

Concerning EcoQO's, the Committee reviewed the various initiatives in ICES concerned with various tasks in support of these. The Group tasked to put these in a consistent format is WGECO and the results of this work is passed on to ACE. It was noted, however, that a request had been made by OSPAR with regard to the handling of a series of EcoQO's which had to be regarded as an integrated set. The Committee considered that although this request referred to a specific type of EcoQO (for eutrophication parameters), the Committee felt that the question to be addressed was a generic one rather than specific to eutrophication. The Committee agreed that a dual approach to this question was the most appropriate, especially as case examples would benefit a general framework discussion. The Group agreed that the generic issue could most appropriately be addressed by WGECO

and that the specific request concerning EcoQO's for eutrophication be addressed by a new group comprised of experts on eutrophication issues.

MCAP

The Chair provided detailed background information concerning the category 4 resolution which had been drafted in order to obtain Council endorsement of the main proposals which had originated from SGWAPP, and which had been further developed by MCAP. The draft resolution detailed what was needed in additional resources to be provided by Member Countries to implement the proposals concerning the establishment of ACFM review groups and the fast-track process. Another major element of resources that would be required was related to the proposal to implement a regional assessment group which was being built up by REGNS and initially focussing on a theme session on these issues in 2006.

The Consultative Committee noted that some customers of ICES advice had expressed concern about the new arrangements for participation in the advisory process as this was compromising the apolitical basis of ICES advice. Clearly the effect of the involvement of stakeholders would have to be carefully monitored.

Following various revisions of detail, the Committee agreed to pass this draft resolution to Council.

Concerning the requested establishment of a new Study Group on quality assurance the Committee was satisfied that it was clearly a useful group that will help to invigorate quality assurance efforts.

As MCAP did not plan another meeting until the next statutory meeting, the Group requested the Chair of MCAP to liaise with the Chair of the Publications Committee on the best way to organise information in the new series on ICES advice being proposed by the Publications Committee in a draft resolution.

ACFM

The secretary to ACFM drew the Committee's attention to the fact that the fish stock assessment reviews have now been moved out of ACFM and placed in separate review groups.

A table in the resolution package summarises membership of the Groups. She explained that each group is assisted by the Chair(s) of the Working Groups whose reports are under review.

It was noted that in this new review of assessments 9 subgroups would meet, and in many cases this would involve extra travel at national expense – 6 of the proposed subgroups are at ICES Headquarters and are unfunded. Some will work by correspondence. ACFM feels that bringing reviewers together is important, and the Committee agreed that this is an important process which

will require significant additional national resources. However, the Committee was very concerned that this new activity should not be done at the expense of other ICES activities, especially if a large number of face-toface meetings were required. Consequently it asked the advisory committees to produce guidelines to identify when face-to-face meetings were important.

The Committee was also informed about the introduction this year of benchmark assessments. In order to ensure consistency and efficiency it decided to include a term of reference for all working groups doing benchmark assessments in 2004. This requires these groups to document fully the methods to be applied in subsequent update assessments and list factors that would warrant reconsideration of doing an update.

The Committee withdrew a draft resolution for a study group (SGHICS) dealing with herring assessments in the Irish and Celtic Seas as it had been informed that this would be dealt with informally by the institutes concerned and the results reported verbally to ACFM.

The Committee drafted a draft resolution for a 2004 meeting of WGEEL. Although this group had not yet held its 2003 meeting, it was decided that this resolution was required to allow a response to be given to a request from the European Commission for an EU DGFish Action Plan for European eels.

ACE

The Chair of ACE informed the Committee of a number of terms of reference added to various working groups arising from a substantial request from OSPAR. Considerable background information accompanied these requests and the Chair undertook to make this additional information available to these Groups.

The Committee expressed concern about the workload of WGECO which had been increased by the additional demands placed on it by this Committee as discussed at the start of this section. The Committee asked ACE to further discuss this issue with the Working Group, and examine in particular the problem of splitting the Group in some way.

The Committee made various changes to the terms of reference of a number of Groups, including those of REGNS, as discussed at the start of the section.

Publications Committee

The Committee noted in particular a resolution proposing the introduction of a new series for publication of ICES advice. This had been developed in consultation with the professional advisers. The Committee considered this proposal was a good step forward but that its introduction should be closely monitored by the Chair of the Publications Committee and MCAP.

Publication Resolutions (Category 1)

The Committee noted the increased interest in web-based products, and noted that *Cooperative Research Reports* are also provided on the ICES website, but in a form that cannot be printed or copied. The Committee recommended that the restriction to access should not be continued and that these reports should be available in the same way as the new ICES advice reports will be available.

Other Committee resolutions

The Committee scrutinised all other Committee resolutions following a review of highlights made by each Committee Chair. A number of additions and alterations were made. Most changes reflected the decision to include terms of reference related to the 2006 Theme Session on Integrated Assessments to various Baltic and North Sea Expert Groups.

14.1 Study/Working Groups to be renamed, established, or dissolved

Details are provided in Table 2.

14.2 New Study/Working Group Chairs

Details are provided in Table 3.

15 Consideration of terms of reference for the 2004 intersessional meeting of the Committee

The Committee agreed its terms of reference for a midterm meeting of the Committee at Council expense, and these were formulated as a draft resolution.

The dates indicated in the draft resolution would prevent the attendance of the Chair of the Resource Management Committee who had a vital role to play in a number of agenda items, including one dealing with the auditing of the Action Plan. As there seemed no alternative to the chosen dates the Committee expressed the wish that efforts be made to secure his presence at the Committee meeting and if this was impossible then a representative from that Committee should attend in his place.

16 Any other business

The Chair informed the Committee that consideration was being given to the possibility that the Committee's remit may be extended to the setting of priorities amongst research activities.

17 Closure

The Chair thanked the outgoing Chairs, Henk Heessen (Living Resources), Franciscus Colijn (Oceanography), Paul Keizer (Marine Habitat), and Hein Rune Skjoldal (ACE) for their contribution to the work of the Committee.

 Table 1

 Flow chart of work leading up to Pilot Integrated Regional Assessments and Theme Sessions in 2006.

STEP	GROUP	ACTIVITY	YEAR
1	ACE/CONC	Terms of Reference to REGNS (and BSRP) and	Autumn 2003
		"Environmental" Expert Groups to commence	
		preparations.	
2	"Assessment"	General discussion of information that could be and	2004 Meetings
	Expert Groups	should be provided to groups conducting integrated	
		regional assessments. Report on opportunities and	
		challenges.	
3	"Environmental"	Consider how to approach Terms of Reference (Step 1).	2004 Meetings
	Expert Groups	Where progress can be made, report results to ACE and	
		REGNS. Where additional effort is needed, develop	
		intersessional workplan, and propose Terms of Reference	
	22010	for completion in 2005.	
4	REGNS and	Consider input, to the extent available from Step 2 and 3.	April 2004
	BSRP	Specify as fully as possible the information needs from	
		all Expert Groups, especially assessment groups, to	
		enable it to undertake pilot integrated regional assessment	
		for the North Sea (and Ballic) in 2000. Outline as fully as	
		ragional assassment would actually be conducted	
5	ACE and ACME	Review reports from REGNS (and RSRP), consider	Spring 2004 and
5		opportunities and gaps, and propose Terms of Reference	fall consultation
		for all relevant Expert Groups and Advisory Committees	ian consultation
		in 2005.	
6	ACFM	Consolidate information from assessment Expert Groups	Autumn 2004
		(Step 2) and identify opportunities and challenges.	consultation
7	CONC	Consider input from ACE (ACME?) and ACFM Steps 5	Autumn 2004
		and 6), and draft Terms or Reference for all relevant	
		Expert Groups for 2005, to support pilot integrated	
		regional assessments in North Sea (and Baltic?) in 2006.	
8	Expert Groups	Fully address Terms of Reference (Step 7) to consolidate	All 2005
		and provide input to REGNS (and BSRP) in 2006.	
9	REGNS and	Review feedback and input from Expert Groups and	Spring 2005
	BSRP	Advisory Committees as provided in 2004 (Steps 2, 3, 5,	
		6). Where information allows, experiment with testing	
		approaches proposed in Step 4. Where feedback is	
		particularly un-encouraging, consider alternative	
		approaches that would take account of feedback, but still	
		produce robust and informative integrated regional	
10	ACE	Assessments. Frepare for Theme Session in 2000.	Spring 2005 and
10	ACE	opportunities and gaps, and propose Terms of Paferonce	spring 2005 and
		for REGNS (BSRP?) and Advisory Committees in 2006	consultations
11	CONC	Consider input from ACE and draft Terms of Reference	Autumn 2005
		for REGNS (BSRP?) and plans for Theme Session in	2000
		2006.	
12	REGNS and	Conduct pilot integrated regional assessment. Prepare	Spring 2006
	BSRP	results for Theme Session in 2006.	r 6
13	ASC (CONC)	Hold Theme Session on Integrated Regional Assessment	Autumn 2006
	· · · · · · · · · · · · · · · · · · ·	– approaches, products, and prospects.	
14	CONC	Review results of Theme Session (and Committee	Autumn 2006
		Report?). Plan future work.	

Table 2

Lists of the various Working Groups, Study Groups, and other Groups and Workshops that were dissolved, established, or renamed by virtue of Council Resolutions at the 2003 Annual Science Conference.

 Type of Action
 Name

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Workshops

	Joint ICES/OSPAR Workshop on Integrated Monitoring of Contaminants and their Effects in Coastal and Open-Sea Areas [WKIMON] (ACME) Workshop on Survey Design and Data Analysis [WKSAD] (B) Workshop on New and Classic Techniques for the Determination of Numerical
	Abundance and Biovolume of HAB-species [WKNCT] (C)
	Workshop on Future Directions in Modelling Physical-Biological Interactions [WKFDPBI] (C)
	Workshop on Advanced Fish Stock Assessment Techniques [WKAFAT] (D) Workshop on Sampling and Calculation Methodology for Fisheries Data [WKSCMFD) (ACFM)
Renamed	Planning Groups
	Planning Group on Surveys of Pelagic Fish in the Norwegian Sea [PGSPFN] will be renamed the Planning Group on Northeast Atlantic Pelagic Ecosystem Surveys

[PGNAPES] (D)

 Table 3

 The Council's attention is drawn to the following new Chairs of Advisory Committees, Working Groups, Study Groups, and other Groups and Workshops:

 Chairs

Chairs	Group
	Working Groups
Norman Graham, Norway	ICES-FAO Working Group on Fishing Technology and Fish Behaviour
Dave Demer USA	Working Group on Fisheries Acoustics Science and Technology [WGFAST] (B)
C. L. Needle, UK	Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak [WGNSSK] (ACEM)
Ciaran Kelly, Ireland	Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy [WGMHSA] (ACFM)
M. Pastoors, The Netherlands	Working Group on Fishery Systems [WGFS] (D)
C. Hannah, Canada	Working Group on Modelling of Physical/Biological Interactions [WGPBI] (C)
Fransisco Rey, Norway	Working Group on Phytoplankton Ecology [WGPE] (C)
(Co-Chair)	
Michele Fichaut, France, and Helge Sagen, Norway	Working Group on Marine Data Management [WGMDM] (C)
JC. Mahe, France	International Bottom Trawl Survey Working Group [IBTSWG] (D)
	Study Groups
Steve Murawski, USA	Study Group on Assessment Methods Applicable to Assessment of Norwegian Spring-Spawning Herring and Blue Whiting Stocks [SGAMHBW] (ACFM)
Kjell Nedreaas, Norway	Study Group on Stock Identity and Management Units of Redfishes [SGSIMUR] (ACFM)
Hans-Harald Hinrichsen, Germany, and Fritz Köster,	Study Group on Closed Spawning Areas of Eastern Baltic Cod [SGCSA] (ACFM)
Denmark	
Johan Modin, Sweden	Study Group on Ageing Issues in Baltic Cod [SGABC] (ACFM)
P. Degnbol, Denmark	Study Group for Long-Term Advice [SGLTA] (ACFM)
Helen Dobby, UK	Study Group on Age-length Structured Assessment Models [SGASAM] (D)
W. Karp, USA	Study Group on Collection of Acoustic Data from Fishing Vessels [SGAFV] (B)
Mike Breen, UK	Study Group on Unaccounted Fishing Mortality [SGUFM] (B)
K. Essink, The Netherlands	Study Group on Ecological Quality Objectives for Sensitive and for Opportunistic Benthos Species [SGSOBS] (ACE)
T. Smayda, USA, and G. Ærtebierg, Denmark	Study Group to Review Ecological Quality Objectives for Eutrophication [SGEUT] (ACE)
W. Waldock, UK	Study Group on Quality Assurance [SGOUA] (MCAP)
P. Petitgas, France, and	Study Group on Regional Small Pelagic Fish [SGRESP] (G)
L. Dransfeld, Ireland	
(Chair to be identified)	Study Group on Redfish Stocks [SGRS] (G)
L. Karlsson, Sweden	Study Group on Salmon Scale Readings [SGSSR] (H)
Maris Plikshs, Latvia	Study Group on Baltic Fish and Fisheries Issues in the BSRP [SGBFFI] (H)
Bärbel Müller-Karulis, Latvia	Study Group on Baltic Sea Productivity Issues in support of the BSRP [SGPROD] (H)
E. Andrulewicz, Poland	Study Group on Baltic Ecosystem Health Issues in support of the BSRP [SGEH] (H)
Wolfgang Fennel, Germany	Study Group on Baltic Ecosystem Model Issues in support of the BSRP [SGBEM] (H)
Marianne Holm, Norway	Study Group on the By-catch of Salmon in Pelagic Trawl Fisheries [SGBYSAL] (I)
Niall Ó Maoiléidigh, Ireland	Study Group on the Status of Diadromous Fish Species [SGSDFS] (I)

Steering Groups

J. Davies, UK	ICES/OSPAR Steering Group on Quality Assurance of Biological Measurements in the Northeast Atlantic [SGQAE] (ACME)		
	Planning Groups		
B. Couperus, The Netherlands	Planning Group for Herring Surveys [PGHERS] (G)		
	Workshops		
K. Hylland, Norway, and R.	Joint ICES/OSPAR Workshop on Integrated Monitoring of Contaminants and their Effects in Coastal and Open-Sea Areas [WKIMON] (ACME)		
P. G. Fernandes, UK, and M. Pennington, Norway	Workshop on Survey Design and Data Analysis [WKSAD] (B)		
O. Lindahl, Sweden	Workshop on New and Classic Techniques for the Determination of Numerical Abundance and Biovolume of HAB-species – evaluation of the cost, time- efficiency and intercalibration methods [WKNCT] (C)		
F. Peters, Spain, and C. Hannah, Canada	Workshop on Future Directions in Modelling Physical-Biological Interactions [WKFDPBI] (C)		
D. Skagen, Norway, E. Hjorleifsson, Iceland, and L. Kell, UK	Workshop on Advanced Fish Stock Assessment Techniques [WKAFAT] (D)		
Joël Vigneau, France	Workshop on Sampling and Calculation Methodology for Fisheries Data [WKSCMFD] (ACFM)		

Fisheries Technology Committee (B)

Chair: Stephen J. Walsh (Canada) Rapporteur: Yvan Simard (Canada)

Opening

The Committee met on 23 September from 14:00 to 18:00 and 27 September from 11:00 to 13:00. The agenda was adopted without modifications. Participants were 16 members and 5 observers, representing 13 countries.

Reports of Expert Groups

Working Group on Fishing Technology and Fish Behaviour (WGFTFB)

The 2003 report of WGFTFB is Doc. B:07. The Working Group considered reports from the Study Group on Mesh Measurement Methodology, the subgroup reviewing the size selectivity of 90° turned mesh in Baltic cod trawls, and the subgroup compiling a manual on the selectivity of static fishing gear. For the Term of Reference to assess gear-related technical measures for improving species and size selectivity in Nephrops, the Working Group considered a summary report as well as seven individual contributions. One recurring theme in these presentations is that Nephrops are typically caught with other marketable fish or invertebrates in mixed-species fisheries. This complicates the problem of size selection because the mesh or grid size appropriate for Nephrops may be quite different than that for other marketable species. Technical measures that first sort by species using, for example, a grid, then select by size using an appropriate mesh size seem to provide a means to reduce discards. However, Nephrops fisheries vary greatly in both the relative proportion of Nephrops in the catch and the species/size composition of the other marketable species. Therefore, the most effective approach to the use of technical measures for discard reduction is also likely to vary.

The Working Group reviewed the Study Group on Mesh Measurement Methodology report and noted that its final product will be produced as a *Cooperative Research Report*.

A WGFTFB subgroup working on a manual for the measurement of the selectivity of static gears, similar to the ICES manual for the selectivity of towed gears, reported that they are considering submitting a manual on gillnet selectivity, a gear better researched as compared to longline, pot, and trap fisheries. Once this manual is approved by the WGFTFB, manuals for other static gear sections would be produced. These would be in the same format as the gillnet section.

The group evaluating the selective properties of trawls with codends constructed of 90° turned mesh reported that data from 15 experiments conducted by Polish and

German scientists were analysed. Although a statistical model relating the size at 50% selection (L50) to mesh size and several experimental covariates was successfully fitted to the data, the data were insufficient to allow prediction of minimum mesh sizes producing the same L50 value as that produced by the BACOMA 120-mm window. The reasons for this include: 1) there were too few experiments, 2) the experiments were conducted on a variety of gear types rather than focused on only a few, and 3) the mesh sizes considered did not include mesh that was sufficiently large. Although the FTFB did not recommend appropriate minimum mesh sizes, the utility of turned mesh codends was recognised. A Term of Reference for the 2004 meeting to evaluate the merit of this type of codends was drafted.

Due to concern over inadequacies in the "minisymposium" format of most WGFTFB meetings and to better accommodate research priorities from FAO, a new approach to directing the operations of the Working Group was developed. A steering committee (SC) will be formed comprised of two members chosen by the WGFTFB Chair and one member from FAO. Each year the SC will research potential topics to determine their appropriateness for the Terms of Reference. For each topic, the SC will also choose a convener for that topic who will have the responsibility of soliciting contributions, corresponding with the contributors and creating a summary document.

Working Group on Fisheries Acoustics, Science and Technology (WGFAST)

The first topic in the 2003 report of WGFAST (Doc. B:06) was an initial review of the possibilities and limitations of using fishing vessels to collect acoustic data for fish stock assessment. Several examples of such initiatives around the world were presented. Although the advantage of significantly augmenting the sampling frequency and coverage by using the fishing fleet was evident, several concerns were expressed about the quality of the data collected with a variety of nonadequate sampling gears and platforms, with poor or no calibration. Processing of such large volumes of data would also require the development of efficient automated tools. Given the importance of this topic and the considerable efforts that will be needed for development of appropriate methods, protocols and guidelines, WGFAST recommended that a Study Group on Collection of Acoustic Data from Fishing Vessels (SGAFV) be charged to review this subject and produce a Cooperative Research Report within the next 3 years.

The 2002 ICES Symposium on Acoustics in Fisheries and Aquatic Ecology and the subsequent WGFAST discussion on the needs for research have stimulated efforts for species identification. Several presentations were made on new approaches to extract the discriminant features from the frequency spectrum of the echoes. New instruments were tested and innovative processing algorithms were presented. The research to develop operational solutions to species identification is progressing steadily by combining numerical simulations, *in situ* measurement, and experimental testing.

From the presentations on advanced technologies and platforms, it is clear that a new set of intelligent Acoustic Observation Systems (AOS) is emerging to monitor the ecosystem. Several prototypes combining optics, passive, and active acoustics were developed and tested. This new technology for automated autonomous acoustic acquisition system could be applied to the problem of standardizing the acoustic gears for data collection from fishing vessels. With similar fast development in platforms such as Automated Underwater Vehicles (AUVs), moorings, surface-linked buoys and shorecabled systems, acoustic data collection will no longer be limited to fisheries research vessels. Efficient series of automatic data processing algorithms will be required to process and interpret the large quantity of information supplied by such networks of acoustic sensors.

Study Group on Mesh Measurement Methodology (SGMESH)

The final meeting of SGMESH is reported in Doc. B:02. The meeting focused on the analysis and discussion of the inter-laboratory tests made to determine the most appropriate measuring force for the measurement of mesh opening, the proposal for a new mesh measurement methodology, and the need for further standardisation in this matter. The ultimate aim is that the new methodology will be used by scientists, fisheries inspectors, and the industry. Hence the Study Group was of the opinion that advice from inspection services and netting manufacturers should be sought in this matter and representatives of these services should be invited to its final meeting. The proposed new measurement protocol lays down a longitudinal measuring force of 100 N for mesh openings of 55 mm and above and of 40 N for the smaller meshes. The present ICES gauge cannot exert a force of 100 N, but a new mesh gauge is under development in the EU project OMEGA - "Development and Testing of an Objective Mesh Gauge". In the meantime the ICES 4 kg gauge should be used for scientific work, but the results must be converted to the 100 N equivalent using a conversion formula. A draft Cooperative Research Report, edited by the Chair, will be presented for publication before the end of the year.

Study Group on Acoustic Seabed Classification (SGASC)

The report of the first meeting of this new Study Group is in Doc. B:04. Participants included industry representatives of seabed classification technologies from Simrad, Quester Tangent, Echoview, and Echoplus. The Terms of Reference for the Study Group were reviewed and discussed. To meet the Terms of Reference it was

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felt that a comprehensive review of existing knowledge and technologies was necessary. In particular, there is a need to review the existing theory of soundscattering from the seabed as a background for this work. The Study Group listed the topics such a review would include to build the table of contents of a *Cooperative Research Report*, which will be the outcome of its work. This Study Group has aligned itself with the Working Group on Marine Habitat Mapping. A joint FTC-MHC theme session on acoustic seabed classification, to which this Study Group will be a major contributor is planned for 2004.

Study Group on Survey Trawl Gear for the IBTS Western and Southern Areas (SGSTG)

The report of the first meeting of this Study Group is in Doc. B:01. The Group reviewed the documentation on several survey gears as candidates for the new survey trawl for the surveys in IBTS Western and Southern Areas. A decision is urgent because of two new surveys beginning in 2003. The Group will address the concerns about breaking old time-series. After much discussion it was decided to choose gears already in use in the IBTS Western and Southern Areas. The Study Group recommended that sea trials be carried out to compare catch efficiency and performance of the GOV and Porcupine Baca trawls with modifications to the groundgear, which should also give similar geometry as the traditional rigging.

Study Group on the Review of the Structure of the Fisheries Technology Committee (SGRSFTC)

The report of this Study Group (Doc. B:08) is the result of an extensive review through correspondence and discussion sessions with its Expert Groups and Committee members. The Fisheries Technology Committee's scientific area of responsibility is twofold; it covers the development of more optimal selective and ecosystem-friendly fishing gears and focuses on the technical improvement and development of fisheries survey methodology. The Committee also provides scientific information directly to the Advisory Committees and other Science Committees, forming the basis of advice on the selection of appropriate technical measures in fishing operations and the improvement and selection of appropriate survey and sampling gears for resource survey and monitoring studies. The Committee provides a technical bridge that spans the issues of fishing practices, environmental impact, bio-diversity studies, and fisheries resource evaluation and management.

The present structure of the Fisheries Technology Committee consists of two working groups, viz., Fisheries Acoustics, Science and Technology (WGFAST), and Fishing Technology and Fish Behaviour (WGFTFB), which hold back-to-back annual meetings. At these annual meetings time is allocated for a one-day Joint Session of both Expert Groups to deal with common topics such as resource sampling and surveys, and fish behaviour studies. The Joint Session may be described as the glue that binds the two Working Groups together, the reason to hold back-to-back meetings. Study and planning groups are periodically created to look indepth at special topics arising from the discussions of the working groups. WGFAST and WGFTFB use their meetings to disseminate and discuss new information and ongoing research in their respective technological fields. The Committee's working groups respond to requests for scientific information from the Advisory Committees and other Science Committees and also from the industry, with whom both Working Groups are closely allied. Industry representatives regularly participate in the working group meetings.

In reviewing and rationalizing the existing structure of the Fisheries Technology Committee, the Study Group recognized that there was a need to clarify responsibilities, and to evaluate the need for change against the goals in the ICES Action and Strategic Plans. The Fisheries Technology Committee Action Plan serves as a blueprint and provides the background for the Study Group. The Group considered the following topics indepth: the present number of Expert Groups; the need for additional Groups; the utility of the Joint Session; collaboration with other Committees: and communication of the Fisheries Technology Committee's activities through Annual Science Conference (ASC) theme sessions, and through symposia.

The Study Group concluded that the present structure of the Fisheries Technology Committee with two working groups holding annual meetings and a joint session together should be maintained. The concept of study and planning groups being periodically created to look indepth at special topics contributes to the development of the working groups and hence the Committee, and this concept is working well. The Study Group made 16 recommendations for improvements to activities under the Fisheries Technology Committee's Action Plan. Under the existing structure, the Committee should be able to meet the demands of the Integrated Action Plan and contribute effectively to the success of the Strategic Plan.

The Fisheries Technology Committee accepted all 16 recommendations. It instructed the Chair to bring to the Consultative Committee a request to have the chair of FTC considered for *ex-officio* status on ACFM as a way to harmonize requests for scientific information and to contribute more directly to the formulation of advice in several keys areas such as fisheries-independent surveys, mesh selectivity, and other technical measures.

Planning Group on the HAC Data Exchange Format (PGHAC)

The Group is still active in updating and improving the HAC format in order to adapt to the latest versions of equipment. It works closely with the industry in developing the way acoustic data are processed and stored. A new document on the HAC format will be forthcoming. The 2003 report of this Group is Doc. B:03.

Study Group on Target Strength Estimation in the Baltic Sea (SGTSEB)

The 2002 report (Doc. CM2002/B:03) and a summary report on the work at the 2003 meeting (Doc. B:05) were presented. The Group now recommends a TS-relationship based on fewer terms than suggested in the 2002 report and to consider some effects included then as corrections to the biomass calculations instead of the target strength. A final report based on previous material and new data presented during the 2003 meeting will be compiled and presented within one year. It is recommended that this report be published as a *Cooperative Research Report*.

2003 ICES Symposium on Fish Behaviour in Exploited Ecosystems

The symposium with Å. Bjordal (Norway) and S. Walsh (Canada) as conveners attracted 180 participants from 31 countries. A total of 61 oral presentations and 52 posters were given within the five sessions. Forty-six papers were submitted for review to the ICES Journal of Marine Science. Three editors are involved in the process and work is progressing with 50% of the manuscripts covered. It is expected that there will be a 20% rejection rate; several are too long and need to be shortened. The final selection of papers will be published by the end of 2004.

Fisheries Technology Committee and Consultative Committee business

Election of new Chairs for WGFAST and WGFTFB

The Committee welcomed the incoming Chairs of WGFAST, David Demer and of WGFTFB, Norman Graham and thanked the outgoing Chairs, Yvan Simard and David Somerton for their hard work in the past three years.

On the matter of the 2004 elections for the incoming Chair of the Fisheries Technology Committee, the present Chair reminded members who may be interested to stand for election to have permission from their institute and/or their National Delegates prior to the 92nd Statutory Meeting in Vigo.

Matter arising from the Advisory Committee on Ecosystems (ACE)

The Chair of FTC attended the ACE meeting as an *ex officio* member, at ICES Headquarters in May 2003 and for the ACE Consultations at this Conference. A request by the Chair of WGECO for information on the effect of static gears on sensitive habitats was forwarded by the FTC chair to WGFTFB who have incorporated it into their 2004 meeting agenda. At the meeting of ACE earlier in the week, ACE was informed that there may be a forthcoming request from EU-DG-FISH for information on the effect of low-frequency sonars on

marine mammals. When this request arrives it will be forwarded to both WGFAST and the Working Group on Marine Mammal Ecology via the Advisory Process.

Matters arising from the ICES Consultative Committee

ICES Action Plan

The Chair presented the new Implementation and Audit Programme for the ICES Action Plan which will be used to track progress on the Action Items related to the FTC. The audit calls for linking the terms of reference from the applicable Expert Group with the output in 2003 for each Action Item. The committee members thought that this would be a cumbersome task in that some Action Items are linked with up to 5 committees, resulting in 5 outputs for that one item. At the end of the 5-year plan this would amount to a 5 X 5 matrix from which no one would be able to effectively collate the responses for this one item. Suggestion was made to automate the plan into a database whereby one could access it electronically. The database could use the terms of reference numbers and report numbers as the coding scheme. Other comments were related to how the number system would change when an Action Item was dropped or when a new item was added. The Chair agreed to take these concerns forward to the Consultative Committee.

The responsibility of filling in the Action Plan audit in 2004 will be the Chairs of the various Expert Groups.

2005 ASC/Statutory Meeting format

The Committee was informed that the 2005 ASC meeting in Scotland will have several changes in format and all Committees have been asked by the Consultative Committee for their comments. The Committee agreed that 2 sessions (4 hrs+2 hrs) allocated to FTC were sufficient to carry out its business. It also supported the idea of having the first meeting start during the ASC, not the day before as it now stands.

New Committee business

Forthcoming theme session topics, workshops, and symposia

The Committee recommended the following workshop:

A workshop on "Survey design and data analysis". Conveners: P. G. Fernandes (UK) and M. Pennington (Norway) to be held in Aberdeen, UK, for 5 days in late May or early June, 2004 (with LRC).

<u>Rationale</u>: There are a number of demands being made on surveys that have not been required in the past; changes to assessments based solely on surveys, improved survey efficiency and tools, incorporation of new instrumentation, ecosystem monitoring. In addition there is a need to protect against legal challenging of methodology and results. There is an urgent need to develop robust surveys that meet today's demands and that are soundly based in science.

The Committee considered various topics for theme sessions for the 2005 meeting:

1. 2005 joint FTC-RMC theme session on "Technologies for monitoring fishing activities and observing catch". Conveners: Bill Karp (FTC), USA, and Kjell Nedreaas (RMC), Norway.

<u>Rationale</u>: Accurate and precise catch accounting is generally required for effective TAC or IFQ management. Traditional approaches for collecting this type of data include industry reports, port sampling, and deployment of observers, but costs and logistical considerations limit the extent to which human resources can be deployed to collect catch information. This theme session will focus on evaluating developments in this area and identifying technological approaches that can be implemented to meet objectives for monitoring fishing activities and catches.

 2005 joint FTC-MRC theme session on "Quantifying, summarizing, and integrating total uncertainty in fisheries resource surveys". Conveners: David Demer, USA, and Steve Smith, Canada.

<u>Rationale</u>: Fisheries management requires risk assessments and methods for quantitatively evaluating change in fish stocks or ecological systems. To evaluate risk and change, fisheries managers and scientists must be armed with quantitative understanding of survey uncertainty that includes all of the components of measurement and sampling error, both random and systematic.

3. 2005 FTC theme session on "Three-dimensional classification and characterisation of pelagic ecosystems". Conveners: Arnaud Bertrand, France, and one convener from the Oceanographic Committee or from the Marine Habitat Committee.

Aquatic ecosystems Rationale: are fundamentally structured in three dimensions. All physical, chemical, and biological properties show strong gradients (e.g. coast/offshore, north/south) and complex structures (e.g. fronts, eddies, coral reefs) along the vertical and the horizontal, which define particular habitats for benthic organisms. pelagic and An understanding of the relationship between the environmental characteristics and the organisms is necessary, as well as the intra- and interspecific interactions required to preserve the three-dimensional context where these interactions take place. New technologies to

efficiently collect, compute, and display threedimensional multivariate data on aquatic ecosystems are now available. This session will show the present state of these emerging new ways to look at aquatic ecosystems in their intrinsic three-dimensional spatial context.

 2005 joint FTC-LRC theme session on the "Development of effective and acceptable gear modifications and alternative fishing tactics to reduce the bycatch and mortality of cetaceans, pinnipeds, and sea turtles in trawl and static gear fisheries". Convenors: Norman Graham, Norway, Dominic Rihan, Ireland, and Simon Northridge, UK.

<u>Rationale</u>: The bycatch of cetaceans, pinnipeds, and sea turtles in fishing operations is an issue of growing concern globally to organizations such as the European Commission and FAO, under pressure from NGO's and the general public. Given the current state of research into this topic, notably in European fisheries, it is an opportune moment to review and evaluate all work and identify proven solutions in both trawl and static gear fisheries, with potential for technology transfer into other fisheries with similar bycatch problems.

The Committee agreed that these four theme sessions should be put forward to the Consultative Committee for inclusion in the 2005 programme.

With regard to a proposed 2006 theme session on "Integrated assessments for the North Sea", being planned by the Regional Ecosystem Assessment Group (REGNS) of ACE, the Committee reviewed the background for this session and concluded that it felt that it would be appropriate to contribute to this session. The Chair will continue the dialogue with the Chairs of REGNS and ACE.

The Committee approved a draft resolution for the following symposium to be held in 2006:

A symposium on "Fishing technology in the 21st century" will be held in Boston (or New England), USA for 4 days in November 2006 with Chris Glass (USA) and Bob van Marlen (Netherlands) as conveners.

<u>Rationale</u>: Scientific understanding is necessary to mitigate the negative aspects of commercial fishing while protecting the right to continue fishing operations. The objective of the symposium is to attract contributions from around the world to address issues relating to bycatch and discard from commercial fishing operations and to fishing gear impact on sensitive habitats and marine resources, as well as on the performance of fishing gears used in fisheries-independent scientific surveys to estimate the resources. Collectively these issues have not been addressed since the world symposium in St Johns, Newfoundland in 1988.

The Committee also noted preliminary plans for the following proposed symposium in 2007:

2007 symposium on "Acoustics in aquatic ecology" (tentative title) – <u>Rationale</u>: Further development of title, place, time, conveners, and scientific justification will take place at the WGFAST meeting in Poland in 2004.

Draft resolutions

All existing resolutions for the continuing work of the present Expert Groups were approved by the Committee. Two study groups have finished their mandate, SGMESH and SGRSFTC and the Committee thanked Ronald Fonteyne and Steve Walsh and their group members for the excellent work shown. Two new Study Groups were proposed as follows:

- Study Group on Collection of Acoustic Data from Fishing Vessels [SGAFV] (Chair: W. Karp, USA), which will meet in Gdynia, Poland, on April 16-17 2004.
- Study Group on Unaccounted Fishing Mortality [SGUFM] (Chair: Mike Breen, UK), which will work by correspondence in 2004.

In addition two resolutions regarding the production of *ICES Cooperative Research Reports* were proposed:

- "Mesh Size Measurement Revisited", edited by R. Fonteyne (Belgium) and R. D. Galbraith (UK);
- "The *Nephrops*' fisheries of the Northeast Atlantic and Mediterranean – A review and assessment of fishing gear design", edited by N. Graham (Norway).

Keynote speaker on acoustics at the 2004 ASC

The Chair informed the Committee that at the mid-term meeting of the Consultative Committee, he put forward the idea that a keynote speaker on the use of acoustics in ecosystem research should be considered among the keynotes selection for the 2004 ASC. The Consultative Committee tentatively agreed. A small *ad hoc* group (Y. Simard, F. Gerlotto, and O. R. Gødo) was formed by e-mail and met in Bergen at the WGFAST meeting to look at the possible suggestions. Using this list and the suggestions from the Consultative Committee, the group made a proposal which has been passed on to the Consultative Committee.



Figure B1. Photograph of a *Nephrop* (left) and a porpoise wrapped in netting – relating to the two sections of Project NECESSITY (**NE**phrops and **CE**tacean **Species Selection Information and TechnologY**) which addresses current selectivity and bycatch issues in *Nephrops* and pelagic fisheries.

Website hosting

Because of new NOAA security rules, AFSC cannot be the host for both WGFAST and WGFTFB webpages after the end of this year. After discussions with the ICES Web Master it was clear that ICES could not provide us with the requirements we need to make our webpages workable, i.e. continuous uploading of new information in a timely manner, on-line meeting registration, list server, etc. Before the end of the meeting we had a tentative offer from IMR in Bergen to host the website. Dave Somerton has volunteered to coordinate the switchover of websites.

Future meeting locations

2005 FAO, Rome2006 Ege University Izimir, Turkey

Dave Somerton has volunteered to continue further communications with both host countries.

Membership lists

The Chair noted the large number of un-registered attendees at the WGFAST and WGFTFB meetings in Bergen 2003. The Chairs were asked to be more diligent in handling this matter, but the Committee also recognised that it will be a continuing problem since these two working groups, which have a technological mandate, attract a lot of new people who may be unfamiliar with the registration process. One suggestion from the secretariat was to hold our meetings as workshops, since there are no restrictions on who can attend these, and use the day after for *bona fide* members to synthesize the workshop proceedings into terms of reference for the following year. Unfortunately there was insufficient time to discuss this suggestion.

New and on-going science initiatives

Bob van Marlen presented to the Committee an overview of Project NECESSITY (NEphrops and CEtacean Species Selection Information and TechnologY) (see

Figure B1). NECESSITY is a 7.5 million euro, pan-European project to address current selectivity/bycatch issues in *Nephrops* and pelagic fisheries, including cetaceans in the latter. The project will start in January 2004 and last for 38 months.

For the *Nephrops* section, the objectives are to develop effective and acceptable gear modifications (bycatch reduction devices) and alternative fishing tactics in cooperation with the fishing industry to reduce the bycatch and mortality of non-target fish species in European *Nephrops* fisheries, and determine the biological effects and socio-economic repercussions.

For the Cetacean section, the objectives are to develop effective and acceptable gear modifications (bycatch reduction devices and acoustical deterrents) and alternative fishing tactics in cooperation with the fishing industry to reduce the bycatch and mortality of cetaceans in European pelagic fisheries, and determine the biological effects and socio-economic repercussions.

New format for FTC meetings

The Committee expressed interest in learning about Project NECESSITY and similar projects. It supports the idea of setting aside time to discuss such projects which permit the exchange of ideas between the Expert Groups. The Committee also felt that less time should be spent on hearing the summaries of the various Expert Groups' reports; this would free up more time to identify priority areas for future activities and allow ample time to review ongoing scientific work. The discussion of science development over the next 5 years as it pertains to our Expert Groups is necessary for the Committee to continuously update its Action plan and the ICES Action Plan.

Closure

The Chair thanked everyone for their excellent contributions and gave special thanks for the outgoing Chairs of the various Expert Groups and the Rapporteur. The meeting adjourned at 13:00.
Oceanography Committee (C)

Chair: Franciscus Colijn (Germany) Rapporteur: Mark Tasker (UK)

The Oceanography Committee met on Tuesday 23 September from 14:00 to 18:00 (36 present, including 16 members) and on Thursday 25 September from 10:30 to 12:30 (43 present, including 12 members).

The Chair outlined the breadth of the Committee's work from understanding the physics of the ocean to understanding the interactions between the physical and biological components of marine systems.

Appointment of rapporteur

Mark Tasker was appointed Rapporteur.

Adoption of the agenda

The draft agenda was adopted.

Arrangements for the meeting

The Chair informed the Committee that a symposium slot was available in 2006, but a draft resolution would be required by Thursday if any ideas were available. The ICES General Secretary had circulated an e-mail on ICES acting as a coordinating body for large European projects; this would also be discussed on Thursday.

Committee business

Reports of Expert Groups, including draft resolutions

Because all Chairs of the Expert Groups or a member to represent them were available the reports of all Groups were briefly introduced and discussed.

Working Group on Marine Data Management (WGMDM)

Lesley Rickards (UK), Co-Chair, introduced Doc. C:13 and the draft terms of reference for 2004. One of their terms of reference concerned reviewing the report of the ACE Study Group on the Management of Integrated Data (SGMID) but they were unable to do this as it had not met at the time of the WGMDM meeting. WGMDM discussed the SGMID terms of reference and provided input on each of these to the SGMID co-chairs. In discussion, the Committee wanted reassurance that the US Integrated Taxonomic Information System (ITIS) was likely to be stable, user-friendly and easily upgradable. The Committee agreed, however, that the best way forward was to encourage the relevant Expert Groups to work directly with ITIS in order to ensure that this system becomes a valuable resource for the ICES community.

ICES-IOC Study Group on the Development of Marine Data Exchange Systems Using XML (SGXML)

Bob Gelfeld (USA), Co-Chair, introduced Doc. C:12 and the draft terms of reference for 2004. Links between SGXML and other organisations holding or using oceanographic data (IOC, JCOMM, EU) had been maintained. It was noted that XML was generally in English but that other languages had been used by several groups.

ICES/GLOBEC Working Group on Cod and Climate Change (WGCCC)

Ken Drinkwater (Canada), Co-Chair, introduced Doc. C:11 and the draft terms of reference for 2004. The new synthesis of the status of cod stocks around the North Atlantic is well in hand for completion in 2004. Details of this were agreed at the back-to-back Workshop on a Synthesis of the Cod and Climate Programme (WKCCP) (Doc. C:10). Several workshops had been identified as requirements over the next five years (before the end of GLOBEC in 2009).

Steering Group for the ICES/GLOBEC North Atlantic Programme and Regional Office (SGNARO)

Ken Drinkwater (Canada), Co-Chair, introduced Doc. C:17 and the draft terms of reference for 2004. He explained that funding is in place to continue the work coordinated by the ICES GLOBEC Coordinator (Keith Brander) until the end of 2004; a search for further funding is under way. A further meeting on GLOBEC was be held at this Conference. The need for this Steering Group was questioned.

ICES-EuroGOOS Planning Group on the North Sea Pilot Project (PGNSP)

Bill Turrell (UK), on behalf of the Co-Chairs, introduced Doc. C:08 and the draft terms of reference for 2004. This Group is closely associated with REGNS, the North Sea regional group working on integrated assessments. Funding for the North Sea pilot project was not forthcoming, but the group asked how a full-time officer to coordinate the integrated assessment could be funded. A full timetable of the assessment leading up to a theme session in 2005 is available in the 2003 REGNS report. It was noted that the terms of reference for each group being requested by REGNS to carry out its part of the integrated assessment needed checking. It was felt that the proposed 2005 theme session could usefully draw on examples from elsewhere than the North Sea.

ICES-IOC Steering Group on GOOS (SGGOOS)

Bill Turrell (UK), Co-Chair, introduced Doc. C:09 and the draft terms of reference for 2004. The Group will be reviewing drivers for the ecosystem approach amongst others; it was noted that the European Commission will be carrying out a similar, but possibly wider review.

Working Group on Oceanic Hydrography (WGOH)

Alicia Lavín (Spain), Chair, introduced Doc. C:07 and the draft terms of reference for 2004. Much of the 2003 report is taken up with annexes on details of the ocean climate in parts of the ICES area. In discussion, it was noted that there was only one theme session on physical oceanography in 2004; some felt there ought to be more sessions on physical oceanography, while others noted that ASC theme sessions were becoming more multidisciplinary and integrated.

ICES-IOC Working Group on Harmful Algal Bloom Dynamics (WGHABD)

Jennifer Martin (Canada), Chair, introduced Doc. C:06 and the draft terms of reference for 2004. terms of reference for a proposed workshop to be held at Kristineberg, Sweden were noted. The close relationship was noted with the GEOHAB group.

Working Group on Recruitment Processes (WGRP)

Pierre Pepin (Canada), on behalf of the Co-Chairs, introduced Doc. C:16 and the draft terms of reference for 2004. This group had met by correspondence in 2003, and given the potential inter-disciplinary importance of this group, some felt that this was regrettable. It was noted that relevant specialists were often overcommitted.

Working Group on Zooplankton Ecology (WGZE)

Steve Hay (UK), Chair, introduced Doc. C:01 and the draft terms of reference for 2004. It was noted that future zooplankton status reports will be expanded to become plankton status reports (i.e. include phytoplankton), but in discussion difficulties of coordination were noted. A diversity index was suggested as a good indicator of plankton community condition, but it was noted that taxonomic stability and expertise was critical for such an indicator. This problem might be resolved once chemical techniques of zooplankton identification develop within the next decade.

Study Group on Modelling of Physical/Biological Interactions (SGPBI)

Charles Hannah (Canada), Chair, introduced Doc. C:04 and the draft terms of reference for 2004, which included a request to re-establish the Study Group as a Working Group (WGPBI). It was noted that the working group format will allow the group to take a longer perspective and to develop a plan for activities on projects that require more than 2 or 3 meetings. In its three years as a Study Group, it has grown to include 29 members and has established strong linkages with modelling groups in GLOBEC and GEOHAB. One of its principal goals has been to provide a venue for communication between ICES scientists involved in modelling physical/biological interactions and the broader international community. As part of the process to moving to a working group format, SGPBI proposed a workshop which was endorsed. The results of the workshop are be used to ensure that WGPBI's work plan is consistent with the needs of the community and to ensure that WGPBI will establish lines of communication with modelling communities throughout ICES member countries. The four proposed themes of the workshop are: Fish stock recruitment, Harmful algal blooms/Eutrophication; Modelling approaches; and Ecosystem integration and questions of scale.

The microbial aspect of the biological part of the interactions was noted as being absent in many ecosystem descriptions, and therefore in groups working under the Oceanography Committee, particularly in relation to shelf seas.

Working Group on Seabird Ecology (WGSE)

Bob Furness (UK), Chair, introduced Doc. C:03 and the draft terms of reference for 2004. He pointed out that good opportunities existed for collaboration with oceanographers. In discussion, it was recommended that individual oceanographers be targeted. Knowledge of trends in seabird numbers and use of those trends was discussed.

Working Group on Phytoplankton Ecology (WGPE)

Franciscus Colijn (Germany), on behalf of the Chair introduced Doc. C:05 and the draft terms of reference for 2004. Discussion focussed on the need to bring phytoplankton and zooplankton specialists together to develop models of interactions; this could be better managed by bringing the groups together or reorganising the work between the separate groups. The importance of long-term datasets for work in this area was highlighted. The need to better coordinate work and develop a dynamic relationship between ICES and ITIS was agreed.

Results of the OCC workshops

The ICES Workshop on Zooplankton Taxonomy (WKZT) was successful (Doc. C:14). A CD-ROM will be produced from another successful workshop on ecosystem dynamics and harmful algal blooms (WKHABWATCH), reported in Doc. C:15.

Consultative Committee and Oceanography Committee business

The Chair introduced a new common term of reference for seven of the working groups to aid in a pilot North Sea integrated assessment. Part of this project is to evaluate the difficulties of integrating advice. This project is related to a proposed change in the Advisory structure. Concern was expressed that the terms of reference were not precise enough to be sure what each of the working groups should be producing. After discussion, it was agreed that each working group should try to interpret the needs from their group (while understanding what was possible) by thinking about general needs of ICES, rather than being told precisely what was needed. REGNS would be asked to produce a concise summary of the needs and background of the work for each working group chair.

Action Plan progress, and future topics

Franciscus Colijn had made some draft amendments to the Committee's contributions to the ICES Action Plan. These would be sent to both working group chairs and Oceanography Committee members for comment and checking.

Forthcoming symposia and theme session topics

The draft list of theme sessions was noted. Some concern was expressed that several sessions might have too many co-conveners. Two sessions on larval fish and trophic relationships looked similar and might be combined later. Two relevant theme session proposals exist for 2005. The Committee was informed about a proposed ICES symposium on "Marine bio-invasions" in 2006. This may be co-sponsored by other organisations, such as the International Maritime Organisation.

Election of new Chair

Sixteen members of the Oceanography Committee were present and were thus able to vote. Five candidates were nominated; two nominees withdrew their names. After voting, Einar Svendsen was duly elected as the new chair of the Oceanography Committee from 1st of January 2004.

Any other business

ICES-PICES cooperation

Ian Perry (PICES) presented various initiatives for collaboration between the organisations. He pointed out that the structure of PICES is much flatter than that of ICES. Collaboration by inviting ICES specialists has occurred. Potential collaboration could occur in four areas: global synchrony in causes and responses of oceanographic change; assessing the state of marine ecosystems; harmful algal blooms/species introductions; and ecosystem-based approaches to the management of marine resources.

Resource Management Committee (D)

Chair: Carl M. O'Brien (UK) Rapporteur: Dankert W. Skagen (Norway)

The Resource Management Committee met on Tuesday 23 September from 09:00 to 13:00 (30 in attendance), and on Saturday 27 September from 09:00 to 10:30 (15 in attendance).

Opening

The Chair opened the meeting, welcomed the participants and the Rapporteur was appointed. The Chair outlined the agenda and timetable for the two sessions of Committee business. These were adopted but with a minor re-arrangement to the order of the presentations of the reports of Expert Groups. The Chair briefly explained the background to the inclusion of the agenda item dealing with open computing environments for fishery science and management.

Attention was drawn to the Joint Session on Surveys with the Living Resources Committee and the Baltic Committee. Members of the Resource Management Committee actively supported this science session and the Chair reminded the Committee that three of its Expert Groups presented reports during the survey session:

- International Bottom Trawl Survey Working Group [IBTSWG] (Doc. D:05);
- Planning Group on Surveys of Pelagic Fish in the Norwegian Sea [PGSFN] (Doc. D:10); and
- Planning Group on Redfish Stocks [PGRS] (Docs. D:02 and D:08).

The Chair introduced the Committee to this year's Annual Science Conference programme and mentioned the Theme Sessions U, V, X, and Y as being of particular relevance to the remit of the Committee.

Committee business

Matters referred by the Consultative and the Advisory Committees

The Consultative Committee raised a number of items for consideration by the Resource Management Committee. The Chair asked Frans van Beek (The Netherlands) and Olle Hagström (European Commission) to update the Committee on preparations for the joint FAO-ICES symposium on the *Precautionary Approach to Fisheries Management: Lessons Learned and Future Directions.* This is scheduled for 2005 and a confirmation of location and venue is anticipated in the coming months. Peter Shelton (Canada) offered to provide a link between ICES and NAFO for this forthcoming joint FAO-ICES symposium.

The Chair reminded the Committee that its Action Plan provides a way of ensuring that its scientific work remains relevant to the ICES Strategic Plan. Furthermore, the Consultative Committee has asked that the work of each Science Committee be aligned with each other. To this end, the Committee is requested to directly *map* the terms of reference of its Expert Groups into the ICES Action Plan and identify outputs for the last year 2002/2003. The Chair had completed this task during the past year and advised the Chairs of Expert Groups that future terms of reference would need to be supported by reference to the appropriate Action Number within the Action Plan.

Speakers and theme sessions for ASC 2004 and 2005

Two proposals presented at last year's Committee meeting for theme sessions in 2004 were discussed. The first of these entitled: *Modelling Marine Ecosystems and their Exploitation* had been developed during the past year and unanimously recommended by the Committee for inclusion in the 2004 ASC programme without amendment. The Committee discussed last year's proposal on *Fishers' Perceptions and Responses in Management Implementation* and agreed that this should be postponed until the 2005 ASC when the results from a number of EU-funded projects should be available for presentation.

During this year's ASC meeting, a joint proposal from the Fisheries Technology Committee and this Committee entitled: *Technologies for Monitoring Fishing Activities and Observing Catches* was developed for inclusion in the 2005 ASC programme. The Chair agreed to identify a co-convenor to represent the interests of this Committee.

The Committee proposed that one of the invited plenary lectures at the 2005 ASC should be on the topic *Fisheries Management and Oceanography: the Spatial Dimension.* This would have a linked theme session. A joint proposal with the Marine Habitat Committee and this Committee entitled: *The Spatial Dimension of the Ecosystem Structure and Dynamics* was developed in support of this suggestion.

Numerous other suggestions were proposed for future theme sessions, but these all need to be developed further. The topics covered included:

- diagnostics in the evaluation of stock assessments
- model complexity and uncertainty evaluation
- bycatch of cetaceans
- risk evaluation and advice.

Presentation of, and adoption of, reports and draft resolutions

Study Group on Multispecies Assessments in the North Sea [SGMSNS]

This Workshop was co-chaired by Morten Vinther (Denmark) and John Pinnegar (UK). The former presented Doc. D:09. The SGMSNS had two major tasks:

- i) to evaluate the validity of reference points derived in a single-species framework when including multi-species interactions, and
- ii) to evaluate the current recovery proposal for North Sea cod in a multi-species framework.

In both cases, the SGMSNS found that the inferences made in the single-species framework were largely valid even when multi-species effects, such as predation mortality were included. Furthermore, progress on ECOPATH-type models for the North Sea was presented, but this work is still in a preliminary phase. The Committee discussed the problem that the inclusion of grey gurnards as a predator in the model results in unrealistic effects on the estimates of cod recruitment and 0-group mortality. During discussion, this raised the question of whether the current MSVPA framework is suitable for modelling the 0-group; namely, the age below recruitment to the fishery. A project is planned to approach this problem. Terms of reference for a meeting in early 2005 were discussed and agreed.

Study Group on Growth, Maturity and Condition in Stock Projections [SGGROMAT]

The Group had its first meeting in December 2002 and was co-chaired by Coby Needle (UK) and Tara Marshall (Norway). Stuart Reeves (Denmark) presented the report of the meeting (Doc. D:01). This Group is a continuation and extension of a previous ICES group SGPRISM. The Group reported on progress in summarising available data, agreement of formats and assignment of coordinators for further intersessional work. Existing models for growth and maturity have been summarised and there is software under development. The Committee proposed that this group liase with SGASAM in future. Concern was raised about the coordination of the databases being created and the Group should give thought to this.

Workshop on Fish Stock Assessment Techniques [WKCFAT]

The Committee Chair provided a brief summary of Doc. D:04. The Committee discussed the future of this course. There is a need to extend and broaden courses in assessment methodology – both to incorporate recent developments in assessment methods, including the exploration and investigation of basic data, as well as the simulation approaches that are developing rapidly. It was suggested that this would require a series of courses at different levels, both elementary courses covering standard methods as an introduction to the field for newcomers, and a more advanced course. A draft resolution for a course on modern approaches was proposed and developed during the ASC.

Working Group on Methods of Fish Stock Assessments [WGMG]

The Chair of this Working Group, Carl O'Brien (UK), presented Doc. D:03. The Group had been developing approaches aimed at investigating the causes and sources of the retrospective problem in fish stock assessments. The use of simulation tools has been advocated by the Group in order to explore assumptions and test hypotheses. Two new terms of reference were proposed by ACFM for the group -i) to develop robust methods and software for the investigation of management procedures for stock recovery and the evaluation of harvest control rules; and ii) identify appropriate estimators of stock conservation limits and reference points relating to longer-term yield. The Committee discussed these and agreed that WGMG should address these as a priority at their next meeting.

Working Group on Fishery Systems [WGFS]

The co-chair of this Working Group, Carl O'Brien (UK), presented Doc. D:06 by initially explaining that the Group was established to evaluate fishery system performance. Two case studies have been identified -North Sea cod and the Georges Bank mixed fishery which will illuminate issues and problems. The linkages between the collection of knowledge, management systems, monitoring and control, and adaptations and responses by the fishermen were discussed. ACFM had proposed a new term of reference for the Group; namely, to review the use of decision support systems integrating quantitative simulations with qualitative process knowledge in a management decision context. The Committee agreed that the Group should address this at its next meeting and that Martin Pastoors (The Netherlands) should chair the group.

Study Group on Age-length Structured Assessment Models [SGASAM]

Doc. D:07 was presented by Daniel Howell (Norway). Two model approaches were discussed – the Bormicon/Gadget model developed under the EU-funded DST² project and a model CALEN developed in New Zealand. This allowed a comparison between two independent approaches, which showed that each had faced similar problems and reached largely similar conclusions. Faced with these potentially very complex models, the Group had discussed criteria for levels of complexity, the artefacts introduced by discretisation of processes, diagnostics, and the problems associated with performance and optimisation of these computerintensive models. In addition, the Group discussed the need for a more accessible user-interface both for input and output. Furthermore, the Group should explore the use of their models not only in data-rich situations, but also in situations where age data are missing or



Figure D1- A screen dump from the demonstrated open environment.

unreliable. The Committee proposed specific stocks (anglerfish, hake, redfish, and sprat) for the Group to investigate at its next meeting. The future amalgamation of SGGROMAT with this group was discussed and considered desirable.

Computing environments for fishery science and management

Laurence Kell (UK) presented a framework being developed under an EU-funded Framework V project (Q5RS-2002-01824 FEMS: Framework for the Evaluation of Management Systems) for the investigation of interacting fisheries and their management. One of the tasks of the FEMS project is to develop a computer-based simulation framework for the evaluation of management strategies. If the framework is to be used easily and flexibly by a range of users for a large variety of tasks then the interface must be both intuitive and able to incorporate tools for a variety of tasks. A demonstration was presented to the Committee of an interface based on R (http://www.r-project.org) - an integrated suite of software tools for data manipulation, exploration, analysis, and graphical display. This is essentially a front-end environment which calls assessment and simulation routines, like XSA, ensures transformation of data to fit these routines, and presents the results in a versatile way, creating graphs and tables that allow the analyst to scrutinise both input data and outputs (Figure D1). The Committee welcomed this development, and noted that R probably is a suitable language for producing such programs, being 'open source'. R is increasingly being used in a number of ICES Expert Groups (e.g. SGGROMAT, SGSBSA, SGMSNS, and SGPA). The EU through its own committee STECF has used R to develop software for multi-fleet investigations and analyses during the past year. This software has recently been reviewed by ICES and used within SGDFF and WGNSSK. Poul Degnbol (ACFM Chair) indicated that ACFM foresees a development in the direction of the framework demonstrated if only to ease the review process within ACFM. In support of this, ACFM had requested that WGMG continue the development of methods and software in the direction of the framework presented for its next meeting (see Presentation of Reports). Some minor concerns were expressed about the future support of R, but nothing of a serious nature.

Any other business

ASC

The Committee acknowledged the improvements both in the facilities and the organization of this year's ASC. In addition, there was agreement that the quality of the presentations had again improved this year.

Format of Science Committee meeting

As requested by the Committee at last year's ASC, the Chair provided a short update at the beginning of the second meeting of the Committee on what had been decided at the first meeting and throughout the ASC. It was recognised that given the volatile nature of resolutions this is by no means an easy task, but the members of the Committee appreciated the Chair's effort.

The format of the Committee sessions was discussed. It was felt that two sessions were needed but that the first should concentrate on completing Committee business, whilst the second could involve presentations of reports and documents which are of more general interest to the wider ICES audience. The idea piloted by the Chair at this year's ASC of choosing a science topic for open discussion based around the work of the Expert Groups of the Committee was accepted for inclusion at future ASC meetings.

Finally, before closing the Committee session at this ASC, the Chair reminded the Committee that his term of office will finish at the end of 2004 and that there will be an election at next year's ASC. Committee members were encouraged by the Chair to consider standing for election and the main duties of the post were briefly explained.

Marine Habitat Committee (E)

Chair: Paul Keizer (Canada) Rapporteur: Heye Rumohr (Germany)

The Marine Habitat Committee met on Tuesday 23 September from 09:00 to 13:00 hours, and on Friday 26 September from 16:00 to 18:00 hours. Thirteen participants from 9 ICES member countries were present on Tuesday and an additional 9 participants attended the Friday session. They included 12 members of the Marine Habitat Committee and four Chairs of Expert Groups reporting to the Marine Habitat Committee.

Opening

The Chair welcomed the participants. He noted that at the beginning of the session on Friday a new chair for the Committee would be elected. The primary goal of the meeting was to discuss the work of and resolutions for the Expert Groups in relation to the Action Plan and amend draft Resolutions as required.

Appointment of rapporteur

Heye Rumohr was appointed rapporteur.

Adoption of the agenda

The agenda was adopted with no changes.

Committee membership and intersessional work

The Chair noted the continuing problems with attendance of the relevant Expert Group Chairs and the difficulty in having any intersessional work conducted by the Committee. The Chair has brought these matters to the attention of the Consultative Committee and will be tabling a proposal to that committee to mitigate the difficulty with Expert Group Chair assistance. The Chair also pointed out that part of the solution lies within the Committee and the Expert Groups themselves. The Committee concurred that the ASC should be a more attractive venue for scientists involved in the groups reporting it. This can be largely achieved by promoting more theme sessions of relevance.

Proposed changes in the advisory process

The Delegates will be considering a proposal from the Study Group on ACFM, ACE, ACME and Working Group Protocols (SGAWWP) for changes in the advisory structure. The key features of the proposal are the creation of review groups for information flowing from the Expert Groups to the Advisory Committees and the creation of Integrating Assessment Groups. The proposed changes are mostly directed at stock assessment issues but are being proposed for all advisory activities. The Committee felt that the function of the proposed review groups, and their ability to conduct their work within the existing timeframe, needs to be carefully considered. Peer review of the science for the Committee's issues is considered to be the role of the Expert Groups, and ACME and ACE provide additional peer review of issues that are used for advice. In addition to this secondary peer review, ACME and ACE are responsible for converting the scientific conclusions of the Expert Groups into information that is clear and useful to managers.

There was also concern expressed about the integrating assessment groups which would consider longer-term ecological or fisheries issues based on ecosystem areas. Some ICES member countries, e.g. Norway, already do integrated regional assessments. The EU is also developing regional assessment groups. These parallel developments pose a threat of duplication of effort and generally will call upon the same experts, resulting in an unsustainable workload. It was also noted that if ICES focuses its work on science in support of regional assessments, ICES will become less attractive to participants from the western North Atlantic and other regions.

The approach adopted for providing integrated assessments needs to be carefully considered so that it does not impact upon the ability of ICES to respond to specific issues and the participation in ICES by a broad range of marine science experts.

It was noted that the proposal also includes a mechanism for the provision of advice on a time scale that was shorter than the annual time scale presently applied to ICES advice. While this mechanism was largely in response to fisheries issues it will likely see application to broader environmental issues as well.

The ICES Action Plan

The Action Plan for the Science and Advisory Committees was accepted by the Delegates at the 2002 Statutory Meeting. The Consultative Committee has begun an audit of the Action Plan to document our progress for the Delegates. A draft of this audit for this Committee was provided to members prior to the meeting for their comment. It was noted that no comments were received but that this was not unexpected, given the somewhat subjective nature of the task. No objections were made to the Chair completing the audit for activities in 2002 and 2003 and also identifying linkages to the Action Plan for the draft Resolutions for 2004.

It was noted that the main thrust of the Action Plan for the Committee was a shift to activities that would support an ecosystem-based approach to providing advice on environmental issues and the integration of knowledge and advice on all human activities within an area. The past and future activities of each of the Expert Groups reporting to the Committee were then discussed to determine what changes, if any, were necessary to their terms of reference.

Review of Expert Groups

Study Group on the North Sea Benthos Project (SGNSBP)

The work of this Study Group is proceeding well. It is expected that a major gap in the database for the northern North Sea could be closed with data from the UK (Scotland). The database that is being constructed by this Group and the assessment and data products they will generate are critical components of the OSPAR sponsored habitat mapping pilot project for the North Sea. It was noted that the duration of Study Groups is normally a maximum of three years. In that regard the Study Group is being asked to provide some indication of the timeline for the various products it expects to produce. One of its major products will be input to the North Sea habitat mapping pilot project.

Benthos Ecology Working Group (BEWG)

The past work and draft Terms of Reference for this Group are consistent with the long-term goal of ICES and expectation of clients to provide ecosystem-based advice in support of integrated management. The Working Group is being proactive in communicating the results of its work through the *ICES TIMES* series.



Figure E1. Distribution of oil from the "Prestige" oil tanker, on the bottom of the Galician Shelf (From 2003 BEWG report, CM2003/E09).

This Group routinely discusses ongoing cooperative studies. Amongst the items discussed at the 2003 meeting was a discussion of the impact on benthic habitats of the Prestige oil spill off Northern Spain (Figure E1). The Group noted that the real disaster was the lack of correct decisions – the oil should have been contained in the first place; the breaking up of the ship was caused by another wrong decision. BEWG considers that there is an urgent need for an international framework to reach early decisions in situations like this.

The Working Group had encountered some difficulty in addressing the request from OSPAR regarding sensitive and opportunistic species. In order to address those problems a Study Group on Ecological Quality Objectives for Sensitive and for Opportunistic Benthos Species (SGSOBS), parented by ACE, is being proposed for 2004. BEWG will formulate its advice on this request from OSPAR with assistance from the results of the Study Group.

A Study Group to Review Ecological Quality Objectives for Eutrophication (SGEUT), also parented by ACE, has been formed to address an OSPAR request to provide advice on the integration of the five EcoQOs related to eutrophication. This new Study Group will require assistance from BEWG, particularly with respect to the potential role of phytobenthos as an indicator.

This Working Group needs to maintain a close collaboration with SGQAE on issues related to Quality Assurance of biological data.

Marine Chemistry Working Group (MCWG)

The reports of this Group are used extensively by ACME. The Working Group was unable to address the request to provide advice on the development of data products to illustrate eutrophication status because no chemical oceanographers attended the meeting and therefore that subgroup did not meet. This appears to be a chronic problem that reflects the general decline in marine science of the priority of chemical oceanographic research. The Chair of the Working Group will have to make an extra effort to attract the necessary expertise to its 2004 meeting since there are additional Terms of Reference for that subgroup. This includes a request to support the work of SGEUT.

Working Group on the Statistical Aspects of Environmental Monitoring (WGSAEM)

While this is a relatively small Working Group (15 members) its work is pivotal to much of the advice provided by ACME. Participation in the group is limited by the availability of environmental statisticians. Optimising the work of this Working Group through collaborations with other Expert Groups should be given a high priority. A term of reference has been added to the work of this Working Group and to a number of other Expert Groups to develop a multi-year plan for addressing statistical needs for environmental monitoring and assessment. The Expert Groups should consider

collaboration through a variety of methods including attendance of some members at WGSAEM meetings, parallel meetings with WGSAEM, and a workshop or workshops on practical applications. Such collaborations will not only be useful to the various Expert Groups but will also be useful to WGSAEM through the provision of appropriate datasets for their work. The Working Group should, in collaboration with other Expert Groups develop a multi-year plan for addressing statistical needs for environmental monitoring and assessment.

A theme session is being proposed for 2005 that will highlight practical applications of environmental statistics. The WG is also being asked to consider the feasibility of preparing a communication product on environmental statistics that would provide practical examples of statistical applications. At present the valuable products of this WG can only be found in their annual reports and in the ACME reports. A compilation of this information with practical examples would be of great value to environmental scientists. It was noted that WGPDMO is preparing a manuscript for publication in the *ICES TIMES* series on proper statistical treatment of fish disease data.

Working Group on Marine Sediments in Relation to Pollution (WGMS)

The Working Group is making good progress in many areas and they are directing their efforts to biological effects aspects, which is a priority for ICES and its clients. The Working Group needs to finalise its annex to the sediment monitoring guidelines. These types of revisions tend to create problems for many Expert Groups since they do not set a firm date for completing the revisions. As a result they keep considering new material and the revision is never completed. In situations like this an appropriate revision period should be established and adhered to. The revision period would depend upon on the rate of change in the information available.

Working Group on Marine Habitat Mapping (WGMHM)

Work has evolved from the consideration of habitat classification schemes to the generation of pilot mapping projects. The North Sea pilot project will be of interest to many ICES Expert Groups and will provide the future basis for the integrated assessments of this area. Concern was expressed about the potential misuse of information from such projects if uncertainty in the information is not clearly communicated to the users. The Working Group has identified this issue in the past. A term of reference was modified to request the Working Group to explicitly address this issue at their next meeting.

The request concerning a habitat classification scheme for the Baltic Sea will be given to the new Study Group on Ecosystem Health Issues in the BSRP (SGEH). The progress on this request from HELCOM had been limited by the absence of any participation by the Baltic countries. The Group will work closely with SGEH to develop the scheme and subsequent maps for the Baltic.

Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem (WGEXT)

There have been some very positive changes in the work of this group over the past 3 years. The Group has developed and implemented an electronic reporting format that has significantly reduced the time the Group requires to deal with the national reports. This approach has been positively noted by OSPAR and they have requested that the Group prepare reports for the entire OSPAR region. It was noted that there has been some difficulty in obtaining reports or reports of no activity from some countries. This problem has been brought to the attention of OSPAR.

A *Cooperative Research Report* that is under preparation will focus on risk and impact assessment and development of an ecosystem approach to managing aggregate extraction. This report should be of great interest to ICES and its clients.

Study Group on Quality Assurance of Biological Measurements in the Northeast Atlantic (SGQAE)

The activities of this Study Group under the parentage of ACME had been funded by OSPAR, but that funding was not available in 2003. However, as it was considered important to continue the work so its parentage was transferred to the Marine Habitat Committee who was responsible for the 2003 activities of the Group. As this Study Group is again being funded by OSPAR, ACME will parent the Group once again.

Working Group on the Biological Effects of Contaminants (WGBEC)

The recent and on-going developments in biotechnology, particularly with respect to genomics and proteomics is not explicit in the Terms of Reference for this Group. However, the Group has been discussing developments in biotechnology and potential applications to biological effects research and monitoring on a regular basis. At present the use of these technologies has not been developed to the point where they are operational. An additional item was added to the Group's Terms of Reference for 2004 to include an explicit report on their discussion and evaluation of the potential usefulness of these techniques. This Working Group has a very large workload proposed for 2004 (17 terms of reference) and it may not be possible for all items to be addressed.

Study Group on Information Needs for Coastal Zone Management (SGINC)

There was no change in the Terms of Reference for this Group that will have its second and final meeting in 2004 after which it will submit its final report.

General comments on the Expert Groups

The Chair noted that the Chairs of the Expert Groups should be made aware that the audience for their reports includes the Advisory Committees who use relevant sections of their reports as the foundation for the advice provided to the clients of ICES. As such the work of the Expert Groups is most useful if it is presented concisely using a scientific style. While generally the quality of the reports is good the Chair undertook to bring this guidance to the attention of the Expert Group Chairs.

Proposals for new study groups

A proposal was received for a new study group on produced water. It was agreed that the potential biological effects of produced water discharges from offshore oil and gas production was an important issue both in the North Sea and on the Atlantic coast of Canada. The issue was addressed to some degree by the BECPELAG project which looked at biological effects in the North Sea along a transect extending "downstream" from an oil production platform. The results of this work will be published in 2004. However, there are likely additional issues that need to be addressed. It was decided that the best way to deal with this issue in a timely manner was to ask WGBEC to review the scientific information on biological effects of produced water and make recommendations on how to proceed.

Proposals for theme sessions for 2005

The following proposals for theme sessions were supported by the Committee:

- Quality assurance of marine biological studies.
- Oil spills in marine ecosystems: impacts and remediation.
- How to improve environmental monitoring and biological studies integrating ecology and statistics.
- Spatial dimensions of the ecosystem structure and dynamics (in collaboration with the Resource Management Committee).

It was agreed that these proposals addressed high priority issues that would be of interest to the marine environmental science community and therefore would hopefully attract "young" marine environmental scientists to the 2005 ASC.

Proposals for symposia

A proposal was presented to hold a symposium on "Marine Bioinvasions". It is anticipated that this symposium will receive financial support from NOAA Sea Grant and would be held on the east coast of the USA in the spring of 2006. There was strong support for the proposal.

A proposal was also received to hold a symposium, possibly in 2007, on "The Role and Effectiveness of

Marine Environmental Indicators in Meeting Regulatory Needs: Lessons Learnt". This proposal is in a preliminary stage anticipating the need to undertake an extensive assessment of the initial implementation of EcoQOs. It will be presented to the Consultative Committee, but it is likely that it will require further development before a decision would be made on ICES sponsorship^{*}. OSPAR would be approached to co-sponsor the symposium.

Science Committee meetings in 2005

In 2005 the scientific and Delegates meetings of ICES will be separated in time and space. This presents opportunities to make changes in the arrangements for the Science Committee meetings. Committee members expressed a desire to have a longer period for meeting, preferably a full day at the beginning of the ASC, and then a 2- to 3-hour period at the end of the ASC to finalise resolutions for the Consultative meetings. At present discussions are mostly limited to science management issues with little opportunity to discuss the science.

Election of the Chair of Marine Habitat Committee

Heye Rumohr (Germany) was elected Chair of the Marine Habitat Committee for the period 2004 to 2006.

^{*} This Symposium was endorsed by the Delegates (Resolution C. Res. 2003/2ESY01), but with the title "Marine Environmental Indicators: Utility in Meeting Regulatory Needs."

Mariculture Committee (F)

Chair: Tom Sephton (Canada) Rapporteur: Ellen Kenchington (Canada)

The Mariculture Committee met on Tuesday 23 September 2003 from 14:00 to 18:00 and on Friday 26 September 2003 from 10:30 to 12:30. Thirteen participants attended the meetings, including six Committee members.

Opening and introduction

The Chair presented a brief overview of the origins of the Mariculture Committee and its role, function, and structure within ICES for the benefit of the new WG chairs and the observers.

Appointment of Rapporteur

E. Kenchington was proposed as Rapporteur and accepted by the Committee.

Adoption of agenda and timetable

The meeting timetable and agenda were circulated prior to the meeting, discussed briefly and adopted.

Arrangements for the 2003 ASC

After a high profile in the 2002 ASC, the Committee had no theme sessions at the 2003 ASC. This was thought to be a factor in the low attendance at this meeting. The Chair then provided housekeeping details for the week ahead.

Committee business

Consultative Committee and Mariculture Committee business

The Chair provided background information on the ICES Action Plan and Strategic Plan and products as they relate to working group activities.

The Committee has been tasked to assess the activities of the working groups against the Action Plan. The Chair, with assistance from working group chairs prior to the meeting, compiled a provisional table of the terms of references for each working group from 2002-2003 against the Action Plan and is in the process of compiling a similar table for the 2003-2004 terms of reference. The tables will be circulated to Committee members and working group chairs for review and comment. One outcome from this exercise is to undertake a gap analysis and will be used to help identify symposia and theme session topics to resolve gaps. Also, it will identify those action items which have been completed.

A discussion was held on the ability and impediments of ICES to deliver advice on 'fast-track' requests. From

time to time, ICES is asked to provide assessment, advice, and information on very short time frames that do not fit into the normal annual review timeframe. It was suggested that in the future, *ad hoc* teams may deal with fast-track reports. Alternatively, urgent requests could be sent to relevant Expert Groups intersessionally, for input. Resource limitations are anticipated.

The Committee noted a proposal to establish integrated assessment groups that could be based on a geographic area. This would allow fast tracking of requests to regional specialist teams, as many requests are specific to one region. ACE is actively pursing this proposal as it is a part of their mandate. The Committee was sceptical that this would work for the kinds of information generated by its working groups which requires consensus building among experts and evaluation of global trends and developments. Having only one expert in an integrated regionally-based assessment team would lead to divergence of advice on related topics between groups. In general, the Committee did not meet with this suggestion enthusiastically.

The Committee was asked to identify experts to participate in an ICES Case Study for the European Environmental Agency (EEA) Driving forces, Pressures, States Impacts and Responses (DPSIR) Framework. A theme session will be organised at the 2005 ASC on this framework and how it applies to particular ecosystems and settings. The DPSIR framework has relevance to the WGPDM, and to the WGEIM. ICES would like to see case studies presented at the theme session, if possible. It was suggested that salmon loss due to algal blooms and/or to jellyfish might be good case studies, as these events resulted in catastrophic losses of 1.8M fish in the Isle of Skye and in the Shetland Isles in the 2005 ASC host country (Scotland). These events also occur in Norway. Furthermore, as the cause has been established, it would be possible to follow the DPSIR framework. The Committee membership will be contacted to identify participants and issues.

The Chair provided an update on requests referred by ACME and ACE. HELCOM and OSPAR expressed an interest in some items in the reports from WGPDMO and WGEIM, but no specific requests were made. ACE, in its December 2002 report, summarized the contribution made by WGAGFM (1995-2000) and WGECO (2000) on the protection of genetic diversity in response to a request for advice from the EU Commission.

Discussion of strategic directions for the Committee and its Expert Groups

The Chair provided the meeting with a summary of the official functions and the four key tasks of the Committee, as posted on the ICES website. The

membership was asked their opinion on whether these tasks reflect the Committee's working group activities sufficiently. The Committee's remit is as follows:

> Area of responsibility is biological, ecological and engineering aspects of mariculture systems. Includes effects of humans on mariculture systems and the effects of mariculture on marine habitats. Also covers scientific aspects of stock enhancement, and the transport and introduction of nonindigenous species and stocks.

It was noted that stock enhancement is not specified in the key tasks although it is in the general description of the Committee. The following additional tasks were proposed: Evaluate the occurrence of diseases in wild fish and shellfish: Evaluate the effects of contaminants on the health status of wild fish. It was suggested that a new task be added to reflect the new WG on shellfish culture, and that Task 3: Develop environmentally sound mariculture methods, be expanded to highlight the hatchery components of our activities and the suggestions for improving the quality of fish produced. It was also suggested that there is a need to distinguish the different environments for culture, i.e., marine and freshwater. It was generally concluded that the key tasks were largely focussed on interactions between mariculture and the environment and do not reflect the considerable work done by working groups on improving the quality of the fish or shellfish product itself and the contributions made to regulatory aspects (disease, introductions and transfers, GMOs, etc.). These comments will be used to draft a revised list of Committee key tasks and circulated to members and working group chairs for review.

There was some discussion on the strategic directions that individual working groups might take over the next few years, each one developing a 5-year action plan to address the issues. A representative from the Working Group on Marine Fish Culture (WGMAFC) suggested that looking at implications for fisheries using different sources of feed - alternate sources of protein - might be relevant. It was further suggested that a review of the health aspects of cultured fish for people could be useful, given the decreasing amount of plant materials and plant oils utilized, creating different products that are visually indistinguishable. This could be dealt with in the working groups of fish culture and shellfish culture. It was noted that in the current ICES newsletter, there is an article on using worms as an alternative to fish to feed. If alternative foods are a way of the future it would be a good direction for the Committee's working groups to explore. This was encapsulated by the following proposed Term of Reference: Evaluation of alternative protein sources as key ingredients for all types of fish. It was further suggested that the Working Group on Marine Shellfish Culture (WGMASC) consider documenting the sources of broodstock (i.e., location) and the way in which broodstock is managed (e.g., replaced annually, used for selection, etc.). For shellfish culture there is still a strong emphasis on wild spat collection in many parts of the world and it would be of interest to try to get a review detailing sources of spat.

Discussion of report highlights and review of terms of reference of Expert Groups

Prior to the meeting the Chair asked that working group chairs prepare short presentations on the activities of their working groups, highlighting significant results and bringing forward outstanding issues for discussion. This approach was proposed after the 2002 Committee meeting as an alternative to longer presentations addressing all terms of reference, given the fact that all reports are circulated to the Committee prior to the meeting. It was noted that each working group should conclude its meeting with the ratification of the draft working group report and that it should be available for each member to leave with a copy for further review and comment. Working groups are given two weeks after concluding the meeting to complete their draft report.

Working Group on the Application of Genetics in Fisheries and Mariculture (WGAGFM)

E. Kenchington (Canada) presented the highlights of CM2003/F:01. This Working Group, together with the Working Group on the Ecosystem Effects of Fishing Activities (WGECO), completed a term of reference on protecting genetic diversity. Specifically, Term of Reference (d): Review and report on issues in relation to practical management options for the conservation of genetic diversity in marine fish and shellfish of economic importance, was further developed. This topic is one that the Working Group has addressed several times in various reports over the last years and which has resulted in primary publications by its members.

The Working Group was pleased to see that ACE significantly drew on previous Working Group reports (1995-2000) in providing advice to the European Commission's Directorate General of Fisheries in its December, 2002 report. The advice generated by ACE was:

- Fishing mortality should be kept sufficiently low to maintain large populations;
- The harvest should be widely distributed geographically and among all of the recruited populations to avoid local depletions and fragmentation;
- Fishing effort should be reduced rather than applying alternative management approaches that result in fisheries becoming even more selective;
- Case by case evaluation of risks associated with loss of genetic diversity vs. benefits of imposed action.

The Working Group concurred with these recommendations and addressed the Term of Reference (d) by proposing categories of marine organisms which

have differing threats to genetic diversity (e.g., contrasting issues between long-lived sharks and rays, and those of highly fecund marine species such as mackerel). At the subsequent WGECO meeting it was resolved that the working groups had probably gone as far as possible in generating general advice. WGECO, in their 2003 report, proposed that the Working Group provides: 1) a list of species for which we have reason to be concerned for loss of genetic variation; and 2) a list of species for which we have been added to the Group's 2004 Terms of Reference and will provide the foundation for WGECO to return to this topic at their 2005 meeting, with specific advice for specific stocks.

The Working Group also reviewed the current status and applications of genome mapping in cultured species and in model fish and made four recommendations. This is an important topic as considerable research money is being invested in genome mapping initiatives. Lastly, the Working Group considered the important topic of genetic contamination between cultured and wild marine fish and shellfish. In salmonids, there is a spatial separation between the freshwater spawning environment and the locations of grow-out pens in the marine environment. While escapees can and do enter the freshwater rivers to spawn, interaction with wild stocks during spawning is dependent upon escapement. In contrast, marine fish and shellfish from hatchery stocks may interact with wild spawning stocks while contained, particularly when grow-out sites are near spawning sites for wild fish. The Working Group compiled two case studies, one for cod and one for oysters, examining potential interactions and possibilities for genetic contamination of wild stocks. Two recommendations were made. The Working Group was unable to address one of its terms of reference, related to a review of the SALGEN project and a review has been scheduled for 2004, presumably subject to the same constraints.

The Working Group discussed a number of issues which it felt impeded its ability to address its Terms of Reference. The meeting attendance in 2003 was relatively low and it felt that there could be two possible reasons for this: 1) the list of members was outdated and did not reflect the actual membership, making it difficult for "unofficial" members to attend, while "official" ones lapsed, and 2) the timing of the meeting was poor for academic members as it either conflicted with teaching schedules or spring break. With the help of the ICES Secretariat, the membership list has been overhauled. Those on the current membership list have confirmed their interest in attending, and have had their contact information corrected. The proposed date for the 2004 meeting in Hamburg is 3-5 May. This date was determined by poll of the membership. Response from the membership has been positive and greater attendance at the 2004 meeting is anticipated.

An outstanding issue is the lack of quantitative geneticists on the Working Group and within the ICES community. These are people with expertise in breeding.

At one time the Working Group had subgroups for quantitative and qualitative (e.g., population genetics) genetics, but loss of key people led to dissolving these subgroups and dealing with the Terms of Reference collectively.

Working Group on Pathology and Diseases of Marine Organisms (WGPDMO)

Thomas Lang (Germany) reviewed Doc. CM2003/F:03, in particular the significant highlights for each of the Terms of Reference. The Working Group was faced with twelve Terms of Reference, which proved to be too many for the meeting. Consequently, the Working Group had to do a lot of intersessional work. Fortunately, as the Working Group has a long history of working together (established 1976), the working structures function very well. Members are committed to working on the task they are assigned to and they prepare working documents to bring to the meeting. The 2004 Terms of Reference have been somewhat reduced in number (nine), but a similar workload is anticipated for 2004.

The Working Group produces an annual update on new disease trends in wild and cultured fish, molluscs and crustaceans and this resulted in a manuscript for submission to ICES for publication in the Cooperative Research Report series. The focus of this manuscript is a review of the disease trends from 1998-2002. Concern was expressed over the observation of ISA for the first time in Ireland, massive fish kills due to harmful algae and jellyfish and the finding of two oyster parasites (Haplosporidium spp.) in Canada in 2002. Sea lice are still a major problem for salmon culture. For the first time data from a disease survey in wild fish in the Barents Sea over three years was presented. Different prevalences were found in the Barents Sea from those in the North Sea or Baltic Sea. The second Term of Reference was related to the effect of temperature on Bonemia. At low water temperature the infection is favoured compared to at high water temperatures. The Working Group reviewed existing strategies to assess the prevalence of shellfish diseases in parallel with fish disease and chemical contaminant levels. However, few examples were available. This has been done in the Mussel Watch programme, but is not common in ICES countries. The Working Group reviewed new evidence for the number of species in *Perkinsus*. Molecular tools have been used to re-evaluate species circumscription in Perkinsus. Previously, 7 species have been described but these have been reduced to 4, based on molecular evidence; all are virulent. The Working Group also considered a herpes-like virus found in oysters and concluded that it was not similar to the human herpes virus, and so cross contamination is not a concern. The Working Group contributed to BEQUALM (Biological Effects and QUALity in Monitoring) quality assurance guidelines on biological effect techniques, fish disease and liver pathology. The impact on wild stocks of the diseases of farm-fished stocks was addressed, but the WG views this as a two-way interaction as there is evidence for disease transfer in both directions. The Working Group examined the spread of Ichthyophonus in

herring stocks and the distribution and possible causes of the M74 syndrome. A massive epidemic occurred in the 1990s which effected herring stocks in Baltic. The Working Group concluded that the species is endemic; occurring at low prevalence at all times in herring stocks. Therefore, another epidemic with associated fish kills cannot be excluded. M74 seems to be related to a deficiency of the B1 vitamin, but the causes for this deficiency are not yet clear. The Working Group made a strong recommendation that those member countries affected (Sweden and Finland) should carry on research to understand the cause of M74, as it may be increasing again in the Baltic Sea. The Working Group has a principle of trying to publish their work as much as possible. Currently they have a web-based report on diseases and parasites and they propose to develop identification leaflets for ICES in 2004.

Working Group on Marine Fish Culture (WGMAFC)

The Committee Chair presented Doc. CM2003/F:02 in the absence of the WG Chair A. Mangor-Jensen (Norway). The Working Group had planned to meet in Spain last year but cancelled due to very low participation and agreed to meet by correspondence to deal with the existing Terms of Reference. The meeting in 2004 is planned for Vigo, Spain.

The Working Group reviewed and adjusted the Terms of Reference for 2004 to reflect more realistic workloads and to identify products. A lead has been assigned the responsibility to gather information from other members and initiating the preparation of material for the next meeting. In 2004 the Group will examine microdiets and alternate live feeds, amongst other activities.

Working Group on Marine Shellfish Culture (WGMASC)

The Committee Chair presented Doc. CM2003/F:05 in the absence of the WG Chair, A. Bodoy (France). This is a new Working Group which met for the first time in 2003 to determine the Terms of Reference for 2003-2004. The Group met in association with the European Aquaculture Association Annual Conference in Norway. The Committee expressed some concerns over the breadth of the four Terms of Reference identified by the Group. A. Bodoy was able to clarify issues with Term of Reference (c): Review the ecological factors affecting shellfish production (carrying capacity, fouling, predation, HAB, disease, pollution, and water quality) and alternative solutions to mitigate effects. This was meant to be an over-arching term of reference and in the coming year only carrying capacity and fouling would be addressed. The Committee suggested that the Terms of Reference reflect what will be in the report, while the justification for the Terms of Reference can present the rationale and longer-term goals of the Group. The Terms of Reference were amended to alleviate the concerns.

Working Group on Environmental Interactions of Mariculture (WGEIM)

The Committee Chair presented Doc. CM2003/F:04 in the absence of the WG Chair E. Black (Canada). The Group prepared a draft discussion summary of the and concluded MARAQUA report that the implementation of the Water Framework Directive (WFD) in EU member states, could lead to significantly different outcomes dependent on how a number of key WFD activities were standardized among member nations. Three aspects of WFD implementation were identified as critical to the impact the WFD would have on mariculture in the context of MARAQA and the EU Commission's Strategy for Sustainable Development of European Aquaculture. These were: 1) the scale used to define a water body, 2) the classification system used to describe water bodies, and 3) the consideration given to methods for improving water quality in a water body. The Group was requested by ACME to continue to monitor the implementation of the WFD in member states and to expand its response to the Terms of Reference in future meetings.

The Group was also tasked with preparing a review of the potential impacts of escaped non-salmonid candidates for aquaculture on localized native stocks, in order to develop, at an early stage, risk assessment and management strategies. However, the Group found that the body of the literature was very incomplete for most species. It was decided that the Group would look at cod, halibut, turbot, sea bream, and sea bass in 2004 to permit early advice on these species with the intent of expanding advice through subsequent efforts of the Group.

Finally, the Group prepared a report that identifies some highly useful forms of decision support tools available for managing environmental interactions with aquaculture. However, the Group requires clarification on what the role of ICES will be in advising on coastal zone management (ICZM) before proceeding further with this term of reference. Similarly, Term of Reference (c) was not addressed pending this clarification.

A concern was raised over the issue that the Group looks at national reports on all kinds of aspects that they think might be relevant to their Working Group. Unfortunately, the national reports on disease are not consistent with those submitted to the WGPDMO. The use of further national reports *per se* (production stats, chemical use, etc.) will be curtailed in the future as it is not a requirement of the Working Group in order to perform its activities.

Forthcoming symposia and proposed theme session topics

Symposia relevant to the Committee

In 2004 there will be an ICES symposium: "Gadoid Mariculture: Development and Future Challenges" (C.Res 2001/2FSY01). This will take place 13-16 June

2004 in Bergen, Norway. The organization of this Symposium is going well. Pamphlets advertising the meeting were circulated at the ASC and through ICES mailing lists.

In 2005 there will be an ICES Symposium: "Interactions of Wild and Cultured Atlantic Salmon" (C. Res 2002/2ISY01). The Diadromous Fish Committee is further developing this proposal and seeks the active involvement of this Committee. The meeting will be held in Bergen, Norway at a time to be decided.

The Committee were informed of a proposal for a Symposium in 2006 on "Marine Bioinvasions". It is planned to hold this meeting on the east coast of the USA should ICES approval be granted^{*}.

Theme sessions at the 2004 ASC in Vigo, Spain

Plenary Speaker

Mariculture has a prominent place amongst the theme sessions, given the importance of mariculture to the host country. A Plenary Speaker, Ernesto Penas (EU DG Fish, Brussels) was proposed by the Spanish delegation and endorsed by MARC. E. Penas has a broad background and work experience in Spain.

Relevant theme sessions

Each theme session was reviewed to discern the status of preparation:

"Towards Sustainable Aquaculture" (Ackefors, Kamermans, Doyle) – This theme session needs to be promoted through the WGs and MARC with distribution lists to confirm participation. J. Doyle reported that there has been a good response by WGPDMO on sustainable elements of finfish culture, but she would like to see major contributions from the shellfish group (WGMASC).

"Shellfish Culture: Perspectives and Limitations" (Bodoy, Smaal) – The two conveners would like to have a Spanish co-convener. The theme session is expected to be relevant to Vigo, as it is the centre for mussel culture in the world. MARC, through CONC, will request the Spanish delegates to identify a co-convener.

"Water Treatment in Intensive Fish Cultures" (Mangor-Jensen, van der Meeren, Harboe, Geller, Trippel) – This session was proposed by WGMAFC.

"The Effects of Human Activity and Disease on Marine Fish Populations" (Lang, Hylland) – This session will be withdrawn. The original proposal was not developed enough to warrant a session at this time. T. Lang felt that holding it now might actually be detrimental to the field. "Mariculture in Integrated Coastal Zone Management Systems" (Black, Støttrup) – This is still being developed by the conveners.

A discussion ensued on the number of sessions at the meeting and the need to make sure that the sessions are not overlapping, as much as possible. At present there may be too many themes but these will be reviewed at Consultative Committee meetings later in the week, and changes are expected. The Committee felt that there is a need to have a balance in themes, and to have sessions that would be attractive to younger scientists.

2005 ASC (Aberdeen, UK)

The Committee and working group chairs were asked to provide input into session topics prior to June 2004. ICES suggested that each working group examine their terms of reference to determine whether a theme session would be of benefit in addressing certain issues or knowledge gaps. Conveners are encouraged to consider a special publication following the theme sessions. It is also anticipated that the Action Plan gap analysis (see above) will identify topics where additional expertise could be brought together through this venue. Given that the meeting will take place in Scotland, a major emphasis on the integrated assessment of the North Sea is being planned with topics related to ecosystem changes and effects.

The Committee proposed an overall theme entitled Sustainable Aquaculture, with theme sessions:

- Large-Scale Mortalities and Impacts on Sustainability
- Large-Scale Environmental Events and Impacts on Aquaculture.

These sessions (see discussion above) have direct relevance to the mariculture industry in Scotland and elsewhere. The Committee will consolidate its preparations of a justification for these for the mid-year Consultative Committee meeting.

Identification of cross-cutting issues of concern among Science and Advisory Committees

ICES will be giving specific working groups directed terms of reference so that they can provide the integrated advice through their normal parent and advisory committee process. At present there are no plans to dissolve or re-organize working groups into regional units (see discussion within MARC above). This will require working groups to respond to terms of reference promptly. This approach will be evaluated after two or three years to determine its effectiveness in delivering the desired products.

^{*} This proposal was approved by the Delegates (C. Res 2003/2ACMESY01).

Committee and working group membership and participation

The Committee was asked to recommend when they would like to hold their business meetings: during the next ASC or outside of it. It was advised that the plan for the 2004 ASC was to open the meeting with a plenary lecture on the first day and to have business meetings on the following day. It was not clear whether these would overlap with ASC meetings or not. Given that Committee members and especially working group chairs play a prominent role in the ASC meetings (as conveners, etc.), the Committee endorsed holding the business meetings as a separate activity not overlapping ASC sessions.

The Chair discussed membership and advised that some members have not responded to e-mail requests. It was requested that the membership list be updated through ICES with Delegates annually to ensure participation and effective discussion. It was noted that this had been done for working group membership with a very positive result for the WGAGFM.

Review and adoption of draft resolutions (Expert Group terms of reference)

The terms of reference for the working groups were revised through the week and reviewed at the meeting on 26 September 2003.

WGAGFM has been given a new Term of Reference (e), arising from the report of the WGECO asking for advice, and the appropriate justification has been added. Some questions were raised over the Term of Reference (c): Recommend the conservation targets for eels based on conservation genetics information, with respect to the activities of an ACFM assessment group that has a term of reference on glass eels. The Committee Chair will ensure that there is no duplication.

Minor changes were made to the Terms of Reference for WGPDMO and it was noted that ToR j was missing a justification.

WGEIM was given an additional Term of Reference (e) by the Committee, asking for an analysis of the literature

and research on bath treatments and in-feed additives used to treat salmon for sea-lice and to produce a synthesis report on their effects on non-target organisms and their fate in the environment.

The WGMAFC Terms of Reference were accepted without change.

The WGMASC Terms of Reference were re-formulated, as discussed above, for clarification, but were not substantially altered.

Other business

Participation on the Baltic Committee

Committee members and working groups have been requested to become involved in the Baltic Committee where there is direct interest. The BSRP will officially start on 15 March 2003 and is a major international effort to develop a holistic, integrated management of the Baltic Sea ecosystem in order to ensure its long-term sustainability.

One component of the BSRP will be to foster biological effects monitoring, including studies on fish diseases and histopathology in the Baltic Sea. Baltic countries/institutes carrying out biological effects monitoring by applying standard techniques, such as those recommended by ICES, will have to participate in the self-funding BEQUALM programme.

Committee membership

The Committee asked the Chair to make a case to the Consultative Committee for working group chairs to become formal members of Science Committees. The bulk of the Committee activity occurs within the working groups and it was felt that this change would formally acknowledge their contributions. They may also be asked to participate in Advisory Committee meetings, especially where terms of reference arising from their working groups are being addressed.

The meeting was adjourned at 11:25 on 26 September 2003.

Living Resources Committee (G)

Chair: Henk J. L. Heessen (Netherlands) Rapporteur: Fatima Cardador (Portugal)

The Living Resources Committee met on Tuesday 23 September from 09:00 to 13:00 and on Saturday 27 September from 09:00 to 10:30.

Opening

The Chair welcomed the participants and it was agreed that Fatima Cardador (Portugal) would be Rapporteur. The agenda was presented and adopted with the addition of the presentation of a proposal by Pierre Petitgas (France) for a new Study Group. The election of a new Chair would take place during the Saturday session at 10:00.

Reports of working groups

Working Group on *Crangon* Fisheries and Life History (WGCRAN)

The Chair of WGCRAN, Axel Temming (Germany), presented Doc. G:01. He regretted that not all major countries that participate in the *Crangon* fishery had been able to attend the meeting. The fishery for brown shrimp in the North Sea ranks amongst the three most valuable fisheries in this area. WGCRAN is making good progress in modelling the fishery. The present models should rather be considered as an investigation tool than be used as a management tool.

Working Group on Cephalopod Fisheries and Life History (WGCEPH)

Uwe Piatkowski (Germany) presented Doc. G:02. He explained that it was important that meetings of this Group be held in conjunction with an EU-funded Concerted Action. Otherwise attendance of its meetings would be much less.

Working Group on Elasmobranch Fishes (WGEF)

The Chair of WGEF, Maurice Clarke (Ireland) presented Doc. G:09. WGEF spent a significant amount of its most recent meeting on sorting out landings data. Landings data for most elasmobranchs are usually not available on a species basis, but just for categories like "sharks" or "rays and skates". It was discussed whether this Group should be under ACFM or LRC, but it was felt that its work should focus both on assessments and on increasing knowledge of the biology of these species. ACFM had requested the addition of a term of reference on deepwater sharks. It was noted that this Group should work together with an EU elasmobranch group in order to avoid duplication.

Study Group on the Biology and Life History of Crabs (SGCRAB)

As there was no representative of this Group, Doc. G:11 was not discussed.

Working Group on Fish Ecology (WGFE)

Niels Daan (Netherlands) presented Doc G:04. This Group was set up last year to address Ecological Quality Objective questions which were beyond the remit of WGECO.

The Group was also tasked to provide a response to requests from OSPAR and HELCOM, including the provision of an assessment on which the justification of the fish on the OSPAR priority list of threatened and endangered species and habitats will be based. This was to ensure that the data used for producing the justification are sufficiently reliable and adequate to serve as a basis for conclusions that the fish concerned can be identified consistently with the Texel-Faial criteria. This resulted in the Group providing a revised classification for relevant fish species under these criteria (Table G1).

In consideration of the 2004 terms of reference for WGFE, the Committee requested the addition of a term of reference to analyse the relative catchabilities of survey gears. Work on this topic might ultimately result in the possibility to combine data from several surveys in the ICES area, in order to produce a new ICES Fish Atlas.

Stock Identification Methods Working Group (SIMWG)

As there was no representative of this Group, Doc. G:15 was not discussed.

Workshop on Lobster Reference Points for Fishery Management (WKRPFM)

Joël Chassé (Canada) presented the report of this Workshop, Doc. G:10.

Draft resolutions

Draft resolutions were adopted for all Expert Groups.

At the request of ACE a specific term of reference was added to several groups (WGCRAN, SGCRAB, WGCEPH, WGEF, WGFE), in order to provide information for the Regional Ecosystem Study Group for the North Sea (REGNS). It was noted that the request to

	Global importance	Local Importance	Rarity	Sensitivity	Keystone species	Decline
Sturgeon	~	<	~	~		~
(Acipenser sturio)						
Houting (Coregonus lavaretus oxyrhinchus)	?	~	>	~		~
Short-snouted seahorse (Hippocampus hippocampus)	?	?	~	~		?
Seahorse (Hippocampus ramulosus)	?	?	~	~		?
Allis shad (Alosa alosa)	~		~	~		~
Sea lamprey (Petromyzon marinus)	~			~		~
Couch's goby (Gobius couchi)	?	?	?			?

Table G1. Revised classification of relevant fish species under the Texel-Faial criteria (From the 2003 report of the Working Group on Fish Ecology, CM2003/G:04).

WGFE was extremely broad and was supposed to cover all non-commercial fish species, which would require a considerable amount of work. It was felt that this request should either be withdrawn or formulated in another way, asking for a more general reply.

Matters referred to the Committee by the Consultative Committee and the Advisory Committees

The Chair briefly discussed the history of the ICES Strategic Plan, the ICES Action Plan, and the wish of the Bureau and the Council to record the progress that is made concerning the points mentioned in the Action Plan. In the new Terms of Reference to be agreed during this ASC, the relevant numbers that refer to specific actions from the Action Plan should be mentioned in order to help in recording progress. Also the Chair has been asked to submit an overview of the progress made in 2002/2003.

The changes in the advisory structure of ICES were briefly outlined.

Proposals for new groups

Two proposals for new groups were presented to the Committee and were accepted. These proposals were:

- Study Group on Regional Small Pelagic Fish, which was presented by Pierre Petitgas (France). This proposal was accepted by the Committee after considerable discussion.
- Workshop on Survey Design and Data Analysis presented by John Simmonds (UK). This proposal

was a joint initiative with the Fisheries Technology Committee who would parent the activity.

Theme sessions 2004

It was suggested to widen the scope of the theme session "Cephalopod stocks: review, analysis, assessment and sustainable management", which was proposed last year by not restricting the item to cover just European research and to stimulate wider participation to this theme. Also, a Spanish co-convenor was proposed.

The proposal on "Recent advances in the oceanography and biology of the Iberian waters and adjacent shelf seas: results from integrated multidisciplinary projects" was agreed, but it was suggested that this theme should include research in the Bay of Biscay. It was expected that such a theme would receive a large number of contributions.

The Committee strongly supported a repeat of the theme on "The life history, dynamics and exploitation of living marine resources: advances in knowledge and methodology", which was the most successful theme during the ASC in 2001.

Theme sessions 2005

Tore Haug (Norway) proposed a theme session on "Monitoring techniques and estimating abundance of seals and whales." Three co-conveners are proposed working on land-breeding and ice-breeding seals and on whales.

Emma Hatfield (UK) introduced the proposal for a theme session "Fishery, ecology and life-history of small pelagic fish". Such a theme session would be very timely due to some EU-funded research projects that will finish in 2005.

Finally, the Chair proposed a theme session on an Elasmobranch Fisheries Science. Recently considerable progress has been made concerning the assessment of elasmobranchs. Also, elasmobranchs are specifically mentioned in the new MOU between EC and ICES.

Proposals for symposia

The Committee did not have a proposal for an ICES symposium in 2006 or 2007. It was mentioned that an ICES symposium would be organised in 2007 on a topic that is relevant to the Committee.

Arrangements during this ASC

The Committee felt that the arrangement during this ASC, where the Committee had two sessions of 4 and 1.5

hours respectively was adequate. It was mentioned that the attention received by the joint session on surveys would significantly increase if this session was organised in the form of a theme session and was held in the course of the meeting. It was found unfortunate that this survey session on Tuesday afternoon coincided with the meeting of the Fisheries Technology Committee.

Election of a new Committee Chair

There were 16 voting members of the Living Resources Committee or Delegates present for the election of a new chair. Dave Reid (UK) was elected after one voting round.

Closure

The Chair thanked the Rapporteur for her help with the report of the sessions and thanked all members for their participation in the discussions and for the support he had received during the last three years

Baltic Committee (H)

Chair: Brian MacKenzie (Denmark)

Rapporteurs: Markku Viitasalo (Finland), Nils Hammer (Germany), and Max Cardinale (Sweden)

The meeting included three scientific presentations and presentations of five Expert Group reports. Short summaries of the scientific presentations and discussions of group reports are given below. Additional issues related to the ICES Action Plan, planning of the Annual Science Conference (ASC) in 2004 and 2005, and Advisory Committees were also discussed.

Opening

Adoption of the agenda

The Chair opened the meeting and welcomed the members, Expert Group chairs, and other participants. The proposed agenda was adopted, with the amendment that Section 1.8. of the WGBFAS report, Recent environmental-hydrographic conditions in the Baltic Sea, was presented on the 2nd day of the Committee meeting.

Roll call

The attendees identified themselves on a name list. 29 persons attended the meetings.

Arrangements for the meeting

Rapporteurs were appointed (Markku Viitasalo, Finland; Nils Hammer, Germany; Max Cardinale, Sweden), and a small subgroup was established to consider the ICES Action Plan. The subgroup consisted of Eero Aro (Finland), Max Cardinale (Sweden), and Fritz Köster (Germany).

Presentation of, and adoption of, reports and draft resolutions

Working Group on Baltic Fisheries Assessment (WGBFAS)

Maris Plikshs (Latvia), summarised Section 1.7 "Overview of Baltic fish stocks" in Doc. CM2003/ACFM:21. He reported on the state of cod, herring, sprat, and flatfish stocks in different Baltic subregions, listed assessment problems, and reviewed the Group's advice on management as follows:

<u>Cod</u>. The present stocks are almost the lowest in history. Neither the "Recovery plan for eastern Baltic cod stock" or the "Long-term management strategy for cod stocks in the Baltic" have been successful. Both western and eastern Baltic stocks are currently outside safe biological limits (SBL) for spawner biomass. As a result the Group has recommended that fishing mortality be reduced by 90%. <u>Herring</u>. In Subdivisions 25-29 and 32 (excluding the Gulf of Riga), landings and recruitment have been constantly decreasing, and the spawner biomass is outside SBL. In the Gulf of Riga, in contrast, both trends have been increasing, and landings are now the highest on record. Spawner biomass is considered to be within SBL. In Subdivision 30, the Bothnian Sea, spawner biomass is also within SBL, while in the Bothnian Bay (Subdivision 31) the situation is unknown due to an uncertain stock assessment.

<u>Sprat</u>. In Subdivisions 22-32 (the Baltic excluding the Sound, Belt Sea, and Kattegat), landings have increased until 1998, after which a slight decline has taken place. Fishing mortality has increased during the 1990s, but spawner biomass is currently within SBL.

<u>Flatfish</u>. For flounder, a tentative assessment has been made, indicating a relatively stable stock since 1978. As for plaice, turbot, and brill, only landing data exists and no analytical assessments are conducted.

Volker Morholz (Germany) summarised Section 1.7 "Recent environmental-hydrographic conditions in the Baltic Sea" in Doc. CM2003/ACFM:21. He explained that the most important hydrographic event in the past 12-18 months was the major inflow of saline, oxygenated water which occurred in January 2003 (Figure H1). This event raised salinities and oxygen concentrations in deep layers of all major basins of the Baltic to levels not seen since the inflow of 1993. The inflowing water was relatively warm compared to many previous inflows. The event in January 2003 was preceded in October 2002 by a smaller inflow also consisting of relatively warm oxygen-rich water. This inflow had already partially renewed the deep layer of the Bornholm Basin.

The effect of the January 2003 inflow event on future oxygen conditions in the different basins was estimated to be up to 2 years.

Request from WGBFAS for environmental information from the Baltic Committee

The Committee recognised the need to supply environmental information to WGBFAS annually. The Working Group prefers to receive updated and recent information. Since the Group meets in April, hydrographic information from late winter/early spring (February-March) is most useful. The Chair of the Committee agreed to ask relevant laboratories shortly after the New Year to send updated hydrographic information (e. g., temperature, salinity, oxygen contour plots and maps) to WGBFAS in early April.



Figure H1. Oxygen concentration along a transect through the Baltic Sea during July 2003. Courtesy of Volker Mohrholz, Baltic Sea Research Institute, Warnemünde, Germany.

Study Group on Salmon Scale Reading Problems (SGSSR)

Erkki Ikonen (Finland) reported on the activities of SGSSR (CM2003/H:01). The Study Group had reviewed and discussed image analysis for scale reading and otolith analysis for age determination. Also, centralisation of collection of salmon fishing samples in Bornholm had been discussed. The Group recommends that both image analysis and otolith reading should be further studied to determine whether they could serve as routine methods in salmon age and growth determination.

The Committee supported the proposal that Lars Karlsson, Sweden, will act as a new chair of the SGSSR. The proposed new Terms of Reference were accepted.

Study Group on Herring Assessment Units in the Baltic Sea (SGHAUB)

In the absence of the Study Group Chair, Bengt Sjöstrand (Sweden) provided a brief summary of Doc. CM2003/H:02.

The Study Group's remit was to consider how stock units should be treated in the Baltic. Questions on the sampling and methodological questions of the survey were in focus during the first and second meeting. The third meeting took place in 2002 and concentrated on coastal herring in the southern Baltic Sea and on the Swedish coastal herring. It recommended that separate assessments should be continued in close cooperation between the institutes of the regions. It noted that data on herring are not disaggregated enough for the Baltic regions. This makes it difficult to analyse the environmental effects on single stocks. As an example, the mean weight-at-age per stock and density dependence of herring stocks is difficult to resolve, if the data are not disaggregated enough. However, the Committee noted that disaggregated data are available in the database of the Study Group on Multispecies Assessment in the Baltic (SGMAB). The most important outcome of the three meetings was the recommendation for establishing four management units in the Baltic, which has now been implemented by IBSFC. The Committee concluded that

the Study Group has finished its work and that it shall be dissolved.

Study Group on Multispecies Assessment in the Baltic (SGMAB)

Co-chair Fritz Köster, Denmark, presented Doc. CM2003/H:03. The database used for MSVPA was reviewed, updated, and validated. A key run for the central Baltic for the years 1974-2002 had been performed during the WGBFAS meeting. Long-term simulations and forecasts were made and certain other scientifically-oriented activities, such as modelling of suitability coefficients, and consideration of spatial differences, were undertaken.

The proposed Terms of Reference for 2004 were accepted by the Committee. As an additional Term of Reference, consideration of recruitment success in relation to parental stock status and environmental conditions was suggested by the Co-chair, and accepted by the Committee.

ICES-IOC-SCOR Study Group on GEOHAB Implementation in the Baltic (SGGIB)

Markku Viitasalo, Finland, presented Doc. CM2003/H:04. He explained that the Group had worked by correspondence, and had held two informal meetings. He had also attended the 2003 meeting of WGHABD to discuss SGGIB problems. The WGHABD noted the many links between the two groups and encouraged continuing the SGGIB work.

An informal meeting was arranged in Helsinki, 26 August 2003, during the Baltic Sea Science Congress. This meeting further confirmed the need to develop the ecosystem approach in Baltic HAB studies and the need to continue planning the multiship experiment with the existing resources.

The Committee accepted the suggested Terms of Reference. Due to the previous coupling with WGHABD, the SGGIB Chair had proposed a meeting following the next WGHABD meeting, to be held in Corsica, France. The Committee, however, recommended to reconsider this meeting place, in order to improve participation by Baltic SGGIB members. Also, future cooperation with the new working groups on the Baltic Sea Regional Project was seen as potentially beneficial. The next meeting of the SGGIB will therefore be held in Helsinki, Finland.

Report of the Planning Group on Implementation of the Baltic Sea Regional Project (PGBSRP)

The Chair presented Doc. CM2003/H:05. He explained that the Planning Group had dealt with the question on how to initiate and establish a cooperation between ICES and BSRP. For this purpose draft terms of reference were developed for four new study groups:

- Study Group on Baltic Fish and Fisheries Issues in the BSRP (SGFFI) Chair: Maris Plikshs, Latvia
- Study Group on Baltic Ecosystem Health Issues in support of BSRP (SGEH) Chair: E. Andrulewicz, Poland
- Study Group on Baltic Sea Productivity Issues of the BSRP (SGPROD) Chair: Bärbel Müller-Karulis, Latvia
- Study Group on Baltic Sea Ecosystem Model Issues in support of BSRP (SGBEM) – Chair: Wolfgang Fennel, Germany

The draft terms of reference prepared by the Planning Group were given preliminary approval by the Consultative Committee at its mid-term meeting, prior to further endorsement by this Committee. All resolutions were circulated to the Committee prior to the meeting. During the summer the chairs began informally to establish potential contacts and membership of these new study groups.

The Committee's consideration of these groups therefore focussed on participation and the timing of the study groups. It was concluded that two of the SGs (SGEH, SGPROD) could meet and start working in 2003. The other two groups (SGFFI, SGEM) will meet for the first time in January 2004. Chairs were encouraged and expected to approach national delegates directly and ask them to nominate specific persons.

During discussion of the new study groups and the BSRP, it was asked why some institutes in some countries (e. g., Estonia) were not coordinating partners of the BSRP. This situation is in contrast with some other projects. The coordinator of BSRP (Jan Thulin) explained that the main reason for choosing the participating laboratories was primarily on the basis of those which historically had contributed to ICES activities. However, there were some possibilities that other institutes could become involved later in the project.

Baltic Committee contribution to ICES Action Plan

On the instruction of the Bureau, there is a requirement to monitor and evaluate progress of ICES Science and Advisory Committees towards fulfilling the ICES Action Plan (AP). This information can then be used by various Groups and Committees within ICES to quantify and measure the work done by ICES. The Consultative Committee together with the Secretariat has therefore developed an audit table in which terms of reference of Expert Groups are cross-linked to specific bullets of the Action Plan. The table is also designed to list and identify how outputs of the groups contribute to the Action Plan bullets. The overall audit table was customized by the Secretariat after the May meeting of the Consultative Committee to mirror the activities of each Science Committee, and then circulated to Science Committee Chairs for completion and updating prior to and during this meeting.

The table is intended to be completed and updated each year. Hence for this year, terms of reference for meetings held in 2002/2003 (i.e., groups which reported to their parent committee at the 2003 ASC) and their outputs have been compiled. In addition, terms of reference for next year's meetings have been cross-linked to Action Plan bullets in the Scientific Justification section of all draft resolutions. The audit process was completed jointly by the chairs of the Committee and the Expert Groups prior to and during this meeting.

When the table is completed it should become clear where gaps are and what action is required to fill them. The initiative is still in a developmental phase and improvements in the audit process can be implemented as needed. The process will be evaluated further by the Consultative Committee in 2004.

Matters from the Consultative Committee and the advisory committees

Baltic theme sessions for 2004 and 2005 ASC

Prior to the meeting, the Chair invited members and others to submit suggestions for theme sessions and conveners for the next Annual Science Conference. Contributions to the ASC are part of the Baltic Action Plan and are an important way to illustrate Baltic activities to a wider audience and to encourage others to take part in Baltic scientific activities.

There was one theme proposal each for 2004 and 2005. In addition, there was a proposal for an invited speaker at the 2005 ASC.

Theme session for 2004:

Baltic Sea ecosystem structure and dynamics – consequences of physical and anthropogenic forcing.

Theme session for 2005:

Material and energy flows in trophic networks of the Baltic Sea ecosystem.

These suggestions, and one for an invited speaker in 2005 will be considered further by the Consultative Committee.

Structure of the 2005 ASC

The Consultative Committee requested input and opinions from Science Committees on how the 2005 ASC (Aberdeen, UK) should be structured. This matter was raised by the Chair at the first meeting and members were asked to consider the matter in the days between the two meetings.

The 2005 ASC will have a different format from previous Conferences/Statutory Meetings. The main differences are that Delegates will meet at ICES Headquarters and not during the ASC, and that the dates for the ASC could possibly be changed (i.e., shifted ahead by some days, increased in duration). The Science, Consultative, and Advisory Committees will continue to meet in association with the ASC.

The Chair presented some of the options for restructuring the meeting that were discussed in the Consultative Committee. There were two main conclusions from this Committee's discussion:

- 1. ICES should try to avoid direct overlap between Science Committees and ASC lectures and theme sessions. The avoidance of overlap in recent years was seen by many members to represent an overall improvement in the quality of the Conference. In addition, some members noted that the quality of the presentations had improved.
- 2. The present format leaves little time for informal discussions and impromptu meetings. Some Committee members felt that the meeting could benefit by returning to an earlier meeting format in which an excursion day in the middle allowed additional time for discussions with colleagues in a social atmosphere, or for colleagues to arrange meetings on topics of current interest.

Many Committee members therefore preferred a format in which the ASC lasted six days, but included one offday (i. e., Sunday) and five working days. However, this option entails additional costs to the host country because convention facilities must be retained for an extra day. Regarding the timing of the ASC, most members preferred a meeting date in mid-late September and did not want the meeting to be moved to late August.

These comments and conclusions were brought forward by the Chair during Consultative Committee meetings immediately following the 2003 ASC.

Additional matters from advisory committees

The Chair attended most sessions of ACFM and ACE during the ASC. At sessions of those committees which

took place prior to the first meeting of the Baltic Committee, both ACFM and ACE discussed the new advisory structure within ICES and in particular the establishment of regional integrated ecosystem assessment groups. The new advisory structure and role of these groups was outlined. These developments within ICES will likely have an important influence on the role of Science Committees and, given its regional nature, the Baltic Committee in particular.

A Study Group on "Ageing Issues in Baltic Cod" (SGABC) was proposed by ACFM to address cod ageing problems. The group should develop new solutions by using new approaches and information, especially length-based and otolith-size information.

A Study Group on "Closed Spawning Areas for Eastern Baltic Cod" (SGCSA) has been proposed by ACFM. The proposal is part of a response by ICES to an advice request from IBSFC regarding impact of the major inflow event of January 2003 on cod spawning and reproduction in 2004. IBSFC has asked ICES to supply information on the timing and location of cod spawning areas in 2004 to assist with the possible establishment of closed fishing areas in 2004.

Any other business

BONUS-project

An introduction to the Bonus project was presented by Kaisa Kononen (Finnish Academy of Science).

This project focuses on the networking and cooperation of the national research councils around the Baltic, which are concerned with science funding. The degree of cooperation and networking amongst the national research councils around the Baltic is presently very low.

To improve this BONUS raises the questions on what the driving forces for science are and how science is funded. Research programmes are very differently organised in the different Baltic Countries. On top of this it was found that the national research councils are poorly integrated in the European decision process. For these reasons BONUS was funded by the 5th EU framework by ERA to form a network and partnership of agencies. The project is coordinated by the Finnish Academy of Science, and the project is going to involve marine research programme managers, administrators, etc. ICES is a major partner in the project and will receive 160,000 euros during the project for coordination of Baltic-related activities.

Closure

The Chair thanked participants for their constructive input and collaboration during the meeting and the Committee's Secretariat shadow (Harry Dooley) for excellent support in the previous 12 months.

Diadromous Fish Committee (I)

Chair: Niall Ó Maoiléidigh (Ireland) Rapporteur: Malcolm Beveridge (UK)

The Committee met on 23rd and 26th September 2003 with 18 participants.

Opening

The Chair welcomed the participants outlining that the meeting would cover items brought forward from the first meeting of the newly formed Diadromous Fish Committee in Copenhagen in 2002, and to address issues raised at the inter-sessional meeting of the Consultative Committee. In particular, the Chair was charged with ensuring that all diadromous fish species were considered by the Committee.

The list of members was reviewed and amended as required.

Appointment of a rapporteur

Malcolm Beveridge was appointed Rapporteur.

Adoption of agenda

It was proposed that the Committee would be an appropriate place to provide overviews of the Baltic salmon and sea trout stocks and other diadromous fish species, and this item was added to the agenda. The report of the Baltic Committee's Study Group on Salmon Scale Reading (SGSSR) was also added to the list of agenda items.

While it was acknowledged that ACFM reviewed the advice from the working groups on North Atlantic Salmon (WGNAS) and Eels (WGEEL), the Committee considered that new developments, recommendations, and future plans in these working group reports should also be considered, and these were included on the agenda.

Committee business

Reports of Working Groups/Study Groups

Status of Diadromous Fish Stocks (Working Group on Fish Ecology ICES CM 2003/G:04 and Report of the Advisory Committee on Ecosystems, Final Report 2003)

At the first meeting of the Committee in 2002, it was agreed to establish a "baseline" status report on all diadromous fish in response to the query on the scope and diversity of species which should be handled by the Committee. In this regard, the Committee noted that the Working Group on Fish Ecology (WGFE) provides a review of the status of three diadromous fish species (Sea lamprey *Petromyzon marinus*, Houting *Coregonus lavaretus oxyrhinchus*, and Allis Shad *Alosa alosa*) in the context of the Texel-Faial criteria for assessment of the conservation status of a number of sensitive fish species (see Table G1 in the report of the Living Resources Committee). The Committee noted the structure and procedure adopted by the Working Group in reporting the status of these fish and agreed it was an appropriate format to adopt for a wider range of diadromous fish species. As a first step, a list of diadromous fish species was established (Appendix 11).

Overviews of WGNAS, WGBAST, and WGEEL

Key findings from the working groups on Baltic Salmon and Sea Trout (WGBAST) and North Atlantic Salmon were presented. In considering the continued decline of smaller stocks of Atlantic salmon and sea trout in the Baltic, there was discussion of hybridisation and M74 phenomena and the use of Bayesian statistical approaches to modelling.

The status of salmon stocks in Northern and Southern Europe and in North America was presented along with the Terms of Reference for 2004. Important changes from the 2003 Terms of Reference were noted including the request from NASCO for more information on stock rebuilding trajectories.

A review of the current status of European eels and the current terms of reference for the WGEEL work programme was given. The Terms of Reference were endorsed, although differences between the types of terms of reference for WGNAS and WGEEL were noted. The Committee expressed its interest in seeing the ICES/EIFAC report, and especially expressed its desire to comment on management-specific recommendations at future meetings.

Consideration of the WGNAS review of 'the appropriateness and possible development of an experimental tagging programme for investigating the behaviour of escaped farmed salmon'

A summary of the WGNAS response to this was given. The advice had been endorsed by NASCO and Lars Petter Hansen (Norway) had been asked to coordinate a pilot study. The UK (Scotland) and Norway had already agreed a programme of work, while the Faroes had indicated a willingness to participate. Interest from Ireland and Iceland was noted at the meeting. On-going work in North America with sonic tags was also noted.

The Committee endorsed the response. However, concerns were expressed about the numbers of fish to be used in the pilot trials, although the resource implications were acknowledged as constraints. The importance of writing up the findings and consideration of the

implications of the findings for further work was also stressed.

Identify and highlight recommendations and new advances in research contained in the WGNAS

The Committee considered general and ICES Commission Area-specific deficiencies and research needs from the WGNAS report 2003. WGNAS recommendations with regard to Atlantic salmon in the North Atlantic area were endorsed by the Committee (see above). The recommendations regarding the urgent need for research into post-smolt migration and bycatch in the NEAC Area was discussed and the question of the need for a study group considered. While a number of the WGNAS recommendations regarding post-smolts in pelagic fish catches in the Norwegian Sea had been passed on to the appropriate Expert Groups, it was noted that the issues had not been taken further.

The WGNAS recommendations for salmon in the North American Commission (NAC) area highlighted data gaps from certain geographic areas and were endorsed.

The Committee endorsed the current sampling programme in the West Greenland Commission (WGC) area, especially the determination of CPUE. Members also stressed the importance of getting good estimates of catches in the subsistence fishery. The issue of scale samples and their analysis in order to correct catches for escaped farmed salmon was also raised.

The Committee also noted that the EU-funded SALGEN study should produce much information pertinent to the WGNAS NAC Area concerns about classification of stock complexes within and among continents.

Study Group on Salmon Scale Reading (CM2003/H:01)

The agenda focused on the use of image analysis technology, the usefulness of scales compared with other measures of condition, the use of otoliths and coordination and centralisation of scale collection in the Baltic. It had been hoped to initiate a test exercise on scale reading, using scales from a wide range of sources, but the poor quality of many of the samples (misidentification of species, poor collection technique, etc.) has further delayed plans.

The Committee considered the usefulness and practicality of otoliths to pose greater problems than scales. It was noted that a book on fish stock identification, reviewing all techniques, was imminent.

Future review by the Committee and inclusion of a wider range of diadromous fish stocks and topics

A range of issues, such as the impact of coastal wind farms, the impacts of freshwater quality on survival on transfer to sea, and habitat assessment for eels, were noted. The topic of stock restoration was noted as being of particular interest to members. A proposal for a specific theme session on this topic in 2005 was endorsed.

Consultative Committee and Committee business

Use of ICES reports by members

A number of ICES reports were identified as useful, including those produced on eels and by the Mariculture Committee. Nevertheless, it was acknowledged that many members are unaware of the ICES literature, such as the recent and highly relevant publication by the WGFE referred to above.

However, the ICES website, identified as a starting point for many in trying to identify pertinent ICES published material, was found to be difficult to navigate with success, depending largely upon the route taken and a specific rather than a general report being sought. It was also felt that the data available via the web was too limited in terms of time-series. By contrast, the excellent CD-ROM-based material made available at the Conference was noted as this appeared to provide easier access to reports, etc.

Links and overlap with other committees

The main overlap noted was with the ACFM and the Mariculture and Baltic Committees. Communication and coordination between these groups was considered to be important and should be facilitated as much as possible.

ICES Action Plan audit

An overview of the Action Plan audit system was made by the Chair. It was noted that the audit for 2002-2003 was based essentially on terms of reference for existing Expert Groups. As the Committee had not parented Expert Groups their input into this process for this period was considered to have been small. However, the meeting expressed a desire to contribute more fully as study groups, theme sessions, etc. were developed by the Committee. The ICES Action Plan audit document will be circulated by e-mail to members for comment and contributions. Once the various proposed Expert Groups have been approved and have begun their work, the Committee will respond formally.

Adequacy of arrangements for the meeting

It was generally agreed that the arrangements for the meeting had been very good. However, in the context of possibly having a more extensive review of WGNAS, WGBSST, SGSSR, and WGEEL reports, the second meeting (if structured over two days) would need to be at least one hour longer.

Feedback on Study Group on ACFM, ACE, ACME, and Working Group Procedures (SGAWWP) (CM2003/MCAP:02)

The Chair provided an overview of the SGAWWP with reference to the Conclusions and the proposed change to the way in which ICES would provide advice in future. Malcolm Windsor (Secretary, NASCO) said that the contract between ICES and NASCO stipulates that ICES provides independent scientific advice free of political influence. There are concerns in NASCO that opening up the scientific advisory process could threaten that independence.

Forthcoming symposia and theme session topics

Proposed list of sessions for 2004

A list of proposed theme sessions, referenced to the four areas in the ICES Action Plan, was circulated for discussion. While a number were of interest to the Committee, there was a specific request to help organise and convene the session on 'Non-high seas habitats and the way different diadromous fish use these'. A working title 'Marine and diadromous fish use of estuarine and freshwater environments' was proposed. A text, drafted by Willem Dekker, was considered and given broad support. Vincent Vauclin (Conseil Supérieure de la Pêche, France) agreed to co-convene the session.

2005 ASC and suggestions for open session speakers

Stock re-building for diadromous species was proposed as a theme session for 2005. No nominations for open session speakers were made, but the Chair undertook to consult further with the Committee in due course.

Symposium in 2005 between NASCO and ICES on the interactions between cultivated and wild diadromous fish species

A presentation was made by Lars Petter Hansen (Norway). A working title "ICES/NASCO Symposium on the Impacts of Aquaculture on Wild Salmon and Other Diadromous Fish Species: Science and Management" was proposed. Venue: Norway (Trondheim or Bergen); Date: August or September 2005, perhaps immediately after the AquaNor meeting. There followed discussion of the composition and resourcing of the Scientific Steering Group, the structure (3-5 days), sessions (science session; management session; panel discussions; concluding session, including future prospects). Key themes for the science component included interactions between wild and cultured salmon, parasites and diseases, genetics, genetically modified fish, and ecological effects. The management session would include identification of cultured salmon, containment, the development of protected zones, recovery of escaped farmed fish, sterilisation, domestication, medicines, use of local fish, and effects of escaped farmed fish on the assessment of wild fish. Proposed theme sessions for the panel discussions included cultivation for stock enhancement and repopulation, management of salmon farming management of wild salmon. The concluding session would have formal presentations by panel chairs and consideration of whether farmed/cultivated and wild fish interests are compatible. Publication would hopefully be in the *ICES Journal of Marine Science* and in a report of the symposium.

Concern was expressed about the title – off-putting to industry versus the need to consider eel and other diadromous fish issues. The consensus was to continue to include the term 'diadromous' in the title. The composition of the Steering Group (which must have both geographic and technical coverage; industry and scientists) and sponsorship was debated.

Symposium for 2006 on 'Factors affecting mortality of salmon at sea'

The consensus of the Committee was that this was premature and that 2007 or 2008 was more appropriate. The Secretary of NASCO outlined the establishment of a Marine Research Board which would be actively seeking funding for research into significant factors contributing to the marine mortality of North Atlantic salmon. Development of a joint symposium would be more appropriate when these initiatives had generated research and results for presentation.

Draft resolutions

It was proposed that the parentage of the Baltic Committee's Study Group on Salmon Scale Reading should be transferred to this Committee. The Chair informed that this had the support of the Baltic Committee. It was also agreed to submit draft resolutions on the formation of three new study groups:

- A Study Group on the Bycatch of Salmon in Pelagic Trawl Fisheries [SGBYSAL]. This need arises from a request by NASCO to provide estimates of bycatch of salmon in pelagic fisheries and advise on their reliability, for its meeting in June 2004.
- A Study Group on the Status of Diadromous Fish Species [SGSDFS]. This was proposed as a result of the Committee's decision to establish "baseline" status report on all diadromous fish in response to the query on the scope and diversity of species which should be handled.

The Committee also agreed to prepare a case for a new study group on stocking and recruitment on eels, which it will put forward as a draft resolution at next year's meeting.

Any other business

There was no other business raised.

Appendix I1 Fish species to be considered by the Diadromous Fish Committee

List of core fish species

Diadromous fish are fish that migrate between freshwater and saltwater. Only about one percent of all fish in the world are diadromous. The migration patterns differ for each species and have seasonal and lifecycle variations. The purpose of this list (Table I1) is to guide the Committee to those fish species identified as diadromous in the ICES area. It includes catadromous fish species that spend most of their adult life in freshwater and migrate to saltwater to spawn. Examples are eels belonging to the genus *Anguilla*. Anadromous fish species, such as striped bass (*Morone saxatilis*) may spend most of their adult time in salt water and migrate to freshwater rivers and lakes to reproduce.

Other fish species and circumstances

Within the ICES area, there are many fish species that move between freshwater and marine environments under certain circumstances. Amphidiadromous species move between estuaries and coastal rivers and streams, usually in search of food and/or refuge rather than the need to reproduce. Such species may extend their movement in large brackish water regions. It is suggested that the Committee should include these in their initial status report on diadromous fishes. A few of these fish

English name	Scientific name	
Allis Shad	Alosa alosa	
Twaite shad	Alosa fallax	
Alewife	Alosa pseudoharengus	
American shad	Alosa sapidissima	
Blueback herring	Alosa aestivalis	
Hickory shad	Alosa mediocris	
Gizzard shad	Dorosoma cepedianum	
American eel	Anguilla rostrata	
European eel	Anguilla anguilla	
Sea char	Salvelinus alpinus	
Brook trout	Salvelinus fontinalis	
Sea trout	Salmo trutta	
Atlantic salmon	Salmo salar	
River lamprey	Lampetra fluviatilis	
Sea lamprey	Petromyzon marinus	
European sturgeon	Acipenser sturio	
Atlantic sturgeon	Acipenser oxyrhynchus	
Shortnosed sturgeon	Acipenser brevirostrum	
Striped bass	Morone saxatilis	
Houting	Coregonus lavaretus oxyrhinchus	
Smelt	Osmerus eperlanus	
Rainbow smelt	Osmerus mordax	
Three-spine stickleback	Gasterosteus aculeatus	
Four-spined stickleback	Apeltes quadracus	
Nine-spined stickleback	Pungitius pungitius	
Mummichug	Fundulus heteroclistus	

Table I1. List of core fish species to be considered by the Diadromous Fish Committee.

species occur in the ICES area as a result of transfers from other parts of the world. Rainbow trout (*Onchorhynchus mykiss*) is an excellent example in this category. It was introduced from the western parts of North America to Europe in the 20th century. It is now widespread as a cultivated species in large parts of the ICES area and it is also common in nature, but there are only few examples of successful establishment in nature.

In the Baltic Sea and other brackish water areas, fish movement between freshwater (rivers and lakes) and the sea is common. In the Baltic it is actually difficult to find freshwater fish species that do not move between the different environments under some circumstances. For instance pikeperch (*Stizostedion lucioperca*), normally considered a freshwater species, makes regular migrations between lakes and the sea in parts of the Baltic.

In North America, white perch (*Morone americana*), tomcod (*Microgadus* spp.), and bay anchovy (*Anchon mitchillis*) also fall into the above category and could also be considered.

Living Resources/Resource Management/Baltic Committees Joint Session on Surveys

Chair: Carl M. O'Brien (UK) Rapporteur: Henk J. L. Heessen (Netherlands)

The Joint Meeting on Surveys was held on 23 September 2003. After two years with similar sessions, this year a full afternoon was available for the presentation and discussion of matters concerning the main surveys coordinated by ICES. The Chair opened the meeting explaining that the joint meeting on surveys was felt to further improve the treatment of survey working group reports during the ASC. About 30 participants attended this Session, which unfortunately overlapped with the meeting of the Fisheries Technology Committee.

Expert Group reports

Baltic International Fish Survey Working Group (WGBIFS)

Doc. G:05 was presented by its Chair, Rainer Oeberst (Germany). WGBIFS coordinates acoustic and trawl surveys in the Baltic, which are carried out twice per year. As a result from a major EU-funded study a new standard gear, and standard survey methods, are now being used for this survey.

Planning Group on North Sea Cod and Plaice Egg Surveys (PGEGGS)

Doc. G:06 was presented by Colin Bannister (UK). A survey to map the spawning areas of North Sea cod and plaice will be held in 2004. It was considered disappointing that it proves to be very difficult to get enough funding for this survey of some of the major fish stocks in the ICES area. A challenge for this survey will be the proper identification of the three main gadoids in the area (cod, haddock, and whiting) on the basis of DNA techniques.

Study Group on the Estimation of Spawning Stock Biomass of Sardine and Anchovy (SGSBSA)

Carmela Porteiro (Spain) presented Doc. G:12. This Group has made considerable progress over the last year, amongst others thanks to a number of EU co-sponsored projects. The report provides a good overview of different methodologies used and the results concerning these small pelagic species in areas VIII and IX. A draft resolution to publish this report in the ICES *Cooperative Research Report* series was supported.

Working Group on Mackerel and Horse Mackerel Egg Surveys (WGMEGS)

Doc. G:07 was presented by the Chair, Dave Reid (UK). The group has mainly worked on the coordination of the next international survey of mackerel and horse mackerel in 2004. Coordination is complicated due to the extended area over which these species spawn. Considerable attention is given to improve fecundity estimates of horse mackerel and to answer the question whether this species is an indeterminate spawner.

International Bottom Trawl Survey Working Group (IBTSWG)

Siegfried Ehrich (Germany) presented Doc. D:05. The first quarter IBTS in the North Sea has been carried out since the late 1960s, whereas the third quarter survey spans a period of 12 years. Data from these surveys are being used for a wide variety of studies. Since 1994 this Working Group has coordinated bottom trawl surveys from Gibraltar to Shetland and, especially in recent years, has made considerable progress towards further coordination and standardisation of these surveys.

Working Group on Beam Trawl Surveys (WGBEAM)

Doc. G:14 was read by title, and only the Terms of Reference for the next meeting of this Group were briefly discussed.

Planning Group on Aerial and Acoustic Surveys for Mackerel (PGAAM)

Doc. G:08 was presented by Dave Reid (UK). Aerial surveys can trace small mackerel schools which feed close to the surface. The ultimate intention is to combine information from such aerial surveys with that of research and commercial vessels.

Airborne surveys of mackerel distribution have been undertaken successfully by both Russia and Norway using LIDAR equipment mounted on aircraft. In the case of the Norwegian surveys in 2002, the processing of the LIDAR signal included two alternative means of removing noise due to plankton and other background scattering. These were a linear processing, which basically assumes that the plankton has a more homogenous horizontal distribution than the schools of mackerel, and a median processing, where the assumption is that the vertical plankton distribution is more homogenous than the schools.



Figure Joint:1. LIDAR return signals assumed to represent mackerel, for the northbound part of the Norwegian aerial survey 15–21 July 2002, at depths of 15–20 meters (From CM2003/G:08, Report of the Planning Group on Aerial and Acoustic Surveys for Mackerel).

The result of this processing suggested that most of the mackerel were found together with plankton at 10-20 meters depth. Most mackerel were found in the Southern part of the area (Figure Joint:1). In addition, some signals were obtained north of Lofoten.

A number of problems remain with regard to the reliable identification of the signal, and further improvements in the processing system are necessary.

Planning Group for Herring Surveys (PGHERS)

Dave Reid (UK) presented Doc. G:03. Recently the survey design has been amended slightly, and now some overlaps exist between different vessels. Special attention is being given to standardisation of maturity staging by different participants in the survey.

Planning Group on Surveys of Pelagic Fish in the Norwegian Sea (PGSPFN)

Doc. D:10 was presented by the Planning Group Chair, Jan Arge Jacobsen (Faroe Islands). In 2004 two additional vessels are expected to participate in the survey of blue whiting to the west of the British Isles.

Planning Group on Redfish Stocks (PGRS)

Doc. D:02 was read by title. The Group has not yet found a new Chair.

Conclusions

Most presentations gave special attention to different aspects of standardisation. Manuals and survey protocols are being widely used, but it is considered essential that the application of agreed procedures is constantly monitored. In acoustic surveys, one of the problems is the introduction of new technical equipment resulting in differences between vessels participating in the same survey.

Publications Committee (PUB)

Chair: Bill Turrell (UK)

Introduction

The Committee met for one full day on 22 September and one half-day on 27 September. The first meeting was attended by ten participants (two members, two IJMS editors, three publisher's representatives, three Secretariat staff). The second meeting was attended by eight participants (three members, one IJMS editor, three Secretariat staff, and the First Vice-President). It was noted that this was the second year the Committee had sat under the amended Rules of Procedure, with the Chair reporting to the Consultative Committee.

Review of the 2002 report

The Committee reviewed the Publications Committee 2002 report, and the response from the Consultative Committee. Main issues arising were:

ICES Advice Series: The Publications Committee had been charged by the Consultative Committee with reconsidering the possibility of an Advice Series, which would remove Advisory Committee reports from the *ICES Cooperative Research Report* series. A final <u>recommendation</u> resulting from this consideration was prepared (4PUB02).

Guidelines for Chairs of ICES Committees and Expert Groups: The Committee noted the revised version of these Guidelines (version 2002-1). They contain much useful information concerning the preparation, format, and submission of publications (e.g. Working Group Reports, Committee Reports). The ICES Senior Editor would work intersessionally to consider additional improvements.

Website Disclaimer: At its 2002 meeting, the Consultative Committee had requested that the Secretariat add disclaimers: a) prior to downloading an Expert Group report from the ICES Website, and b) prior to leaving the ICES Website for another site. This had yet to be implemented but was in hand.

Matters arising during 2002/2003

Several issues had been dealt with intersessionally by the Committee:

<u>New ICES Editor</u>: The Committee acted as an Evaluation Panel for the post of Editor-in-Chief of the *ICES Journal of Marine Science*. One application was received, and the Committee endorsed it, noting: 1) the new appointee should be asked to provide his vision for the future of the *Journal*, 2) the new appointee should confirm his ability to allocate the required time to the post. The Committee's recommendation was endorsed by the Bureau, and

would be considered at the 2003 Council Meeting for final approval.

<u>Cod and Climate Change volume</u>: Results stemming from the Working Group on Cod and Climate Change would be published commercially as a book. The editors have been requested to submit a summary of the contents, a description of the review and editorial processes, and the proposed cover to the Secretariat for approval. The Secretariat can then permit copyright use of the ICES logo.

<u>Baltic Marine Science Conference</u>: The proceedings have been published as *Cooperative Research Report*, No. 257.

<u>Quantitative Ecosystem Indicators Symposium</u>: The proceedings would be published in the *ICES Journal* of Marine Science.

<u>Inquiry from the Chair of the Fisheries Technology</u> <u>Committee</u>: The Fisheries Technology Committee had inquired about the citation policy for the *ICES Cooperative Research Report* series, and for Working Group reports. The Publications Committee considered this issue, and prepared a draft response (see Annex).

HABWATCH publication: IOC had approached ICES with a request for funds to help publish results from the ICES/IOC workshop "Real-time Coastal Observing Systems for Ecosystem Dynamics and Harmful Algal Blooms". While ICES strongly supports this initiative, it is not able to fund an external publication. ICES may be able to provide support by offering publication routes through its own publication series (i.e. the ICES Journal of Marine Science, ICES Cooperative Research Report series). Such routes would be accompanied by significant Secretariat support. However, the normal submission, review, and editorial procedures would have to be followed.

<u>2003 ASC paper submission</u>: The submission of full papers to the 2003 ASC was almost identical (72%) to that for 2002 (73%), thereby falling short of the proposed target of 90%. The importance of paper submission by the agreed ICES deadline should be emphasised to all Session Conveners.

Review of ICES publication activities for 2003

Reports for each ICES publication series were available as ICES CM2003/Pub:02–09. Issues of relevance to the Consultative Committee are: <u>Summary</u>: In all, 2002/2003 had been an outstanding year for publications in ICES. Much progress had been made with the *ICES Journal of Marine Science*, as well as the internal publication series. Of particular note was the start of a process which would lead to the digitisation of existing ICES publications. The production of a highly commended user-friendly status report for European seas was another highlight of the year. The authors, reviewers, editors, Secretariat, and publishers are to be highly commended for their efforts.

ICES Journal of Marine Science: The ICES Journal of Marine Science (IJMS) continued to generate income for ICES (nearly DKK 500,000 in 2003), and to grow in terms of papers submitted. Initial problems encountered during the take-over of Academic Press by Elsevier had been successfully addressed. The contract with Elsevier had been renewed for a two-year period (2004-2005). Detailed statistics on the progress of the Journal, including publication delay times, had been compiled by both the Editor-in-Chief and the Publishers and were available in their reports. Approximately 25% of the papers published by the Journal came from countries other than ICES members, and 40% of the papers were from university-based researchers, thus fulfilling the desire expressed in the Strategic Plan of broadening the scientific base from which ICES draws. There was a particular increase in the number of papers submitted from US authors. The Editor-in-Chief also noted that 50% of the papers were published within one year of submission. The publisher noted an increase in the impact factor of the Journal to 1.76. This was the highest it had been and was a significant increase over the typical value of 1.0 during previous years.

Other matters discussed included the increase from six to eight numbers per volume (six regular numbers of 150 pages each and two proceedings numbers of 250 pages each) and the change of imprint from Academic Press to Elsevier. The Publications Committee gave its approval for the change of imprint, and the use of the new ICES logo.

The Committee welcomed and acknowledged the very positive developments in the *IJMS*, due to the commitment of the Secretariat, editors, and publisher. An announcement was drafted for the ASC Opening Ceremony, announcing the success of the *Journal*, and requesting that ICES participants support the *Journal* by submitting papers, acting as reviewers, and proposing the name of a new editor.

The ICES Editor-in-Chief had attended a conference for Elsevier science journal editors. This was found to be very useful, and would be continued with the new appointee. The Committee gratefully thanked Professor Niels Daan for his work with the *Journal* during the last six years, and the improvements he had made in the scientific focus and merit of the *Journal*.

ICES Marine Science Symposia: One volume had been published, containing the proceedings of the ICES

Symposium on Hydrobiological Variability in the ICES Area, 1990–1999.

<u>ICES Cooperative Research Report series</u>: Since the 2002 ASC eight numbers had been published.

<u>ICES Identification Leaflets</u>: The Secretariat had made great progress in digitising the "Plankton Identification Leaflets". The Chair of the Working Group on Zooplankton Ecology had particularly praised the resulting product and the effort involved. The Publications Committee noted the Resolution submitted by the Oceanography Committee (1C01) based on recommendations that:

- 1) all individual fiche pdf files be made freely available on the ICES Website;
- 2) a CD-ROM be prepared containing all "Plankton Identification Leaflets", and made available for a nominal charge through ICES.

The Committee endorsed this Resolution. It should be noted that the digitisation of the "Plankton Identification Leaflets" represents the start of a process which the Secretariat expects will lead to the digitisation of much existing archived printed material. The Committee commended and supported this initiative.

The Committee noted that the Editor of the *ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish* would reach the end of a three-year term. The Chair of the Working Group on Pathology and Diseases of Marine Organisms had been notified. The Working Group would consider this issue at their next meeting, and inform the Committee of the result of their discussions. The Committee welcomed the draft Resolution (1F03) which would lead to the digitisation and publication of this series on CD-ROM and on the ICES Website.

<u>ICES Newsletter:</u> The ICES Newsletter continued to be an excellent, accessible, and informative publication which publicises the work of ICES. Approximately 3000 copies are distributed at no cost. The Committee commended the Secretariat on the development of this publication.

<u>ICES Website</u>: This continued to be an excellent dissemination route for ICES products and publications, informing the public about the work of ICES. The Committee congratulated the Secretariat on the development of this facility.

<u>Environmental Status of the European Seas</u>: The General Secretary explained that this report formed a new departure for the Secretariat, being specifically commissioned to explain and summarise aspects of the work of ICES to the lay reader. The Committee went on to discuss such issues as author selection, editorial processes, acceptance through a fast-track procedure, and possible competition issues between ICES and national institutes. No cost and income figures for this publication were available to the Committee. This report had received much general praise, and the Committee congratulated the Secretariat on this initiative.

Cost/benefit analysis of ICES publications

<u>Cost</u>: There was little change in the 2002/2003 costs compared with these previously reported in Publications Committee reports. The Secretariat noted a potential planned reduction in the publications budget for 2004, and the Committee received this information with some concern, particularly when considering the importance of ICES publications in disseminating the work of ICES, and that the Council's income from the *ICES Journal of Marine Science* had approached DKK 500,000 for the first time in 2003. A statement was prepared and submitted to the Finance Committee, in which the Publications Committee proposed that:

- 1) income from the *ICES Journal of Marine Science* be explicitly used to support other ICES scientific publications;
- 2) that the Committee be advised of any proposed significant changes to future publication and printing budgets, so that it may consider their impact.

The Committee would again consider costs at its 2004 meeting.

<u>Benefit</u>: The draft readership survey prepared intersessionally was discussed. It was considered a good start, although it needed improvements such as a definition of the reader, and clearer objectives. The optimal dissemination route was considered to be as a pull-out in the ICES Newsletter, possibly in the spring 2004 issue, accompanied by a Web-based questionnaire. The Committee would develop these ideas through the year 2003/2004 and would hope to have results ready for its 2004 meeting.

Communications strategy

At the 90th Statutory Meeting (2002), Council added an additional item to the Publications Committee Terms of Reference, namely to devise a Communications Strategy for ICES. The Secretariat explained that the ICES Strategic Plan contains the strategic element for communication issues, and what was actually required was an implementation policy for that strategy. The Secretariat also informed the Committee that owing to external circumstances the Bureau had decided that a communications policy was required before the Publications Committee met at the 2003 ASC, and had requested that the Secretariat develop such a policy for the June Bureau meeting, at which the prepared policy was endorsed in the document "ICES Press Policy" (Doc. Del:8). The Publications Committee noted this development, and thanked the Secretariat for its rapid reaction. The Secretariat confirmed that no further action was required from the Committee with respect to this Term of Reference. The Committee did, however, recommend that in future if the Bureau or the Secretariat pursued items of relevance to the remit of the Publications Committee intersessionally, then the Committee be informed of this in order to avoid possible duplication and in order to enhance internal communication.

ICES status reports

The Committee noted that a variety of different status reports were being developed by a number of Expert Groups. These status reports would evolve into one of the basic products required to support integrated assessments, which is a fundamental aspect of future ICES advisory work. At present, while simple summaries are being developed by environmental Expert Groups, no developments have started within fishery such assessment groups. On returning to their home institutes, fishery assessment national experts are often required to simplify and explain ICES assessments. Hence this work is already being done within the ICES structure, although not in a coordinated way, or with a common and agreed product. While the Committee acknowledged that Assessment Working Groups are already heavily burdened during the course of their meetings, the Committee recommended that the Consultative Committee and the Secretariat consider ways of introducing summary products to the assessment process. Two summary products could be considered: 1) a status report summarising a stock assessment, 2) a simplified version of the final advice arising from the assessment. If such summaries are developed, they must be reviewed by the appropriate Committee (e.g. ACFM) prior to publication. The Canadian experience provides a good model of combined environmental and fishery status summaries which underpin an ecosystem approach to fisheries management.

The Committee went on to consider guidelines for the production of status reports to meet ICES requirements. Draft guidelines were prepared and circulated to members. The Committee would work intersessionally to finalise these, and include them on the proposed Publications Committee Web page.

Action Plan

The Publications Committee completed the template assigning outcomes achieved in 2003 to Action Plan points. At present no gaps exist. The Committee is planning work in 2003/2004 to prepare summary guidelines for all ICES publications series. The guidelines would cover issues such as the intended objective of each series, the editorial and review processes, the formats and submission routes, the pricing and dissemination policy, and the recommended citation format. The series to be covered are the standard publications along with the ICES Website, the ICES Newsletter, ICES Status Reports, and the new ICES Advice series. The summary guidelines would appear as a linked pdf file.

Any other business

<u>Committee Membership</u>: The present membership of the Committee was discussed. It was felt that, owing to operational difficulties, the membership numbers should be increased to a maximum of seven. A draft Resolution (4PUB01) was prepared, along with background information and justification. <u>ICES Senior Editor</u>: The Committee noted that the ICES Senior Editor, Judith Rosenmeier, would retire during the coming year. The Committee expressed its thanks for the effort and skill Judith has brought to the post. The positive state of ICES publications is in no small way attributable to Judith.

Annex to the Publications Committee Report

Proposed Citation Policy for ICES Expert Group Reports and ICES Cooperative Research Report(s)

Working Group Reports

Until Working Group reports have been approved by Parent Committees, they are considered internal documents. After approval, an Expert Group report is publicly available, with the disclaimer:

"This report is not to be quoted without prior consultation with the General Secretary. The document is a report of an Expert Group under the auspices of the International Council for the Exploration of the Sea and does not necessarily represent the views of the Council."

Expert Group reports are frequently cited as "ICES. 19xx".

The Publications Committee suggests that this policy be maintained because:

- 1) it permits traceability of reports produced by ICES within bibliographies. Individual authorship, which would of necessity change from year to year, would introduce a variation that would not be helpful;
- 2) it denotes the unpublished status of the report, and that ICES should be consulted if the report is to be quoted.

The Publications Committee recognises that some Working Group members invest considerable effort in Working Group reports, and that these reports often contain useful summaries of information. With this in mind, the Publications Committee recommends that the Consultative Committee:

- encourage Expert Group Chairs to construct Terms of Reference in such a way that they lead, when this is appropriate, to publishable material in a timed and planned way;
- 2) encourage Expert Group Chairs to assemble reports in such a way that chapters, or appendices, may be readily extracted and converted to published material either as *ICES Cooperative Research Report(s)*, or as peer-reviewed papers in, e.g., the *ICES Journal of Marine Science*. Appendices to Expert Group reports may have named authors.

ICES Cooperative Research Report(s)

Noting the above policy encouraging authorship of *ICES Cooperative Research Report(s)*, the Publications Committee proposes that:

- 1) *ICES Cooperative Research Report(s)* should be cited as "ICES. 20xx". However, individual authored chapters may be cited by authors, by editors, or anonymously as decided on a case-by-case basis;
- 2) the recommended format for the adopted citation be included on the reverse of title pages of *ICES Cooperative Research Report(s)* for guidance.
Financial Matters

Report of Finance Committee

Chair: Tomasz Linkowski

The Committee met on Thursday 25 September 2003 from 09:00 to 13:30 hrs.

All members were present except the Danish Delegate Mogens Schou, who was represented by Niels Axel Nielsen. The First Vice-President (representing the Bureau), the General Secretary, J. Andersen-Rosendal, and I. Lützhøft from the ICES Secretariat, also participated. Liz Tirpak from the US State Department took part in the meeting in the capacity of observer.

Agenda item 1 Approval of agenda

Agenda item two was amended. The agenda was then adopted.

Agenda item 2 Appointment of three members of the Finance Committee

R. Aps, A. Forest, and T. Linkowski terminate their period of three years in the Finance Committee in 2003. The Bureau nominees: Serge Labonté, Canada, Boris Kotenev, Russia, and Georges Pichot, Belgium were approved as members of the Committee.

Agenda item 3 Final Accounts for the Financial Year 2002

J. Andersen-Rosendal summarised the final Income and Expenditure Accounts and Balance Sheet for the Financial Year 2002 (Doc. C.M. 2003/Del:1). She drew attention to the audited Profit and Loss Account which indicated a profit of DKK 818,600 for the year as a whole. The general results compared to the budget shows that some posts have been exceeded compared to the budget but income from externally funded projects have fully compensated for this.

The Chair, R. Aps, A. Forest, and E. López-Jamar signed the Final Accounts and Balance Sheet and also signed for the receipt of the Long-Form Audit Report. The Danish Delegate signed these documents after the Finance Committee meeting.

Agenda item 4 Status Report on the Accounts as of 15 September 2003

J. Andersen-Rosendal reviewed the Status Report as of 15 September 2003 (Doc. C.M. 2003/Del:4). She pointed out that:

- 1) Under Income:
 - a) All National Contributions had been paid in full;
 - b) The full contributions have been paid by NEAFC, IBSFC, NASCO, EC and Faeroes & Greenland.

OSPAR paid their contribution for the first six months, while HELCOM has not yet paid its contribution;

- c) Ongoing Projects showed an income of DKK 1,979,400.
- 2) Under Expenditure:
 - a) Salaries showing the status figures for Professional- and General Service-grades are not expected to be overspent. Overtime for the General Service category was used almost entirely in connection with ACFM, ACME, and ACE;
 - b) Office expenses were in balance;
 - c) EDP expenses are likely to be overspent;
 - d) Bureau travel expenses will be less than budgeted; travel costs of the ACFM are expected to exceed the budget by ca. DKK 250,000. The total expenses of ACME and ACE will exceed the allocation by DKK 20,000 and DKK 13,000 respectively.

It was proposed that income from ICES Journal should be shown in a separate line. It was also proposed that income and expenditure for externally funded contracts be shown in a separate document covering the duration of the contract. The Committee also wanted an extra column in the Estimated Accounts showing the projection for the whole year. The General Secretary confirmed that the budget would not be exceeded for the year as the whole.

After a brief discussion, the Committee accepted the Status Report as of 15 September 2003 and agreed to submit it to the Council without change.

Agenda item 5	Draft	Budget	for 2004
	and	Draft	Forecast
	Budg	et for 20	05

Draft Budget for 2004

The General Secretary summarised the Draft Budget 2004 (Doc. C.M. 2003/Del:5E). He reminded that the Draft Budget for 2004 was prepared on the basis of the Forecast Budget approved by the Council at the 2002 Annual Science Conference. The amounts under <u>Income</u> are the same as in last year's approved Forecast Budget for the National Contributions and for the Commissions.

An *amendment* to the Draft Budget was proposed with DKK 180,000 from *ICES Journal* under <u>Income</u>. At the same time the <u>Expenditure</u> for Publications should be amended from 0 to DKK 70,000 for *ICES Marine Science Symposia*; from DKK 50,000 to DKK 100,000 for ICES Cooperative Research Reports: and from 0 to DKK 60,000 for *ICES TIMES*.

The Committee accepted the Draft Budget for 2004 and recommended its approval by the Council.

Draft Forecast Budget for 2005

The General Secretary explained the exceptional format of the document. As the Council decision regarding the increase of national contribution is not known yet, the two options of 3% and 7% increase have been presented throughout the document in two separate columns. These two options of the National Contributions increase (3% and 7% respectively) have to be balanced with the expenses as proposed in the columns below for ICES' activities as agreed by the Member Countries. The income in the "3%" column is not sufficient to cover all of the necessary activities.

The Finance Committee finds that in order to fulfil the ICES mission and to meet the growing demands placed on ICES and its Secretariat, ICES capabilities have to be improved in a well-focused way – particularly in the critical area of data handling. This vital area of the Secretariat's work (see below) has a central bearing on the maintenance and development of the ICES science programme and advisory function; its requirements have become particularly acute in recent years, especially in view of the increased demands placed on ICES by Member Countries, client Commissions and the scientific community.

The Secretariat receives a wide range of scientific ocean observation data from national laboratories. This includes physical, chemical and biological data; the latter covers such disparate subjects as fish diseases, biological effects of contaminants and a wide range of fisheries-related data. These data are checked and stored in the ICES databases. From the databases, information is extracted as copied data or in processed form. Access to data is guided by the ICES policy adopted in 1994. The main customers for this information are the OSPAR and HELCOM Commissions, the AMAP Programme (Arctic Monitoring and Assessment), ICES Working Groups and Advisory Committees, research institutes in the Member Countries and affiliated institutes. The Secretariat data handling Work Programme must adhere to deadlines; much time is spent reminding and pressurising data submitters to meet their obligations.

The increasing data demands of Member Countries and Client Commissions and the actions taken to implement the long-standing policy of integrating the different data streams into a common ICES database, is stretching the Secretariat's resources beyond their limits. Existing demands have been further increased by the requirement to integrate fisheries, environment and oceanographic data, to enable the Council to implement its Ecosystem Approach policy.

The investment proposed below, together with structural reorganisation within the Secretariat, is essential if ICES is to remain competitive in regard to modern data management.

The Finance Committee therefore finds it necessary to recommend urgent action in 2004, and to further recommend that this be consolidated through the alternative Draft Forecast Budget (7% increase) recommended for 2005.

<u>Draft Budget 2004</u>: The Finance Committee proposes that part of the income from the *ICES Journal of Marine Science* (DKK 500,000) be utilised to restore the cuts which had to be made in the 2004 Publications budget (DKK 180,000) and to use the remaining *Journal* income (DKK 320,000) to partly fund the recruitment of a Database Manager at P3 level. The gross annual salary for a P3 officer is DKK 418,000, which would be made up by taking DKK 98,000 from the DKK 250,000 allocated to "Facility improvement for meeting rooms" in the Office Expenses budget. If this amount is also required to be spent on meeting room furniture during 2004, it must be taken from the Capital Reserve Fund.

<u>Draft Forecast Budget 2005</u>: The extra income sought in the 7% alternative for 2005 amounts to just DKK 1 million. It is necessary in order to secure the capability and competitiveness of ICES in the critical area of marine data management by:

- securing the Database Manager post;
- securing the essential programmer posts (contracts terminate in March 2005), now partially funded by externally funded projects;
- purchasing/licensing hardware and software to implement ICES policy.

The Chair noted that the Draft Forecast Budget for 2005 had been produced at the February 2003 Bureau Meeting and issued as Doc. C.M. 2003/Del:5.

Agenda item 6 Appointment of Auditors for 2003

On the basis of the satisfactory services provided by the current Auditors during the past year, the Committee agreed to propose to the Council that KPMG C. Jespersen be appointed as the ICES Auditors for another year.

Agenda item 7 Matters referred to the Committee by the Bureau or by Council

One matter of 100% cost recovery (Del:11) was referred.

Turning to the Programmatic Budget for 2004, the Finance Committee noted the shortfall of DKK 4.2 million in the income for scientific advice (Line 10 of the Programmatic Budget spreadsheet, Column O). This sum consists of the following:

Cost of work which is not recoverable from the Commissions:

e commosions.		
	ACME 384,05	6
	ACE <u>1,047,57</u>	5
	Subtotal	1,431,631

Delivering the advice collaboration with, the	1,420,428	
Core science done by	ACFM	978,874
МСАР	Total	<u>403,294</u> 4,234,227

Agenda item 8 Any other business

The General Secretary informed the Finance Committee that the NASCO Executive Secretary had raised a point of concern regarding a possible risk associated with the 2005 ICES/NASCO Symposium on Interactions between Wild and Cultivated Diadromous Fish Species. This concerned the question of who would indemnify the costs involved if the Symposium had to be cancelled at the last minute, in the event of a September 11 type of terrorist outrage which would prevent full (or any) participation in the Symposium. The General Secretary suggested that the costs at risk would be a cancellation fee for the conference venue, plus the pre-paid air tickets for keynote speakers from around the world – say around DKK 200,000 (shared 50:50 with NASCO). The Finance Committee advised that if such an untoward event were to occur, the money would have to be taken from any funds remaining in the Symposium budget at that time, supplemented by the Capital Reserve Fund.

There being no other matters raised under this item, the Chair closed the meeting. He thanked all the Committee members and the ICES Secretariat for their support.

The First Vice-President expressed his thanks to the outgoing chair of the Finance Committee.

PROFIT AND LOSS ACCOUNT FOR 2002

Note		
	Income	DKK
		12 221 0/0
1	National Contributions	17,771,250
2	Other Contributions	5,711,254
	Sale of Publications	108,143
3	Miscellaneous Income	845,098
	Observers Contributions	137,500
	Ongoing Projects	2,943,798
		27,517,043
	Expenditure	
4	Salaries	18,007,487
5	Office Expenses	2,120,552
	EDP Expenses	2,070,382
6	Travels and Meetings	4,452,086
7	Publications	727,012
	Incidentals for President and Chairmen	48,400
		27,425,919
	Operating Profit	91,124
8	Interest Receivable	727,476
	Profit for the Year	818.600

BALANCE SHEET AT 31 DECEMBER 2002

Note			
	ASSETS	DKK	DKK
	Current Assets		
	Stocks	••••••	295,718
	Debtors		
	Debtors Publications, etc.	3,102	
	Debtors Miscellaneous.	32,333	
9	Prepaid Expenses	2,133,704	
	Unpaid Contributions from Observer, etc	392,373	
	Unpaid Contributions from Ongoing Project	204,975	
10	Other Debtors	335,550	
	Total Debtors	••••	3,102,037
11	Investments		5,719,995
	Cash at bank and in hand	••••••	17,051,638
	TOTAL ASSETS		26,169,388

LIABILITIES

12	12 Total Capital and Reserves				
	Prepaid Contributions	16,216,071			
	Prepaid Ongoing Projects	3,909,015			
	Office Maintenance	354,305			
	Publications	381,367			
13	Other Creditors	781,992			

TOTAL LIABILITIES	26,169,388

David de G. Griffith

Total creditors

General Secretary

Judewen HOsendey Jytte Andersen-Rosendal

Office Manager

21,642,750

BUDGET FINANCIAL YEAR 2004

INCOME

	Budget	Budget	
	2003	2004	
	DKK	DKK	
National Contributions			
Belgium	692,000	712,800	
Canada	1,038,000	1,069,200	
Denmark	1,038,000	1,069,200	
Estonia	346,000	356,400	
Finland	519,000	534,600	
France	1,384,000	1,425,600	
Germany	1,384,000	1,425,600	
Iceland	1,038,000	1,069,200	
Ireland	692,000	712,800	
Latvia	346,000	356,400	
Netherlands	1,038,000	1,069,200	
Norway	1,384,000	1,425,600	
Poland	1,038,000	1,069,200	
Portugal	692,000	712,800	
Russia	1,038,000	1,069,200	
Snain	1,038,000	1,069,200	
Sueden	1,038,000	1,069,200	
United Kingdom	1,384,000	1,425,600	
	1,038,000	1,069,200	
Total	18,165,000	18,711,000	
0.1. (Dublications	160,000	160,000	
Sale of Publications	5.804.823	5,978,987	
Other Contributions.	140.458	171,363	
Scientific Observers Contributions	895.000	0	
Income from Ongoing Projects Income to ACFM Chair Stipend	400,000	500,000	
GRAND TOTAL	25,565,281	25,521,350	

EXPENDITURE

	Budget 2003	Budget 2004
	DKK	DKK
Incidentals for President and Chairmen	467,300	567,300
Salaries	17,296,497	16,841,780
Office Expenses	2,253,300	2,273,000
IT-Expenses	1,537,684	2,092,323
Expenses for ASC	760,000	760,000
Travels, Meetings, etc.	2,798,000	2,811,947
Publications	452,500	175,000
GRAND TOTAL	25,565,281	25,521,350

INTEREST RECEIVABLE

	400,000	400,000
Interest	400,000	400.000
Interest transferred to Capital Reserve Fund	400,000	400,000

Delegates

Agenda for Council: 2003 ICES Annual Science Conference (91st Statutory Meeting)

Delegates Meeting

- 1. Adoption of the Draft Agenda
- 2. Elections and appointments of Council officials at the 91st Statutory Meeting
- 3. Progress Report on Administration
- 4. 2003 ICES Annual Science Conference Social events
- 5. Arrangements for future Annual Science Conferences and Statutory Meetings: 2004: Vigo, Spain, 2005: Scotland
- 6. Report of the Steering Committee for the 13th ICES Dialogue Meeting
- 7. Address by Mr John Farnell, Director, DG-Fisheries, European Commission
- 8. Report of the MCAP Meeting
 - 8.1 Report of the Study Group on ACFM, ACE and ACME Working Group Working Protocols (SGAWWP)
 - 8.2 Use of the term "safe biological limits" and letter from Norway
- 9. Report of the ICES/Commissions Working Group on Cooperative Procedures
- 10. Revised Memoranda of Understanding (MoU) with ICES Client Commissions
- 11. Development of an MoU with NAFO
- 12. Increasing the transparency of the ICES advisory process
- 13. ICES press policy
- 14. Report of high-level meeting with IOC
- 15. Status report on the GEF Baltic Sea Regional Project, BSRP
- 16. Current status of the ICES/GLOBEC Programme and Office
- 17. Report of the Finance Committee
 - 17.1 Final Accounts for Financial Year 2002
 - 17.2 Status Report of Accounts as of 15 September 2003
 - 17.3 Draft Budget for 2004 and Draft Forecast Budget for 2005
 - 17.4 Appointment of Auditors for 2004
- 18. Appointment of Chair and three new members of the Finance Committee
- 19. Appointment of MCAP Chair
- 20. Appointment of ACE Chair
- 21. Appointment of Editor-in-Chief of the ICES Journal of Marine Science
- 22. A reminder about ICES science quality and Food for Thoughts for the future
- 23. Reports and recommendations of the Consultative Committee
- 24. Report of ICES visit to Lithuania
- 25. ICES Headquarters accommodation
- 26. Report of MCAP meeting, Sunday 21 September 2003
- 27. The Centenary project
- 28. Any other business

The Delegates met in four sessions on 28, 29, and 30 September, and on 1 October 2003.

Agenda Item 1: Adoption of the Draft Agenda

The Agenda was adopted.

Agenda item 2: Elections and Appointments of Council Officials at the 91st Statutory Meeting (Gen:3)

Since the President, the First Vice-President and three Vice-Presidents were due to complete their three-year terms of office on 31 October 2003, elections were held in accordance with the Rules of Procedure. The results were as follows:

Mike Sissenwine (USA) was elected as President to succeed Pentti Mälkki (Finland).

Niels Axel Nielsen (Denmark) was elected as First Vice-President to succeed Mike Sissenwine (USA).

The following were elected as Vice-Presidents: **Maurice Héral** (France), **Gerd Hubold** (Germany), and **Boris Kotenev** (Russia) to succeed Rudy De Clerck (Belgium), Joe Horwood (United Kingdom), and Eduardo López-Jamar (Spain). [Note: Two Vice-Presidents continue in office until 31 October 2005 – **Paul Connolly** (Ireland) and **Peter Gullestad** (Norway).]

Agenda item 3: Progress Report on Administration (Del:2)

The General Secretary presented this report, highlighting in particular the production of the ICES publication entitled "Environmental Status of the European Seas" which had received wide acclaim. Following some questions from Delegates for clarification of some of the other issues dealt with in Doc. Del:2, Council adopted the Progress Report on Administration.

Agenda item 4: 2003 ICES Annual Science Conference

- Social Events (Del:3)

There were no further additions to the list, which was taken *ad notam*.

Agenda item 5: Arrangements for future Annual Science Conferences and Statutory Meetings – 2004: Vigo, Spain, 2005: Scotland (Del:6)

The 2004 Annual Science Conference will be held at the Social and Cultural Centres of CAIXANOVA, from Wednesday 22 September to Saturday 25 September. The 92nd Statutory Meeting will be held from Sunday 19 September to Wednesday 29 September.

There was lengthy discussion regarding the dates of the ASC and the Statutory Meeting in 2005, when the two events will be held separately. No definite solution was reached regarding the desirable time-gap between the

two meetings in future; a range between one day and two weeks was mentioned but no decision was taken. It was stressed, however that any period decided should be seen as an experiment (as agreed last year). The dates of the meetings in 2005 were confirmed as <u>ASC</u>: 20–24 September 2005; <u>Delegates Meeting</u>: 3–5 October 2005.

A verbal invitation was received from the Netherlands to hold the 2006 Annual Science Conference and Finland extended a verbal invitation to hold the 2007 Annual Science Conference in Helsinki.

Agenda item 6: Report of the Steering Committee for

the 13th ICES Dialogue meeting (Del:7)

Mike Sissenwine, as Chair of the Steering Committee, introduced this document. He pointed out that the Steering Committee wished the meeting to respond to the developing European Marine Strategy, and to the Ecosystem Approach, and to discuss the advisory process necessary to underpin these key features. The Dialogue Meeting would be aimed at high-level officials from national governments and from the client Commissions of ICES. The Steering Committee had also proposed a date towards the end of April 2004, and had expressed a preference for holding it in Ireland, the country which would occupy the Presidency of the EU at that time. He informed the Delegates that the Irish Government had subsequently invited ICES to hold the Dialogue Meeting in Dublin Castle, on 26 and 27 April 2004.

In confirming the invitation to Dublin, the Delegate of Ireland suggested that it would facilitate the discussions at the Dialogue Meeting if a document could be circulated in advance, containing case studies of the implementation of the ecosystem approach elsewhere.

The Delegate of Sweden said it was regrettable that the justification, requested in the mandate for the Steering Committee, had not been provided for the use of scarce ICES resources for the purpose of a Dialogue Meeting in view of the large number of specific proposals not yet implemented to strengthen ICES advice. He asked for such justification to be provided before Council could come to a decision on this matter. Other Delegates pointed out, however, that Council had already discussed the issue last year, and had agreed on this course of action.

Agenda item 7: Address by Mr John Farnell, Director,

DG-Fisheries, European Commission

Mr Farnell's paper, and a transcription of the discussion which followed it, can be found in Annex 1 on page 128.

Agenda item 8: Report of MCAP Meeting (Del:22 and

Del:9)

The Chair of MCAP presented Docs. Del:9 and Del:22, drawing particular attention to the recommendations made by the Study Group on ACFM, ACE, and ACME Working Group Working Protocols (SGAWWP).

8.1: Report of the Study Group on ACFM, ACE, and ACME Working Group Working Protocols (SGAWWP) (**Del:9**)

Supported by Spain, the United Kingdom said that these reports and recommendations clearly indicated the willingness of ICES to meet the timescale requested by the European Commission, but they questioned the appropriateness of asking the ICES member countries to pay for the costs of the fast-track approach and the work of the ACFM review groups, as proposed in the documents. He pointed out that these matters would represent additional costs for the institutes. Referring particularly to the peer review proposals, he said that these should be paid for by the client Commissions. These views were also supported by Denmark.

Sweden suggested that ICES might need to reflect further on the implications of the proposals for extra work by the institutes.

On the proposal of Sweden, Council agreed that an evaluation should be made at the 2004 Delegates meeting of the progress made regarding the thirteen recommendations of SGAWWP, which had been endorsed by Council in 2002. This evaluation should be based on a report which would be prepared by the Secretariat, and which would identify progress made, areas remaining, and proposals to further implement the recommendations. The Chair of MCAP said that most of those thirteen recommendations had been implemented or were in the course of implementation, as shown in the SGAWWP Report.

Invited by the President to comment, John Farnell said that he regarded the ICES response as clear evidence of a wish to respond to the EC's concerns about fast-track advice, peer review, integrated advice, and stakeholder participation. He said he saw both documents as work in progress rather than a firm programme, and that it was apparent that ICES still had some finer points of detail to work out. He suggested that the annual cycle of the ICES decision-making process may not be adequate to meet the necessary degree of urgency. Mr. Farnell went on to say that the EC would be prepared to pay for additional costs, provided that the Commission could be satisfied that such costs were additional; he said that if ICES could demonstrate that the economies being introduced (by ICES) are not sufficient to meet the extra costs, then the European Commission would be sympathetic.

8.2: Use of Term "Safe Biological Limits" and letter from Norway (**Del:20**)

The Chair of MCAP and the Delegate of Norway introduced these documents. The United Kingdom reminded Delegates that the term had been introduced to

the fishery management advice package some time ago because that was how the advice had been requested by the client Commissions – "within safe biological limits". Council agreed that this matter should be handled urgently by MCAP, but that it was up to ACFM to make a final decision on how the concept of sustainability should be worded.

Agenda item 9: Report of the ICES/Commissions Working Group on Cooperative Procedures (Del:10)

This report was introduced by the Chair of MCAP, and was taken *ad notam*.

Agenda item 10: Revised Memoranda of Understanding (MoU) with ICES Client Commissions (Del:11)

In introducing this document, the President drew attention to page 14 (Draft Revision 1, Clause 11) concerning the wish of the EC to "be entitled to be represented in an observer capacity at the Annual Statutory Meeting and Annual Science Conference of ICES". The USA felt that the word "entitlement" was too strong, and tabled an alternative text as follows:

Clause 11: Replace "The EC will be entitled to be represented in an observer capacity at the annual Statutory Meeting and Annual Science Conference of ICES. In addition, ICES agrees to the participation at meetings of the Council's Advisory Committees, of a scientifically qualified representative of the Commission as an observer of the EC. In that capacity the EC's representative will have the right to ask for the floor and participate in meetings, but will have no voting rights nor have freedom to change the meeting's agendas" by:

The EC will be granted observer status at annual Statutory Meetings, and in this capacity the EC may participate in meetings of the Council at the discretion of the Chair. The EC will not have the right to vote or to modify the agenda of the Council. In addition, ICES agrees to grant observer status on Advisory Committees of the Council to a scientifically qualified representative of the EC. Such observers may participate in activities of the Advisory Committees at the discretion of the Chair. They will not have the right to vote or to modify agendas of the Committees.

(Parallel language should be applied to the NEAFC MoU.)

The President reminded Delegates that in the early 1980s the Director-General for Fisheries in the Commission of the European Communities had exercised strong pressure, bilaterally, for the European Commission to become a full member of ICES, and to take on competency at all ICES meetings on behalf of member countries of ICES which were also member states of the then European Community (now Union). He further reminded Council that this move had been successfully rejected on the grounds that the ICES Convention allows only "the Government of any state" to accede. He said that if the EC was now seeking to speak at ICES on behalf of EU Member States, this would have an impact on how ICES does its business; ICES should ensure that its identity would not be vulnerable to radical change without its consent.

Ireland and Denmark supported the line taken by the USA and the President, but Sweden and The Netherlands felt that it would be unfortunate if restrictions were to be put in the way of the EC's proposed observer status at Council. They said that the issue of whether the EC would speak on behalf of its Member States would be a question for those Member States. Germany and France expressed the view that it would be beneficial to have the EC at Council meetings as an observer, but not as a member of ICES.

It was agreed that the amendments proposed for the text of the revised MoU, and the issue of the EC's intentions in regard to observer status at the ICES Statutory Meeting, would be taken up with the EC. At a subsequent session of Council, the President informed Delegates that at a working lunch with John Farnell, he (Farnell) had clarified that the EC's intentions in regard to their request for observer status at Delegates' meetings was to be present at, and take part in, discussions on items directly relevant to fisheries advice. On foot of this, the USA said that it would be mutually beneficial for the EC to be granted observer status at all Delegates meetings. Consequently, the text as originally drafted on page 14 was unanimously accepted by the Delegates.

Considerable discussion was also devoted to ICES' policy of 100% cost recovery, and the extent to which this was being achieved in practice. On the proposal of the Delegate of the USA, Council noted that:

ICES has a stated policy of 100% recovery of costs associated with providing advice. This policy is acknowledged in the draft "understandings" governing arrangements between ICES and the Commissions. However, this policy can only be considered notional at this time as the available financial data indicates a gap between payments from the Commissions and the ICES costs. In part, this gap is due to quality problems with the financial data that were available several years ago when a baseline was negotiated with the Commissions for the purpose of notional implementation of the cost recovery policy. While the financial data are generally of high quality today, there remain ambiguities in the allocation of costs between advisory activities and core science activities, and there are alternative models for attributing overhead costs which could substantially narrow the gap. In order to clarify the situation, a more detailed examination of financial data is necessary. Such clarification might result in changes in the allocation of costs between advisory and core science activities, clearer guidance on a practical interpretation of the cost recovery policy, and/or identification of the need for negotiations with clients for additional funding.

Against this background, Delegates passed C.Res. 4DEL01, that:

The Chair of the Finance Committee, in consultation with the Chair of MCAP, a representative of the Government of Denmark (as the Host Government of ICES) and the Secretariat, should review financial data associated with the advisory process in the context of the Council's policy of 100% cost recovery, and report to the Bureau and the 2004 meeting of the Council.

It was further agreed that (a) the ICES/Commissions Working Group on Cooperative Procedures (WGCOOP) would be merged with MCAP; (b) the client Commissions of ICES would be invited to meetings of MCAP; (c) this would not require any change in the Rules of Procedure concerning MCAP.

Agenda item 11: Development of an MoU with NAFO (Del:12)

This report was taken *ad notam*.

Agenda item 12: Increasing the Transparency of the ICES Advisory Process (Del:13)

In a protracted discussion many, but not all, Delegates expressed a preference to move away from the idea of inviting stakeholders to participate in the working sessions of Working Groups. This view was influenced (but not completely determined) by the concern expressed by the client Fishery Commissions that such full participation by stakeholders would affect, or be perceived as affecting, the objectivity and independence of the whole ICES advisory process. Delegates adopted a consensus view to apply as a first step and on a trial basis the "sandwich approach" - invite stakeholders (chiefly, the fishing industry) to a full-day briefing meeting immediately before the start of a Working Group, and a full-day session immediately after the Working Group meeting. The purpose of the first part of the "sandwich" would be to inform the stakeholders of the data and methods which the Working Group intended to use and to obtain any additional information or data which the stakeholders might provide. At the second part, the stakeholders would be informed of the outcome of the assessment(s). It was agreed that MCAP should discuss this further at its next meeting, with a view to recommending to the Council the implementation of a transparency process as soon as possible (see C.Res. 4DEL02). It was also agreed to release Working Group reports as soon as they were finalised, without waiting for them to be considered by their parent Committee.

Agenda item 13: ICES Press Policy (Del:8)

The General Secretary informed the Delegates that Del:8 had originally been written by him at the Bureau's request, and had been endorsed at the mid-term Bureau meeting in June. He then gave a detailed presentation of the paper.

The United Kingdom and Denmark agreed on the need for a press policy, and asked that the views of ACFM and the Publications Committee be ascertained, and it was pointed out that this was being channelled through the Consultative Committee. The Delegate of Denmark added that he commended the good developments that had followed from the recruitment of the Communications Officer.

The Delegate of Sweden supported the general thrust of these views. He described the ICES website as "excellent", and welcomed the Secretariat's press releases; he commented that the standards of both were well above the average for such organisations.

The USA also supported the document and identified three key points of principle which should guide the press policy: complete accuracy, no spin, and no surprises.

Germany and Norway expressed their satisfaction with the current press policy and endorsed the content of Del:8, particularly the future plans which the General Secretary had outlined. The Delegate of Norway also spoke of the great improvement in communications which the Secretariat had achieved in recent years. He suggested that the Chair of the relevant Committee should also be involved in the approval process for press releases (in addition to the relevant Professional Adviser and the General Secretary); Council accepted this proposal.

The United Kingdom Delegate welcomed the greater engagement of the public as a result of the improvements in the ICES website, and said that the quality of the inhouse publications had also improved enormously. But, he pointed out, there are risks attached to communicating with the public, and ICES should concentrate on that aspect. He said he would be pleased if the procedures described in Del:8 were implemented, but suggested that a further document was required, to identify (a) what sort of organisation we would like to be seen as; (b) who we want to communicate with (managers? scientists? fishermen?); (c) what part of the ICES structure the information should come from (Committee Chair or Secretariat, for example?). He said that the public should be given a uniform story, from a single source, and that ICES should develop a risk management strategy.

The President then proposed, and the Delegates agreed, that the policy described in Del:8 be endorsed, with the amendment suggested by Norway. Furthermore, it was decided that the General Secretary, together with the Delegate of Canada, should prepare a strategy document on communicating with news media.

Agenda item 14: Report of High-Level meeting with IOC (Del:14)

The General Secretary introduced this report, and drew Delegates' attention to the resolution (reproduced in the document) which had been passed at the subsequent IOC Assembly (June 2004), undertaking to strengthen the ties between ICES and IOC by revising and extending the existing ICES/IOC MoU.

Agenda item 15: Status Report on the GEF Baltic Sea Regional Project, BSRP (Del:15)

The General Secretary introduced this report, and informed the Delegates that he and Jan Thulin will attend

a project commencement meeting at HELCOM on 9 October 2003. Council took note of these developments.

Agenda item 16: Current Status of the ICES/GLOBEC Programme and Office (Del:16)

When presenting this report, the General Secretary pointed out that it incorporated the report of the Steering Group for the ICES/GLOBEC North Atlantic Programme and Regional Office (SGNARO), which would be taken under Agenda item 23 – the Report of the Consultative Committee. He also pointed out that the Bureau had endorsed the continuation of the ICES/GLOBEC office.

The US Delegate reminded Council that one of the original purposes of the ICES-GLOBEC Office was to provide a marine ecology focus within the ICES Secretariat – not specifically on "fisheries", nor on "environment", but on ecology. He suggested that ICES had not entirely achieved that objective, and emphasised that if ICES is to fulfil its potential, a clear ecology focus within the ICES core science programme is needed.

Council noted the current status of the ICES/GLOBEC Programme and Office.

Agenda item 17: Report of Finance Committee (See page 111)

This was presented by the Chair of the Finance Committee, Tomasz Linkowski. The Delegates endorsed the report.

17.1: Final Accounts for Financial Year 2002 (Del:1)

The Final Accounts were endorsed.

17.2: Status Report of Accounts as of 15 September 2003 (Del:4)

This report was endorsed. Delegates agreed that in next year's Status Report, an extra column should be added to show the projected figures to 31 December.

17.3: Draft Budget for 2004 and Draft Forecast Budget for 2005 (**Del:5**, with Finance Committee amendments)

In explaining the Draft Budget for 2004, the Chair of the Finance Committee informed Delegates that provision had been made to recruit a Data Centre Manager, funded largely from the sales revenue of the ICES Journal of Marine Science. He said that the Finance Committee strongly supported this, as did the Bureau. The General Secretary further explained that this strengthening of the Secretariat's data management capability was essential in order to implement the Council's policy of data integration, and thus provide the essential underpinning of ICES' scientific and advisory activities and products. In putting the 2004 Draft Budget to the vote, the President (supported by Denmark, Canada and the United Kingdom) identified the funding of the Data Centre Manager post as a budget item which should be given a very high priority. The UK Delegate asked that

action be taken to develop a long-term business plan for the data handling sector of the ICES work programme; this was agreed (see Agenda item 26.4, below).

The Draft Budget for 2004 was adopted unanimously.

The version of the Draft Forecast Budget for 2005 with a 7% increase over 2004 received 10 votes in favour (Denmark, Finland, France, Germany, Iceland, The Netherlands, Norway, Portugal, Spain, United Kingdom) and 4 votes against, with 5 abstentions. The proposal was thus rejected, since it had not received the necessary two-thirds majority (13 votes). The President then asked Council to vote on the version showing a 3% increase. This was adopted unanimously.

17.4: Appointment of Auditors for 2004

The Delegates agreed to re-appoint the present Auditors (KPMG) for 2004.

Agenda item 18: Appointment of Chair and three new members of Finance Committee

On the nomination of the Bureau, and with effect from 1 January 2004, Council appointed:

Eduardo López-Jamar (Spain) as Chair of the Finance Committee, and Boris Kotenev (Russia), Serge Labontê (Canada), and Georges Pichot (Belgium) as members of the Finance Committee, to replace those whose terms of office would terminate on 31 December 2003. The outgoing members were Tómasz Linkowski (Poland) (Chair), Robert Aps (Estonia), and André Forest (France).

Agenda item 19: Appointment of MCAP Chair

On the nomination of the Bureau, Council appointed **Paul Connolly** (Ireland) to replace Gerd Hubold (Germany) with effect from 1 January 2004, following the completion of Gerd Hubold's three-year term of office.

Agenda item 20: Appointment of ACE Chair

On the nomination of the Advisory Committee on Ecosystems (ACE), Council appointed **Simon Jennings** (UK) to replace Hein Rune Skjoldal (Norway) with effect from 1 January 2004, following the completion of Hein Rune Skjoldal's three-year term of office.

Agenda item 21: Appointment of Editor-in-Chief of the ICES Journal of Marine Science (Del:17)

The President informed the Delegates that the Bureau had appointed Andy Payne (UK) as new Editor-in-Chief of the *ICES Journal of Marine Science*, on the unanimous recommendation of the Publications Committee.

Agenda item 22: A Reminder about ICES Science Quality and Food for Thoughts for the Future (Del:18)

The Delegate of the USA, as author of Doc. Del:18, introduced it. It received widespread support from the Delegates. The recommendation to establish a Study Group to review progress, identify gaps and how best to fill them, and prepare documentation, was endorsed.

Agenda item 23: Report and Recommendations of the Consultative Committee

With some editorial changes, all the draft Resolutions from the Consultative Committee were adopted.

Agenda item 24: Report of ICES visit to Lithuania (Del:19)

The General Secretary presented the report of the visit to Vilnius on 4 September 2003 by the President, the General Secretary, and Jan Thulin (Coordinator of Component 1 of the Baltic Sea Regional Project). He informed the Delegates that although the Convention still had to be ratified by the Lithuanian Government, the Minister of the Environment of Lithuania had assured the ICES delegation that the necessary parliamentary papers had been prepared and that the ratification would thus be completed very shortly. Algirdas Stankevicius, Director of Lithuania's Marine Research Centre, who was participating in the Council meeting as an invited observer, confirmed this situation.

Agenda item 25: ICES Headquarters Accommodation (Del:21)

The General Secretary presented the report, but underlined that the Ministry of Food, Agriculture and Fisheries was not yet in a position to conclude a contract to rent the building in H.C. Andersens Boulevard for ICES. The Ministry hoped to be able to do so within the next two or three weeks. The President asked the Danish Delegates to convey the thanks of ICES to the Danish Government for the efforts taken in regard to solving the ICES accommodation problems.

Agenda item 26: Management Committee for the Advisory Process

The Delegates endorsed the resolution that MCAP should have two meetings.

Agenda item 27: Centenary project

The proposal on how to use the residual monies from the Centenary Fund, which had already been accepted by the Bureau, was endorsed by the Delegates.

Agenda item 28: Any Other Business

28.1: Memorandum of Understanding with the European Environment Agency

The Delegates agreed that the draft MoU with the EEA should be signed by the President and offered to the EEA for signature.

28.2: Data Policy

It was decided to set up a Study Group consisting of Niels Axel Nielsen (Denmark) (Chair), Maurice Héral (France), Joe Horwood (UK), and Gerd Hubold (Germany), to work by correspondence on an IT/Database long-term business plan.

28.3: Baltic Fisheries advice

The Swedish Delegate informed the Delegates that at the 2003 meeting of the International Baltic Sea Fishery Commission it had been alleged that the ICES scientific advice had been changed following pressure from the fishing industry. He said that this had lowered the credibility of ICES. Delegates agreed that such an allegation, if true, was a very serious matter, and asked ACFM and MCAP to take this up at their forthcoming meetings in order to try to ensure that in the future there would be no reason to express doubts about the objectivity of ACFM advice, or about the fact that only ACFM is in a position to change its advice.

Closing remarks

Before the President, Pentti Mälkki, closed the meeting, the First Vice-President thanked him for his leadership and stamina throughout his period of office, and, for his long and valued service as a member of the Bureau prior to that. He expressed the hope that Professor Mälkki would remain a member of the ICES community long into the future, where his presence would continue to be highly valued by all. This vote of thanks was passed by acclamation by all present.

<u>Presentation to ICES Delegates meeting</u> <u>Tallinn, 30 September 2003</u> <u>by John Farnell on</u> "ICES and the EU: developing a new partnership"

<u>1.</u> Introduction: scientific advice is becoming a political issue

- High quality scientific advice has never been more important for fisheries management than it is today. The severe depletion of many of Europe's fish stocks is forcing difficult decisions on fisheries managers. Clear scientific advice will help to promote the right decisions. Poor or questionable scientific advice will provide an excuse to postpone them. The temptation of all political leaders in trouble is to "shoot the messenger".

- But it is not only quality that is in demand. The range of subjects on which scientific advice is needed for fisheries management is expanding (from biology to technology to economics to ecology); so is the geographical area for which EU fisheries managers are responsible, as we move our attention increasingly to the Mediterranean and fisheries in non- EU waters.

- The improvement of scientific advice is therefore high on the political agenda for fisheries management in the EU, and is a central part of reform of the CFP. The February 2003 Communication, which I will come to in a moment, spells out the issues.

- ICES, as the international organisation which today provides most of the EU's scientific advice for fisheries management, is clearly deeply implicated in this debate. We have been talking to you about it for a year and a half. I welcome this opportunity to present the Commission's views on where we are today, and where we are going from here to the ICES Delegates. We need to understand each other better.

2. Improvement of scientific advice: what are the EU's main concerns?

In its February Communication the Commission presented a critical overview of the present system for delivering scientific advice to fisheries managers in Europe. It suggested five main requirements for improvement of scientific advice for fisheries management:

(i) <u>Better planning and coordination by</u> <u>fisheries managers</u>

This involves coordination between Member State and Commission administrations to decide on a common work programme in terms of requests for scientific advice, reflecting priorities and non-priorities. It also implies consultation of stakeholders and an agreement on resource allocation (i.e. which experts should contribute to which work items).

(ii) <u>Clarifying the roles of managers and</u> <u>scientific advisers</u>

This requires managers to be clear about what they want and scientists to be clear about what they assume. The distinction between the political choice of exploitation strategy (and the attached level of risk), on the one hand, and the technical presentation by scientists of the consequences of different political choices, on the other hand, needs to be kept clear.

(iii) <u>Ensuring transparency, consistency, and</u> <u>quality</u>

Bodies providing scientific advice must apply clear and publicly available rules to the advisory process, take account of work in related areas when giving advice, be open about uncertainties or varying degrees of confidence in their results, and apply effective quality assurance systems which ensure that these standards are complied with.

(iv) Improving the resource base

Better advice will require improvement of the quality of fisheries data and easier access to them for the scientific community. It also requires greater efficiency in the use of scarce experts, and perhaps, in some areas, the provision of more experts, to meet the growing demand for advice.

(v) Building a stable organisational <u>framework</u>

The EU needs to decide "who does what" in this area on a long-term basis, eliminating any overlap between the work going on in different organisations and exploiting to the full the different expertise and potential of each organisation concerned. This could mean developing its relationship with some organisations (such as ICES), reviewing the mandate of others (STECF), or possibly creating new ones, if necessary. The Commission recognises that achieving these objectives will require a significant change of approach by both fisheries managers and scientists alike. These changes cannot be made overnight, but we must start now.

3. Where we are today in the EU debate

The EU Council of Ministers has welcomed the Communication and is expected to adopt Conclusions on it at its meeting of 13 October. There is a broad consensus in favour of :

- closer EU coordination of priorities for scientific advice and the allocation of national experts to a common priority programme;
- improvement of the quality of data and of scientific advice;
- a clearer division of labour between the international and EU bodies involved in scientific advice (e.g. ICES, the General Fisheries Commission for the Mediterranean (GFCM), the Scientific, technical and Economic Committee for Fisheries (STECF), and the Joint Research Centre (JRC));
- continued partnership with ICES if certain conditions are met.

Additional budgetary support for scientific advice to fisheries managers is now available, to be used in socalled "pilot projects" over the next year. Although not yet finalised, some of the Council's specific conclusions are relevant to our discussion today.

For example, the Council

- believes that coordinated efforts should urgently be made by the Community and its Member States to further improve the reliability and credibility of the scientific advice from ICES and other scientific bodies;
- recognises that the STECF is the appropriate forum to provide advice on social and economic matters;
- invites the Commission to report to the Council and the European Parliament during 2004 on the results of the short-term measures presented in its Communication, such as improved procedures, additional financial coordination support from Community funds and the results of efforts to ICES advice, and as appropriate, to present and improve proposals for the longerterm organisation and financial support of scientific advice for Community fisheries support management".

We have, therefore, an emerging political consensus within the Union on the way forward, and a timetable for the next stages in the debate.

4. What does this mean for ICES?

The relationship between the EU and ICES goes back a long way and the consensus view within the Union is that it should continue and develop. Most people consider that ICES should be the (sole) source of biological and environmental advice on fisheries management in the North East Atlantic and adjacent seas (but <u>not</u> the Mediterranean) and that other bodies, such as the EU's own Scientific, Technical and Economic Committee for Fisheries (STECF) should be the source of advice on other aspects of fisheries management (such as economics, fishing technology or social aspects).

But for the Community's partnership with ICES to develop a number of conditions must be met. We have been discussing these conditions with the General Secretary and his colleagues for many months, and our ideas are reflected in the Commission's proposed Memorandum of Understanding.

They include:

- the application of high standards of transparency, consistency, and quality in scientific advice;
- the development of advice in forms that are better suited to the needs of managers (i.e. longterm, multi-annual and multi-species (or fleetbased) advice, rather than short-term, singlestock advice);
- greater flexibility of organisation and responsiveness to short-term needs;
- participation in dialogue with stakeholders;
- the involvement of ICES clients, including the EU, in the management by ICES of its work-programme.

5. Can ICES respond to EU needs?

On a number of the issues I have just mentioned we have made progress in the past year. At the level of intentions, at least, we are on the right track:

- the new Memorandum of Understanding (which we are about to sign) provides for many of the innovations we are looking for in terms of the form in which advice is delivered and the responsiveness to short-term needs;
- proposals for improvement of quality control of ICES advice by external review are being prepared;
- there is a suggestion of bringing in the Commission and other client organisations with the ICES work programme management process (MCAP);
- we welcome the recent fast reaction of ICES to the request concerning the 2003 TAC for anglerfish in Divisions VII and VIIIabde, as a good example of how scientific advice can respond to problems identified by fishermen;
- we also welcome the development of new methods for giving advice on mixed-fisheries

situations that is underway in ICES at the moment.

All this is promising, but these changes will have to be <u>delivered</u> and further changes made to ICES procedures in practice in the coming months in order to have a positive influence on the EU debate on the longer-term organisation of scientific advice.

And we still have some concerns.

There are a number of issues where ACFM has not yet put in place clear arrangements in the terms of reference to Working Groups to deliver what is asked for under the MoU.

For example:

- Estimation of fishing mortality, recruitment, landings, and stock size with estimates of uncertainty;
- Routine review of management regulations in place and the changes made to them;
- Separate advice with respect to risk of decreased recruitment and with respect to long-term yield;
- Advice in defined intervals between the current conditions and the advice;
- Moves to mixed-fisheries, harvest-rule based advice in an ecosystem context.

We welcome the fact that last week the ACFM consultations produced a plan of action, with a clear timetable, to put into place a new form of advice consistent with the MoU. All I would emphasize is that delivery of this action plan will be crucial.

We also need to pay closer attention to the contractual aspects of the relationship between the Community and ICES than we have in the past. For example, in the context of the discussions on the new MoU, ICES has asked for a 20% increase in funding in order to cover the extra costs of about 4 to 5 extra working groups. The payment arrangements would come into force for 2004, yet ACFM has not established four new working groups to address new issues raised by the MoU.

6. Where do we go from here ?

As I already mentioned, during 2004 the Commission will propose to the Council and European Parliament definitive arrangements for the organisation and financial support of scientific advice for Community fisheries management. These will address the issues of who does what and how the Community can best support the advisory process. These proposals will be influenced by what happens between now and mid-2004, and, in particular,

- our experience with ICES cooperation under the new Memorandum of Understanding;
- the results of the pilot scheme for financial support now being put into place;
- the results of closer coordination with the Member States on the common work programme for scientific advice.

We in the Commission are assuming ICES will want to remain a central element in the system. That is what we want, too. For that to be the case, we must all be aware that the decisions taken by ICES during the coming months in respect of introducing new working procedures and terms of reference for its working groups or bringing its customers into management of its work programme will be critical.

The EU is looking for a new partnership with ICES and other scientific organisations. That will mean a change of approach on the side of fisheries managers, as well as scientists. We are ready to help you promote change and to support the ICES advisory process with additional Community funding. But for the partnership to work you, our partners, must recognize the importance and the urgency of what we are trying to achieve. Reinforcing the credibility of science in fisheries management is in our mutual interest. I hope that we can count on ICES' full support.

Discussion following John Farnell's address

<u>Norway</u>: The dialogue has closed the gap between ICES and the EU. What you said about ICES being the sole deliverer of advice within the field of biology, and also the environment, is appropriate. I am also aware that there is an understanding in the Commission that ICES cannot deliver any more than what the institutes in ICES Member States are able to produce. ICES in itself does not collect data, the real work is done in the institutes, so this is an area where the Commission can play a role the other way round, giving, as you said, priorities to the institutes, etc. From the Norwegian perspective (being outside the EU), I would just state that we welcome the EC as an observer in this meeting, and in the future, and we also look forward to its participation in MCAP. To move on to some more specific issues you raised:

You mentioned that maybe fishing technology was, or maybe was not, where the Commission would seek advice from ICES. I would say that exploitation pattern and discards are so closely related to the other issues that it would, at least from my perspective, be very appropriate that these issues also are addressed in ICES. Perhaps the EU can learn something from outside the EU. Another statement you made which I very much welcomed is that we have had a discussion within ICES with regard to the participation of stakeholders. This has been a contentious issue. I very much agree with the way you presented that issue that stakeholders - like client Commissions - are now involved in the daily life of ICES. That I very much agree with. I also agree with the way you phrased it with regard to other stakeholders, that is the fishing industry, NGOs, or the general public. From the Norwegian perspective we have been against having stakeholders participating in the Working Groups. We are afraid that this will be detrimental to the integrity of the scientific advice, but I very much appreciate that Working Groups or Advisory Committees could meet with stakeholders before and after the meetings and explain what they are doing and receiving questions and giving answers afterwards, if possible.

Thank you for a very comprehensive speech.

<u>Chair of MCAP</u>: I think from an MCAP perspective it is also very welcome to get this very clear statement on how our main clients see the participation in Working Groups. I would also like to hear your position on the question "what do you see in relation to the participation of other client Commissions?" At present we are mostly thinking of fisheries Commissions, but by definition our clients are also the environment Commissions. This definition should evidently include opening the process, if not to all stakeholders, but to all Commissions that we have in our client group, no matter if they are fisheries or environment Commissions.

<u>USA</u>: Thank you for your remarks. I very much appreciate them, and found them to be extremely clear and I too view them as constructive and positive, as I also found the Communication from the Commission. I thought that this was an extremely thoughtful document and very much focussed on important issues as well as being constructive. I hope also that the responses you have gotten today from ICES have also been of a similar quality in terms of being constructive and thoughtful. Your presentation is so clear it is almost difficult to find points to ask questions about, because you are so direct, and we certainly welcome that. But a couple of comments on a few items:

One is to reiterate the comment made by Norway with respect to fisheries technology. Clearly in terms of the science and engineering issues associated with fisheries technology as it may apply to fisheries management, ICES has tremendous expertise. While I do not want to get into much detail on how that gets translated into advice, it certainly would be unfortunate if that expertise was not brought to bear on the needs for conservation engineering as solutions to some fisheries management problems. I am sure we can work on that.

There is a diversity of views on the issue of involvement of stakeholders in the actual scientific process of preparing advice. Your very clear view on it is very welcome, because it will take some of the ambiguity out of the discussions we have been having. I do wonder about that one; how far it extends with respect to the involvement of scientific experts that can participate in the work of the advisory process, in the sense of bringing expertise to the table. But this might be viewed as some affiliation or some association with various interest groups in the process. This, to me, is still something of an ambiguity. I am not expressing any view on it, but I would be interested in comments.

You made mention on the definition of adjacent seas. You were explicit in your comments about not viewing the Mediterranean in that context. I take that to mean that in fact you do not at this stage see a role that ICES might play in the advisory area in the Mediterranean. Again I am not taking a view on this, this is not an area we are involved in right now, but it is also something that has sometimes been discussed. However, we welcome anything further you might have to say about that.

The issue of social and economic advice has come up on a few occasions during the discussions and deliberations within the Council and in the preparation of our Strategic Plan. I think your statement is very clear, as to where you would be seeking advice on social and economic matters - not from ICES. Certainly this is very consistent with the decision we have taken to date. But I am wondering about the way you see the development of the science behind the capability to provide social and economic advice. One needs to invest in methodologies, in data collection of some types and statistical methods for analysing it. My experience is that there is a reasonably close link between some of the methodologies and sources of data that are traditionally used in the biological side of the equation – the population dynamics side of the equation – and the extension to bio-economic modelling. So, while I very much appreciate and agree with your view that ICES is not the appropriate source of advice on these matters, I wonder what your thoughts are about the role we might play in the development of the scientific capability that we all need for the purpose of giving such advice. These are some thoughts and thank you very much for your contribution.

Finland: In fact the USA covered almost all my comments, but I would like to clarify a bit more the role of ICES and the technological committee of EC. That role should be very clear. Actually I would call it "technical measures" and not just fishing technology. In the future it would cover the marine protected areas and all kinds of closures. I think ICES has the capacity to be much stronger in the future in this field. I agree that advice has been occasionally quite poor in this area, and I understand that the EC has felt that there is room for improvement, but I still think that most of the relevant experts are working in ICES. And you are using in your Committee pretty much the same people. I do not think that there would be much improvement. I think ICES has the capacity to improve and widen this area of expertise. I fully agree with the USA and Norway that it would be better to have ICES as a major source of this advice, because it is so much connected to the biological advice, and all other advice.

<u>Sweden</u>: We are of course very encouraged by the very firm commitment, the very good intentions we heard from the Commission, and we have nothing specific to say in support of this very solid statement which we heard from the Commission, the contents of which Sweden entirely endorses, by the way. But I would like to say that we are extremely pleased to see an EC representative taking part in our deliberations here. This is the first time, I am tempted to say, that we are pleased to finally see an EC representative. The reason is well known, of course. The precarious state of most stocks in the ICES area is of great concern to the Member Countries and nowadays it is an area of high politics, and we all agree that scientific advice, mostly provided by ICES, plays an indispensable role when it comes to rectifying the situation and rebuilding the stocks. For an ICES member, which is also a member of the European Union and used to the Commission's leading role and constructive role in all matters relating to fisheries, it has so far been a little bit odd, a little bit awkward, actually, to have to discuss scientific advice in general and ACFM procedures, etc. in particular, with the Commission in all possible venues except where it really matters, namely the ICES governing body. That is the reason why we really think this is almost a turning point in the very long history of ICES. For us it is more than a matter of transparency in general. I think from now on we expect that ICES works with benefit from the same kind of very competent, very constructive attitude and proposals that other international organisations have benefited from for such a long time. The solid statement by Mr Farnell is a good example of the best that can be produced within the Commission.

Germany: I would like to draw your attention to another aspect of ICES. We are talking about advice here now, but of course ICES is far more than an advisory-giving body. In fact the advisory part is rather new, and it came on top of what ICES used to be for almost a hundred years, and that is a scientific organisation coordinating national institutes, individual scientists and so forth. I would really alert you that focussing solely on the advisory function of ICES could bring a certain danger within ICES and also beyond. We dare to say that without the scientific function of ICES we would not be able to give you advice, you would probably not even get it through STECF, because the whole community of advisory-giving scientists heavily depends on the scientific background which is provided by ICES for the N. Atlantic. So whenever we start the discussion of what ICES should do, and you stated it very strongly, what ICES has to do to be in the arena within the next one or two years. I am not talking as the MCAP chair, but as a German Delegate from an institute within that system. As a German Delegate I would be a bit reluctant to accept this very strong statement of what ICES should do. ICES is far beyond the advisory function and we really have to move our scientific realm in a way that we match the new challenges, and, of course, we have to be responsive to the advisory requests, but you cannot direct ICES from an EU perspective alone; you have to say what you want, and we can tell you what you can get from us, but we need to develop the science on a much longer and more profound scale to be really credible in the long run. We can promise you to give you some fasttrack responses if you want them, but you might lose confidence in these responses if the long-term science is not developed accordingly. In my view it is really the responsibility of this Council, and of ICES as a whole, to

make sure that we do not lose our scientific basis for the price of giving fast-track advice to match the Commission's needs. My plea is to keep in mind that ICES needs more support than just paying for a few meetings or a few experts. We really need support from the national governments, and from the Commission, on a much wider basis to maintain the infrastructure of scientific institutes, part of which is then the advisory part. We cannot view the advisory part alone.

United Kingdom: The UK very much welcomes the statement from the Commission. It is very clear and it is very much in line with our view on how the advisory system should develop. I just wanted to really ask a question about stakeholder involvement, and I mean here not the client stakeholders, but the fishing industries and the associated industries. I sensed from the way you spoke as if there was an ambiguity and just how much you want stakeholders to be involved. You mentioned your concerns about stakeholders, if they were involved in Working Groups, perhaps biasing outcomes or affecting the integrity of the science. It seems to me that there are really two things that we are trying to do in involving stakeholders. One is management of expectations, which is the transparency issue. But the other rather important one is actually getting information from stakeholders. I am not sure that you can really involve stakeholders and hold them at arm's length, which seems to be to some extent what you are proposing. I just wondered if, from your perspective, you have very specific limits on the involvement of stakeholders, or whether you recognise that this is a new area that we are getting involved in. Actually the important thing is to manage the potential risks associated with involving stakeholders, but we should actually try out different ways of involving them, so that we don't disillusion them. You mentioned for example what I call a "sandwich approach" where stakeholders come in, talk to scientists, scientists go away for a week and do some work and then tell the stakeholders the answer. That to me is the construction which they do not like, because they feel excluded and it is playing the old game to them of letting them in a little bit, but not including them in the system. So, I am not sure that this is necessarily the right approach.

<u>Denmark</u>: We also very much welcome the statements made by John Farnell and we are pleased that they are so clear, and also we find them very much in line with our own view on how these improvements should develop. We are confident that we, through ICES, could support the specific changes which we are aware are going to be needed also in the very short term, in order to make sure that the changes which we now see on paper materialise in concrete deliverables in the near future. Thank you very much for the message and the clear intervention.

I have a question concerning the Regional Advisory Councils. I think it is clear to us how in practice we could change and improve the collaboration between institutes, and the collaboration between ICES and the EC. If we in parallel see established a number of Regional Advisory Councils, we could also get some inter-linkages with these councils, and ICES could do that, if there would be a need for it. How could we do that? How would you see this in practice? That could be of importance when we now begin to formulate specific action plans to modify the procedures which we are using for our work.

France: We are very happy to see John Farnell with us at the Delegates meeting and we are extremely pleased to see that the EU is now strengthening its observer status, given that the EU is our main client as far as advice from ICES is concerned. We are very pleased to see that you would like us to improve the advisory procedure both short-term (fast track) and long-term advice, and I would say that I share John Farnell's view with regard to the division of roles and tasks between the various bodies and in particular ICES, except when it come to fishing technology. I do believe that we have to think a bit more in depth because in fact fisheries technology is included in our advice for discards and mesh sizes. Perhaps we do not really go far enough with regard to regional fisheries, but quite a lot of our know-how with regard to fisheries technology is there in our advice. When it comes to social and economic issues, quite clearly ICES today is not in a position to give economic advice, but on the other hand, as our German colleague was saying, the research needs to be developed and could be developed within ICES, because when we are talking about advice, we have to understand that the tools which are needed for this advice are not fixed in time. The research in bioeconomic modelling can actually be carried out, but, of course, there are other structures which need to come into play. When it comes to the Mediterranean, appropriate contacts between ICES and the General Fisheries Commission for the Mediterranean (GFCM), which is a structure which is strongly and firmly supported by the countries bordering the Mediterranean, could assist the EC in exercising their responsibilities in that region.

<u>USA</u>: I very much appreciated the German comment highlighting that ultimately the success of our endeavours to provide scientific advice needs to be underpinned by a commitment to the scientific programme. I just wanted to add that what we all experience is a world-wide shortage of experienced people involved in the issues of population dynamics, and the formulation of advice for fishery management purposes. So that ultimately, in order for all of us to be successful, whether here or elsewhere, we do have to have a commitment that will actually produce more experts in this area. That is a critical factor and is recognised in the Commission's Communication, which is one of the things I appreciated about that document.

<u>Netherlands</u>: I would also like to thank John Farnell for his clear presentation. I appreciated this very much. There is one point I want to take out of the presentation. I was very happy that in regard to stakeholders, he not only mentioned the industry but also the consumers and NGO's. I think we should be aware of that. Out of its presentation we all get the impression that the demands of the EC, supported by the Member States of the EU, are very high and I would put the question to John whether he sees also possibilities to assist or help the ICES community in the heavy duty they have. I am thinking for instance of the position of the Joint Research Centre and their capabilities in the IT field. Do you see any possibility also to support the ICES work, not only in a financial way, but also to contribute to procedures, etc.?

Iceland: Iceland would like to welcome Mr Farnell's clear statement also. It is extremely satisfying to observe the principal position of the EC that ICES will continue to be the backbone in generating scientific advice on fisheries in the EU Member States. I found your statement very encouraging, and it is important for ICES to have this stated so clearly for us to respond to and develop our mechanisms to meet your requirements. I would like to make one observation regarding your statement relating to transparency and the participation of stakeholders. I take the point made by my Dutch colleague regarding this point; yes, we have a variety of stakeholders we would need to incorporate into our system if we were to make major adjustments regarding the participation of any stakeholders, but Delegates have been extremely wary of this, simply because we envisage that the scientific integrity can be seriously damaged if we are not cautious in developing this two-way communication. I was extremely pleased to learn your cautious position on this, to have some kind of an open door at the beginning with a scientific input, or points to be made by the stakeholders at a certain point in deliberations of Working Groups and then the scientists would be left alone to do their job. I think that is a very important part of your statement, and I very much share it, and I think this was an extremely helpful clarification. I noted in one of the reports in this meeting that a similar statement was made by Ken Patterson (of the EC) on the same subject, and I think this clarifies quite a lot of the confusion that has occurred in the Council and within the ICES machinery regarding how we should go about opening up our activities.

Belgium: First of all I would like to join the other Delegations who have already expressed their appreciation for the clear statement by Mr Farnell. I would also like to join those colleagues who have expressed their concern about fisheries technology research. We think that fisheries technology research cannot be separated from the other ICES activities for a number of reasons. There is first of all the technical measures which are often quite clearly based on the separation of the gears. But also with respect to the fishing gears, this should be taken up in the future in the ICES context. The study of fishing gears etc., and how to improve them, is the only way to reduce the effects of these gears on the environment. I am of course first thinking of the marine habitat, the seabed and so on, in relation to the involvement of stakeholders, I think that fishing gear technology is an area of research in which we should involve the fishermen more and more, because we really need their support for our activities in this field.

<u>Ireland</u>: I think this is a good day for ICES, and the reason for saying this is that one of its main customers has come here and with a high degree of clarity has told us what he wants, and for ICES it makes the job of responding to the needs of the client in this case very easy. I hope we will get the same clarity from other clients. The second thing I would like to do is to say that throughout John's talk I picked up a high degree of emphasis on the word quality. It is good that this morning we were also talking independently about how ICES needs to tackle the whole quality issue. The third and last thing I would like to say is that I did not hear any mention of the ecosystem approach. I would like his view on the ecosystem approach in terms of what he talked about this morning.

John Farnell's replies

Thank you to everyone who has reacted, because I think a number of points have been very clearly made also, and it may be useful to take them further.

The first point from our Norwegian colleague about fishing technology was echoed by several of you. I think I should say here that our position is the reflection of a concern that a lot needs to be done in this area, and if we are to involve ICES, then this is an area where ICES would have to do rather more than it has done in the past. It may be that we can discuss how ICES can do more in this area, and perhaps we can get the responsiveness we are looking for. A number of you have made a number of telling points about the linkage between this aspect of advice and what is done already in ICES, as well as the link with environmental factors. Certainly we would not want to lose that. I think what we are concerned about is the capacity of ICES, in the short term at least, to make a significant upward increase in its work capacity in this area. But let us be clear, I have a very much open mind on this, as on many of the other issues to which I refer at the moment, and we have a period, as I suggested earlier. between now and the middle of next year to tease these issues out before we would come forward with our definitive proposals to our own political authorities on this.

Stakeholder involvement is also a very important issue. I would say that my fundamental belief is that you can achieve "open doors" in many ways, and you do not have to achieve an open-door policy or transparency by having people sitting beside you throughout your scientific meeting. What stakeholders, the fishing industry for example, really want to know is how the science is done, what is the methodology being used, what is the data being used, what are the assumptions of those doing the work. If that is clear, they also need to be reassured that when a certain group of people have done their work, another group of people look at that work from a scientific point of view, and say "yes, this has been well done and this cannot be questioned". In other words, peer review. So, if you have those systems in place, I think to a large extent you overcome the suspicion, the lack of credibility, which is leading people to want to sit in through these long meetings, or to send

their own scientifically qualified people to them. So if we can have an open-door policy through a clear description of methods and peer review, plus direct dialogue with stakeholders at the beginning and the end of the process, to listen to what their concerns are, and as far as possible respond to them in real time, then I am not sure we need to bring more people into the process than are there already. However, I think this is an issue on which I would say we have an open mind, and I certainly pick up what Robin Cook (UK) was saying about the need to be ready to explore options, but I would add to that, be ready to explore those options if the ones which I am talking about are not delivering, are not doing the trick. By no means do I think the Commission's view on stakeholder involvement in fisheries policy as a whole, so far, has shown that we really want to change direction and bring stakeholders in. We are not convinced at this stage, that bringing stakeholders into the scientific work is necessary in order to reassure them that the job is being done as well as it possibly can be done. Again, we can talk about it over the coming months.

Certainly, in regard to Gerd Hubold's (Germany's) first remarks about client Commissions, as far as we are concerned, all client Commissions are on the same footing, whether their interest is in fisheries management or protection of the environment, and we would see customer stakeholders all being treated in exactly the same way.

Regarding the first question from the US about the role of scientific experts, I may have covered that in my previous remarks. Scientific experts, that is to say, designated by stakeholders as participating in the process, that may be a necessary route. I would say at this stage I do not see it that way, but we do not exclude it.

Regarding ICES' role in the Mediterranean, perhaps I could say a little bit more about this. Maurice Héral (France) has already underlined that there is a fisheries Commission in place within the Mediterranean with a scientific advisory committee. We see as our main role bolstering, promoting the work of that organisation. But one of the ways of helping that organisation to get on to a sound footing might, indeed, be some form of technical cooperation with ICES. I certainly would see it as being very important that the length and wealth of ICES 'experience should be made available to a number of other bodies doing the same kind of work around the world, and why not in the Mediterranean? But I think the main thrust of my message was that we see the scientific advisory committee of GFCM as being the body which must grow and which over time must be the body to deliver scientific advice for the Mediterranean. We are doing what we can to stimulate that process but, of course, cooperation with ICES at GFCM's request would be very useful, I think.

I take the point about the concerns people may have about a complete split between biology on the one hand, and economics on the other. Our reactions to this are simply practical ones. If we want this work to be done,

we have a mechanism in place within the EU to collect data on the economic dimension of fisheries under a Council Regulation adopted two or three years ago. As of next year all Member States will have to provide a significant amount of economic data to the EU and we see our own Committee as being therefore well placed to look at that data and draw conclusions from it. However, we too are interested in bio-economic modelling, and clearly there needs to be dialogue and more and more dialogue between economists on the one hand and fisheries biologists on the other. I would say that the fact that there is some kind of division of labour in the short term would not mean that there would be no dialogue, and perhaps the development of possible models, either in ICES or perhaps in other organisations. Reference was made by the Netherlands Delegate to the Joint Research Centre of the EU; that is a body which in the past has also been involved in methodologies of various kinds, and which perhaps could play a role there.

Gerd Hubold (Germany) reminded me that science does not necessarily respond to politicians' timetables. Of course not. I think we are very much aware that good science requires investment in data and investment in people, and investment in research. But I would just like to remind everyone around this table that the Community does invest heavily in fisheries research and a number of non-EU countries are participating in, and are beneficiaries of, our investment in fisheries research. We also invest heavily in the collection of data. The money we are talking about in terms of support to scientific advice is still a very small fraction of what we already do in terms of our support to collection of fisheries data, and our support for fisheries research. But even though, of course, everyone responds to the time-tables in different ways, I just emphasise that the important thing is to start now. It is important that those involved in the Working Groups get the message that we are looking for scientific advice in a different form than in the past. We want their reactions to that. If there are difficulties about doing that, we would like to hear about them, and we would like to hear what we could contribute to resolving those difficulties. But that kind of discussion (about how to make the change) has to take place now, even if we may not necessarily achieve the change we want within the lifetime of our next exchange of letters with ICES.

Niels Axel Nielsen (Denmark) asked about the Regional Advisory Committees and how we saw their role in the interface with ICES. I would say that the Regional Advisory Committees will be very important for dialogue with stakeholders. That is, they would provide a forum in which ICES and other scientific bodies, to the extent they are also involved, could explain to stakeholders how the assessments are done, could discuss the results, could look at problems, such as the poor quality of data coming from fishermen's logbooks, for example, with fishermen at the same time criticising the science for being not sufficiently clear or not sufficiently precise. But Regional Advisory Committees are not there to give any kind of scientific advice; they are there to respond perhaps to the advice, to inform managers about other issues that will need to be taken into account, as well as the scientific biological situation, in fisheries management: the economics, social impacts of various measures, and so on.

I have already mentioned in response to Gerd Hubold (Germany) who suggested that there might be ways of the Community supporting ICES other than with funding for the Secretariat in its work. I think there is some possibility at the level of the EU to organise networks of national experts to explore problems relating to methodology in any economic sector. That might be an area where we can see that we could give greater support. Support might also be given in respect of managing the interface between biology and economics by exchange of data; between data collected within the EU framework in relation to economics, and the data related to catches and the biology collected within the framework of ICES. It is clear that there has to be communication between those two systems for both elements to work most effectively.

Yes, I omitted to say anything about the ecosystem approach, I am afraid I spent most of my time worrying about the survival of certain fish stocks in the very short term. But there is no doubt about our commitment to an ecosystem approach to fisheries management. We have already in the last year come forward with proposals for legislation within the EU in relation to the protection of non-target species, such as cetaceans and sharks in relation to the protection of sensitive habitats. It is clear that for those kinds of measures we will also be looking for clear scientific advice. Part of our investment in the ICES work must also be investment in discussions among scientists of environmental issues that are directed to fishing and fishing practice. I hope my omission of the word ecosystem approach is not taken as a sign of lack of interest. That is certainly on our agenda, alongside our colleagues responsible for environmental policy within the Commission. It is certainly an important part of the overall picture.

Resolutions

Resolutions adopted at the 91st Statutory Meeting (2003)

Resolutions involving Publications

C.Res. 2003/1B01

The report on **Mesh Size Measurement Revisited**, edited by R. Fonteyne (Belgium) and R. D. Galbraith (UK), as reviewed by the Chair of the Fisheries Technology Committee, will be published in the *ICES Cooperative Research Report* series. The estimated number of pages is 100.

C.Res. 2003/1B02

The report on **The** *Nephrops* **fisheries of the Northeast Atlantic and Mediterranean – A review and assessment of fishing gear design,** edited by N. Graham (Norway) and as reviewed by the Chair of the Fisheries Technology Committee, will be published in the *ICES Cooperative Research Report* series. The estimated number of pages is 60.

C.Res. 2003/1C01

The Electronic Document Collection of ICES Identification Leaflets for Plankton (Fiches d'Identification du Plancton) prepared by the Secretariat and edited by the Working Group on Zooplankton Ecology, as approved by the Chair of the Oceanography Committee, will be published on CD-ROM, and on the ICES Website.

C.Res. 2003/1F01

The report on **Chemicals used in Mariculture**, compiled and edited by D. J. Alderman (UK), P. Smith (Ireland), I. M. Davies (UK), and K. Haya (Canada) as reviewed and approved by the Chair of the Mariculture Committee, will be published in the *ICES Cooperative Research Report* series. The estimated number of pages is 117.

C.Res. 2003/1F02

The report on **Statistical Methods for the Analysis of Fish Disease Data** by W. Wosniok (Germany), T. Lang (Germany), A. D. Vethaak (Netherlands), S. des Clers (UK), S. Mellergaard (Denmark), S. W. Feist (UK), A. H. McVicar (UK), and V. Dethlefsen (Germany), as reviewed and approved by the Chair of the Mariculture Committee, will be published in the *ICES Techniques in Environmental Science* series. The estimated number of pages is 40.

C.Res. 2003/1F03

The Electronic Document Collection of **ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish**, to be prepared by the Secretariat and edited by S. McGladdery (Canada), as reviewed and approved by the Chair of the Mariculture Committee, will be published on CD-ROM and on the ICES Website.

C.Res. 2003/1G01

The report on **Estimation of Spawning Stock Biomass of Sardine and Anchovy**, compiled and edited by Y. Stratoudakis (Portugal), as reviewed and approved by the Chair of the Living Resources Committee, will be published in the *ICES Cooperative Research Report* series. The estimated number of pages is 100.

C.Res. 2003/1ACME01

The report on **Vector pathways and the spread of exotic species in the sea,** edited by S. Gollasch (Germany), as reviewed and approved by the Chairs of the Marine Habitat Committee and the Advisory Committee on the Marine Environment, will be published in the *ICES Cooperative Research Report* series. The estimated number of pages is 25.

Resolutions involving Symposia

C.Res. 2003/2ACMESY01

A Symposium on **Marine Bioinvasions** will be held in USA (East Coast) for 3 days in early 2006 with James Carlton (USA), Erkki Leppakoski (Finland), and Yasuwo Fukuyo (PICES, Japan) as Co-Conveners.

A Scientific Steering Group will be established, which will include representatives of appropriate co-sponsors.

The General Secretary will solicit appropriate co-sponsorship including PICES, IMO, and IOC.

C.Res. 2003/2BSY01

A Symposium on **Fishing Technology in the 21st Century** will be held in Boston (or New England), USA for 4 days in November 2006 with Chris Glass (USA) and Bob van Marlen (Netherlands) as Co-Conveners.

A Scientific Steering Group will be established, which will include a representative of FAO and from the Southeast Asia region.

The General Secretary will solicit appropriate co-sponsorship from FAO.

C.Res. 2003/2ESY01

A Symposium on **Marine Environmental Indicators: Utility in Meeting Regulatory Needs** will be held in [place to be determined] in 2007 with H. Rees (UK), E. Jagtman (Netherlands), and K. Cooreman (Belgium) as Co-Conveners.

A Scientific Steering Group will be established.

The General Secretary will solicit appropriate co-sponsorship in consultation with the Conveners.

Resolutions involving Meetings of Committees, Groups, and Workshops

Consultative Committee

C.Res. 2003/2A01

The **Consultative Committee** [CONC] (Chair: J. Rice, Canada) will meet at ICES Headquarters from 4–7 June 2004 to:

- a) evaluate the audit of 2002/2003 activities of Committees and Working Groups;
- b) review and revise as necessary methods used to audit activities of Committees and Working Groups;
- c) discuss strategy to deal with support expected to be required from Expert Groups as the number of requests for ecosystem scale advice increase, e.g., OSPAR requests regarding EcoQO's;
- d) consider possibilities for sharing the current Working Group on Ecosystem Effects of Fishing Activities workload amongst other groups, or by establishing new groups;
- e) design the infrastructure necessary to further integrate environmental information into ICES Fisheries Advice;
- f) finalise the programme for the 2004 Annual Science Conference and 92nd Statutory Meeting;
- g) further develop the plans for the 2005 Annual Science Conference;
- h) conduct a preliminary review of draft resolutions due for consideration by Council at the 92nd Statutory Meeting.

CONC will make its report available for consideration at the 92nd Statutory Meeting.

Management Committee on the Advisory Process (MCAP)

C.Res. 2003/2MCAP01

The **Management Committee for the Advisory Process** [MCAP] (Chair: Paul Connolly, Ireland) will meet at ICES Headquarters from 7–9 January 2004, at Council expense to:

- a) review the Advisory Process for 2004, including the issue for transparency;
- b) review the actions taken or proposed by ACFM regarding the term "safe biological limits".

C.Res. 2003/2MCAP02

A **Study Group on Quality Assurance** [SGQUA] (Chair: M. Waldock, UK) will be established and will meet at ICES Headquarters from 10–11 March 2004 at Council expense (for Study Group Chair and Advisory Committee Chairs) and at national expense (for other members) to:

- a) review progress in achieving the ICES Quality Policy (CM 1999/Del:21);
- b) identify gaps and how best to fill them;
- c) oversee preparation of documentation of the quality control procedures of ICES.

SGQUA will report by 31 January 2004 for the attention of MCAP.

Publications Committee

C. Res. 2003/2PUB01

The **Publications Committee** [PUB] (Chair: W. Turrell, UK) will meet on two days in 2004 during the 92nd Statutory Meeting to:

- a) review all inter-sessional activities 2003–2004, including matters brought to the attention of the Chair through the year and the preparation of the status reports guidelines;
- b) review all ICES Publications activities, including communications and the website, in 2003/2004;
- c) review progress with the Work Plan, and integrated web guidance, to achieve publication, information, and media objectives in the ICES Strategic Plan;
- d) review information to be supplied by the Secretariat on the cost of ICES publication-related work during 2003;
- e) review progress with the 2003 ICES Readership Survey.

PUBCOM will report to the Consultative Committee at the 92nd Statutory Meeting.

Advisory Committee on Fishery Management (ACFM)

C. Res. 2003/2ACFM01

The Advisory Committee on Fishery Management [ACFM] (Chair: P. Degnbol, Denmark) will meet:

- A) in plenary at ICES Headquarters from 28 May–3 June 2004 and from 8–14 October 2004 at Council expense to: prepare the advice and information on fisheries, living resources and their exploitation and the interaction by fisheries and the ecosystem, as requested by the Fishery Commissions (IBSFC, JNRFC, NASCO, and NEAFC), by the EC, and by Member Countries of ICES, and other advice which the Committee or Council may consider relevant;
- a) contribute, as required, to the preparation of advice to other regulatory bodies in collaboration with the Advisory Committee on Ecosystems (ACE) and Advisory Committee on the Marine Environment (ACME);
- b) revise the form of advice and methods to reflect the need for fisheries-based advice and advice to be based on long-term considerations;
- c) establish and review working procedures for ACFM and propose Terms of Reference for ACFM, its subsidiary groups and other relevant Council groups;
- d) review reports of ICES groups as defined in Council Resolutions;
- e) provide advice and guidance to the Science Committees on future scientific needs and priorities related to the work of ACFM.

Attendance at Council expense will be limited to the Chair, national members, and *ex officio* members of ACFM. Chairs of the assessment working groups may be invited to assist ACFM to deal with special issues. However, working group chairs will in general not be invited to participate in the ACFM meetings.

B) Assessments made by fish stock assessment working groups will be reviewed by groups set up for that purpose. These groups will work in sessions or by correspondence. The tasks of these review groups are to ensure the quality of the assessments made by the assessment working groups and, if necessary, update the assessments and

projections. These review groups will each have at least three members: one chair who is appointed amongst the ACFM members, and two or three nominated experts chosen as independent experts with relevant expertise to allow them to do a technical review of the assessments. Chairs of the assessment working groups will assist in the review of their reports. The review meetings are open to other members of ACFM. Costs of these review meetings will be borne by the national institutes.

- **C)** Concerning North Atlantic salmon ACFM will work by correspondence in the period 26 April–4 May to prepare advice on Atlantic salmon for NASCO based on the reviewed report of the Working Group on North Atlantic Salmon. The expected release date is 6 May 2004.
- **D)** Concerning advice for *Pandalus* stocks the *Panadalus* Assessment Working Group will meet jointly with the NAFO Sc.C./STACFIS shrimp meeting to assess the shrimp stocks. The report will be available for ACFM's consideration on 5 November with a view to release the report by 10 November 2004.
- **E**) The advice will be presented to IBSFC, NEAFC, and EC by the ACFM Chair (Poul Degnbol). The advice will be presented to NASCO by the Chair of the Working Group on North Atlantic Salmon.
- **F**) The Norwegian Fisheries Research Institute is invited to submit an assessment of the Barents Sea capelin for review and further processing in the advisory system.
- G) For Consultations to be held at national expense in Vigo on 20 September 2004 and at other times as required during the 92nd Statutory Meeting to:
 - a) finalise terms of reference, dates, and venues for meetings of groups reporting to ACFM in 2005;
 - b) conduct other business related to the functioning of ACFM.
- **H**) Consider the new MOU with the European Commission (EC) and develop a plan of action to address, in a timely manner, the new species listed in this MOU.

The Consultations are open to Delegates, the Chair of the Consultative Committee, ACFM members and their alternates, chairs of groups reporting to ACFM or their designates, ex-officio members, members of MCAP, observers to ACFM, and other experts at the invitation of the Chair of ACFM.

With the approval of the General Secretary, the Chair of ACFM may invite experts to attend relevant parts of the meetings mentioned under A)-C) above at Council expense.

The reviews of fish stock assessment are moved out of ACFM and placed in separate review groups. The table below summarises the proposed membership of the Groups. Each group is assisted by the chair(s) of the Working Groups whose reports are under review. Where feasible, the review groups will work by correspondence. The assignments are as follows:

Re- view group	WG report to be re- viewed	When or if correspondence: Deadline	Review group chair [ACFM member]	1. Reviewer	2. Re- viewer	3. Re- viewer	WG Chair	Meeting place for review group *
Ι	HAWG	15-16/4	Carmela Porteiro, Spain	France	Latvia		Norway	Vigo, Spain
II	WGDEEP	Correspondence 13-14/4	Alain Forest, France	Denmark	Scotland		Norway	Correspon- dence
III	WGHMM, WGSSDS	30/8-2/9	Frans van Beek, Netherlands	Norway	Estonia	Ireland	Spain, England	IJmuiden, Netherlands
IV	WGNEPH	Correspondence 6/5	Dankert Skagen (RMC), Norway	Nether- lands	Russia		England	Correspon- dence
V	WGNSDS	Correspondence 15 September	Einar Hjorleifsson, Iceland	Norway	Russia		Ireland	Correspon- dence

Assignments for review of fish stock assessment

VI	WGNSSK	5-7/10	Manuela Azevedo, Portugal	USA	Spain	Sweden	Scotland	ICES HQ
VII	WGNAS	21-23/4	Poul Degnbol	Canada	Chair of DC (Ireland)		Ireland	ICES HQ
VIII	WGBAST, WGBFAS	25-27/5	Alain Biseau, France	England	Belgium	Ireland	Sweden, Ger- many	ICES HQ
IX	AFWG, NWWG,	25-27/5	Holger Hovgaard, Denmark	Canada	Portugal	Nether- lands	Russia, Iceland	ICES HQ
X	WGNPB W Capelin in the Barents Sea	26-27/5	Jan Horbowy, Poland	France	Scotland		Iceland	ICES HQ
XI	WGMHS A	6-7/10	Denis Rivard, Canada	Germany	Iceland		Ireland	ICES HQ
XII	WGPAND	Correspondence (ACFM Chair 4-5 Nov)	Poul Degnbol	Scotland	Poland		Den- mark	Correspon- dence
XIII	SGBASS	Correspondence 15/9	Steve Cadrin, USA	Sweden	Finland		England	Correspon- dence
XIV	NWWG Sebastes mentella	Correspondence 15/9	Carl O'Brien, England	USA	Ger- many		Iceland	Correspon- dence

Fish stock assessment groups – stocks in 2004 assigned for benchmarking

A system with benchmark and update assessments is introduced in the fish stock assessment working groups. The plan for 2004 is as follows:

WG acronym	Meeting dates for Working Group	Observation list	Benchmark	Update	Experimental
AFWG	4-13/5	NEA Cod	Coastal Cod NEA haddock	NEA Saithe NEA Greenland halibut	Sebastes mentella & marinus
HAWG	9-18/3	North Sea Herring	Herring in Div. IIIa and Subdivs. 22-24	Herring VIa, Herring VIIa, Celtic Sea Herring, Sprat	
NWWG	27/4 -6/5	Icelandic Cod	Icelandic Haddock, Faroe Plateau Cod	Icelandic Saithe, Icelandic Greenland Halibut, Faroe Haddock, Faroe Saithe	Greenland Cod, Sebastes marinus, D- sea S. mentella, Pel. S. mentella, Faroe Bank cod
SGBASS	Correspon dence 31/8				Sea Bass

WGBAST	21-30/4	Salmon 24-31	Salmon 32	Sea Trout	
WGBFAS	13-22/4	Cod 25-32, Cod in Kattegat	Herring 25-29 & 32 excl. GoR, sprat	Cod 22-24, Herring Gulf of Riga, Herring 30, Herring 31, sole in IIIa, plaice, dab, turbot, brill	Flounder 24-25
WGDEEP	18-24/2				All species
WGEEL	4 th quarter				European eel
WGHMM	12-21/5	Northern hake, southern hake	<i>L.pisc.</i> VIIb,k and VIIIa,b,d, <i>L.bude</i> VIIb,k and VIIIa,b,d, anglerfish VIIIc and IXa	Megrim VII and VIIIa,b,d, <i>L.boscii</i> VIIIc and IXa, <i>L.whiff</i> . VIIIc and IXa	
WGMHSA	7-16/9		NEA Mackerel	Horse mackerel, sardine, anchovy	
WGNAS	29/3-8/4		NA Salmon		
WGNEPH	Correspon dence 6/5		3 <i>Nephrops</i> stocks (O,P,Q). Stocks in Subareas IV and VII and in Division Via		
WGNPBW, Barents sea capelin	27/4-4/5		Herring, Blue Whiting	Icelandic Herring and Capelin	
WGNSDS	4-13/5	Cod VIa, Cod VIIa, Whiting VIIa	Haddock VIb, Haddock VIIa	Whiting Via, Anglerfish IV & VI, Megrim Via, Plaice VII, Sole VII	Megrim VIb
WGNSSK	7-16/9	NS Cod, plaice in IV	Whiting in 47d, Sandeel in IV, Norway pout in IV	Haddock in 34, Saithe in 346, sole in IV, sole in 7d, plaice in 3, plaice in 7d, sandeel in other areas, Norway pout in other areas	
WGPAND	27/10- 5/11		Pandalus in IIIa+IVa, Barents Sea shrimp		
WGSSDS	29/6-8/7	Sole VIIIa,b	Sole VIIe, Plaice VIIe, Cod VIIe-k, Sole VIIf,g, Haddock VIIb-k	Whiting VIIe-k, Plaice VIIf.g	Sole VIIh-k, Plaice VII h-k, Sole VII b,c, Plaice VII b,c

Advisory Committee on Fishery Management (ACFM) – Assessment Groups

C.Res. 2003/2ACFM02

The Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources [WGDEEP] (Chair: O. A. Bergstad, Norway) will meet at ICES Headquarters from 18–24 February 2004 to:

a) compile the available data on landings of deep-water species, including blue ling, ling, and tusk, by ICES Subarea or Division;
- b) update descriptions of deep-water fisheries in waters inside and beyond coastal state jurisdiction, for species such as grenadiers, scabbard fishes, orange roughy, forkbeards, ling, blue ling, and tusk, especially catch statistics by species, fleets, and gear and if possible the biological status of these stocks;
- c) update the data on length/age at maturity, growth, and fecundity and document other relevant biological information on deep-water species;
- d) update information on quantities of discards by gear type for the stocks and fisheries considered by this Group and make an inventory of deep-water fish community data;
- e) compile geo-referenced data on documented historical or present spawning/aggregation areas of species such as blue ling and orange roughy;
- f) discuss and propose sampling and reporting schemes in relation to the need for improved data for assessments;
- g) provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort, or discards; any major inadequacies in research vessel surveys data; and any major difficulties in model formulation, including inadequacies in available software. The consequences of these deficiencies for the assessment of the status of the stocks and for the projection should be clarified.

WGDEEP will report by 2 March 2004 for the attention of ACFM and the Living Resources Committee.

C. Res. 2003/2ACFM03

The Herring Assessment Working Group for the Area South of 62°N [HAWG] (Chair: E. Torstensen, Norway) will meet at ICES Headquarters from 9–18 March 2004 to:

- a) assess the status of and provide catch options (by fleet where possible) for 2005 for:
 - i) the North Sea autumn-spawning herring stock in Division IIIa, Subarea IV, and Division VIId (separately, if possible, for Divisions IVc and VIId),
 - ii) the herring stocks in Division VIa and Subarea VII,
 - iii) the stock of spring-spawning herring in Division IIIa and Subdivisions 22–24 (Western Baltic);
- b) forecasts for North Sea autumn-spawning herring should be provided by fleet for a range of fishing mortalities that have a high probability of rebuilding or maintaining the stock above 1.3 million tonnes by spawning time in 2005;
- c) catch options for Div. IIIa shall be given by fleets, taking into account that North Sea herring and Western Baltic herring are taken together in this Division;
- d) assess the status of the sprat stocks in Subarea IV and Divisions IIIa and VIId,e;
- e) provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort, or discards; any major inadequacies in research vessel surveys data; and any major difficulties in model formulation, including inadequacies in available software. The consequences of these deficiencies for both the assessment of the status of the stocks and the projection should be clarified;
- f) comment on this meeting's assessments compared to the last assessment of the same stock, for stocks for which a full or update assessment is presented;
- g) document fully the methods to be applied in subsequent update assessments and list factors that would warrant reconsideration of doing an update, and consider doing a benchmark ahead of schedule, for stocks for which benchmark assessments are done.

HAWG will report by 19 March 2004 for the attention of ACFM.

C.Res. 2003/2ACFM04

The Working Group on *Nephrops* Stocks [WGNEPH] (Chair: M. Bell, UK) will meet in Lisbon, Portugal, from 29 March–1 April 2004 to:

- a) assess the status of *Nephrops* stocks in the Bay of Biscay (FUs 23-24) and around the Iberian Pensinsula (FUs 25, 26-27, 28-29, 30, and 31), utilising new data where available, revising catch options only where necessary;
- b) evaluate the extent to which official landings statistics reflect the true levels of landings in *Nephrops* fisheries, considering the implications for assessments and advice;
- c) revise, where appropriate, *Nephrops* landings statistics for Subarea IV, Division VIa, and Subarea VII in the light of new information on reporting levels;

- d) update the assessments and catch options of *Nephrops* for the Management Areas mentioned under c) as appropriate;
- e) continue the Working Group's investigations on the application of medium-term catch projections to *Nephrops*;
- f) continue the Working Group's investigations on the applicability of alternative assessment techniques, focusing particularly on CSA and any outcomes of the 2003 meeting of the Study Group on Age-length Structured Assessment Models;
- g) investigate the implications for assessment and data collection of differences in selection patterns by different fleets apparently targeting the same stock;
- h) provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort or discards; any major inadequacies in research vessel surveys data, and any major difficulties in model formulation, including inadequacies in available software. The consequences of these deficiencies for the assessment of the status of the stocks and for the projection should be clarified;
- i) advise ACFM on a future allocation, preferably from 2005 and onwards, of functional units to regionally-based fisheries assessment groups. Prepare the databases for transfer to these regionally-based fisheries assessment groups.

WGNEPH will report by 8 April 2004 for the attention of ACFM.

C.Res. 2003/2ACFM05

The **Working Group on North Atlantic Salmon** [WGNAS] (Chair: W. Crozier, UK) will meet in Halifax, Canada, from 29 March–8 April 2004 to:

- a) With respect to Atlantic salmon in the North Atlantic Area:
 - i) provide an overview of salmon catches and landings, including unreported catches by country and catch and release, and worldwide production of farmed and ranched salmon in 2003,
 - ii) report on significant developments which might assist NASCO with the management of salmon stocks,
 - iii) provide a compilation of tag releases by country in 2003,
 - iv) identify relevant data deficiencies, monitoring needs, and research requirements, taking into account NASCO's International Atlantic Salmon Research Board's inventory of on-going research relating to salmon mortality in the sea;
- b) With respect to Atlantic salmon in the North-East Atlantic Commission area:
 - i) describe the key events of the 2003 fisheries and the status of the stocks,
 - ii) evaluate the extent to which the objectives of any significant management measures introduced in the last five years have been achieved,
 - iii) further develop the age-specific stock conservation limits, where possible based upon individual river stocks,
 - iv) provide catch options or alternative management advice, if possible based on a forecast of PFA for northern and southern stocks, with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding,
 - v) consider the report of the Study Group on the Bycatch of Salmon in Pelagic Trawl Fisheries, provide estimates of bycatch of salmon in pelagic fisheries, and advise on their reliability;
- c) With respect to Atlantic salmon in the North American Commission area:
 - i) describe the key events of the 2003 fisheries and the status of the stocks,
 - ii) evaluate the extent to which the objectives of any significant management measures introduced in the last five years have been achieved,
 - iii) update age-specific stock conservation limits based on new information as available,
 - iv) provide catch options or alternative management advice with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding,
 - v) provide an analysis of any new biological and/or tag return data to identify the origin and biological characteristics of Atlantic salmon caught at St. Pierre and Miquelon,

- vi) provide descriptions (gear type; and fishing depth, location, and season) for all pelagic fisheries that may catch Atlantic salmon;
- d) With respect to Atlantic salmon in the West Greenland Commission area:
 - i) describe the events of the 2003 fisheries and the status of the stocks,
 - ii) evaluate the extent to which the objectives of any significant management measures introduced in recent years have been achieved,
 - iii) provide information on the origin of Atlantic salmon caught at West Greenland at a finer resolution than continent of origin (river stocks, country, or stock complexes),
 - iv) provide catch options or alternative management advice with an assessment of risk relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding.

Notes:

- 1. In the responses to questions b.i, c.i, and d.i ICES is asked to provide details of catch, gear, effort, composition, and origin of the catch and rates of exploitation. For homewater fisheries, the information provided should indicate the location of the catch in the following categories: in-river; estuarine; and coastal. Any new information on non-catch fishing mortality of the salmon gear used and on the bycatch of other species in salmon gear and of salmon in any existing and new fisheries for other species is also requested.
- 2. With regard to question d.i ICES is requested to provide a brief summary of the status of the North American and North-East Atlantic salmon stocks. The detailed information on the status of these stocks should be provided in response to questions b.i and c.i.
- 3. In response to questions b.iv, c.iv, and d.iv ICES is asked to provide a detailed explanation and critical examination of any changes to the models used to provide catch advice. With respect to stock rebuilding, consider and evaluate various alternative baseline measures for use in the risk analysis.
- 4. With regard to b.v: the Study Group on the Bycatch of Salmon in Pelagic Trawl Fisheries will facilitate further deliberations of the WGNAS on this topic.

WGNAS will report by 9 April 2004 for the attention of ACFM and the Diadromous Fish Committee.

C.Res. 2003/2ACFM06

The **Baltic Fisheries Assessment Working Group** [WGBFAS] (Chair: T. Gröhsler, Germany) will meet at ICES Headquarters from 13–22 April 2004 to:

a) assess the status of and provide catch options (for wide ranges of Fs) for year 2005, medium- and long-term for cod, herring, and sprat stocks in the Baltic by appropriate areas and stock components and taking into account the biological interaction between species. Assessments of cod stocks should include a review of the most recent discard information and an evaluation of its effects. Catch options should be provided as specified below:

Baltic Herring:

- 1. SD 22-24 (based on assessment made by HAWG)
- 2. SD 25-29, 32 excluding Gulf of Riga
- 3. Gulf of Riga
- 4. SD 30
- 5. SD 31
- 6. For appropriate management units
 - a. SD 22-29S including Gulf of Riga
 - b. SD 29N-30-31
 - c. SD 32

Sprat:

1. The Whole Baltic: SD 22-32

Baltic Cod:

- 1. SD 22-24
- 2. SD 25-29+32
- 3. For appropriate management units
 - a. SD 22-29+32
- b) assess the status of and provide catch options for year 2005 for the cod stock in the Kattegat and the sole stock in Division IIIa;
- c) provide any new information on the state of flatfish stocks in the Baltic;
- d) define the characteristics that differentiate pelagic fisheries for herring for human consumption, herring and sprat for human consumption and industrial, and revise the species composition in these pelagic fisheries for years for which there are sufficient sampling data;
- e) provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort, or discards; any major inadequacies in research vessel surveys data; and any major difficulties in model formulation, including inadequacies in available software. The Group should clarify the consequences from these deficiencies for the assessment of the status of the stocks and for the projection;
- f) comment on this meeting's assessments compared to the last assessment of the same stock, for stocks for which a full or update assessment is presented;
- g) document fully the methods to be applied in subsequent update assessments and list factors that would warrant reconsideration of doing an update, and consider doing a benchmark ahead of schedule, for stocks for which benchmark assessments are done.

WGBFAS will report by 23 April 2004 for the attention of ACFM and the Baltic Committee.

C.Res. 2003/2ACFM07

The **Baltic Salmon and Trout Assessment Working Group** [WGBAST] (Chair: I. Perä, Sweden) will meet in Tartu, Estonia, from 21–30 April 2004 to:

- a) assess the status of the wild and reared stocks of Baltic salmon in the light of IBSFC objectives:
 - i) to gradually increase the production of wild Baltic salmon to attain by 2010 at least 50% of the natural production capacity of each river with current or potential natural production of salmon,
 - ii) to maintain the Baltic salmon fishery as high as possible;
- b) provide catch options in number for Baltic salmon in 2005 for the Main Basin and the Gulf of Bothnia and for the Gulf of Finland that are consistent with IBSFC management objectives, see a);
- c) provide medium-term projections of yield and stock development of salmon stocks for a range of fishing mortality rates consistent with IBSFC management objectives, see a);
- d) provide any new information on the state of sea trout stocks;
- e) provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort, or discards; any major inadequacies in research vessel surveys data; and any major difficulties in model formulation, including inadequacies in available software. The consequences of these deficiencies for the assessment of the status of the stocks and for the projection should be clarified;
- f) document fully the methods to be applied in subsequent update assessments and list factors that would warrant reconsideration of doing an update, and consider doing a benchmark ahead of schedule, for stocks for which benchmark assessments are done.

WGBAST will report by 5 May 2004 for the attention of ACFM and the Diadromous Fish Committee.

C.Res. 2003/2ACFM08

The Northern Pelagic and Blue Whiting Fisheries Working Group [WGNPBW] (Chair: A. Gudmundsdottir, Iceland) will meet at ICES Headquarters from 27 April–4 May 2004 to:

a) assess the status of and provide catch options for 2005 for the Norwegian spring-spawning herring stock;

- b) assess the status of and provide catch options for 2005 for the blue whiting stock;
- c) assess the status of and provide catch options for the 2004–2005 season for the Icelandic summer-spawning herring stocks;
- d) assess the status of capelin in Subareas V and XIV and provide catch options for the summer/autumn 2004 and winter 2005 seasons;
- e) provide as detailed information as possible on the age/size composition in different segments of the blue whiting fishery;
- f) provide information on the species compositions in those fisheries that take appreciable amounts of blue whiting, and on the age/size composition by species of these catches [EC request for information on the industrial fisheries];
- g) propose measures to reduce exploitation of blue whiting juveniles and evaluate the potential effect on the stock and the fisheries. The evaluation should include, but not be restricted to the effects of introducing a minimum size and closed areas/seasons;
- h) continue the evaluation of candidates of harvest control rules for blue whiting;
- provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort, or discards; any major inadequacies in research vessel surveys data; and any major difficulties in model formulation, including inadequacies in available software. The consequences of these deficiencies for the assessment of the status of the stocks and for the projection should be clarified;
- j) comment on this meeting's assessments compared to the last assessment of the same stock, for stocks for which a full or update assessment is presented;
- k) document fully the methods to be applied in subsequent update assessments and list factors that would warrant reconsideration of doing an update, and consider doing a benchmark ahead of schedule, for stocks for which benchmark assessments are done.

WGNPBW will report by 7 May 2004 for the attention of ACFM.

C.Res. 2003/2ACFM09

The **North-Western Working Group** [NWWG] (Chair: E. Hjorleifsson, Iceland) will meet at ICES Headquarters from 27 April–6 May 2004 to:

- a) assess the status of and provide catch options for 2005 for the stocks of redfish in Subareas V, XII, and XIV, Greenland halibut in Subareas V and XIV, cod in Subarea XIV, NAFO Subarea 1, and Division Va, saithe in Division Va, and haddock in Division Va;
- b) assess the status of and provide effort options and expected corresponding catches for 2005 for cod, haddock, and saithe in Division Vb as these stocks are under effort control;
- c) update survey and fishery information on the stocks of redfish in Subareas V, VI, XII, and XIV. In particular, update information on the development of the pelagic fishery for redfish with respect to seasonal and area distribution to allow NEAFC to further consider the appropriateness of area and seasonal closures;
- d) consider further possibilities for the incorporation of biological interactions into the assessments of capelin, herring, and cod stocks in Division Va;
- e) update information on the stock composition, distribution, and migration of the redfish stocks in Subareas V and XIV, and consider the report of SGSIMUR with regard to implications for assessment and advice on pelagic "deep-sea" *Sebastes mentella* and the *Sebastes mentella* fished in demersal fisheries on the continental shelf and slope;
- f) provide information on the horizontal and vertical distribution of pelagic redfish stock components in the Irminger Sea as well as seasonal and interannual changes in distribution;
- g) provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort, or discards; any major inadequacies in research vessel surveys data; and any major difficulties in model formulation, including inadequacies in available software. The consequences of these deficiencies for the assessment of the status of the stocks and for the projection should be clarified;
- h) comment on this meeting's assessments compared to the last assessment of the same stock, for stocks for which a full or update assessment is presented;
- i) document fully the methods to be applied in subsequent update assessments and list factors that would warrant reconsideration of doing an update, and consider doing a benchmark ahead of schedule, for stocks for which benchmark assessments are done.

NWWG will report by 7 May 2004 for the attention of ACFM.

C. Res. 2003/2ACFM10

The Arctic Fisheries Working Group [AFWG] (Chair: Y. Kovalev, Russia) will meet at ICES Headquarters from 4–13 May 2004 to:

- a) assess the status of and provide catch options for the year 2005 for the stocks of cod, haddock, saithe, Greenland halibut, and redfish in Subareas I and II, taking into account interactions with other species and attempting alternative assessment methods where applicable;
- b) evaluate the agreed management strategy for cod and haddock, with special attention to the reference points for spawning stock biomass and fishing mortality;
- c) provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort, or discards; any major inadequacies in research vessel surveys data; and any major difficulties in model formulation, including inadequacies in available software. The consequences of these deficiencies for the assessment of the status of the stocks and for the projection should be clarified;
- d) comment on this meeting's assessments compared to the last assessment of the same stock, for stocks for which a full or update assessment is presented;
- e) document fully the methods to be applied in subsequent update assessments and list factors that would warrant reconsideration of doing an update, and consider doing a benchmark ahead of schedule, for stocks for which benchmark assessments are done.

AFWG will report by 17 May 2004 for the attention of ACFM.

C.Res. 2003/2ACFM11

The **Working Group on the Assessment of Northern Shelf Demersal Stocks** [WGNSDS] (Chair: R. Officer, Ireland) will meet at ICES Headquarters from 4–13 May 2004 to:

- a) assess the status of and provide catch options for 2005 for the stocks of cod, haddock, whiting, anglerfish, and megrim in Subarea VI, and for cod, haddock, whiting, plaice, and sole in Division VIIa;
- b) assess the status of anglerfish stocks in Subarea IV and Divisions IIIa and VIa and provide catch options for each management area;
- c) review information on the stock structure of anglerfish in Divisions IIa, IIIa, Va, Vb, VIa and in Subarea IV and define appropriate stock areas for fish stock assessment usage;
- d) consider and implement the proposed methodology for projection of yield by fisheries made by the Study Group on the Development of Fishery-based Forecasts based on the data compiled through this Study Group. The Group should present a limited set of fisheries-based catch options;
- e) provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort, or discards; any major inadequacies in research vessel surveys data; and any major difficulties in model formulation, including inadequacies in available software. The consequences of these deficiencies for the assessment of the status of the stocks and for the projection should be clarified;
- f) comment on this meeting's assessments compared to the last assessment of the same stock, for stocks for which a full or update assessment is presented;
- g) document fully the methods to be applied in subsequent update assessments and list factors that would warrant reconsideration of doing an update, and consider doing a benchmark ahead of schedule; for stocks for which benchmark assessments are done;
- h) evaluate the effects of the existing recovery plans for cod in Division VIa and Irish Sea Cod.

WGNSDS will report by 14 May 2004 for the attention of ACFM.

C.Res. 2003/2ACFM12

The Working Group on the Assessment of Southern Shelf Stocks of Hake, Monk and Megrim [WGHMM] (Chair: V. Trujillo, Spain) will meet at Gijon, Spain from 12–21 May 2004 to:

- a) assess the status of and provide catch options for 2005 for stocks of hake in Subareas III, IV, VI, VII, VIII, and IX, monk (anglerfish) and megrim in Subareas VII, VIII, and IX;
- b) consider and implement the proposed methodology for projection of yield by fisheries made by the Study Group on the Development of Fishery-based Forecasts (this group meets in February) based on the data compiled through this Study Group. The Group should present a limited set of fisheries-based catch options;
- c) provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort, or discards; any major inadequacies in research vessel surveys data; and any major difficulties in model formulation, including inadequacies in available software. The consequences of these deficiencies for assessment of the status of the stocks and for the projection should be clarified;
- d) evaluate the effect of the Northern hake emergency measures;
- e) evaluate new information on the potential effectiveness of sorting grids to reduce the mortality of all small fish in the monkfish fishery;
- f) comment on this meeting's assessments compared to the last assessment of the same stock, for stocks for which a full or update assessment is presented;
- g) document fully the methods to be applied in subsequent update assessments and list factors that would warrant reconsideration of doing an update, and consider doing a benchmark ahead of schedule for stocks for which benchmark assessments are done.

WGHMM will report by 22 May 2004 for the attention of ACFM (October 2004).

C.Res. 2003/2ACFM13

The Working Group on the Assessment of Southern Shelf Demersal Stocks [WGSSDS] (Chair: S. Flatman, UK) will meet in Oostende, Belgium, from 29 June to 8 July 2004 to:

- a) assess the status of and provide catch options for 2005 for stocks of cod, haddock, whiting, and plaice in Divisions VIIbc, VIIe, VIIfg, and VIIhk, and for sole in Divisions VIIbc, VIIe, VIIfg, VIIhk, and VIIIabd;
- b) consider and implement the proposed methodology for projection of yield by fisheries made by the Study Group on the Development of Fishery-based Forecasts based on the data compiled through this Study Group. The Group should present a limited set of fisheries-based catch options;
- c) provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort, or discards; any major inadequacies in research vessel surveys data; and any major difficulties in model formulation, including inadequacies in available software. The consequences of these deficiencies for the assessment of the status of the stocks and for the projection should be clarified;
- d) comment on this meeting's assessments compared to the last assessment of the same stock, for stocks for which a full or update assessment is presented;
- e) document fully the methods to be applied in subsequent update assessments and list factors that would warrant reconsideration of doing an update, and consider doing a benchmark ahead of schedule, for stocks for which benchmark assessments are done.

WGSSDS will report by 16 July 2004 for the attention of ACFM.

C.Res. 2003/2ACFM14

The **Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak** [WGNSSK] (Chair: C. L. Needle, UK) will meet in Bergen, Norway, from 7–16 September 2004 to:

- a) assess the status of the following stocks: 1) cod in Subarea IV and Division IIIaN (Skagerrak), and Division VIId,
 2) haddock in Subarea IV and Division IIIa, 3) whiting and 4) plaice, both in Subarea IV, Division IIIa, and
 Division VIId, 5) saithe in Subarea IV, Subarea VIa, and Division IIIa, and 6) sole in Subarea IV and Division VIId;
- b) assess the status of and provide catch forecasts for 2005 for Norway pout and sandeel stocks in Subarea IV and Divisions IIIa and VIa, and identify any needs for management measures (including TACs) required to safeguard the stocks;
- c) consider and implement the proposed methodology for projection of yield by fisheries made by the Study Group on the Development of Fishery-based Forecasts based on the data compiled through this Study Group. The Group

should present a limited set of fisheries-based catch options;

- d) provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort, or discards; any major inadequacies in research vessel surveys data; and any major difficulties in model formulation, including inadequacies in available software. The consequences of these deficiencies for the assessment of the status of the stocks and for the projection should be clarified;
- e) comment on this meeting's assessments compared to the last assessment of the same stock, for stocks for which a full or update assessment is presented;
- f) document fully the methods to be applied in subsequent update assessments and list factors that would warrant reconsideration of doing an update, and consider doing a benchmark ahead of schedule, for stocks for which benchmark assessments are done;
- g) evaluate the effects of the existing EU-Norway recovery plan for North Sea cod if such a plan will be implemented for 2004;
- h) quantify the species and size composition of bycatches taken in the fisheries for Norway pout and sandeel in the North Sea and adjacent waters, and make this information available to the Working Group on Ecosystem Effects of Fishing Activities;
- i) provide the data required to carry out multispecies assessments (quarterly catches and mean weights-at-age in the catch and stock for 2002 for all species in the multispecies model that are assessed by this Working Group).

WGNSSK will report by 20 September 2004 for the attention of ACFM.

C.Res. 2003/2ACFM15

The **Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy** [WGMHSA] (Chair: Ciaran Kelly, Ireland) will meet at ICES Headquarters from 7–16 September 2004 to:

- a) assess the status of and provide catch options for 2004 for the stocks of mackerel and horse mackerel (defining stocks as appropriate);
- b) assess the status of and provide catch options for 2005 for the sardine stock in Divisions VIIIc and IXa;
- c) assess the status of and provide catch options for 2005 for the anchovy stocks in Subarea VIII and Division IXa;
- d) consider updated information on the stock structure of horse mackerel;
- e) for sardine update information on the stock identification, composition, distribution, and migration in relation to oceanographic effects;
- f) finalise the evaluation of the harvest control rule for anchovy fishing;
- g) provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort, or discards; any major inadequacies in research vessel surveys data; and any major difficulties in model formulation, including inadequacies in available software. The consequences from these deficiencies for the assessment of the status of the stocks and for the projection should be clarified;
- h) comment on this meeting's assessments compared to the last assessment of the same stock, for stocks for which a full or update assessment is presented;
- i) document fully the methods to be applied in subsequent update assessments and list factors that would warrant reconsideration of doing an update, and consider doing a benchmark ahead of schedule, for stocks for which benchmark assessments are done;
- j) consider the report of the Study Group on the Bycatch of Salmon in Pelagic Trawl Fisheries with regard to the most appropriate methods for estimating salmon bycatch in pelagic fisheries.

WGMHSA will report by 17 September 2004 for the attention of ACFM.

C.Res. 2003/2ACFM16

The **Pandalus Assessment Working Group** [WGPAND] (Chair: S. Munch-Petersen, Denmark) will meet at ICES Headquarters from 27 October to 5 November 2004 to:

a) assess the status of the stocks of *Pandalus borealis* in the North Sea, Skagerrak, and Kattegat and provide catch options for 2005, taking predation mortality on *Pandalus* stocks into account;

- b) assess the status of the shrimp stock (Pandalus borealis) in the Barents Sea, taking predation by cod into account;
- c) for stocks for which a full analytical assessment is presented, comment on this meeting's assessments compared to the last assessment of the same stock;
- d) provide specific information on possible deficiencies in the 2004 assessments including, at least, any major inadequacies in the data on catches, effort, or discards; any major inadequacies in research vessel surveys data; and any major difficulties, if any, in model formulation, including inadequacies in available software. The consequences of these deficiencies for the assessment of the status of the stocks and for the projection should be clarified;
- e) consider and implement the proposed methodology for projection of yield by fisheries made by the Study Group on the Development of Fishery-based Forecasts based on the data compiled through this Study Group. The Group should present a limited set of fisheries-based catch options;
- f) document fully the methods to be applied in subsequent update assessments and list factors that would warrant reconsideration of doing an update, and consider doing a benchmark ahead of schedule, for stocks for which benchmark assessments are done.

WGPAND will meet jointly with the NAFO Scientific Council/STACFIS shrimp assessment, who are meeting at the same dates and at the same place. The NAFO Scientific Council, STACFIS, and WGPAND Chairs will agree jointly on the meeting arrangements. The arrangements will be made with a view to limiting the meeting time for WGPAND and in particular ensure that the assessment of the *Pandalus borealis* stock in the North Sea, Skagerrak, and Kattegat will take the abundance survey results into account.

WGPAND will report by 6 November 2004 for the attention of ACFM.

C.Res. 2003/2ACFM17

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Advisory Committee on Fishery Management (ACFM) (Other Groups)

C.Res. 2003/2ACFM18

The **Study Group on the Development of Fishery-based Forecasts** [SGDFF] (Chair: P. Marchal, France) will meet in Oostende, Belgium, from 27–30 January 2004 to:

- a) further develop, test, and apply appropriate model(s) for fishery-based forecasts;
- b) define, in consultation with the Chairs of the Working Groups on the Assessment of Demersal Stocks in the North Sea and Skagerrak, the Assessment of Northern Shelf Demersal Stocks, the Assessment of Southern Shelf Demersal Stocks, the Assessment of Southern Shelf Stocks of Hake, Monk, and Megrim, and on *Nephrops* Stocks, workable groupings of fishing voyages at the most appropriate aggregation level (fleet, fishery, or metier);
- c) compile, for recent years, effort data and the international catch-at-age data as specified in b). The Group should consider fisheries exploiting stocks assessed by the working groups referred to in b).

SGDFF will report by 6 February 2004 for the attention of ACFM and the Resource Management Committee.

C.Res. 2003/2ACFM19

The Study Group on Sea Bass [SGBASS] (Chair: M. Pawson, UK) will work by correspondence in 2004 to:

- a) expand the SURBA analysis to a fully statistical age-structured model for bass in stock areas IVb,c; VIId; VIIe (north); and VIIa,f,g, modelling the gear groups separately to better estimate selectivity patterns and F-trends over time. The results should allow a more adequate examination of stock dynamics and how the stocks might respond to changes in the fisheries;
- b) report on the need for additional assessment data, especially biological data, for bass catches in ICES Subareas VIII and IX, in Ireland and in recreational fisheries, in order to provide an appropriate review of the EU Data Collection Regulation.

SGBASS will report by 31 August 2004 for the attention of ACFM and the Living Resources Committee.

C.Res. 2003/2ACFM20

The **ICES/NAFO Working Group on Harp and Hooded Seals** [WGHARP] (Chair: T. Haug, Norway) will work by correspondence in 2004 to plan for a meeting in 2005 to:

- a) further develop the biological reference points for harp and hooded seals;
- b) review the results of intersessional modelling studies to look at sensitivity analyses and comparisons among models;
- c) review the results of the proposed production surveys in the NW Atlantic;
- d) address requests for advice from clients, as required.

WGHARP will report by 31 August 2004 for the attention of ACFM, as well as the Resource Management and the Living Resources Committees.

Advisory Committee on Fishery Management (ACFM)

(Groups for improving the database for fish stock assessments and biological understanding of the population dynamics of the stocks)

C.Res. 2003/2ACFM21

A Workshop on Sampling and Calculation Methodology for Fisheries Data [WKSCMFD) (Chair: Joël Vigneau, France) will meet in Nantes, France, from 26–31 January 2004 to:

- a) produce guidelines for routine estimation of precision in connection with national sampling programmes;
- b) identify data requirements and appropriate sampling strategies and methods (e.g. stratification, mandatory and optional variables, selection of vessels, gears, etc.) to collect fisheries data which fulfil the requirements related to stock assessment;
- c) compile information on and review the statistical procedures implemented within the national sampling programmes (length, age, and other biological parameters);
- d) propose methods to estimate precision and design sampling stratification schemes that will minimise bias and maximise precision.

WKSCMFD will report by 31 January 2004 for the attention of ACFM.

C.Res. 2003/2ACFM22

The ICES/NSCFP Study Group on the Incorporation of Additional Information from the Fishing Industry into Fish Stock Assessments [SGFI] (Co-Chairs: H. Andersson, Sweden (NSCFP) and C. Hammer, Germany) will meet at the Hague, Netherlands, from 3–4 February 2004 to:

- a) summarize national and international joint efforts and progress in communication and cooperation between science and fishers in 2003;
- b) identify information from the fishery which is useful for the understanding of the developments in the fisheries and the stocks, and the formulation of biological advice;

- c) consider how such information as identified under b) could contribute to regular stock assessments;
- d) propose mechanisms how to collect and provide such information to assessment working groups and ACFM on a regular basis;
- e) respond to feedback from the NSCFP meeting to be held in Copenhagen 8 October 2003.

SGFI will report by 15 March 2004 for the attention of ACFM and the Resource Management Committee.

C.Res. 2003/2ACFM23

The **Planning Group on Commercial Catch, Discards and Biological Sampling** [PGCCDBS] (Chair: J. Dalskov, Denmark) will meet on Mallorca, Spain, from 2–5 March 2004 to:

- a) further regional coordination and cooperation in collecting biological data of landings of fish and shellfish;
- b) develop a framework and methodology to ensure spatial / temporal coverage of sampling of biological data from the landings, taking into account the report from the Workshop on Sampling and Calculation Methodology, the report from the Workshop on Discard Sampling Methodology and Raising Procedures / Techniques, the report from the age-reading workshop held in 2003 and from the various otolith exchanges;
- c) identify on a regional basis the candidate stocks and species requiring improved ageing;
- d) consider data delivered by fisheries inspectors and how these can be compiled in a consistent way to be used by assessment working groups;
- e) compare and standardise protocols for raising national catch and discard data to the international level.

PGCCDBS will report by 26 March 2004 for the attention of ACFM.

C.Res. 2003/2ACFM24

A Study Group on Assessment Methods Applicable to Assessment of Norwegian Spring-Spawning Herring and Blue Whiting Stocks [SGAMHBW] will be established (Chair: Steve Murawski, USA) and will meet in Lisbon, Portugal, from 19–22 February 2004 to:

- a) analyse and evaluate the assessment methods that are considered in assessing Norwegian spring-spawning herring and blue whiting;
- b) identify for each method the types of population dynamics and data availability for which the method is applicable and relate this to the dynamics observed for the Norwegian spring-spawning herring and blue whiting;
- c) devise one method that includes the strong points of all the proposed methods.

SGAMHBW will report by 28 February 2004 for the attention of ACFM.

C.Res. 2003/2ACFM25

A **Study Group for Long-Term Advice** [SGLTA] (Chair: P. Degnbol, Denmark) will be established and will meet at ICES Headquarters from 23–28 February 2004 to:

- a) review the approach presented by the Working Group on Methods of Fish Stock Assessments regarding conservation limits and long-term reference points and plan implementation by the assessment working groups;
- b) review developments in stock assessment methodology in relation to the implementation in the assessment working groups;
- c) review and plan implementation of long-term management simulations and evaluations of recovery plans and harvest control rules as presented by the Working Group on Methods of Fish Stock Assessments;
- d) review progress made by the Study Group on the Development of Fishery-based Forecasts and plan implementation of fisheries-based advice by the assessment working groups;
- e) respond to feedback from meeting to be held by NSCFP in October 2003.

SGLTA will report by 31 March 2004 for the attention of ACFM.

C.Res. 2003/2ACFM26

A **Study Group on Closed Spawning Areas of Eastern Baltic Cod** [SGCSA] (Co-Chairs: Hans-Harald Hinrichsen, Germany, and Fritz Köster, Denmark) will be established and will meet at Charlottenlund, Denmark, from 9–12 March 2004 to:

- a) review up-to-date information on hydrographic conditions in the Central Baltic with respect to successful spawning of cod in summer 2004;
- b) describe recent information on spatial and temporal distribution of cod spawning activity;
- c) identify hydrographic conditions required for good egg survival in different spawning areas in 2004;
- d) outline potential closed areas and timing of closures for different fisheries to protect successful cod spawning, this includes an analysis of cod bycatch in the small-mesh fishery directed at sprat;
- e) consider the possible effect of these closures on the different fisheries conducted in the Central Baltic.

SGCSA will report by 2 April 2004 to ACFM and the Baltic Committee.

C.Res. 2003/2ACFM27

The **Fishery Statistics Liaison Working Group [WGSTAL**] (Chair: David Cross, Eurostat) will meet in Luxembourg from 3–4 May 2004 to:

- a) review the cooperation between ICES and Eurostat and detailing the future procedures;
- b) review progress with the FIGIS/FIRMS project (for information);
- c) review the catch database for assessment;
- d) discuss non-reported landings;
- e) comment on the report of the intersessional CWP (planned for March 2004) and propose topics to be included in the agenda of CWP 21 (January 2005);
- f) adopt a finer breakdown of divisions for the reporting of catches (STATLANT 27A and EU legislation);
- g) review progress on the development of sustainability indicators.

WGSTAL will report by 30 June 2004 for the attention of ACFM.

C.Res. 2003/2ACFM28

A **Study Group on Ageing Issues in Baltic Cod** [SGABC] (Chair: Johan Modin, Sweden) will be established and will meet in Riga, Latvia, from 11–14 May 2004 to:

- a) review the extent of ageing inconsistencies and the impact of these on stock assessments and predictions;
- b) revise the age estimation procedures and explore the possibilities to utilize supplementary information for validating estimated age structures. Available methods include:
 - i) cod length distribution in surveys and catches,
 - ii) cod otolith size distributions;
- c) explore the feasibility of using alternative age partitioning for assessments;
- d) produce a plan of implementation including time schedule, sub-projects, and funding proposals if required.

SGABC will report by 20 May 2004 for the attention of ACFM as well as the Baltic and the Living Resources Committees.

C.Res. 2003/2ACFM29

A **Study Group on Stock Identity and Management Units of Redfishes** [SGSIMUR] (Chair: Kjell Nedreaas, Norway) will be established and will meet in Bergen, Norway, from 31 August to 3 September 2004 to:

- a) review all reported material on the stock identity of the various redfish units (*S. mentella*) in the Irminger Sea and adjacent waters;
- b) identify the most likely definition of biological stocks of *S. mentella* as well as suggest practical management units.

SGSIMUR will report by 8 September 2004 for the attention of RMC and ACFM.

Advisory Committee on the Marine Environment (ACME)

C.Res. 2003/2ACME01

The Advisory Committee on the Marine Environment [ACME] (Chair: S. Carlberg, Sweden) will meet:

A) at ICES Headquarters from 8–12 June 2004 at Council expense to:

- a) prepare the scientific advice and information on the status and outlook for the marine environment, including contaminants, requested by the environmental Commissions (OSPAR, HELCOM), other regulatory agencies, and Member Countries of ICES, and any other advice which the Committee or Council may consider relevant;
- b) contribute, as required, to the preparation of advice to other regulatory bodies in collaboration with the Advisory Committee on Ecosystems (ACE) and the Advisory Committee on Fishery Management (ACFM);
- c) establish and review working procedures for ACME and propose Terms of Reference for ACME, its subsidiary groups and other relevant Council groups;
- d) review reports of ICES groups as defined in Council Resolutions;
- e) provide advice and guidance to the Science Committees on future scientific needs and priorities related to the work of ACME.

With the approval of the General Secretary, the Chair of the Advisory Committee on the Marine Environment may invite relevant experts to attend specific parts of the meetings at Council expense.

B) for Consultations to be held at national expense during the 92nd Statutory Meeting to:

- a) prepare terms of reference, dates, and venues for meetings of groups reporting to ACME in 2005;
- b) conduct other business related to the functioning of ACME.

The Consultations will be open to Delegates, the Chair of the Consultative Committee, ACME members and their alternates, ex-officio members, Chairs of groups reporting to ACME or their designates, Observers to ACME, and other experts at the invitation of the Chair of ACME.

C. Res. 2003/2ACME02

The ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea [SGQAC] (Chair: E. Lysiak-Pastuszak, Poland) will meet in Helsinki, Finland, from 23–26 February 2004 to:

- a) evaluate the results of the QA questionnaire on organochlorine compounds;
- b) update the technical note on contaminants in fish;
- c) update the technical note on co-factors with respect to sediment analyses;
- d) update the technical note on Certified Reference Materials (CRMs);
- e) update Part B-4 (Validation of analytical method) of the HELCOM monitoring guidelines with respect to the limit of determination and detection limit;
- f) update Part B-5 (Routine quality control) with respect to precision control charts;
- g) review and finalise the technical note on heavy metal determination in sediments;
- h) finalise the technical note on persistent organic compounds determination in seawater;
- i) review and finalise updating of the technical note on routine quality control;

j) consider the QA requirements and other implications for the Baltic Monitoring Programme in relation to the Water Framework Directive, and suggest revisions as necessary.

SGQAC will report by 15 March 2004 for the attention of ACME and the Baltic Committee.

C.Res. 2003/2ACME03

The ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea [SGQAB] (Chair: A. Ikauniece, Latvia) will meet at ICES Headquarters from 24–27 February 2004 to:

- a) take into consideration the material from other international agencies (e.g., ISO, CEN, EC) with an interest in QA/AQC of biological community measurements with the intention of avoiding duplication of effort;
- b) review and report on:
 - i) the results of the questionnaire on primary production activities and progress in development of primary production reporting formats,
 - ii) the development of taxonomical checklists for the Baltic Sea area,
 - iii) QA/AQC issues relevant to coastal fish monitoring activities provided by ICES and other relevant information (COBRA report),
 - iv) progress in the activities of the HELCOM phytoplankton expert group and macrozoobenthos project,
 - v) the updating of the COMBINE manual,
 - vi) existing information concerning any QA-related activities such as ring tests, intercalibration exercises, etc., carried out in the HELCOM area;
- c) revise and update the COMBINE phytoplankton chlorophyll *a* manual by the Working Group on Phytoplankton Ecology and experts from HELCOM laboratories;
- d) revise and update the phytoplankton primary production manual in the COMBINE guidelines;
- e) revise and update the COMBINE mesozooplankton manual by the expert network;
- f) review the latest developments in phytobenthos monitoring in the Baltic Sea area;
- g) review the changes made to ICES data reporting formats and the status of data submissions during 2003;
- h) meet together with the Steering Group on Quality Assurance of Biological Measurements in the Northeast Atlantic on matters of common interest;
- i) consider the QA requirements and other implications for the Baltic Monitoring Programme in relation to the Water Framework Directive, and suggest revisions as necessary.

SGQAB will report by 15 March 2004 for the attention of the ACME as well as the Baltic, the Marine Habitat, and the Oceanography Committees.

C.Res. 2003/2ACME04

The ICES/IOC/IMO Study Group on Ballast and Other Ship Vectors [SGBOSV] will be re-established as the **ICES/IOC/IMO Working Group on Ballast and Other Ship Vectors** [WGBOSV] (Chair: S. Gollasch, Germany) and will meet in Cesenatico, Italy, from 22–24 March 2004 to:

- a) in the short term, critically review and report on the status of ballast water research, including: 1) the ballast water treatment and management, the limitations thereof, 2) risk assessment approaches dealing with ship-mediated invasions;
- b) continue to cooperate with IOC and IMO's Marine Environment Protection Committee (IMO MEPC) on matters of joint interest;
- c) finalize the preparation of the *Cooperative Research Report* on vector pathways;
- d) complete development of the Code of Best Practice for Ballast Water Management to be delivered to ICES by April 2005. This will include a standardization of sampling methods (to ensure scientific accuracy in data collection and data exchange), specific standards for ballast water emissions and option(s) for treatment, to be completed by April 2006.

PICES will be invited to co-sponsor WGBOSV.

WGBOSV will report by 15 April 2004 for the attention of ACME.

C.Res. 2003/2ACME05

The **Working Group on Introductions and Transfers of Marine Organisms** [WGITMO] (Chair S. Gollasch, Germany) will meet in Cesenatico, Italy, from 25–26 March 2004 to:

- a) finalize the report in 2004 summarizing the ecological impacts of the Red King Crab introduction in Norway that will provide a basis for advice on practical management considerations;
- b) finalize in 2004 the complete summary of the National Reports from 1992 to 2002 (suitable for publication in CD-ROM format);
- c) collate and tabulate information from National Reports and prepare annually for ACME a concise summary report on the ecological significance of any new proposed introductions;
- d) provide a concise synthesis annually for ACME on the ecological impacts of accidental introductions on the receiving environment. These syntheses may result in the production of Special Advisory Reports;
- e) evaluate and report on the rapid response and control options of new invaders with the intention of preparing a discussion paper by 2006;
- f) commence preparation of a report summarising introductions and transfers of marine organisms into the North Sea and their consequences to be input to the 2006 meeting of the Regional Ecosystem Study Group for the North Sea and the 2006 Theme Session on Integrated Assessments.

WGITMO will report by 15 April 2004 for the attention of ACME as well as the Mariculture and the Living Resources Committees.

C.Res. 2003/2ACME06

A Joint ICES/OSPAR Workshop on Integrated Monitoring of Contaminants and their Effects in Coastal and Open-Sea Areas [WKIMON] (Co-Chairs: K. Hylland, Norway, and R. Law, UK) will meet at ICES Headquarters from 10–13 January 2005 to:

- a) develop guidelines for integrated biological effects and chemical monitoring, including:
 - i) specific guidelines for the integration of chemical and biological effects techniques with special emphasis on those parameters that have become mandatory in the OSPAR Coordinated Environmental Monitoring Programme;
 - ii) guidelines towards integrated chemical and biological effects monitoring for the entire range of issues in the OSPAR Joint Assessment and Monitoring Programme.

WKIMON will report to the ACME and the Marine Habitat Committee.

Advisory Committee on Ecosystems (ACE)

C.Res. 2003/2ACE01

The Advisory Committee on Ecosystems [ACE] (Chair: S. Jennings, UK) will meet:

- A) at ICES Headquarters from 14–18 June 2004 at Council expense to:
- a) prepare scientific advice and information, as requested by the Commissions (OSPAR, HELCOM), other regulatory agencies, and member countries of ICES, and any other advice which the Committee or Council may consider relevant;

- b) contribute, as required, to the preparation of advice to other regulatory bodies in collaboration with the Advisory Committee on the Marine Environment (ACME) and the Advisory Committee on Fishery Management (ACFM);
- c) establish and review working procedures for ACE and propose Terms of Reference for ACE, its subsidiary groups and other relevant Council groups;
- d) review reports of ICES groups as defined in Council Resolutions;
- e) provide advice and guidance to the Science Committees on future scientific needs and priorities related to the work of ACE.

With the approval of the General Secretary, the Chair of the ACE may invite relevant experts to attend specific parts of the meetings at Council expense.

- B) for Consultations to be held at national expense during the 92nd Statutory Meeting to:
- a) prepare Terms of Reference, dates, and venues for meetings of groups reporting to ACE in 2005;
- b) conduct other business related to the functioning of ACE.

The Consultations will be open to Delegates, ACE members and their alternates, ex-officio members, Chairs of groups reporting to ACE or their designates, Observers to ACE, and other experts at the invitation of the Chair of ACE.

C.Res. 2003/2ACE02

A Study Group on Ecological Quality Objectives for Sensitive and for Opportunistic Benthos Species [SGSOBS] (Chair: K. Essink, The Netherlands) will be established and will meet at ICES Headquarters from 22–24 March 2004 to:

- a) in continuation of the development of EcoQ element (o) Density of sensitive (e.g., fragile) species and EcoQ element (p) Density of opportunistic species to [OSPAR 2004/1]:
 - i) identify possible species, taking into account developments in implementing the Water Framework Directive;
 - ii) commence development, for the species identified, and on the basis of the criteria for sound EcoQOs established by ICES in 2001, of related metrics, objectives, and reference levels for this EcoQO;
- b) for these EcoQ elements, to consider further the spatial scale requirements of sampling and the adequacy of existing monitoring activities to determine their status and trends, and provide further advice based on scenario considerations on the applications of possible EcoQOs;
- c) where possible and appropriate, reconstruct the historic trajectory of the metric and determine its historic performance (hit, miss, or false alarm) relative to the objective being measured, as a basis for deciding the relationship to management. This requires the collection of the relevant available historic data/information;
- d) taking into account all potential sources of relevant information, determine what information it will be possible to collect in future to assess whether the EcoQO is being met (taking into account practicability and costs);
- e) develop draft guidelines, including monitoring protocols and assessment methods, for evaluating the status of, and compliance with, the EcoQO.

SGSOBS will report by 1 April 2004 for the attention of ACE and the Marine Habitat Committee.

C.Res. 2003/2ACE03

The **Working Group on Marine Mammal Ecology** (WGMME) (Chair: Gordon T. Waring, USA) will meet in Pasajes, Spain, from 22–25 March 2004 to:

- a) review the usefulness of marine protected areas in marine mammal management;
- b) review the scientific and management basis for seal removal programmes in the North Atlantic, including:
 - i) are monitoring programmes adequate to assess the direct impacts on seal populations,
 - ii) are the monitoring programmes adequate to assess the biological effects on key competitors of seals;
- c) review the influence of the epizootic on seal populations in the North Sea;
- d) for EcoQ element (c) Seal population trends in the North Sea, EcoQ element (d) Utilization of seal breeding sites in the North Sea, and EcoQ element (e) Bycatch of harbour porpoises: reconsider the formulation of the EcoQO, determine whether a more specific EcoQO is needed in terms of its specification to the metric, time, and geographical area, and as necessary propose more specific EcoQO(s) [OSPAR 2004/1]. In considering elements c) and d) take into account the effects of the epizootic;

- e) provide the Study Group on Multispecies Assessments in the North Sea with data on the consumption of different prey by marine mammals in the North Sea, in a format specified by the Study Group;
- f) start preparations to summarise the size, distribution, and status of marine mammal populations in the North Sea for the period 2000–2004, and any trends over recent decades in these populations. Where possible, the causes of these trends should be outlined for input to the Regional Ecosystem Study Group for the North Sea in 2006.

WGMME will report by 31 March 2004 for the attention of ACE, as well as the Marine Habitat and the Living Resources Committees.

C.Res. 2003/2ACE04

The **Working Group on Ecosystem Effects of Fishing Activities** [WGECO] (Chair: C. Frid, UK) will meet at ICES Headquarters from 14–21 April 2004 to:

- a) for the EcoQO relating to spawning stock biomass of North Sea commercial fish species, and taking account of current reference points used in ICES advice and the outcome of the work of the Study Group on the Further Development of the Precautionary Approach to Fishery Management, to be used as baselines against which progress can be measured [OSPAR 2004/1]:
 - i) reconsider the formulation of the EcoQO, determine whether a more specific EcoQO is needed in terms of its specification to the metric, time, and geographical area, and as necessary propose more specific EcoQO(s);
- b) continue development, on the basis of the criteria for sound EcoQOs established by ICES in 2001, of related metrics, objectives, and reference levels for the EcoQOs relating to the local availability in the North Sea of sandeels for black-legged kittiwakes, based on the output of WGSE, and reconsider the formulation of the EcoQO, determine whether a more specific EcoQO is needed in terms of its specification to the metric, time, and geographical area, and as necessary propose more specific EcoQO(s) [OSPAR 2004/1];
- c) continue the development, on the basis of the criteria for sound EcoQOs established by ICES in 2001, of related metrics, objectives, and reference levels for the EcoQOs relating to: (1) changes in the proportion of large fish and hence the average weight and average maximum length of the fish community, based on input from the Working Group on Fish Ecology and Assessment Working Groups; (o) density of sensitive (e.g., fragile) species, and (p) density of opportunistic species, based on input from the Study Group on Ecological Quality Objectives for Sensitive and for Opportunistic Benthos Species; and (b) presence and extent of threatened and declining species in the North Sea [OSPAR 2004/1]. In this respect,
 - i) for EcoQ element (l), taking into account all potential sources of relevant information, determine what information it will be possible to collect in future to assess whether the EcoQO is being met (taking into account practicability and costs), and develop draft guidelines, including monitoring protocols and assessment methods, for evaluating the status of, and compliance with, those EcoQOs,
 - ii) for EcoQ elements (o) and (p), identify possible species in the respective categories, consider further the spatial scale requirements of sampling and the adequacy of existing monitoring activities to determine their status and trends, and provide further basis for advice based on scenario considerations on the applications of possible EcoQOs,
 - iii) for EcoQ element (b), consider the invertebrate and fish species and the habitats on the Draft OSPAR list of threatened and declining species for their relevance and usefulness as a basis for EcoQOs for the North Sea,
 - iv) where possible and appropriate, reconstruct the historic trajectory of the metrics and determine their historic performance (hit, miss, or false alarm) relative to the objective being measured, as a basis for evaluating their relationship to management;
- d) begin consideration of the means by which ecosystem considerations can be incrementally added to the ICES advisory framework with specific consideration of the approaches adopted by the existing advisory committees;
- e) commence development of the scientific components of the framework and guidelines for the consideration of multiple EcoQO's as integrated sets for use in applied contexts;
- f) complete the work started in 2003 in response to the EC request on ecosystem impacts of industrial fishing:
 - i) summarise information from relevant Expert Groups (assessment working groups, Working Group on Fish Ecology) and prepare a compilation of the scientific information in response to this request,
 - ii) consider which aspects of this request require further work and propose plans to take forward such work;
- g) consider a framework for the monitoring of the status of ecosystem components in the ICES area that makes use of both "descriptive surveillance metrics" and "performance metrics". The developed framework should include a consideration of how data routinely collected as part of ICES activities can be most effectively utilised for the

purpose of reporting on ecosystem status, and what measures might ultimately be added to the incomplete suite of EcoQOs (performance metrics) currently being developed;

- h) review data on ecosystem responses to spatial reductions in fishing activities in temperate freshwater and marine areas, and describe similarities and differences in the biological development in these areas. Particular considerations should be given to differences in the ecosystem development in response to the geographical position/scale of the studied areas and our understanding of meta-population dynamics. Review published guidelines for the establishment of marine protected areas and recommend revisions;
- i) consider the existing frameworks for assessing the role of habitats in support of biological diversity and the provision of "essential" habitat elements for key life history stages and review any existing measures of "habitat quality". Based on these analyses consider how this EcoQO element can be advanced;
- j) start preparations to summarise the effects of fishing on North Sea biota for the period 2000-2004, and any trends in these effects over the recent decades.

WGECO will report by 3 May 2004 for the attention of ACE, as well as the Marine Habitat, the Living Resources, and the Resource Management Committees.

C.Res. 2003/2ACE05

A **Study Group to Review Ecological Quality Objectives for Eutrophication** [SGEUT] (Co-Chairs: Ted Smayda, USA, and Gunni Ærtebjerg, Denmark) will be established and will meet at ICES Headquarters from 17–19 May 2004 to:

- a) in relation to the five Ecological Quality Elements related to eutrophication, i.e., EcoQ element (m) Changes/kills in zoobenthos in relation to eutrophication, EcoQ element (q) Phytoplankton chlorophyll *a*, EcoQ element (r) Phytoplankton indicator species for eutrophication, EcoQ element (t) Winter nutrient (DIN and DIP) concentrations, and EcoQ element (u) Oxygen [OSPAR 2004/1]:
 - i) review these EcoQOs, their scope and application, and means for their use as an integrated set and considering their parallel use as assessment criteria in the OSPAR Comprehensive Procedure (COMPP),
 - ii) provide the basis for the advice on the use and implementation of the current integrated set of five ecological quality elements and related EcoQOs to the whole OSPAR maritime area,
 - iii) reconsider the formulation of the EcoQO, determine whether a more specific EcoQO is needed in terms of its specification to the metric, time, and geographical area, and as necessary propose more specific EcoQO(s);
- b) consider new EcoQ elements/EcoQOs (e.g. nutrient budgets, nutrient ratios, macrophytes) related to eutrophication, and as necessary propose new EcoQOs which could be used in addition to or as replacement for the EcoQ's considered in a).

SGEUT will report by 1 June 2004 for the attention of ACE and ACME, as well as the Marine Habitat and the Oceanography Committees.

C.Res. 2003/2ACE06

The **Study Group on Management of Integrated Data** [SGMID] (Co-Chairs: P. Wiebe, USA, and C. Zimmermann, Germany) will meet in Hamburg, Germany, from 31 March to 2 April 2004:

- a) review the development within ICES towards integrated databases of oceanographic, environmental, and fisheries data;
- b) identify data sources relevant to a), above, not yet integrated into the ICES databases, and other physical, biological, and human use data sources relevant to the ICES area;
- c) review existing integrated data systems for fisheries/environmental data and review data integration work in existing projects inside and outside of ICES;
- d) propose strategies and technical solutions for integrating available data, including the possibility that data are not physically located in one site;
- e) evaluate and recommend the level of integration and aggregation of data in connection with management issues from an ecosystem perspective including the use of GIS systems;
- f) evaluate problems associated with the accessibility of data.

SGMID will report by 15 April 2004 for the attention of ACE, ACME, and ACFM.

C.Res. 2003/2ACE07

The **Regional Ecosystem Study Group for the North Sea** [REGNS] (Chair: A. Kenny, UK) will meet in Lowestoft, UK, from 5–7 April 2004 to:

- a) consider the priority science issues from the Scientific Expert Conference in Bergen 20–22 February 2002, and how ICES can contribute to their development including the compilation of readily available information from ICES member countries on existing and recently completed R&D to examine how national programmes contribute to the priority science issues;
- b) consider the appropriate framework for coordinating R&D in support of an Ecosystem Science Programme and assess the practicality of establishing an ICES-coordinated Ecosystem Science Programme;
- c) prepare proposals for how ICES could contribute to the development of integrated assessments of the North Sea in cooperation with other international organisations (OSPAR and EU), to facilitate production of integrated advice;
- d) consider the information needs from other Expert Groups in order to provide the basis for a theme session on integrated assessments in 2006;
- e) consider the role of ICES in improving the coordination, harmonisation, and efficiency of current national and international monitoring to serve the assessment processes (jointly with the Planning Group on the North Sea Pilot Project);
- f) establish the feasibility and potential for regionally coordinated and integrated monitoring at the international level by:
 - i) considering member states monitoring activities in detail,
 - ii) comparing respective programmes in terms of their spatial and temporal coverage and the parameters measured, and
 - iii) considering how the information is used and reported;
- g) review the components of the proposed changes in the ICES Advisory Process (from the 2003 Statutory Meeting) that address Integrated Assessments and specify as fully as possible the data information and analytical methods needed to fulfil the necessary functions of the Regional Integrated Assessment groups in the new advisory process.

REGNS will report by 23 April 2004 for the attention of ACE.

C.Res. 2003/2ACE08

The Study Group on Cold Water Corals [SGCOR] (Chair: M. Tasker, UK) will work by correspondence in 2004 to:

- a) review new information on the occurrence of and threats to cold-water corals in the North Atlantic, including consideration of large slow-growing octocorals;
- b) review the importance of *Lophelia pertusa* reefs as a habitat for other species;
- c) prepare for the theme session on cold water corals at ASC 2004;
- d) invite comment on a draft of its report from relevant ICES Expert Groups in order to enable the provision of any further advice to the European Commission.

SGCOR will report by 31 March 2004 to ACE and the Marine Habitat Committee.

Fisheries Technology Committee (B)

C.Res. 2003/2B01

The **Study Group on Survey Trawl Gear for the IBTS Western and Southern Areas** [SGSTG] (Chair: Francisco Velasco, Spain) will meet in Santander, Spain, from 11–13 February 2004 to:

- a) review the modifications and field trials of candidate trawl gears proposed at the 2003 meeting;
- b) propose the candidate net and ground gear configurations to be used in the different surveys in the area, according to the results of (a);

- c) determine standardized trawling procedures after appropriate trawl gear has been chosen, in relation to the procedures used in the North Sea;
- d) define the required scope of continuing inter-calibration work required to maintain continuity in time-series, including the North Sea time-series;
- e) recommend appropriate survey design for multi-vessel/gear permutations such as stratification, overlap, and the combining of data to provide indices of abundance and biodiversity and any other appropriate indicators of stock and regional scales;
- f) review gear design proposals from commercial net manufacturers.

SGSTG will report by 28 February 2004 for the attention of the Fisheries Technology and the Living Resources Committees.

C.Res. 2003/2B02

A Study Group on Collection of Acoustic Data from Fishing Vessels [SGAFV] (Chair: W. Karp, USA) will be established and will meet in Gdynia, Poland, from 16–17 April 2004 to:

- a) review and evaluate recent and current research which involves collection of scientific acoustic data from commercial vessels;
- b) develop standardized methods and protocols for collection of acoustic data to address specific ecosystem monitoring, stock assessment, and management objectives, including: acoustic system calibration and performance monitoring, characterization of radiated vessel noise, comparability of results, survey design, biological sampling, data interpretation and analysis, and data storage and management; and
- c) prepare background material, guidelines, methods, and protocols for possible publication in the *Cooperative Research Report* series.

The Study Group will report by 31 May 2004 for the attention of the Fisheries Technology Committee.

C.Res. 2003/2B03

The **Study Group on Acoustic Seabed Classification** [SGASC] (Chair: John Anderson, Canada) will meet in Gdynia, Poland, on 18–19 April 2004 to:

- a) review and evaluate progress in:
 - i) the theory of sound scattering from the seabed and the application of acoustic seabed classification systems,
 - ii) the development of standardized survey designs and verification methods,
 - iii) the development of standardized protocols for data collection, data quality and display, data effectiveness for classification, segmentation and classification methods and criteria,
 - iv) the utilization of acoustic seabed classification products in habitat mapping and other marine activities;
- b) evaluate progress towards publishing a *Cooperative Research Report* on "Acoustic Seabed Classification in Marine Environments".

SGASC will report by 31 May 2004 for the attention of the Fisheries Technology and the Marine Habitat Committees, and ACE.

C.Res. 2003/2B04

The **Planning Group on the HAC Data Exchange Format** [PGHAC] (Chair: D. Reid, UK) will meet in Gdynia, Poland, on 17 April 2004 to:

- a) coordinate the development of the HAC standard data exchange format;
- b) provide information on the changes in the format and its evolution;
- c) share information between manufacturers and users on the way acoustic data are processed and stored;
- d) coordinate production on new collated HAC specification manual;
- e) review modifications to HAC compatible software to allow full data exchange.

PGHAC will report by 15 May 2004 for the attention of the Fisheries Technology Committee.

C.Res. 2003/2B05

The **ICES-FAO Working Group on Fishing Technology and Fish Behaviour** [WGFTFB] (Chair: Norman Graham, Norway) will meet in Gdynia, Poland, on 20–23 April 2004 to:

- a) review and assess the effects of colour and contrast in netting materials and gear components on fish behaviour and catchability in survey and commercial situations;
- b) assess efficiency increases in fish capture operations, including:
 - i) identification of advances in technology and practices that increase fishing efficiency,
 - ii) quantification of such advances wherever possible,
 - iii) review of work undertaken in this field;
- c) evaluate the effect of fishing gears on the seabed with special reference to mitigation measures in mobile gears and the effects of stationary gears on sensitive environments;
- d) evaluate the recent (last 5 years) codend mesh selection experiments dealing with bottom trawls, used in the Baltic Sea for cod, which used either turned meshes and/or BACOMA windows. With emphasis on estimating selectivity parameters, experimental design, and modelling/statistical analyses;
- e) review new technologies or fishing gear research leading to standardization in bottom trawl surveys;
- f) in a joint session with the Working Group on Fisheries Acoustics Science and Technology on 22 April 2004, review:
 - i) the questions raised at the ICES Symposium on Fish Behaviour in Exploited Ecosystems, held in Bergen in June 2003;
 - ii) methods for estimating abundance of semi-demersal species, including combining trawl and acoustic estimates;
 - iii) methods to observe fish behaviour in relation to fishing gears.

WGFTFB will report by 15 May 2004 for the attention of the Fisheries Technology Committee and ACE.

C.Res. 2003/2B06

The **Working Group on Fisheries Acoustics Science and Technology** [WGFAST] (Chair: Dave Demer, USA) will meet in Gdynia, Poland, from 20–23 April 2004 to:

- a) examine work in the following research areas as proposed at the 2003 meeting:
 - i) effectiveness of noise-reduced platforms,
 - ii) using acoustics for evaluating ecosystem structure, with emphasis on species identification,
 - iii) statistical characterisation and utilisation of target strength (TS),
 - iv) error assessment for acoustic biomass estimates;
- b) review the reports of the:
 - i) Planning Group on the HAC Data Exchange Format (PGHAC);

- ii) Study Group on Target Strength Estimation in the Baltic Sea (SGTSEB);
- iii) Study Group on Acoustic Seabed Classification (SGASC);
- iv) Study Group on Collection of Acoustic Data from Fishing Vessels (SGAFV);
- c) in a joint session with the Working Group on Fishing Technology and Fish Behaviour (WGFTFB) on the 22 April, review:
 - i) the questions raised at the ICES Symposium on Fish Behaviour in Exploited Ecosystems, held in Bergen in June 2003;
 - ii) methods for estimating abundance of semi-demersal species, including combining trawl and acoustic estimates;
 - iii) methods to observe fish behaviour in relation to fishing gears.

WGFAST will report by 15 May 2004 for the attention of the Fisheries Technology Committee.

C.Res. 2003/2B07

A Workshop on Survey Design and Data Analysis [WKSAD] (Co-Chairs: P. G. Fernandes, UK, and M. Pennington, Norway) will be held in Aberdeen, UK, from 21–25 June 2004 to:

- a) review methods of designing and analysing fisheries surveys;
- b) summarise the current methods used for survey design and analysis;
- c) investigate where there are similar design and analysis problems;
- d) identify areas of agreement and specific areas of work where progress could be made;
- e) prepare workplans for identified areas of development;
- f) investigate methods to deal with intercalibration studies of fishing gears and survey vessels.

WKSAD will make its report available by 31 July 2004 for the attention of the Fisheries Technology, the Living Resources, and the Resource Management Committees.

C.Res. 2003/2B08

The **Study Group of Target Strength Estimation in the Baltic Sea** [SGTSEB] (Chair: B. Lundgren, Denmark) will work by correspondence in 2004 to:

a) prepare a final report on the work of the Study Group for possible publication in the *Cooperative Research Report* series.

SGTSEB will make its draft report available by 31 July 2004 for the attention of the Fisheries Technology Committee and the Baltic Committee.

C.Res. 2003/2B09

A **Study Group on Unaccounted Fishing Mortality** [SGUFM] (Chair: Mike Breen, UK) will be established and will work by correspondence in 2004 to:

- a) consider issues relating to the sources of fishing mortality other than those that can be accounted for by the reported catch;
- b) report on the current knowledge of unaccounted mortality;
- c) review and make recommendations on methods used to estimate escape mortality from towed fishing gears.

SGUFM will report by 15 April 2004 for the attention of the Fisheries Technology Committee and ACFM.

Oceanography Committee (C)

C.Res. 2003/2C01

The **Working Group on Phytoplankton Ecology** [WGPE] (Co-Chairs: L. Edler, Sweden, and Francisco Rey, Norway) will meet in Gijon, Spain, from 19–21 February 2004 to:

- a) review the Phytoplankton Checklist compiled intersessionally and compare if species from the checklist fit into ITIS structure to report phytoplankton data to ICES;
- b) review annual Phytoplankton Summary Reports and complete discussion on standardization of data sets;
- c) prepare contributions to the Workshop on Future Directions in Modelling Physical-Biological Interactions;
- d) summarise the results of the primary production questionnaire;
- e) prepare a review of the current state of the art of, and new findings in, phytoplankton ecology;
- f) start preparations to summarise status and trends of phytoplankton communities in the North Sea (biomass, species and size composition, spatial distribution) for the period 2000–2004, and any trends over recent decades in these communities; for input to the Regional Ecosystem Study Group for the North Sea in 2006;
- g) prepare a plan for the future activities of the Group which is closely aligned to the ICES Action Plan.

WGPE will report by 15 March 2004 for the attention of the Oceanography Committee and ACME.

C.Rers. 2003/2C02

A Workshop on Future Directions in Modelling Physical-Biological Interactions [WKFDPBI] (Co-Chairs: F. Peters, Spain, and C. Hannah, Canada) will be held in Barcelona, Spain, from 8–9 March 2004 to:

- a) review the current state of the art in several fields that require modelling physical-biological interactions and are relevant to ICES: e.g. fisheries recruitment, harmful algal blooms, eutrophication;
- b) identify the key areas where model improvements are required.

WKFDPBI will report by 15 May 2004 for the attention of the Oceanography Committee.

C.Res. 2003/2C03

The Study Group on Modelling Physical/Biological Interactions [SGPBI] will be re-established as the **Working Group on Modelling of Physical/Biological Interactions** [WGPBI] (Chair: C. Hannah, Canada) and will meet in Barcelona, Spain, from 10–11 March 2004 to:

- a) present and discuss new results related to developments and validation in the modelling of physical/biological interactions;
- b) review experimental simulations on nutrient load reduction;
- c) incorporate the findings of the Workshop on Future Directions in Modelling Physical-Biological Interactions;
- d) identify emergent physical-biological interaction issues relevant to other Expert Groups;
- e) review, finalise, and start to implement the strategic plan prepared intersessionally that will provide the framework for the future activities;
- f) cooperate with SGBEM to explore Baltic ecosystem models;
- g) review the 2003 Regional Ecosystem Study Group for the North Sea and Planning Group on the North Sea Project reports and consider opportunities to contribute to regional integrated assessments.

WGPBI will report by 15 May 2004 for the attention of the Oceanography Committee.

C.Res. 2003/2C04

The **ICES-EuroGOOS Planning Group on the North Sea Pilot Project (NORSEPP)** [PGNSP] (Chair: Martin Holt, EuroGOOS) will meet in Southampton, UK, from 24–26 March 2004 to:

a) produce a summary product from operational NORSEPP deliverables;

- b) plan how to disseminate the NORSEPP Status Report and information to the ICES community and to receive and act on feedback;
- c) continue planning components of NORSEPP, including integrated products for 2005 with input from the Regional Ecosystem Study Group for the North Sea;
- d) review lessons learned from preparation of the first NORSEPP Status Report and recommend on transition to fuller operational status;
- e) review present operational North Sea observing programmes, with input from the EDIOS project, in relation to the requirements of NORSEPP.

PGNSP will report by 25 April 2004 for the attention of the Oceanography, the Living Resources, the Resource Management, the Marine Habitat, and the Advisory Committees.

C.Res. 2003/2C05

The **Working Group on Seabird Ecology** [WGSE] (Chair: R. W. Furness, UK) will meet in Aberdeen, UK, from 29 March–2 April 2004 to:

- a) review the factors influencing trends in abundance of seabirds in the Baltic Sea;
- b) review progress in studies of seabirds in relation to marine wind farms;
- c) review relationships between seabirds and oceanographic features, with particular reference to effects of climate change;
- d) consider the selection of seabird species and populations that would be appropriate to use in an EcoQO relating to seabird population trends in the North Sea as indices of seabird community health;
- e) complete the work carried out in 2003 to compare seabird communities and prey consumption between the east and west North Atlantic;
- f) provide the Study Group on Multispecies Assessments in the North Sea with data on the consumption of different prey by seabirds in the North Sea, in a format specified by the Study Group;
- g) reconsider the formulation of the EcoQOs listed below, determine whether a more specific EcoQO is needed in terms of its specification to the metric, time, and geographical area, and as necessary propose more specific EcoQO(s) [OSPAR 2004/1]:
 - i) EcoQ element (f) Proportion of oiled common guillemots among those found dead or dying on beaches,
 - ii) EcoQ element (g) Mercury concentrations in seabird eggs and feathers,
 - iii) EcoQ element (h) Organochlorine concentrations in seabird eggs,
 - iv) EcoQ element (i) Plastic particles in stomachs of seabirds,
 - v) EcoQ element (j) Local sandeel availability to black-legged kittiwakes,
 - vi) EcoQ element (k) Seabird population trends as an index of seabird community health;
- h) start preparations to summarise the size, distribution, and status of seabird populations in the North Sea for the period 2000–2004, and any trends over recent decades in these populations, for input to the Regional Ecosystem Study Group for the North Sea in 2006.

WGSE will report by 30 April 2004 for the attention of the Oceanography Committee, ACME, and ACE.

C. Res. 2003/2C06

The **Working Group on Oceanic Hydrography** [WGOH] (Chair: A. Lavín, Spain) will meet in Southampton, UK, from 29 March–1 April 2004 to:

- a) update and review results from Standard Sections and Stations;
- b) consolidate inputs from ICES member countries and from NORSEPP into the ICES Annual Ocean Climate Status Summary (IAOCSS);
- c) review national monitoring programmes in order to improve climate monitoring activities;
- d) review Proceedings of the ICES Symposium on Hydrobiological Variability in the ICES Area, 1990–1999 in order to evaluate gaps in knowledge;

- e) review relations with international climate monitoring programmes;
- f) review two proposals for new work, viz:
 - i) discuss the possibility to undertake long-term storage of water samples of key locations for future analysis,
 - ii) undertake an isopycnal analysis of in situ data;
- g) start preparations to summarise the ocean climate of the North Sea for the period 2000-2004, and any trends over recent decades in this climate; for input to the Regional Ecosystem Study Group for the North Sea in 2006.

WGOH will report by 30 April 2004 for the attention of the Oceanography Committee and ACME.

C.Res. 2003/2C07

The **Working Group on Zooplankton Ecology** [WGZE] (Chair: Steve Hay, UK) will meet in Hamburg, Germany, from 5–8 April 2004 to:

- a) update the annual ICES Plankton Status Report, including extending the time-series with new sites, phytoplankton series, and advances in monitoring technology;
- b) consider future developments and collaborative approaches in time-series measurements and interpretation;
- c) review impacts of climate change on plankton communities using biological indicators, with special consideration of fisheries;
- d) review publications and outputs from the ICES /PICES /GLOBEC Symposium (Gijón, May 2003) and the implications for plankton research;
- e) review the achievements of the ICES Zooplankton Taxonomic Workshop (CM 2003/C:14);
- f) review and consider new technologies for identification and enumeration of plankton species;
- g) review the state of the art of enzymatic activity methods to estimate plankton secondary production;
- h) start preparations to summarise status and trends of zooplankton communities in the North Sea (biomass, species and size composition, spatial distribution) for the period 2000–2004, and any trends over recent decades in these communities; for input to the Regional Ecosystem Study Group for the North Sea in 2006.

WGZE will report by 30 April 2004 for the attention of the Oceanography Committee, ACME, and ACE.

C.Res. 2003/2C08

The **ICES-IOC Working Group on Harmful Algal Bloom Dynamics** [WGHABD] (Chair: J. L. Martin, Canada) will meet in Corsica, France, from 5–8 April 2004 to:

- a) collate and assess national reports and update the decadal mapping of harmful algal events for the IOC-ICES harmful algal database, HAE-DAT, on a regional, temporal, and species basis;
- b) review plans for the proposed Workshop on New and Classic Techniques for the Determination of Numerical Abundance and Biovolume of HAB-species;
- c) review progress in computerised production of decadal maps from country reports, including the revision of reports already in the database covering the last 10 years;
- d) propose types of analysis that should be performed using the IOC-ICES HAEDAT dataset and identify problems and gaps in this dataset that must be rectified before the analyses can be conducted;
- e) review the report of the Workshop on Real-time Coastal Observing Systems for Ecosystem Dynamics and Harmful Algal Blooms (CM 2003/C:15);
- f) review existing phytoplankton population dynamics models with particular emphasis on prediction of HAB events;
- g) review biological loss processes of selected HAB species;
- h) consider the environmental dynamics and impacts of individual phycotoxins and their metabolites enabled by new analytical technologies;
- i) report and discuss new findings;

j) start preparations to summarise the distribution and number of harmful algal blooms in the North Sea for the period 2000–2004, and any trends over recent decades in the occurrence of these blooms for input to the Regional Ecosystem Study Group for the North Sea in 2006.

WGHABD will report by 1 May 2004 for the attention of the Oceanography Committee and ACME.

C.Res.2003/2C09

The **Working Group on Recruitment Processes** [WGRP] (Co-Chairs: R. D. M. Nash, UK, and T. Miller, USA) will meet at ICES Headquarters from 5–7 April 2004 to:

- a) prepare a synthesis of relevant multidisciplinary projects and highlight unresolved issues which deserve further consideration;
- b) review the consequences of improvements and expansions of global ocean observing systems on studies of recruitment;
- c) prepare recommendations for stimulating the development of the modelling aspects of recruitment studies, taking into account the planned activities of the Working Group on Physical/Biological Interactions;
- d) assess the role of spatial and temporal variability in the distribution and abundance of larval fishes together with the implications of these sources of variability on the design of sampling programmes and inferences drawn from them;
- e) review the development of new approaches or techniques used in the study of factors and processes that influence the development and survival of fish eggs and larvae in relation to recruitment of the formation of year-class strength.

WGRP will report by 31 May 2004 for the attention of the Oceanography Committee.

C.Res. 2003/2C10

The **ICES-IOC Steering Group on GOOS** [SGGOOS] (Co-Chairs: W. R. Turrell, UK and W. G. Harrison, Canada & IOC) will meet in Tenerife, Spain, from 20–21 April 2004 to:

- a) develop global and regional linkages between ICES and GOOS bodies;
 - i) review planning (flow-chart/milestones) for ICES and GOOS Implementation Plan,
 - ii) review report prepared inter-sessionally on national and international policy drivers behind the ecosystem approach to fisheries management,
 - iii) review progress in promoting the development of coordinated North Atlantic wide approach to ocean monitoring;
- b) identify and/or develop components and activities by ICES that may contribute to the Global Ocean Observing System;
 - i) review, through presentations, local (Spanish) observation, monitoring, or modelling programmes relevant to ICES and GOOS,
 - ii) review progress on monitoring terrestrial loading (freshwater and nutrients) in the North Sea,
 - iii) review ecosystem indicators currently under development (IOC, COOP-GOOS, ICES Status Reports) with a view to selecting a core set for the ICES and GOOS regional pilot projects, especially NORSEPP,
 - iv) review current methods for ecosystem indicator integration;
- c) develop regional ICES and GOOS pilot projects to demonstrate the benefits of taking a GOOS approach in the ICES context;
 - i) review, through presentations, progress in developing and implementing NORSEPP,
 - ii) review, through presentations, progress in developing and implementing other regional pilot projects, including GoMA-GOOS, PICES, etc.;
- d) develop appropriate outreach activities to disseminate information about the programme;
 - i) review report prepared inter-sessionally on options for capacity building,
 - ii) review progress with ICES PICES coordination of GOOS activities, including a review of the PICES use of ships of opportunity, and the work of the PICES MONITOR Task Team.

SGGOOS will report by 30 April 2003 for the attention of the Oceanography Committee, ACME, and ACE.

C.Res. 2003/2C11

The **Working Group on Marine Data Management** [WGMDM] (Co-Chairs: Michele Fichaut, France, and Helge Sagen, Norway) will meet in Brussels, Belgium, from 3–5 May 2004 to:

- a) continue to develop, maintain, and promote the WGMDM guidelines for data management and exchange, and assess the results of promotional activities;
- b) develop a referral portal for guidelines and data quality control information (e.g. to include links to standards, procedures, guidelines, metadata, real-time/operational);
- c) further investigate details of the Integrated Taxonomic Information System (ITIS) and actively promote ITIS within the ICES and IOC community;
- d) critically assess the data management developments and implications for operational oceanography;
- e) appraise the best mechanism/most effective way to provide (coordination) focal points for data access to new data products (CD-ROM/DVD and web-based), online databases, etc. in collaboration with the IODE OceanPortal and the EU SeaSearch II initiatives;
- f) evaluate and develop future directions for oceanographic data management based on the results from SGXML and make recommendations regarding adoption in the oceanographic community;
- g) provide input to the Study Group on the Management of Integrated Data, and comment on their report.

WGMDM will report by 31 May 2004 for the attention of the Oceanography Committee.

C.Res. 2003/2C12

The **ICES-IOC Study Group on the Development of Marine Data Exchange Systems using XML** [SGXML] (Co-Chairs: R. Gelfeld, USA, and A. Isenor, Canada) will meet in Oostende, Belgium, from 6–7 May 2004 to:

- a) evaluate and discuss inter-sessional work on parameter dictionaries including the dictionary mapping analysis, and the reconciliation of the XML structure for dictionary exchange;
- b) evaluate inter-sessional work on the point data structure including the investigation into accepted standards for incorporation in the 'Keeley' bricks and the efforts to apply the 'Keeley' bricks to 3-dimensional biological data;
- c) evaluate inter-sessional work on metadata including reporting on the comparison of metadata standards (ISO, MEDI, EDMED, etc.) and the initial development of an optimal metadata tag list.

SGXML will report by 30 May 2004 for the attention of the Oceanography Committee.

C.Res. 2003/2C13

The **ICES/GLOBEC Working Group on Cod and Climate Change** [WGCCC] (Co-Chairs: K. Drinkwater, Canada, and G. Ottersen, Norway) will meet in Bergen, Norway, from 9–10 May 2004 to:

- a) review and evaluate the progress on the Synthesis Activities, including:
 - i) the book on cod,
 - ii) the update of the *Cooperative Research Report* on "The Life History Aspects of Cod Stocks throughout the North Atlantic";
- b) review and evaluate the results from the Workshop and Theme Session on the "Transport of Cod Larvae";
- c) plan and prepare the proposed Workshop on the "Impact of Zooplankton on Cod Abundance and Production";
- d) initiate plans for other Workshops.

WGCCC will report by 31 May 2004 for the attention of the Oceanography Committee.

C.Res. 2003/2C14

A Workshop on New and Classic Techniques for the Determination of Numerical Abundance and Biovolume of HAB-species – evaluation of the cost, time-efficiency and intercalibration methods [WKNCT] (Chair: O. Lindahl, Sweden) will be held in Kristineberg, Sweden, from 22–28 August 2004 to:

- a) compare traditional methods for concentrating, preserving, and counting common HAB species using light microscope techniques;
- b) compare molecular probe-based methods for cell enumeration with the traditional techniques;
- c) make recommendations for further research and development efforts targeted at identified inaccuracies or deficiencies in the methods being evaluated;
- d) identify, where possible, a reference counting method against which other methods can be calibrated;
- e) assess the usefulness and cost efficiency of the available numerical methods in routine monitoring.

WKNCT will report by 30 August 2004 for the attention of the Oceanography Committee and the Baltic Committee.

IOC (GEOHAB) will be invited to co-sponsor the Workshop.

C.Res. 2003/2C15

The Steering Group for the ICES/GLOBEC North Atlantic Programme and Regional Office [SGNARO] (Co-Chairs: K. Drinkwater, Canada, and F. Köster, Denmark) will work by correspondence in 2004, and meet as appropriate at national expense, to:

- a) review and advise on the further evolution of the ICES/GLOBEC North Atlantic Programme and the workplan of the ICES/GLOBEC office, taking into account:
 - i) the strategic goals for ICES/GLOBEC research and the strategic approach for the ICES/GLOBEC office as agreed by the Council,
 - ii) developments in the international GLOBEC programme, and
 - iii) available funding;
- b) review and advise on the action plan of the Working Group on Cod and Climate Change.

The Group will include the General Secretary, the GLOBEC Coordinator, the Chair of the Oceanography Committee, and a representative of the international GLOBEC Scientific Steering Committee, and will be open to participants in the ICES/GLOBEC programme. Member countries not participating directly in the ICES/GLOBEC programme are also entitled to designate representatives to participate in the work of this group, should they so choose.

SGNARO will report by 31 May 2004 for the attention of the Oceanography Committee and the Bureau.

Resource Management Committee (D)

C.Res. 2003/2D01

The **Planning Group on Redfish Stocks** will be re-established as the **Study Group on Redfish Stocks** [SGRS] (Chair: to be identified) and will meet at ICES Headquarters in August 2004 to:

- a) review the survey design of international trawl-acoustic surveys in the Irminger Sea and adjacent waters;
- b) advise on the required frequency and number of vessels needed and also the timing of future surveys.

SGRS will report for the attention of the Resource Management Committee and ACFM.

C.Res. 2003/2D02

The **Study Group on Growth, Maturity and Condition in Stock Projections** [SGGROMAT] (Co-Chairs: C. L. Needle, UK, and C. T. Marshall, UK) will meet in Aberdeen, UK, from 19–23 January 2004 to:

- a) review progress in summarising the availability of data on weights, maturity, condition, and fecundity for the stocks identified during the first meeting;
- b) review the suitability of available process-based models for growth, maturity, condition, and fecundity for implementation in medium-term projections and propose modifications where necessary;
- c) implement suitable process-based models in medium-term projection methodologies and conduct sensitivity analyses to examine the likely effects of these new approaches on management advice.

SGGROMAT will report by 31 January 2004 for the attention of the Resource Management, the Living Resources, the Oceanography, and the Baltic Committees, as well as ACFM.

C.Res. 2003/2D03

The **Working Group on Methods of Fish Stock Assessments** [WGMG] (Chair: C. O'Brien, UK) will meet in Lisbon, Portugal, from 11–18 February 2004 to:

- a) develop robust methods and software for the investigation of management procedures for stock recovery and the evaluation of harvest control rules;
- b) identify appropriate estimators of stock conservation limits and reference points relating to longer-term potential yield; together with a characterisation of their statistical properties for the range of stocks currently assessed by ICES for its client customers and related management agencies (EU, IBSFC, NAFO, NASCO, NEAFC, ICCAT);
- c) examine software capable of generating simulated data, and agree on an initial suite of data sets for use in modeltesting and evaluation that will be made generally available from the ICES website;
- d) investigate appropriate diagnostics that detect model mis-specification in fish stock assessment;
- e) investigate and implement statistical approaches that identify and quantify uncertainty due to conditioning choices in fish stock assessment;
- f) develop fishery-independent assessment methods, measures of uncertainty, and appropriate diagnostics, with particular attention to data-poor situations and the estimation of relative catchability; and
- g) review, revise, and adopt guidelines on the formal procedures to be adopted by the Working Group for the testing, evaluation, and validation of software for use by ICES stock assessment Working Groups.

WGMG will report by 29 February 2004 for the attention of the Resource Management and the Living Resources Committees, as well as ACFM.

C.Res. 2003/2D04

A Workshop on Advanced Fish Stock Assessment Techniques [WKAFAT] (Co-Chairs: D. Skagen, Norway, E. Hjorleifsson, Iceland, and L. Kell, UK) will be held at ICES Headquarters from 3–10 March 2004 to:

- a) teach a course covering stock assessment methodology, including evaluation of data consistency, estimation of the state of a stock, projection of stock status, uncertainty evaluation, and risk assessment;
- b) present the open computing environment for fishery science and management currently under development within the Working Group on Methods of Fish Stock Assessments.

Participants will each pay a contribution of DKK 2000 towards the running expenses of the Workshop.

WKAFAT will report by 31 March 2004 for the attention of the Resource Management and the Living Resources Committees, as well as ACFM.

C.Res. 2003/2D05

The **International Bottom Trawl Survey Working Group** [IBTSWG] (Chair: J.-C. Mahe, France) will meet in Lisbon, Portugal, from 23–26 March 2004 to:

- a) coordinate and plan North Sea and North Eastern Atlantic surveys for the next twelve months;
- b) review the work completed by the Study Group on "Survey Trawl Gear for the IBTS Western and Southern Areas";
- c) review the outcome of the SURVEYTRAWL project;
- d) comment on the outputs from the DATRAS database;
- e) agree on the intersessional revisions to the new IBTS manual;
- f) further develop protocols and criteria to ensure standardization of all sampling tools and survey gears and review institutional checking lists;
- g) review the outcome of the Workshop on "Sampling and Calculation Methodology for Fisheries Data";
- h) make a detailed check of the age/length/sex/maturity data for the last 3 years from the ICES database;
- i) consider and agree on depth stratification in the eastern Atlantic and Skagerrak;
- j) consider the integration of fish and oceanographic data with particular emphasis on the production of the North Sea Pilot Project (NORSEPP) status report in 2004;
- k) propose procedures for QC of historical data in the DATRAS database.

IBTSWG will report by 15 April 2004 for the attention of the Resource Management Committee.

C.Res. 2003/2D06

The **Working Group on Fishery Systems** [WGFS] (Chair: M. Pastoors, The Netherlands) will meet in Lowestoft, UK, from 26–30 April 2004 to:

- a) review the use of decision support systems integrating quantitative simulations with qualitative process knowledge in a management decision context;
- b) review, develop, and implement approaches for the fishery adaptation module of the fishery management system framework;
- c) coordinate work on on-going case studies;
- d) develop an approach for comparative studies of fisheries monitoring, control, and surveillance systems;
- e) identify the factors influencing decisions about how precautionary reference points are defined and estimated; and
- f) finalise the outline and publication plan for a *Cooperative Research Report* on the fishery management system framework and case studies.

WGFS will report by 20 May 2004 for the attention of the Resource Management Committee, ACFM, and ACE.

C.Res. 2003/2D07

The **Study Group on Age-length Structured Assessment Models** [SGASAM] (Chair: Helen Dobby, UK) will meet at ICES Headquarters from 6–10 December 2004 to:

- a) review developments in methodologies and applications of length- and age-length structured population models in ICES areas and elsewhere, and provide a forum for dissemination of information regarding these methods;
- b) investigate the feasibility of incorporating process-based growth, maturity, condition, and fecundity models into existing model frameworks;
- c) evaluate the utility of age-length structured model frameworks for investigating the performance of models with different levels of complexity;
- d) explore the potential of applying age-length based models to stocks of anglerfish, hake, redfish, and sprat.

SGASAM will report by 15 January 2005 for the attention of the Resource Management Committee and ACFM.

C.Res. 2003/2D08

The Planning Group on Surveys of Pelagic Fish in the Norwegian Sea [PGSPFN] will be renamed the **Planning Group on Northeast Atlantic Pelagic Ecosystem Surveys** [PGNAPES] (Chair: J. A. Jacobsen, Faroe Islands) and will meet in Murmansk, Russia, from 24–27 August 2004 to:

- a) evaluate the surveys carried out in 2004 and suggest whether changes could be made to further optimise these with regard to stock migrations and accuracy of stock estimates, and in relation to the stock environment interactions;
- b) combine the 2004 survey data and provide the following data for the Northern Pelagic and Blue Whiting Working Group:
 - i) stock indices of blue whiting and Norwegian spring-spawning herring,
 - ii) zooplankton biomass for making short-term projection of herring growth,
 - iii) hydrographic and zooplankton conditions for ecological considerations,
 - iv) aerial distribution of such pelagic species as mackerel;
- c) describe the migration pattern of the Norwegian spring-spawning herring and blue whiting stocks in 2004 on the basis of biological and environmental data;
- d) plan and coordinate the surveys on the pelagic resources and the environment in the North East Atlantic in 2005 including the following:
 - i) the international acoustic survey covering the main spawning grounds of blue whiting in March-April 2005,
 - ii) the international coordinated survey on Norwegian spring-spawning herring, blue whiting, and environmental data in May-June 2005,
 - iii) Russian investigations on pelagic fish and the environment in May-July 2005,
 - iv) Icelandic investigations on pelagic fish and the environment in June-July 2005,
 - v) Norwegian investigations on pelagic fish and the environment in August 2005;
- e) develop protocols and criteria to ensure standardisation of all sampling tools, procedures, and survey gears;
- f) plan the implementation of the Group's database;
- g) consider the 2003 report of the Study Group on the Bycatch of Salmon in Pelagic Trawl Fisheries with the objective of contributing to better quantification of salmon bycatch in pelagic fisheries.

PGNAPES will report by 15 September 2004 for the attention of the Resource Management and the Living Resource Committees, as well as ACFM and ACE.

C.Res. 2003/2D09

The **Study Group on Multispecies Assessment in the North Sea** [SGMSNS] (Co-Chairs: M. Vinther, Denmark, and E. Bell, UK) will work by correspondence in 2004 to:

- a) prepare for a meeting in 2005 to:
 - i) prepare a 'definitive' and fully revised 4M model key-run, incorporating any revisions in consumption rates or other available data;
 - ii) re-evaluate the importance of mackerel as an MSVPA predator in the North Sea;
 - iii) incorporate the biomass data, consumption rates and diet compositions provided by the Working Group on Seabird Ecology and the Working Group on Marine Mammal Ecology for marine mammals and seabirds. Evaluate the importance of newly introduced predators (e.g. harbour seals), and whether these affect 4M outputs;
 - iv) re-examine the issue of whether 0-group fish can be adequately modelled using the 4M or other multispecies modelling approaches;
 - v) address 'applied' and specific questions posed intersessionally by ACFM;
 - vi) perform a data fitting exercise using the North Sea 1991 EwE model. The fitting exercise will require input (survey CPUE) and output data (MSVPA estimated biomasses) from the updated 4M key-run (Term of Reference a);

- vii) examine the need within ICES and develop a strategy for multispecies stock assessment and subsequent multispecies advice on management issues;
- viii)prepare a draft resolution for a new expert group, should the outcome of (vii) identify the need for this.

SGMSNS will report by 31 May 2004 for the attention of the Resource Management and the Living Resources Committees, ACFM, and ACE.

Marine Habitat Committee (E)

C.Res. 2003/2E01

The ICES/OSPAR Steering Group on Quality Assurance of Biological Measurements in the Northeast Atlantic [SGQAE] (Chair: Jon Davies, UK) will meet at ICES Headquarters from 24–27 February 2004 to:

- a) develop a specific plan for contribution to the QA aspects of biological measurements in relation to various OSPAR JAMP products;
- b) review progress in the development and use of the ICES Biological Community Database;
- c) evaluate and report on QA/AQC issues relevant to the study of coastal fish communities in relation to environmental quality assessment;
- d) if requested, develop guidelines on QA/AQC for the application of an environmental indicator or EcoQO approach employing biological measures;
- e) meet jointly with the Steering Group on Quality Assurance of Biological Measurements in the Baltic on matters of common interest;
- f) review progress with QA activities within member countries;
- g) review and report on the success of relevant workshops/intercalibration exercises/ring tests, and document future events;
- h) review the performance of the guidelines for determining the acceptability of biological sampling and analytical practices in monitoring programmes, and make recommendations for future improvements;
- i) evaluate the outcome of a questionnaire concerning the conduct of primary production studies in the OSPAR/ICES/HELCOM area, and consider the implications for future monitoring strategies;
- j) review progress with the implementation of phase II of the BEQUALM scheme;
- k) consider the QA implications arising from the use of 'rapid' or partial assessments of biological samples;
- 1) evaluate the feasibility of developing standard test data sets as a basis for intercalibrating data handling and data analyses within monitoring programmes; and
- m) consolidate links with other international agencies (e.g., ISO, CEN, EC) with an interest in QA/AQC of biological community measurements.

SGQAE will report by 15 March 2004 for the attention of ACME who will be parent, and to the Marine Habitat and the Oceanography Committees.

C.Res. 2003/2E02

The Working Group on the Statistical Aspects of Environmental Monitoring [WGSAEM] (Chair: R. Fryer, UK) will meet at ICES Headquarters from 1–5 March 2004 to:

- a) investigate the utility of multidimensional scaling and other ordination and multivariate techniques for producing standard data products for routine monitoring assessments of biological community data;
- b) review and advise on methods for conducting the MON 2004 temporal trend assessments of contaminants in biota and sediment;
- c) develop methodology for joint assessments of input data and data on contaminants in biota and sediments;
- d) continue work on statistical aspects in the development of environmental indicators and classifications;
- e) develop methods for the trend analysis of inputs of nutrients and contaminants to the marine environment;
- f) review and comment on the results of an analysis of a suite of biological effects and contaminant data;

- g) develop plans for the preparation of detailed background material to be used by a proposed 2005 ICES/OSPAR Workshop on Integrated Monitoring of Contaminants and their Effects in Coastal and Open-Sea Areas [OSPAR 2004/2];
- h) in collaboration with other Expert Groups develop a multi-year plan for addressing statistical needs for environmental monitoring and assessment;
- i) consider the feasibility of a communication product on practical applications of statistics to environmental monitoring and assessment;
- j) review the 2003 Regional Ecosystem Study Group for the North Sea and the Planning Group on the North Sea Pilot Project reports and consider opportunities to contribute to regional integrated assessments.

WGSAEM will report by 21 March 2004 for the attention of the Marine Habitat Committee, ACME, and ACE.

C.Res. 2003/2E03

The **Working Group on Marine Sediments in Relation to Pollution** [WGMS] (Chair: F. Smedes, Netherlands) will meet from 1–5 March 2004 in Stockholm, Sweden to:

- a) continue the work on the measurement of the potential bioavailability of contaminants in sediment and evaluate the work done in the Western Scheldt inter-sessionally by Belgium and the Netherlands;
- b) finalize work on the annex to the sediment monitoring guidelines that provides guidance on the interpretation of sediment trend monitoring data, taking into account sediment dynamics and also taking into consideration additional contributions from other member countries;
- c) continue work on the development of indicators of sediment contamination;
- d) further investigate the possibilities of integrated chemical and biological effect monitoring and evaluate where the knowledge on chemical sediment monitoring can contribute to application and interpretation of biological effects monitoring (with the Working Group on the Biological Effects of Contaminants);
- e) investigate and report on the possibilities and present use of suspended matter as a matrix for monitoring programmes;
- f) develop plans for the preparation of detailed background material to be used by a proposed 2005 ICES/OSPAR Workshop on Integrated Monitoring of Contaminants and their Effects in Coastal and Open-Sea Areas [OSPAR 2004/2];
- g) start preparations to summarise the status of contamination of North Sea sediments for the period 2000–2004, and any trends in contamination over recent decades. Where possible, the causes of these trends should be outlined; for input to the Regional Ecosystem Study Group for the North Sea in 2006;
- h) determine priorities for assistance from the Working Group on the Statistical Aspects of Environmental Monitoring with statistical analyses and develop with this Working Group a plan for the necessary collaboration.

WGMS will report by 22 March 2004 for the attention of the Marine Habitat Committee and ACME.

C.Res. 2003/2E04

The **Marine Chemistry Working Group** [MCWG] (Chair: R. Law, UK) will meet in Nantes, France, from 15–19 March 2004 to:

A. Chemical Oceanography Subgroup

- a) provide guidance and assistance relating to the development of a series of data products to illustrate eutrophication status within the ICES area;
- b) consider requests from the Chairs of the Study Group to Review Ecological Quality Objectives for Eutrophication for information in preparation for the Study Group.

B. Organics Subgroup

- a) assist the Working Group on Seabird Ecology in commencing the development of related metrics, objectives, and reference levels for ecological quality objectives relating to organochlorine concentrations in eggs of North Sea seabirds [OSPAR 2004/1];
- b) review new information on *tris*(4-chlorophenyl)methanol (TCPM) and *tris*(4-chlorophenyl)methane (TCPMe) in flatfish;

- c) review new information on the use of membrane systems for sampling;
- d) review new information on the monitoring and analysis of toxaphene;
- e) review new information concerning polybrominated diphenylethers (PBDEs) and other brominated flame retardants;
- f) review new information concerning the analysis of dioxins and the preparation of reference materials for these compounds;
- g) review developments within the UNEP Global POPs Monitoring Network;
- h) review new information on the impact of alkylphenols from produced water;
- i) review new information on the herbicides isoproturon and diuron.

C. Trace Metals Subgroup

- a) assist the Working Group on Seabird Ecology in commencing the development of related metrics, objectives, and reference levels for ecological quality objectives relating to mercury concentrations in eggs and feathers of North Sea seabirds [OSPAR 2004/1];
- b) review information on arsenic speciation, and report the outcome;
- c) review new information on the use of membrane systems for sampling.

D. Plenum

- a) undertake activities relating to the implementation of the OSPAR Joint Assessment and Monitoring Programme in the light of discussions at MCWG2003 and as required by OSPAR;
- b) review the mechanism for generating an updated list of relevant certified reference materials for use in marine monitoring programmes, and their availability via the ICES website;
- c) review how a presentation of the long-term performance of a laboratory can be standardised taking the information from the 2000 MCWG meeting into account;
- d) review any new ICES/HELCOM SGQAC Annexes on Quality Assurance;
- e) review the revised ICES Environmental Data Reporting Format (Version 3.2) and provide comments to the ICES Marine Data Centre;
- f) develop plans for the preparation of detailed background material to be used by the 2005 ICES/OSPAR Workshop on Integrated Monitoring of Contaminants and their Effects in Coastal and Open-Sea Areas [OSPAR 2004/2];
- g) determine priorities for assistance from the Working Group on the Statistical Aspects of Environmental Monitoring with statistical analyses and develop with this Working Group a plan for the necessary collaboration;
- h) discuss matters referred from the three subgroups, as necessary;
- i) start preparations to summarise the marine chemistry of the North Sea for the period 2000–2004, and any trends in chemistry and contaminants over recent decades. Where possible, the causes of these trends should be outlined; for input to the Regional Ecosystem Study Group for the North Sea in 2006.

MCWG will report by 14 April 2004 for the attention of the Marine Habitat and the Oceanography Committees, as well as ACME.

C.Res. 2003/2E05

The **Working Group on Biological Effects of Contaminants** [WGBEC] (Chair: Ketil Hylland, Norway) will meet in Oostende, Belgium, from 22–26 March 2004 to:

- a) prepare a response to request OSPAR2003/2, viz:
 - i) identify the most suitable additional biological-effects measurement techniques that should be introduced into the OSPAR CEMP programme,
 - ii) check that appropriate QA procedures have been identified for these biological techniques and that the arrangements necessary to support those procedures are in place,
 - iii) set the basis for developing QA procedures for newly recommended biological techniques;
- b) review progress with publication and electronic dissemination of reports on biological effects techniques to be published in the *Techniques in Marine Environmental Science* series;
- c) consider progress with activities:

- i) the EU BEEP project,
- ii) the EU FIRE project,
- iii) the ENDIS-RISK project,
- iv) BEQUALM;
- d) review monitoring activities of the "Prestige" oil spill;
- e) evaluate the use of biomarkers and histopathology for invertebrates;
- f) assess potential biological effects of increasing metal levels in North Sea biota;
- g) update the table on biological effects methods;
- h) evaluate the use of biological effects methods in national monitoring programmes;
- i) review existing knowledge on the interpretation of data on biological effects following chronic exposure to contaminants;
- j) review new information on the biological effects of endocrine disruptors, including organotins in the marine environment;
- k) determine necessary action to support the investigation of the use of biomarker measurements for monitoring (with the Working Group on the Statistical Aspects of Environmental Monitoring);
- develop plans for the preparation of detailed background material to be used by a proposed 2005 ICES/OSPAR Workshop on Integrated Monitoring of Contaminants and their Effects in Coastal and Open-Sea Areas [OSPAR 2004/2];
- m) determine priorities for assistance from the Working Group on the Statistical Aspects of Environmental Monitoring with statistical analyses and develop with this Working Group a plan for the necessary collaboration;
- n) review progress on new biological effects techniques such as in the field of genomics and proteomics, and evaluate the use of these techniques for monitoring purposes;
- o) review available information on amounts and biological effects of produced water in the North Sea and to determine necessary action to further access and monitor effects of chronic exposure on marine living resources;
- p) start preparation to summarise the effects of contaminants on North Sea biota for the period 2000–2004, and any trends in these effects over recent decades, for input to the Regional Ecosystem Study Group for the North Sea in 2006;
- q) reconsider the formulation of the EcoQ element (n) on "imposex in the dogwhelk *Nucella lapillus*", determine whether a more specific EcoQO is needed in terms of its specification to the metric, time, and geographical area, and as necessary propose more specific EcoQO(s) [OSPAR 2004/1].

WGBEC will report by 19 April 2004 for the attention of the Marine Habitat Committee and ACME.

C.Res. 2003/2E06

The **Study Group on the North Sea Benthos Project 2000** [SGNSBP] (Chair: H. Rees, UK) will meet in Wilhelmshaven, Germany, from 29 March–1 April 2004 to:

- a) consider the outcome of discussions of an intersessional sub group to:
 - i) finalise the benthic macrofaunal data set for the NSBP 2000 and generate outputs from multivariate analyses,
 - ii) adjust the 1986 NSBS dataset for compatibility with NSBP 2000 and generate outputs from multivariate analyses,
 - iii) make a preliminary statistical comparison of the 1986 and 2000 data, employing ICES rectangles as a basis for station selection,
 - iv) make recommendations regarding sub-sets of habitat-specific stations for historical comparisons,
 - v) progress the compilation of ancillary environmental data and identify additional needs,
 - vi) review regional data assessments prepared by national agencies and others;
- b) review the outcome of data compilations and analytical outcomes to date;
- c) identify database and analytical issues for further resolution;
- d) conduct a preliminary evaluation of findings in relation to hypotheses for natural and anthropogenically-induced changes and make recommendations for follow-up work, particularly in relation to forthcoming publications;

- e) make recommendations on the utility of the available data for classification of North Sea habitats based on structural and functional properties of assemblages;
- f) evaluate new approaches to data analysis;
- g) identify and locate additional biotic/environmental data to aid interpretation of the causes of benthic biological changes;
- h) evaluate the scope for contemporaneous and historical comparisons of the status of North Sea epifaunal communities in the context of the NSBP 2000 assessment;
- i) determine priorities for assistance from the Working Group on the Statistical Aspects of Environmental Monitoring with statistical analyses and develop with this Working Group a plan for the necessary collaboration.

SGNSBP will report by 16 April 2004 for the attention of the Marine Habitat Committee, ACME, and ACE.

C.Res. 2003/2E07

The **Working Group on Marine Habitat Mapping** [WGMHM] (Chair: D. Connor, UK) will meet in Brest, France, from 30 March–2 April 2004 to:

- a) commence development of a generic benthic/pelagic habitat mapping framework for the North Sea, and to produce a prototype habitat map of the North Sea that could be useful for the interpretation of the North Sea Benthos Project;
- b) present and review National Status Reports on habitat mapping according to the standard reporting format;
- c) review existing pelagic habitat classification systems and assess their relationship to benthic habitat classifications;
- d) critically review the advantages and constraints of habitat mapping in a management context;
- e) further progress the development of guidelines for habitat mapping;
- review progress on intercalibration and quality control of mapping techniques, including the proposed workshop on AGDS (Roxann) techniques, and taking into account the work of the Study Group on Acoustic Seabed Classification;
- g) initiate collaboration with the Study Group on Baltic Ecosystem Health Issues on the development of a habitat classification framework and habitat maps for the Baltic Sea [HELCOM 2004].

WGMHM will report by 23 April 2004 for the attention of the Marine Habitat and the Fisheries Technology Committees, as well as ACE.

C.Res. 2003/2E08

The Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem [WGEXT] (Co-Chairs: J. Side, UK and S. Boyd, UK) will meet on the Isle of Vilm, Germany, from 30 March–2 April 2004 to:

- a) review data on marine extraction activities, developments in marine resource mapping, information on changes to the legal regime (and associated environmental impact assessment requirements) governing marine aggregate extraction;
- b) review scientific programmes and research projects relevant to the assessment of environmental effects of the extraction of marine sediments;
- c) provide a summary of data on marine sediment extraction for the OSPAR region that seeks to fulfil the requirements of the OSPAR request for extraction data to be provided by ICES;
- d) receive and respond to feedback from OSPAR on WGEXT 2003 proposals for gathering this data for the OSPAR region on an annual basis;
- e) receive and respond to feedback and any specific observation from OSPAR on the WGEXT 2003 revision to the ICES Guidelines for the Management of Marine Extraction;
- f) compile and collate drafts of individual contributions to the planned *Cooperative Research Report*, and in particular to this end:
 - i) consider recommendations for the use of risk assessment methods as a tool in the management of marine sediment extraction activities,
 - ii) review the variability of data emerging from observed impacts of marine sediment extraction in scientific research programmes with a view to developing understandings and possible models for the explanation of
these,

- iii) consider opportunities for further developing the ecosystem approach to the management of marine sediment extraction,
- iv) review progress and text of the draft report;
- g) start preparation to summarise the effects of extraction of marine sediments from the North Sea for the period 2000–2004, and any trends in these effects over recent decades. Where possible, the causes of these trends should be outlined; for input to the Regional Ecosystem Study Group for the North Sea in 2006;
- h) determine priorities for assistance from the Working Group on the Statistical Aspects of Environmental Monitoring with statistical analyses and develop with this Working Group a plan for the necessary collaboration.

WGEXT will report by 30 April 2004 for the attention of the Marine Habitat and the Resource Management Committees, as well as ACME and ACE.

C.Res. 2003/2E09

The **Study Group on Information Needs for Coastal Zone Management** [SGINC] (Chair: J. G. Støttrup, Denmark) will meet in Heraklion, Greece, from 19–21 April 2004 to:

- a) update and report on activities of relevant ICES working and study groups to identify information pertaining to the coastal zone; evaluate information from other ICES expert groups on potential contributions to information for ICZM;
- b) update and report on the activities of other relevant organisations and scientific programmes which focus on coastal zone aspects with respect to information relevant for ICES;
- c) report on the available information with respect to that required for the sustainable use and management of the coastal zone and identify gaps in knowledge;
- d) finalise recommendations on scientific data products and new research, which ICES could use as a basis for advice on, and in support of coastal zone management;
- e) identify possible working partnerships, which could complement ICES data products with a view to further developing and integrating knowledge for use in holistic advice for coastal zone management.

SGINC will report by 10 May 2004 for the attention of the Marine Habitat and the Mariculture Committees, as well as ACME.

C.Res. 2003/2E10

The **Benthos Ecology Working Group** [BEWG] (Chair: H. Rumohr, Germany) will meet in San Sebastian, Spain, from 19–22 April 2004 to:

- a) review the report and activities of the Study Group on the North Sea Benthos Project 2000;
- b) review the outcome of the 2003 Theme Session on "The Role of Benthic Communities as Indicators of Marine Environmental Quality and Ecosystem Change", and make recommendations on future developmental work;
- c) collate information and recommend biological criteria for the selection of dredged material disposal sites, including material from the Working Group on Marine Sediments in Relation to Pollution and the Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem;
- d) develop guidelines for phytobenthos sampling with a view to publication in the *ICES TIMES* series;
- e) update and finalise guidelines for sampling of the epibiota for publication in the *ICES TIMES* series;
- f) review progress in environmental assessments of offshore wind farms in relation to the underpinning regulatory rationale, and make recommendations concerning the role of benthic community studies;
- g) review the outcome of the Study Group on Ecological Quality Objectives for Sensitive and for Opportunistic Benthos Species for further use in formulating EcoQO's for the North Sea region;
- h) consider output from the Working Group on the Statistical Aspects of Environmental Monitoring (Term of Reference a) for future studies;
- i) determine priorities for assistance from the Working Group on the Statistical Aspects of Environmental Monitoring with statistical analyses and develop with this Working Group a plan for the necessary collaboration;

- j) consider requests from the co-Chairs of the Study Group to Review Ecological Quality Objectives for Eutrophication for information in preparation for the Study Group;
- k) start preparations to summarise the status of benthic communities in the North Sea for the period 2000–2004, and any trends over recent decades in these communities. Where possible, the causes of these trends should be outlined; for input to the Regional Ecosystem Study Group for the North Sea in 2006.

BEWG will report by 10 May 2004 for the attention of the Marine Habitat and the Oceanography Committees, ACME, and ACE.

Mariculture Committee (F)

C.Res. 2003/2F01

The **Working Group on Pathology and Diseases of Marine Organisms** [WGPDMO] (Chair: T. Lang, Germany) will meet in Åbo, Finland, from 9–13 March 2004 to:

- a) produce an update on new disease trends in wild and cultured fish, molluscs and crustaceans, based on national reports;
- b) review environmental monitoring programmes and associated quality assurance activities incorporating studies on pathology and diseases of marine organisms;
- c) provide a recommended technique to differentiate among *Perkinsus* spp., incorporating input received from webbased international solicitation of comments;
- d) review the existing information on viral diseases of crustaceans with emphasis on commercially important species;
- e) recommend on the use of epidemiological methods for the assessment of diseases and population effects risk;
- f) evaluate current information on disease/parasite interactions between wild and farmed fish and advise on related management control methods;
- g) maintain an overview of the spread of *Ichthyophonus* in herring stocks and the distribution and possible cause(s) of the M74 syndrome;
- h) advise on the modifications to be made to relevant ICES databases and the revised ICES Environmental Data Reporting Format (Version 3.2);
- i) produce updated ICES publications on pathology and diseases of marine organisms:
 - i) a web-based report on diseases and parasites of wild and farmed marine fish and shellfish as part of the ICES Environmental Status Report,
 - ii) manuscript on methods for the statistical analysis of fish disease data for submission to the *Techniques in Marine Environmental Science* series,
 - iii) ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish,
 - iv) review progress in the digitisation of the Disease Leaflets by the Secretariat;
- j) develop plans for the preparation of detailed background material to be used by the 2005 ICES/OSPAR Workshop on Integrated Monitoring of Contaminants and their Effects in Coastal and Open-Sea Areas [OSPAR 2004/2];
- k) start preparations to summarise data on the health status of North Sea biota for the period 2002–2004, and any trends in the prevalence of diseases over recent decades, for input to the Regional Ecosystem Study Group for the North Sea in 2006.

WGPDMO will report by 14 April 2004 for the attention of the Mariculture, the Marine Habitat, and the Diadromous Fish Committees, as well as ACME.

C.Res. 2003/2F02

The **Working Group on Environmental Interactions of Mariculture** [WGEIM] (Chair: E. Black, Canada) will meet in Galway, Ireland, from 5–9 April 2004 to:

- a) comment on the report of a workshop on stock enhancement in the Galician rias;
- b) update developments in the implementation of the Water Framework Directive, and activities arising from the European Commission policy on sustainable aquaculture;

- c) prepare for possible publication of a report on the "state of knowledge" of the potential impacts of escaped aquaculture marine (non-salmonid) finfish species on local native wild stocks (e.g., sea bass, sea bream, cod, turbot, halibut);
- d) discuss risk assessment methods in relation to mariculture in a joint session with GESAMP WG 31;
- e) conduct an analysis of the literature and research on the current bath treatments and in-feed additives (treatments) used to treat salmon for sea-lice, and produce a synthesis (state of knowledge) on their fate in the near and far field environment and their effects on non-target organisms (e.g., crustaceans and invertebrates).

WGEIM will report by 15 April 2004 for the attention of the Mariculture Committee and ACME.

C.Res. 2003/2F03

The **Working Group on Marine Fish Culture** [WGMAFC] (Chair: A. Mangor-Jensen, Norway) will meet in Vigo, Spain, from 27–29 April 2004 to:

- a) compile information on the existing regulations of individual ICES member countries and the EU with regard to ingredients in fish feeds;
- b) compile information on the current state of the art of microdiets as a replacement for live food for larval fish;
- c) review the use of live feed organisms other than rotifers and Artemia (alternative live feeds) that are used or considered for use in the culture of marine fish larvae;
- d) prepare a summary of the instances where aquaculture is being used to produce fish for restocking or enhancement of wild populations in ICES member countries;
- e) prepare a report on the status of research and technology of single-sex fish production and its application to the cultivation of marine fish, based on input from experts in the field;
- f) prepare a report on existing knowledge of the effects of water quality (e.g., ozone and resulting compounds, ammonia, microbiology, and probiotics) on intensive land-based marine fish culture, included recirculation;
- g) prepare a report on long- and short-term effects of gas-supersaturation in intensive marine fish cultures.

WGMAFC will report by 30 April 2004 for the attention of the Mariculture and the Diadromous Fish Committees, and ACME.

C.Res. 2003/2F04

The Working Group on the Application of Genetics in Fisheries and Mariculture [WGAGFM] (Chair: E. Kenchington, Canada) will meet in Hamburg, Germany, from 3–5 May 2004 to:

- a) provide recommendations on the applications for the estimation of effective population size in wild populations of marine fish and shellfish;
- b) evaluate the management recommendations for Atlantic salmon, developed by the SALGEN EU project;
- c) consider conservation genetics aspects required for conservation targets for eels;
- d) evaluate the use of reaction norms to evaluate the genetic impact of selective fishing;
- e) commence work on a list of species for which there is reason to be concerned for loss of genetic variation, and a list of species for which there is good genetic information from which to advance management advice.

WGAGFM will report by 31 May 2004 for the attention of the Mariculture and Diadromous Fish Committees, ACME, and ACFM.

C.Res. 2003/2F05

The **Working Group on Marine Shellfish Culture** [WGMASC] (Chair: A. Bodoy, France) will meet in Portland, USA, from 13–15 May 2004 to:

- a) provide a synthesis on the development of hatcheries, the proportion of cultured animals to wild conspecifics and the relative proportion of triploids and other selected strains produced by hatcheries;
- b) review literature on stress indices to identify potential diagnostic tools to detect a declining condition leading to death in cultured populations of molluscs;
- c) review the ecological factors affecting shellfish production and, more specifically, carrying capacity and fouling;

d) evaluate the current sustainability of shellfish culture and develop a work plan to improve sustainability.

WGMASC will report by 1 June 2004 for the attention of the Mariculture and Living Resources Committees, and ACME.

Living Resources Committee (G)

C.Res. 2003/2G01

The Working Group on Cephalopod Fisheries and Life History [WGCEPH] (Chair: J.-P. Robin, France) will meet in Lesvos, Greece, from 9–10 October 2003 to:

- a) update currently available landing statistics and information on fishing effort, discards, and gear selectivity, and explore the existing resource survey databases for information about sampled cephalopods in the ICES area;
- b) compile results available for stock identification and estimation of population size of fished cephalopods;
- c) identify possible precautionary approaches to the management of these cephalopod resources and evaluate management strategies;
- d) compile available data and identify relationships between abundance and environmental conditions, factors affecting recruitment, migration and distribution patterns of juveniles and adults, trophic interactions and bio-accumulation of contaminants;
- e) review cephalopod culture techniques and their interest in the understanding of biological phenomena;
- f) update the bibliographic database of cephalopod literature relevant to fisheries, including grey literature.

WGCEPH will report by 31 October 2003 for the attention of the Living Resources Committee, ACFM, and ACE.

C.Res. 2003/2G02

The **Planning Group on North Sea Cod and Plaice Egg Surveys in the North Sea** [PGEGGS] (Chair: Clive Fox, UK) will meet in Kiel, Germany, from 11–12 November 2003 to:

- a) review existing plans for North Sea ichthyoplankton surveys for 2004 in light of funding decisions by member states;
- b) agree protocols for sampling, sample analysis, and data handling;
- c) examine contingency planning for the surveys to deal with events such as poor weather;
- d) plan for a subsequent Workshop at which detailed spatio-temporal analyses of the data from the surveys will be analysed.

PGEGGS will report by 30 November 2003 for the attention of the Living Resources and the Resource Management Committees.

C.Res. 2003/2G03

The **Study Group on the Estimation of Spawning Stock Biomass of Sardine and Anchovy** [SGSBSA] (Chair: Y. Stratoudakis, Portugal) will meet in San Sebastian, Spain, at dates (October/November 2004) to be decided to:

- a) plan 2005 DEPM surveys for anchovy and sardine;
- b) compare traditional with GAM-based estimates of SSB to decide whether GAMs can be recommended as the standard methodology for routine DEPM estimation of sardine and anchovy spawning stock biomass;
- c) map anchovy and sardine egg production, female weight and spawning fraction to describe interannual changes in spatial distribution, explore their relation to environmental conditions and describe the dynamics along the northern border of the sardine stock;
- d) create an objective list of POF stages for anchovy and sardine and describe the biological properties of mature/immature and active/inactive fish within the sardine spawning season;
- e) refine models of vertical egg distribution and resolve selectivity problems with CUFES to assess its performance as a quantitative sampler.

SGSBSA will report by November 30 2004 for the attention of the Living Resources Committee.

C.Res. 2003/2G04

The **Working Group on Beam Trawl Surveys** [WGBEAM] (Chair: G. Piet, Netherlands) will meet in IJmuiden, Netherlands, from 8–11 December 2003 to:

- a) prepare a progress report summarising the results of the 2003 beam trawl surveys;
- b) calculate population abundance indices by age-group for sole and plaice in the North Sea, Division VIIa, and Divisions VIId-g;
- c) further coordinate offshore and coastal beam trawl surveys in the North Sea and Divisions VIIa and VIId-g;
- d) describe and evaluate the current methods for calculating population abundance indices and consider the possibilities for delivering improved indices;
- e) continue the work on developing relative catchabilities of the different gears used in the surveys;
- f) continue work on developing and standardising an international database of beam trawl survey data and coordinate such activities with those of the IBTSWG in particular on the compliance to DATRAS, the bottom trawl database to be developed at ICES;
- g) continue the work on collating information on the epibenthic invertebrate bycatch during beam trawl surveys into a common database and discuss which summary results should be reported;
- h) develop protocols and criteria to ensure standardisation of all sampling tools and survey gears.

WGBEAM will report by 31 January 2004 for the attention of the Living Resources and the Resource Management Committees, and ACFM.

C.Res. 2003/2G05

The **Planning Group for Herring Surveys** [PGHERS] (Chair: B. Couperus, The Netherlands) will meet in Flødevigen, Norway, from 26–30 January 2004 to:

- a) combine the 2003 survey data to provide indices of abundance for the population within the area;
- b) coordinate the timing, area allocation, and methodologies for acoustic and larvae surveys for herring and sprat in the North Sea, Division VIa and IIIa, and Western Baltic in 2004;
- c) review and update the PGHERS manual for acoustic surveys to address standardisation of all sampling tools and survey gears;
- d) evaluate the results of the investigations of survey overlaps between vessels in the North Sea acoustic survey;
- e) assess the status and future of the HERSUR database;
- f) examine digital photographs of herring maturity stages in order to harmonise their definitions.

PGHERS will report by 6 February 2004 for the attention of the Living Resources and the Resource Management Committees.

C.Res. 2003/2G06

A **Study Group on Regional Scale Ecology of Small Pelagics** [SGRESP] will be established (Chair: Pierre Petitgas, France) and will meet in Nantes, France, from 23–26 February 2004 to:

- a) assemble existing data on life history stages (adult, egg, larvae, juvenile) of pelagic fish (horse mackerel, mackerel, sardine, anchovy, herring, and sprat) in ICES waters, regionally;
- b) characterise habitats of life cycle stages (spawning, nursery, feeding grounds), their inter-annual changes, their inter-species overlap;
- c) review existing relationships with physical and biological environmental indicators;
- d) produce and deliver to assessment working groups integrated environmental and ecological information relevant to the evaluation and prediction processes;
- e) consider a scientific plan to set up a working group on environmental forcing on small pelagics as well as propose a framework articulating the group with existing LCR groups on survey methods and fish ecology, and with ACFM groups on assessment;

f) evaluate applicability of GLOBEC/SPACC findings to small pelagic stocks in ICES waters and establish contact between the Study Group work and GLOBEC/SPACC research.

SGRESP will report by 31 March 2004 for the attention of the Living Resources Committee, ACFM, and ACE.

C.Res. 2003/2G07

The **Planning Group on Aerial and Acoustic Surveys for Mackerel** [PGAAM] (Chair: E. Shamray, Russia) will meet in Aberdeen, UK, from 23–26 February 2004 to:

- a) coordinate the timing and area allocation and methodologies for acoustic and aerial surveys for mackerel in the Northeast Atlantic;
- b) collate and evaluate the data collected by the aerial surveys, fishing- and research vessels in the Norwegian Sea during the summer and autumn of 2003;
- c) coordinate acoustic surveys within the North Sea-Shetland area to ensure full coverage and appropriate areas and timing;
- d) combine the October-November 2003 survey data of abundance and distribution of mackerel within the North Sea-Shetland area;
- e) identify participants to contribute to the aerial surveys for mackerel in the Norwegian Sea and coordinate collaboration between vessels;
- f) combine the summer 2003 aerial survey data with vessels data of distribution of mackerel in the Norwegian Sea;
- g) seek survey time for northward extension of acoustic surveys in ICES Subareas VIII and IX;
- h) consider the latest findings from the SIMFAMI project;
- i) identify surveys which are not targeted at mackerel, but which may have potential use for the estimation of mackerel distribution and abundance;
- j) develop protocols and criteria to ensure standardisation of all sampling tools and survey gears.

PGAAM will report by 11 March 2004 for the attention of ACFM, and to the Fisheries Technology and the Living Resources Committees.

C.Res. 2003/2G08

The **Baltic International Fish Survey Working Group** [WGBIFS] (Chair: R. Oeberst, Germany) will meet in Rostock, Germany, from 29 March to 2 April 2004 to:

- a) combine and analyse the results of the 2003 acoustic surveys and experiments and report to WGBFAS;
- b) update the hydroacoustic databases BAD1 and BAD2 for the years 1991 to 2003;
- c) plan and decide on acoustic surveys and experiments to be conducted in 2004 and 2005;
- d) discuss the results from BITS surveys made in autumn 2003 and spring 2004;
- e) plan and decide on demersal trawl surveys and experiments to be conducted in autumn 2004 and spring 2005;
- f) revise the selecting procedures of hauls allocated to the BITS survey, taking into account the heterogeneity of the geographical distribution of the haul available in the Clear Tow database;
- g) update and correct the Clear Tow database and allocate the hauls for the Baltic International Trawl Survey (autumn, 2004);
- h) continue to study the proposed model for estimating the conversion factors between the new and old survey trawls under inclusion of the new inter-calibration experiments;
- i) update, if necessary, the Baltic International Trawl Survey manual (BITS);
- j) update, if necessary, the Baltic International Acoustic Survey manual (BIAS);
- k) agree on a procedure investigating the vertical distribution of fish during the BITS survey in a situation with oxygen deficiency close to the bottom.

WGBIFS will report by 16 April 2004 for the attention of the Living Resources, the Baltic, and the Resource Management Committees.

C.Res. 2003/2G09

The Working Group on Fish Ecology [WGFE] (Chair: J. Ellis, UK) will meet at ICES Headquarters from 2–7 April 2004 to:

- a) develop EcoQOs relating to fish communities and associated reference levels [OSPAR 2004/1] by:
 - i) reviewing the theoretical basis of size-structured indicators,
 - ii) conducting exploratory analyses of trophic level and size spectra,
 - iii) exploring the utility and application of EcoQOs over a range of spatial scales;
- b) identify threatened and declining fish species by:
 - i) reviewing existing methods of identifying rare, threatened, and declining fish species, including an evaluation of the Texel-Faial criteria,
 - ii) examining abundance-range size relationships in selected fish species,
 - iii) based on i) and ii) developing a set of criteria that can be used to prioritise species in the OSPAR area that may require more detailed assessments/status reports in the future;
- c) complete studies on food rations, prey composition, and gastric evacuation rates of gadoids in the North Sea;
- d) review current knowledge of habitat requirements of commercial, rare, and threatened fish species, including diadromous species with particular emphasis on the distribution of critical habitats;
- e) start analyses of relative catchabilities of the more common fish species in different survey gears;
- f) start preparations to summarise status and changes in fish species distribution and fish community composition and interactions in the North Sea for the period 2000–2004, for input to the Regional Ecosystem Study Group for the North Sea in 2006.

WGFE will report by 30 April 2004 for the attention of the Living Resources, the Resource Management, and the Diadromous Fish Committees, as well as ACE.

C.Res. 2003/2G10

The **Working Group on** *Crangon* **Fisheries and Life History** [WGCRAN] (Chair: A. Temming, Germany) will meet at Charlottenlund, Denmark, from 4–9 October 2004 to:

- a) update statistics for landings and effort data for national fleets;
- b) perform consistency checks, quality controls, and preliminary analysis of landings and effort data for *Crangon* fisheries from available EU logbooks from national fleets;
- c) complete the meta-database on sources of data for *Crangon* distribution and abundance;
- d) improve the parameterisation and design of the Y/R model with regard to maturation and spawning cycle of females, treatment of two sexes and size selectivity of fishing, test the sensitivity of the model to variations in the mortality matrix and F/M ratio, and apply the model to an independent data set (UK Wash fishery);
- e) evaluate studies of predation on *Crangon* in relation to estimates of mortality;
- f) consider environmental and other influences on recruitment success and productivity in *Crangon* fisheries;
- g) review new data on discarding of juvenile fish in *Crangon* fisheries following the introduction of new EU technical measures.

WGCRAN will report by 31 October 2004 for the attention of the Living Resources and the Fisheries Technology Committees, as well as ACFM.

C.Res. 2003/2G11

The **Working Group on Mackerel and Horse Mackerel Egg Surveys** [WGMEGS] (Chair: D. Reid, UK) will work by correspondence in 2004 to plan for a meeting in 2005 to:

- a) plan for a joint meeting with SGSBSA on variance calculation and survey design;
- b) consider the results of the Lowestoft workshop (October 2003) on mackerel and horse mackerel egg staging and identification and incorporate these into the 2004 survey;

c) fine-tune survey execution in 2004.

WGMEGS will report by 1 June 2004 for the attention of the Living Resources and the Resource Management Committees.

C.Res. 2003/2G12

The **Working Group on Elasmobranch Fishes** [WGEF] (Chair: M. Clarke, Ireland) will work by correspondence in 2004 to prepare for a meeting in 2005 to:

- a) update the description of elasmobranch fisheries (including those on deep-water sharks) in the ICES area and compile landings statistics by ICES Subarea and Divisions, and socio-economic data;
- b) compile an inventory of biological characteristics of elasmobranchs in the ICES area (including age/length at maturity, fecundity, etc.) and organise the coordination of biological studies of elasmobranchs at a European level;
- c) investigation of spatial dynamics of survey data for shelf-based species and investigate data from IBTS and other surveys;
- d) refine and further develop assessments for stocks of priority;
- e) start preparations to summarise status and changes in elasmobranch fish species distribution in the North Sea for the period 2000–2004, for input to the Regional Ecosystem Study Group for the North Sea in 2006.

WGEF will report by 31 July 2004 for the attention of the Living Resources Committee and ACFM.

C.Res. 2003/2G13

The **Stock Identification Methods Working Group** [SIMWG] (Co-Chairs: K. D. Friedland, USA, J. Waldman, USA, and S. Cadrin, USA) will work by correspondence in 2004 to:

- a) work with the publisher in producing "Stock Identification Methodology";
- b) advise on the need for future meetings of the SIMWG, and prepare appropriate Terms of Reference if required.

SIMWG will report by 31 May 2004 for the attention of the Living Resources Committee.

C.Res. 2003/2G14

The **Study Group on the Biology and Life History of Crabs** [SGCRAB] (Chair: O. Tully, Ireland) will work by correspondence in 2004 to prepare for a meeting in 2005:

- a) compile data on landings, discards, effort, and catch rates (CPUE) for the most important crab fisheries in the ICES area;
- b) standardise methods for the acquisition, analysis, and interpretation of CPUE, size frequency, and research survey data;
- c) define stock structure / management units for crab stocks;
- d) assess environmental effects, including diseases on crab fisheries;
- e) assess the interaction between net/dredge fisheries and other anthropogenic activities and crab stocks;
- f) assess the effects of fishing on the biological characteristics of crab stocks;
- g) review the methods for estimating recruitment to crab stocks.

SGCRAB will report by 31 May 2004 for the attention of the Living Resources and the Resource Management Committees.

Baltic Committee (H)

C.Res. 2003/2H01

A **Study Group on Baltic Sea Productivity Issues in support of the BSRP** [SGPROD] (Chair: Bärbel Müller-Karulis, Latvia) will be established and will meet in Riga, Latvia, from 29–31 October 2003 to:

- a) commence a summary of the evidence for links between land-based nutrients inputs and long-term changes of both productivity and biodiversity in eutrophied areas of the Baltic Sea;
- b) commence development of a system of indicators that characterise productivity at different trophic levels in the Baltic Sea that are important to ecosystem-based management, taking into account the work already undertaken by ACE and the EEA;
- c) establish an inventory of available productivity data and characterise their use;
- d) identify information gaps along important trophic transfers in the Baltic Sea ecosystem;
- e) study the feasibility and efficiency of automated methods for productivity data collection (e.g. satellite imagery, ships of opportunity, profiling instrument platforms, etc.), in collaboration with BOOS;
- f) recommend measures to adapt the existing measurement programmes to improve the assessment of Baltic Sea productivity within the framework of ecosystem-based marine management;
- g) prepare a workplan, including a schedule for deliverables, in cooperation with the other BSRP Groups; including considerations of potential contributions to the 2006 Theme Session on Regional Integrated Assessments.

SGPROD will report by 30 November 2003 for the attention of the Baltic Committee.

C.Res. 2003/2H02

A **Study Group on Baltic Ecosystem Health Issues in support of the BSRP** [SGEH] (Chair: E. Andrulewicz, Poland) will be established and will meet in Gdynia, Poland, from 10–13 November 2003 to:

- a) prepare a review of developments regarding ecosystem-based approaches to the monitoring, assessment, and management of fisheries and the marine environment, with particular reference to progress in ICES, HELCOM, OSPAR, and the North Sea Conference process, keeping in mind the aim of establishing and implementing the ecosystem approach in the Baltic Sea;
- b) further develop the concept of an ecosystem approach particularly adapted to Baltic Sea needs and applications, including at the coastal sub-systems levels, as appropriate for the aims of the BSRP and taking into account work already done in ICES;
- c) elaborate a scheme for the delivery of research and scientific advice for ecosystem-based management in the Baltic Sea area that is timely and user-friendly:
 - i) involving: the development and application of a system of ecological indicators and related reference points reflecting the objectives, constraints, and state of key elements of the ecosystem in a coherent picture, and
 - ii) supported by the application of appropriate conservation measures necessary to protect threatened or vulnerable species and habitats;
- d) prepare a workplan, including a schedule for deliverables and a description on how the Group will address the human dimension related to these issues, in cooperation with the other BSRP Groups and including considerations of potential contributions to the 2006 Theme Session on Regional Integrated Assessments;
- e) discuss and propose a strategy for implementing the development of a habitat classification framework and habitat maps for the Baltic Sea (in collaboration with WGMHM) [HELCOM 2004].

SGEH will report by 15 December 2003 for the attention of the Baltic Committee.

C.Res. 2003/2H03

A **Study Group on Baltic Ecosystem Model Issues in support of the BSRP** [SGBEM] (Chair: Wolfgang Fennel, Germany) will be established and will meet in Warnemünde, Germany, from 12–14 January 2004 to:

- a) analyse the scientific basis of ecosystem and fishery models of the Baltic and explore possible connections of them in future generations of Baltic Sea models, taking into account work already done in ICES;
- b) define needs for data to initialise and validate models and identify gaps in process descriptions to stimulate targeted measurements, taking into account work already done in ICES;
- c) recommend variables included in the BSRP-monitoring to support future modelling activities;
- d) prepare a workplan, including a schedule for deliverables, in cooperation with the other BSRP Groups and including considerations of potential contributions to the 2006 Theme Session on Regional Integrated Assessments.

SGBEM will report by 29 February 2004 for the attention of the Baltic Committee.

C.Res. 2003/2H04

A **Study Group on Baltic Fish and Fisheries Issues in the BSRP** [SGBFFI] (Chair: Maris Plikshs, Latvia) will be established and will meet in Riga, Latvia, from 3–5 February 2004 to:

- a) review existing knowledge on environmental processes affecting fish stock dynamics in both the open sea and coastal areas of the Baltic;
- b) determine those oceanographic processes and their temporal and spatial variability in the Baltic that influence the distribution and productivity of the fish, including consideration of open sea-coastal interactions;
- c) suggest ways to integrate the above-mentioned processes into enhanced assessment models for commercial fish stocks and new models of coastal fish community structure (in collaboration with SGMAB);
- d) prepare a workplan, including a schedule for deliverables, in cooperation with the other BSRP Groups, including considerations of potential contributions to the 2006 Theme Session on Regional Integrated Assessments.

SGFFI will report by 28 February 2004 for the attention of the Baltic Committee and ACE.

C.Res. 2003/2H05

The ICES-IOC-SCOR **Study Group on GEOHAB Implementation in the Baltic** [SGGIB] (Chair: Markku Viitasalo, Finland) will meet in Helsinki, Finland, from 1–2 April 2004 to:

- a) continue the planning of GEOHAB implementation in the Baltic;
- b) update the checklist of the harmful species of the Baltic Sea;
- c) report and discuss new findings on species and ecosystem effects of Baltic HABs;
- d) review ecosystem and other models that are relevant to Baltic HAB studies;
- e) plan a workshop for spring 2005 to discuss HAB problems and to finalise the Baltic project plan;
- f) prepare an application to the GEOHAB SSC for the endorsement of the Baltic project and the planned workshop;
- g) consider potential contributions to the 2006 Theme Session on Regional Integrated Assessments, as described in the 2003 report of the Regional Ecosystem Study Group for the North Sea.

SGGIB will report by 30 April 2004 for the attention of the Baltic Committee.

C.Res. 2003/2H06

The **Study Group on Salmon Scale Readings** [SGSSR] (Chair: L. Karlsson, Sweden) will meet in Riga, Latvia, from 15–16 November 2004 to:

- a) review available image analysis systems, in particular those which are in use for age determination of salmon;
- b) evaluate the status of analysis of Baltic salmon otoliths, and in particular the possibilities of increasing the resolution to facilitate interpretation of otolith microstructure;
- c) review preliminary results of an investigation which studied the possibilities of assessing post-smolt survival rate on the basis of scale growth pattern;
- d) carry out a preliminary evaluation of the results of a scale-reading blind test;
- e) prepare a workplan describing the Group's cooperation with the BSRP Groups and the work required to finalise the Group's activities;
- f) discuss opportunities for networking with EFAM (European Fish Ageing Network).

SGSSR will report by 30 November 2004 for the attention of the Diadromous Fish Committee (who will be parent), and the Baltic Committee.

C.Res. 2003/2H07

The **Study Group on Multispecies Assessment in the Baltic** [SGMAB] (Co-Chairs: E. Aro, Finland, and F. Köster, Denmark) will work by correspondence in 2004 to plan a meeting to:

- a) update the multispecies key runs up to 2004 covering both Western and Eastern Baltic by appropriate units;
- b) review, revise, and update the multispecies database (i.e. catch in numbers, maturity ogives, mean weight-at-age, stomach data, etc.) and explain the historical trends and changes in mean weight-at-age of key species (cod, sprat, and herring);
- c) review the available information on environmental processes, which are affecting the temporal and spatial changes in Baltic herring population dynamics;
- d) develop, apply, and validate enhanced multispecies models for assessment and prediction, including:
 - i) prediction of weight-at-age and proportion of maturation-at-age, potentially depending on a feedback loop on prey availability and environmental conditions,
 - ii) recruitment success in relation to parental stock status and environmental conditions,
 - iii) validate the revised consumption rates (by quarter of years), which presently contain inter-annual and spatial variability in stomach content, predator weight, and ambient temperature;
- e) consider how the results of the Study Group on Fish and Fisheries Issues in the BSRP (SGFFI) can be incorporated into the work programme of this Study Group;
- f) prepare a workplan, including a schedule for deliverables;
- g) consider potential contributions to the 2006 Theme Session on Regional Integrated Assessments, as described in the 2003 report of the Regional Ecosystem Study Group for the North Sea.

SGMAB will report by 11 June 2004 for the attention of the Baltic Committee.

Diadromous Fish Committee (I)

C.Res. 2003/2I01

A **Study Group on the Bycatch of Salmon in Pelagic Trawl Fisheries** [SGBYSAL] will be established (Chair: Marianne Holm, Norway) and will meet in Bergen, Norway, from 9–12 March 2004 to:

- a) work with the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy to disaggregate data on the commercial catches of mackerel and herring in the Norwegian Sea (ICES Divisions IIa and Vb), the Northern North Sea (Division IVa), and the west of Ireland and Scotland (Divisions VI a & b; VII b,c,j & c) by ICES Division and standard week;
- b) work with the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy to disaggregate data on the number of boats and gear types used in the commercial fishery of mackerel, herring, and horse mackerel in the Norwegian Sea (ICES Divisions IIa and Vb), the Northern North Sea (Division IVa), and the west of Ireland and Scotland (Divisions VI a & b; VII b,c,j & k) by ICES Division and standard week;
- c) provide estimates of the bycatch of Atlantic salmon in the mackerel and herring fisheries in the Norwegian Sea with measures of their reliability;
- d) explore analytical methods to allow catch rates of salmon in research surveys to be extrapolated to catch rates in commercial fisheries;
- e) review methods used for intensive screenings of pelagic research hauls for the presence of post-smolts (small salmon in their first year at sea, generally < 45 cm) and older salmon.

SGBYSAL will report by 31 March 2004 for the attention of the Diadromous Fish and the Living Resources Committees, as well as ACFM.

C.Res. 2003/2I02

A **Study Group on the Status of Diadromous Fish Species** [SGSDFS] (Chair: Niall Ó Maoiléidigh, Ireland) will be established and will work by correspondence in 2004 to:

- a) examine the existing information on:
 - i) distribution of diadromous fish species in ICES areas,
 - ii) the status of these species;
- b) report the current status of each of these species;
- c) provide information on current threats faced by these species.

SGSDFS will report by 1 September 2004 for the attention of the Diadromous Fish and the Living Resources Committees, ACFM, and ACE.

Other Resolutions Requiring Action

C.Res. 2003/4DEL01

The Chair of the Finance Committee, in consultation with the Chair of MCAP, a representative of the Government of Denmark (as the host government of ICES), and the Secretariat, will review financial data associated with the Advisory Process in the context of the Council's policy of 100% cost recovery, and report to the Bureau and to the 2004 Meeting of the Council.

C.Res. 2003/4DEL02

The Bureau and MCAP will review alternative ways to implement the policy of transparency of the ICES Advisory Process, and to take tangible action subject to communication with, and feedback from, the Delegates of ICES, bearing in mind C. Res. 2002/3DEL01, and the progress made in 2002.

C.Res. 2003/4MCAP01

The ICES Advisory Processes will be changed in the general ways outlined in CM2003/MCAP:02, in order to improve the timeliness and reliability of the scientific advice. The changes include:

- The review process for Assessment Working Group reports will be implemented in 2004. To conduct the reviews Member Countries will pursue the commitment of providing appropriate resources from National Laboratories as listed in C. Res. 2003/2ACFM01. The review process for Expert Groups supporting ACME and ACE will be considered during 2004 and brought forward in 2005.
- The Fast Track process will be used to address requests for advice that are accepted by MCAP, and have deadlines that cannot be met with the annual processes for addressing requests for advice.
- MCAP will invite WGCOOP to meet with them, starting in 2004, forming a single group that will have responsibility for coordinating ICES advisory processes internally and serving as the direct point of interaction on advisory needs between ICES and its major clients of scientific advice.
- Work to develop the capacity to implement regional assessment groups, and to further integrate the Advisory Committees will continue, and build on the progress made in e.g., the Regional Ecosystem Study Group for the North Sea, the Baltic Sea Regional Project, and the proposed 2006 Theme Session on Integrated Regional Assessments, based on the flow chart in the 2003 Consultative Committee Report (Table 1).

C.Res. 2003/4PUB01

The membership of the Publications Committee will be seven, to be nominated in accordance with Rules of Procedure, Rule 27.

C.Res. 2003/4PUB02

A new series concerning the publication of ICES Advice will be established as follows:

1. Master Title: ICES Advice.

The reports of each of the Advisory Committees should be amalgamated under this common title. The arrangement of each annual edition of *ICES Advice* should be determined by the Secretariat. Each annual edition of *ICES Advice* may run to several volumes. A common summary should be included in each edition, along with a clear and concise contents list. Regionally-grouped advice may form the basis of Chapters in the future. Each volume will be issued under a common heading, following the style *ICES Advice 2004*.

2. Presentation:

This will follow the pattern recently introduced for the ICES "internal publications", with a new cover design containing the basic elements established for the *CRR* series.

3. Dissemination:

a) Electronic format.

This series, *ICES Advice*, will be fully downloadable in PDF format (as is the current ACFM report), but with security settings set to prevent volumes from being altered, while allowing printing. Refinements of this kind of presentation and other forms of electronic dissemination should be considered on a running basis as they are developed, and adopted when they are deemed useful.

b) Paper format.

While it is the intention that paper versions be phased out to the extent possible, it has become apparent that they are still required for certain purposes, including permanent archiving and the needs of particular users. In view of this, paper versions should continue to be produced on an *ad hoc* basis, to be determined for the time being by the Secretariat and the Chair of the Publications Committee according to reasons advanced by users.

Part III

ICES Administrative Report

The International Council for the Exploration of the Sea

An Introductory Note

This note summarises keynote facts about ICES. More extensive information is available on the ICES Website http://www.ices.dk.

Function

The environment of the North Atlantic and adjacent seas has been a prime concern of the International Council for the Exploration of the Sea (ICES) since its inception in 1902. As the oldest intergovernmental marine science organisation in the world, ICES has long recognised the mutual interdependence of the living marine resources and their physical and chemical environment. Although the Council's original statutes have undergone occasional modification to adjust for changing conditions, challenges, and priorities, its main focus has continued to be on international cooperative studies. Article 1 of the 1964 ICES Convention formally identifies the Council's principal functions as:

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

In addition, since the 1950s (with regard to fisheries) and the 1970s (regarding the marine environment), a major task for ICES has involved the provision of scientific information and advice to intergovernmental regulatory commissions and the governments of ICES Member Countries, for purposes of fisheries conservation and the protection of the marine environment.

The work of ICES encompasses the broad areas of fisheries, oceanography, and environmental sciences including marine pollution, and is organised and carried out by scientists from its Member Countries.

Membership

ICES currently has 19 Member Countries:

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

Affiliate status has been granted to Australia (CSIRO), Chile (Instituto de Fomento Pesquero (IFOP)), Greece (Institute of Marine Biology of Crete), New Zealand (National Institute of Water and Atmospheric Research), Peru (Instituto del Mar del Peru (IMARPE)), and South Africa (Sea Fisheries Research Institute).

Organisation

The principal decision- and policy-making body of ICES is the Council, comprising two Delegates appointed by each Member Country, in addition to the President. Meetings of the Council are chaired by the President, who is elected from among the Delegates for a three-year period. The President, together with the First Vice-President and five ordinary Vice-Presidents (also elected for three years from among the Delegates) constitute the Bureau, the executive arm of ICES. The General Secretary, the Chair of the Consultative Committee, and the Chair of the Management Committee on the Advisory Process (MCAP) are *ex officio* members. The Bureau is responsible, together with the General Secretary, for overseeing the daily operations of ICES, convening the Annual Science Conference, and preparing budgets. The Bureau forms the link between Delegates and the ICES Secretariat. The Finance Committee advises the Council and the Bureau on financial matters.

The General Secretary-the chief executive officer of ICES-heads a group of Professional and General Service staff currently numbering 38 people, who together form the ICES Secretariat, based at ICES Headquarters in Copenhagen (Denmark). The Secretariat provides the administrative, secretarial, editorial, and publication services for the Council, and serves as the communications link for the approximately 1600 scientists involved in ICES activities located in the Member Countries, the growing number of Affiliates, as well as with other relevant international organisations. More than 700 scientists annually attend meetings at ICES Headquarters, supported by the staff and in-house facilities. The Secretariat is also responsible for organising the Annual Science Conference, Symposia, and Dialogue Meetings in Denmark and abroad.

The supervision of the Council's work programme resides mainly in various committees. On the scientific side, there are eight Science Committees providing a wide coverage of the main facets of marine science, two Advisory Committees, the Consultative Committee, and the Management Committee on the Advisory Process (MCAP). MCAP oversees the advisory process. The Consultative Committee, consisting of the Chairs of the Science Committees and the Advisory Committees, plus a Chair and Vice-Chair elected by the Committee, oversees all aspects of the Council's scientific work. The primary means by which the actual work is planned, coordinated, conducted, appraised, and reported on for subsequent peer-review, are the large number of Study, Working, Planning, and Steering Groups and Workshops. These entities are established as needed by the Council, on the recommendation of the respective bodies, and maintained for as long as necessary to address the questions and terms

of reference assigned to them. Each group has a parent Committee to which it reports progress and from which it receives instructions, as necessary, for further work. All Member Countries and Affiliates are entitled to appoint members to any of these groups. With the exception of meetings of 1) fish-stock assessment Working Groups, whose members must be appointed by Delegates or approved by the General Secretary for special purposes (e.g. facilitating Third World development), and 2) groups whose members might be restricted to particular experts appointed by the Council, observers from non-Member Countries and international scientific organisations may be invited to attend the meetings of groups at the discretion of Chairs after consultation with the General Secretary.

ICES currently has more than 100 Working, Study, Planning, and Steering Groups and Workshops forming the basis for its annual work programme. Subjects include such wide-ranging fields as marine chemistry; sediments; physical oceanography; environmental impact of mariculture; ecosystem effects of fishing; fish diseases, fish behaviour, and genetics; ecology of benthos, plankton, fish, seabirds, and marine mammals; biological effects of contaminants; trend monitoring; marine data management and statistics; single- and multispecies fish-stock assessments; fishing technology; and surveys for fish eggs, larvae, juveniles, and adults.

Scientific and Advisory Functions

1. Fisheries

An important responsibility of ICES is the coordination of fisheries-related scientific research. This comprises monitoring the abundance and composition of fish stocks in the Northeast Atlantic, including developing appropriate methods to estimate fish-stock abundance, collecting statistics on fish catches, fishing effort, relevant biological data on the various life stages of fish, recruitment to fish stocks, multispecies interactions and their effects on individual fish stocks.

ICES is the official scientific advisory body to the following Commissions:

- North-East Atlantic Fisheries Commission (NEAFC);
- ◊ International Baltic Sea Fishery Commission (IBSFC);
- North Atlantic Salmon Conservation Organization (NASCO);
- \diamond Commission of the European Union (EC).

These commissions and the governments of ICES Member Countries formulate requests to ICES for information and advice related to the management of specific stocks of fish. The ICES Advisory Committee on Fishery Management (ACFM) meets twice a year (summer and autumn) to prepare its advice, which is published annually in the *ICES Cooperative Research Report* series.

2. Marine Environment

ICES also provides scientific information and advice on matters related to the marine environment through its Advisory Committee on the Marine Environment (ACME) to Member Country governments and the following Commissions:

- OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic;
- Helsinki Commission Baltic Marine Environment Protection Commission (HELCOM, Convention for the Protection of the Marine Environment of the Baltic Sea Area).

ACME meets annually and publishes its report in the ICES *Cooperative Research Report* series.

3. Marine Ecosystems

In order to meet increasing requests for multidisciplinary advice on marine ecosystem issues, the Council established the Advisory Committee on Ecosystems (ACE) at the 2000 Statutory Meeting. ACE has the primary responsibility for scientific information and advice on the status and outlook for marine ecosystems, and on exploitation of living marine resources in an ecosystem context.

4. Management of the Advisory Process

Through Council Resolution CM 2000/4DEL01, overall responsibility for managing the production and delivery of scientific advice rests with the Management Committee for the Advisory Process (MCAP). Membership of MCAP consists of the Chairs of ACFM, ACME, ACE, and the Consultative Committee. The General Secretary is an *ex officio* member.

5. Oceanography

Oceanographic investigations form an integral part of the ICES programme of multidisciplinary work aimed at understanding the features and dynamics of water masses and their ecological processes. Special emphasis is placed on the influence of changes in the environment on the distribution, abundance, and population dynamics of utilised fish resources. This theme is an important element of the project of the International Geosphere-Biosphere Programme, called GLOBEC (Global Ocean Ecosystem Dynamics), in which ICES plays a key implementation role via the North Atlantic Regional Office of GLOBEC which is located in the ICES Secretariat. Oceanographic investigations are also directly relevant to marine pollution studies in view of the influence oceanographic conditions have on the distribution and transport of contaminants in the marine environment. ICES promotes the development and calibration of oceanographic equipment and the maintenance of appropriate standards of quality and intercomparability of oceanographic and environmental data.

Databases

Databases serve as the foundation for objective assessments of the status of the marine environment and its living resources. The ICES Secretariat maintains some of the world's largest databases on oceanography, contaminants/pollution, and fisheries. ICES maintains a bank of oceanographic data supplied by Member Countries, dating back to the early 1900s. Data submissions are subject to intense quality control, thus providing some measure of validation. This databank is supplemented by an inventory of cruise information, based on Reports of Scientific Cruises and Oceanographic Programmes (ROSCOP), which summarises all cruise activities in Member Countries related to physical oceanographic, marine biological, pollution, fisheries, and geophysical research. ICES is the oldest international data centre for marine contaminants, including data from its Cooperative Monitoring Studies Programme and from the Oslo and Paris Commissions' Joint Monitoring Programme covering contaminants in biota, sea water, and sediments. ICES also served as the centre for environmental and biological data used in the work of the North Sea Task Force, and has a formal agreement with the Arctic Monitoring and Assessment Programme (AMAP) to act as its thematic data centre for the marine component. In the area of fisheries, ICES maintains a computerised databank containing detailed information relevant to fish-stock assessment, data from quarterly International Bottom Trawl Surveys and catch statistics for the Northeast Atlantic.

Coordination of Cooperative Programmes

<u>Baltic Sea Regional Project</u>: In partnership with HELCOM and IBSFC, ICES is a key player in the implementation of the GEF Baltic Sea Regional Project (BSRP), in cooperation with the World Bank and UNDP.

The objective of the BSRP is to introduce ecosystembased assessments to strengthen the management of Baltic Sea coastal and marine environments through regional cooperation and targeted, transboundary marine and watershed activities. The ultimate aim is to reduce impacts from non-point sources of pollution and to increase sustainable biological production. Within the overall project (under HELCOM's co-ordination), ICES is responsible for the component entitled Baltic Sea Large Marine Ecosystem Activities.

<u>ICES/GLOBEC Office</u>: The Office, which is housed within the ICES Secretariat in Copenhagen, coordinates and helps to implement the GLOBEC programme within the ICES area. The GLOBEC programme aims to improve forecasts of the responses of the marine ecosystem to physical forcing and global change by developing our understanding of its structure and functioning under varying physical conditions. The research provides the basis for a wider ecosystem approach to issues in fisheries management and environmental protection. Within ICES this requires close cooperation between physical, chemical and biological oceanographers on the one hand, and fisheries and environmental assessment scientists on the other.

GLOBEC is a core project of the IGBP (International Geosphere Biosphere Programme) and is sponsored by the International Oceanographic Commission and the Scientific Committee on Ocean Research.

Publications

Since its inception, ICES has published well over a thousand periodicals and monographs.

Relative to its function of publishing and disseminating results of research, the Council organises scientific symposia and other meetings that are open to participants from both Member and non-Member Countries. The following series are available to the scientific community and the general public:

- ICES Journal of Marine Science
- *ICES Marine Science Symposia* (Symposium proceedings formerly published in this series now usually appear as special numbers of the *ICES Journal*, above)
- ICES Cooperative Research Reports
- ICES Fisheries Statistics
- ICES Oceanographic Data Lists and Inventories (now available on the Internet at http://www.ices.dk)
- ICES Identification Leaflets for Plankton
- ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish
- ICES Techniques in Marine Environmental Sciences
- ICES Annual Report
- ICES/CIEM Newsletter

Collaboration with Other International Organisations

More than 40 international organisations have observer status and cooperative relations with ICES. Of the United Nations agencies, ICES works actively with the Fisheries Department of the Food and Agriculture Organization (FAO), the Intergovernmental Oceanographic Commission of UNESCO, the International Maritime World Meteorological Organization (IMO), the Organization (WMO), and the United Nations Environment Programme. ICES also carries out cooperative scientific activities with many intergovernmental marine science organisations, particularly the North Pacific Marine Science Organization (PICES) and the Northwest Atlantic Fisheries Organization (NAFO). Among the nongovernmental organisations with which ICES has active links, one of the most important is the Scientific Committee on Oceanic Research (SCOR), which promotes and coordinates international oceanographic activities. Other organisations with which ICES cooperates include the Arctic Monitoring and Assessment Programme (AMAP), the World Wide Fund for Nature (WWF), and BirdLife International.

Progress Report on Administration

Many of the activities listed here have been described in various reports to the Council, the Bureau and ICES Committees. Readers are invited to contact the General Secretary if they would like to obtain copies of such reports.

1 The Council and its members

1.1 Country membership

The number of Contracting Parties remained at nineteen.

1.2 Payment of national contributions

As of 31 December 2003 the following national contributions from 18 Contracting Parties for the financial year 2004 had been paid: Belgium, Canada, Denmark, Estonia, Finland, France, Germany, Iceland, Ireland, Latvia, Netherlands, Norway, Poland, Portugal, Spain, Sweden, United Kingdom, and USA (partial payment).

1.3 National Delegates

The following changes to the list of national Delegates have been announced since the 2002 Annual Science Conference (90th Statutory Meeting):

- a) <u>Serge Labonté</u> was appointed to replace Scott Parsons as Delegate of Canada.
- b) <u>M.B.A.M. Scheffers</u> was appointed to replace Maarten Knoester as Delegate of the Netherlands.
- c) <u>Ann Bucklin</u> was appointed to replace Michael Reeve as Delegate of the USA.
- d) <u>Maurice Héral</u> was appointed to replace Marcel Chaussepied as Delegate of France.
- e) <u>Lech Kempczynski</u> was appointed to replace Zdzislaw Gandera as Delegate of Poland.

2 Cooperation with other international organisations

The Council has continued its active cooperation with other international organisations, including those to which it provides scientific information and advice in the areas of fisheries management (IBSFC, NASCO, NEAFC, and the European Commission) and Marine Environmental Protection (HELCOM and OSPAR). Collaborative work has also been consulted with DG-Environment of the European Commission.

Meetings during the period since 1 November 2002 of the above-named and other organisations at which ICES

was represented are included in **Annex 1**. Observers reports on some of these meetings will be issued at the 2003 Annual Science Conference as Doc. C.M. 2003/Gen:1.

2.2. OSPAR

ICES has been represented at the following meetings of the OSPAR Commission and its subsidiary bodies:

- a) The Eutrophication Committee (EUC), Paris, France, 16–20 December 2002 (ICES Representative: Science Coordinator/ Oceanographer).
- b) The Biodiversity Committee (BDC), Dublin, Ireland, 20–24 January 2003 (ICES Representative: Environment Adviser).
- c) The Working Group on Concentrations, Trends, and Effects of Substances in the Marine Environment (SIME) held at the OSPAR Secretariat, London, 18–20 March 2003 (ICES Representative: Environment Adviser).
- d) The Environmental Assessment and Monitoring Committee (ASMO) held in Svolvær, Norway, 28 April to 2 May 2003 (ICES Representative: Environment Adviser).
- e) The Working Group on Monitoring (MON) held at ICES Headquarters, 16–18 December 2003 (ICES Representatives: Environment Adviser, Environmental Data Scientist, Data Manager (Environment)).

Sections of the 2002 Report of ACE containing responses to relevant OSPAR requests were considered at the meeting of BDC in January 2003, and sections of the 2002 Report of ACME containing information and advice to OSPAR were presented and considered at the other above-mentioned meetings. In addition, sections of the 2003 ACME Report were considered at the MON meeting.

In addition, the General Secretary represented ICES at the meeting of the OSPAR Commission, held in Bremen, Germany, on 25 June 2003, as well as at the Joint Ministerial Meeting of the Helsinki and OSPAR Commissions, held in Bremen on 25–26 June. This was the first joint ministerial meeting held by these two Commissions, and important statements concerning future OSPAR and HELCOM work were made at this meeting, particularly in regard to the adoption of an ecosystem approach to management and to the European Marine Strategy.

2.3 North Sea Conference process

Subsequent to the 5th North Sea Conference which was held in Bergen from 20–21 March 2002, Sweden has taken over the coordination of activities under this framework. The North Sea Secretariat is hosted by the Swedish Environmental Protection Agency and has continued the coordination of work under the Committee of North Sea Senior Officials (CONSSO), which last met in Stockholm on 22–23 October 2003 (ICES Representative: Environmental Data Scientist). The work has been organized into two issue groups: one on fisheries and the other on shipping (including transport of non-indigenous organisms in ballast water).

2.4 Helsinki Commission (HELCOM)

The Environmental Data Scientist participated in HELCOM MONAS 5 which was held in Helsinki, Finland, on 24–26 April 2003.

The ICES advice (from ACME) to HELCOM in response to requests regarding monitoring and assessment issues was presented at the main MONAS meeting in Gdynia, Poland, on 20–24 October 2003 (ICES Representative: Environment Adviser). ICES advice (from ACE) in response to requests regarding biodiversity and ecosystem requests will be presented at the meeting of HELCOM HABITAT to be held in May 2004.

In addition, the General Secretary represented ICES at the 24th meeting of the Helsinki Commission in Bremen on 25 June, as well as the Joint Ministerial Meeting of the Helsinki Commission and OSPAR Commissions, held in Bremen, Germany on 25–26 June 2003.

2.5 North-East Atlantic Fisheries Commission (NEAFC)

ICES provided NEAFC with advice as in previous years in accordance with the MoU between NEAFC and ICES. The Fisheries Assessment Scientist participated in an extraordinary meeting of NEAFC on 13–15 May 2003 concerning the regulation of the blue whiting fishery. At this meeting the draft revised MoU between NEAFC and ICES was also discussed.

The Chair of ACFM, the Fisheries Assessment Scientist, and the Scientific Secretary (Fisheries) represented ICES at the annual NEAFC Meeting on 11–14 November 2003. At this meeting advice on Norwegian springspawning herring, mackerel, blue whiting, redfish, Rockall haddock, and deep-water species was presented.

2.6 North Atlantic Salmon Conservation Organisation (NASCO)

On 9 May ICES provided NASCO with advice in accordance with the MoU between NASCO and ICES, and in response to the NASCO request for advice. Walter Crozier (UK), Chair of the North Atlantic Salmon Assessment Working Group, presented this advice to the

Annual Meeting of NASCO, which was held in Edinburgh from 2–6 June 2003.

At the same NASCO Meeting, the General Secretary raised the matter of NASCO paying a share of the ACFM Chair's stipend. As a result of which NASCO agreed to participate in funding the scheme. NASCO also agreed to co-sponsor the ICES Symposium on "Interactions between Cultivated and Wild Diadromous Fish Species".

2.7 International Baltic Sea Fishery Commission (IBSFC)

The Fisheries Adviser participated in the IBSFC Long-Term Management Working Group in Kracow, Poland, from 25–27 June 2003. The ACFM Chair and the Fisheries Adviser participated in the Annual Meeting of IBSFC held in Vilnius from 29 September to 3 October 2003. On both occasions IBSFC discussed the ICES advice and the management consequences for the Baltic Sea fish stocks.

2.8 European Commission (EC)

DG-Fisheries

ICES continued to provide EC DG-Fisheries with advice as in previous years, and an observer from DG-Fisheries was present at the ACFM and ACE meetings in October 2002, in May 2003, and in October 2003. The ACFM Chair presented the ICES advice at various EC meetings in Brussels on 16 September 2003 on the Baltic Fish Stocks, and on 28–29 October on stocks in EU waters of the Northeast Atlantic.

ICES continues to maintain close contact with the EC. During the ASC, the MCAP Chair, the outgoing and incoming ACFM Chairs, and the Fisheries Adviser met with high-level DG-Fisheries officials. At these meetings the form and timeliness of the advice were reviewed and a number of more strategic issues related to the revision of the CFP were discussed, e.g. the influence of regionalisation of the CFP, and the multi-annual management of the ICES Advisory Process.

The General Secretary and the ACFM Chair participated in a meeting in Brussels on 19 May at DG-Fisheries' invitation to discuss the Commission's Communication on "Temporary Scientific and Technical Advice for Community Fisheries Management". Representatives from the EU Member States and Applicant Countries took part.

The Fisheries Adviser took part in a seminar on "Development of Preliminary Indicators of Environmental Integration of Common Fisheries Policy" which was held in Brussels on 22 May 2003.

The General Secretary and the Chair of ACFM participated in the trilateral meeting between national fisheries research institutions, the national fisheries administrations, the Commission, and representatives from STECF, GFCM, and the JRC, which was held on 16 September in Brussels.

DG-Environment

A representative of DG-Environment took part in the ACE meeting in May as an observer.

Several activities have been initiated by DG-Environment to further develop the European Marine Strategy. These include the establishment of an Inter-Organisational Consultation Forum and several Working Groups to prepare aspects of the Marine Strategy.

The Inter-Organisational Consultation Forum (IOCF) was created to replace the Inter-Regional Forum under the EEA. The EC (DG-Environment) chairs the IOCF, which includes representatives of all relevant regional environmental organisations, including ICES. This Forum met for the first time at ICES Headquarters on 9 July 2003 to discuss the overall scope for the work of the Forum in relation to the development of the Marine Strategy.

ICES has been requested by DG-Environment to work as a co-leader in the development of an ecosystem approach to marine management in relation to the European Marine Strategy. This work is conducted to provide input to the EC's Working Group on an Ecosystem Approach to the Management of Human Activities (EAM) (Lead: EC; Co-Lead: ICES).

Another group established for the Marine Strategy is the Working Group on European Monitoring and Assessment (EMMA) (Lead: EC; Co-Lead: EEA). The first meeting of EMMA was held on 9 October 2003 in Copenhagen (ICES Representative: Environment Adviser). One outcome of this meeting is the request that ICES work with the EEA and the regional Commissions, utilising ICES as their data centre for environmental monitoring data, to develop a proposal for a test of the Reportnet software as a tool for exchanging monitoring data.

European Environment Agency (EEA)

Discussions have been held with the Project Officer for marine issues at the EEA concerning cooperation on data issues, based on the recurring need for access to marine environmental data by the EEA for the preparation of environmental indicators, but there has been no outcome as yet.

The Secretariat assisted the EEA by providing a draft text for inclusion in a document on Fisheries Indicators. ICES also provides data on nutrients and contaminants in the marine and coastal environment on an annual basis for use in the preparation of Indicator Fact Sheets by the EEA.

At the 2003 Statutory Meeting the Council approved a Memorandum of Understanding between the EEA and ICES.

2.9 Food and Agriculture Organisation of the UN (FAO)

ICES continues to collaborate with FAO within the framework of the 1996 ICES/FAO Memorandum of Understanding. The Fisheries Adviser continues to develop the presentation of information on fish stocks status and trends in a joint project with ICCAT, NAFO, and national organisations such as NOAA (USA), DFO (Canada) and the FIGIS/FIRMS project. The partnership agreement covering this cooperation has been finalised.

FAO has agreed to co-sponsor an Symposium on Sustainability in Fisheries in 2005.

ICES joined forces with FAO and held its meeting of the Planning Group on Sampling from Commercial Fisheries in Rome. FAO supported this meeting and several scientists from GFCM participated.

2.10 North Sea Commission Fisheries Partnership (NSCFP)

The Fishery Assessment Scientist participated in a meeting of NSCFP which was held from 17–21 February 2003 in Newcastle, UK. With respect to ICES, the major topic of interest was the planning of the review of the assessments of the North Sea herring, haddock, and sole to take place in 2003. The herring review was moved to the NSCFP meeting in Hamburg in late June. NSCFP reviewed the North Sea cod, haddock, and sole stocks on 6–7 October at ICES Headquarters.

2.11 EUROSTAT

ICES has signed the partnership agreement with EUROSTAT. This will allow a smoother cooperation between EUROSTAT and ICES for the compilation of Atlantic fisheries statistics.

The basic principles are:

- 1. ICES maintains its obligations in the fisheries statistics field, e.g. maintains membership of CWP and will continue to publish fisheries statistics on CD-Rom.
- 2. Countries will only need to submit STATLANT data to one of the two agencies (EUROSTAT or ICES).
- 3. Each agency will vet the data it receives and will exchange vetted data. EUROSTAT will compile the completed database in FishStatPlus format for ICES.
- 4. ICES will focus on extending the data series back to before 1973, and make these data available on a CD-Rom.

2.12 OECD

The General Secretary accepted an invitation from OECD to take part in a Round Table meeting in Paris on 5–6 June on the subject of Sustainable Development of Global Fisheries. Other participants included the Ministers of Fisheries of Namibia, Mauritania, Iceland, New Zealand, and the EC Commissioner for Agriculture and Fisheries.

2.13 Coordinating Working Party on Fisheries Statistics (CWP)

CWP met from 20–24 January 2003 at IOTC, Seychelles. ICES was represented by the Fisheries Adviser. Issues on fisheries statistics were discussed and the agenda for CWP-20 was set up. A particular issue of interest to ICES was the discussion of a revision of the statistical divisions to accommodate the increased needs for statistics for assessment of deep water fish species, and NEAFC's need to provide catch statistics in the NEAFC regulatory area, i.e. outside the 200 nautical mile limit. In the margins of this meeting, progress in the FIGIS/FIRMS project was reviewed.

2.14 United Nations Environment Programme (UNEP)

In relation to the ICES participation in the UNEP development of a Global Network on Monitoring of Chemicals on Persistent Organic Pollutants (POPs), the Environment Adviser participated in a UNEP Workshop to Develop a Global POPs Monitoring Programme to Support the Effectiveness Evaluation of the Stockholm Convention, in Geneva, Switzerland on 24–27 March 2003. She chaired the Working Group on Data Communications, one of the five Working Groups established under the Workshop. It is anticipated that the Stockholm Convention on POPs will come into force within the next twelve months.

2.15 GESAMP

ICES did not send a representative to the 33rd Session of the IMO/FAO/UNESCO-IOC/WMO/WHO/IAEA/UN/ UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), held at FAO in Rome, Italy on 5–9 May 2003. Relevant items from this meeting included the review of the report of the Working Group on Environmental Exposure Models for Application in Seafood Risk Assessment, and the transfer of alien species via ships.

2.16 IOC

In implementation of Council Resolution C.Res.2002/4Del02, the President, First Vice-President, General Secretary, and Oceanographer visited IOC headquarters in Paris on 10 June to discuss ways to strengthen cooperation between ICES and IOC (see Doc. C.M. 2003/Del:14).

The 17th Session of the IOC Committee on International Oceanographic Data and Information Exchange (IODE) was held in Paris, France, from 3-7 March 2003. ICES was represented by the Oceanographer. The Session dissolved the function of ICES as IODE's RNODC for FORMATS which was set up originally in the early 1980s. This was because the evolution of the internet had made the function of this RNODC redundant. The Session also considered the report of the ICES/IOC Steering Group on the Development of Marine XML, and recognised the important advances it had made. The work of this Group is seen as an integral part of the Ocean Information Technology Project which is a collaborative effort between IODE and the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM).

Close collaboration continued with IOC in various joint activities, including the jointly sponsored Working Group on Harmful Algal Bloom Dynamics, the Steering Group on GOOS, and the Study Group on Developing Data Exchange Systems Using XML (see above).

3 Meetings and other activities organised by the Council, 2003–2006

3.1 Symposia

<u>2003</u>: ICES/PICES/GLOBEC Symposium on "The Role of Zooplankton in Global Ecosystem Dynamics: Comparative Studies from World Oceans" took place in Gijon, Spain, 20–23 May 2003. The Steering/Organising Committee comprised the following: ICES: Miguel Alcaraz (Spain), Peter Wiebe (USA), and Luis Valdés, (Spain); GLOBEC: Roger Harris (UK) and Serge Poulet (France); PICES – Tsutomu Ikeda (Japan) and William T. Petersen (USA).

<u>2003</u>: Symposium on "Fish Behaviour in Exploited Ecosystems" took place in Bergen, Norway, 23–26 June 2003. Co-Conveners: Å. Bjordal (Norway) and Stephen Walsh (Canada). The Scientific Steering Committee comprised Anders Fernö (Norway), Anthony D. Hawkins (UK), Takafumi Arimoto (Japan), François Gerlotto (Chile), Chris Glass (USA), John Gunn (Australia), and Wilfried Thiele (FAO). The Co-sponsors were FAO; the Institute of Marine Research, Bergen, Norway; the Northwest Atlantic Fisheries Centre; and the University of Bergen.

<u>2004</u>: ICES Symposium on "The Influence of Climate Change on North Atlantic Fish Stocks, Bergen, Norway, 11–14 May 2004. Co-Conveners: Robin Cook (UK), K. Drinkwater (Canada), and Harald Loeng (Norway). See http://www.imr.no/2004symposium/

A Scientific Steering Committee, including Keith Brander (ICES), Bob Dickson (UK), Steingrímur Jónsson (Iceland), Brian Rothschild (USA), Michael Sinclair (Canada) Nils Chr. Stenseth (Norway), and Øyvind Ulltang (Norway) has been established to assist the Co-Conveners in planning the Symposium. The Cosponsors are the Institute of Marine Research, Bergen, Norway; GLOBEC; and the City of Bergen.

<u>2004</u>: Symposium on "Gadoid Mariculture: Development and Future Challenges", Bergen, Norway, 13–16 June 2004. Co-Conveners: Olaf S. Kjesbu (Norway), Geir L. Taranger (Norway), and Edward A. Trippel (Canada).

See http://www.imr.no/gadoid_mariculture/

A Scientific Steering Group including Lawrence Buckley (USA), Lesley McEnvoy, (UK), Anne Berit Skiftesvik (Norway), and Josianne Støttrup (Denmark) has been established to assist the Co-Conveners in planning the Symposium. The Co-sponsors of this Symposium are the Institute of Marine Research, Bergen, Norway; the Research Council of Norway; the National Oceanic and Administration (NOAA); USA and Fisheries and Oceans, Canada.

<u>2005</u>: ICES/FAO Symposium on the "Precautionary Approach to Fisheries Management: Lessons Learned and Future Directions" will be held in Chile for four days in 2005 with Frans van Beek (Netherlands), Jorge Csirke (FAO), and Olle Hagström (EC, DG-Environment) as Co-Conveners.

A Scientific Steering Group will be established which will include representatives from FAO and Chile. The General Secretary will solicit appropriate co-sponsorship in addition to that already agreed with FAO.

<u>2005</u>: An ICES/NASCO Symposium on the "Interactions between Cultivated and Wild Diadromous Fish Species" will be held at a venue to be decided for three days in 2005, with Lars Petter Hansen and two, possibly three, Co-Conveners.

A Scientific Steering Group will be established to plan and implement the Symposium.

The General Secretary will solicit appropriate cosponsorship in consultation with the Co-Conveners and the Chair of the Diadromous Fish Committee.

2006: An ICES/PICES Symposium on "Marine Bioinvasions" will be held at a location to be decided on the east coast of USA for 3 days in early 2006.

3.2 Bureau

The Bureau (Chair: Pentti Mälkki, President of ICES) met in Copenhagen on 11 and 12 February 2003. The main agenda items were the ICES Secretariat Workplan for 2003, the Draft Budget for 2004, the Draft Forecast Budget for 2005 (including Programmatic Budgets), and Procedures for Increasing Transparency of the ICES Advisory Process.

The mid-term meeting of the Bureau was held in Copenhagen on 12–13 June 2003. Principle topics on the agenda included the financial Status Report on the Accounts as of 31 May, the Consultative Committee

Report, and a review of developments in relation to the ICES advisory procedures.

3.3 Advisory Committees

ACFM

Since the 2002 Annual Science Conference, ACFM (Chair: Poul Degnbol) has held a full meeting at ICES Headquarters from 27 May to 5 June 2003. Sub-Groups met for the first four days. The Chairs of relevant Assessment Working Groups were invited to the Sub-Group meetings. A plenary meeting to formulate the advice followed the Sub-Group meetings. Among the topics discussed and agreed were changes in the arrangements for the 2004 ACFM meetings. It was agreed that the review process will be done in separate groups outside the main ACFM meeting, thus resulting in a shorter ACFM meeting. A system with benchmark–update assessments will be introduced in the Fish Stock Assessment Working Groups.

ICES has agreed with the NAFO Science Council that the shrimp (*Pandalus borealis*) assessments will be made at joint meetings. Each organisation will maintain its assessment groups. The first meeting in this format is planned for 27 October to 5 November 2004 at ICES Headquarters.

ACME

ACME (Chair: Stig Carlberg) met from 16–20 June 2003 to formulate advice in response to requests from the OSPAR Commission and HELCOM, and to provide information and advice on other relevant issues.

ACE

ACE (Chair: Hein-Rune Skjoldal) met from 19–23 May 2003 to formulate advice in response to requests from EC DG-Fish, OSPAR, and HELCOM, and to provide information and advice on other relevant issues.

3.4 Working/Study Group Meetings and Workshops

A list of the meetings of Working, Study, and other Groups and Workshops specified in the Council Resolutions from the 2002 Statutory Meeting which have taken place during the intersessional period is given in **Annex 2.**

4. Secretariat matters

4.1 New ICES telephone number

People can now dial directly to a staff member's desk, by calling (+45) 33 38 6x xx, where x is the individual extension number as shown on the ICES Website www.ices.dk. The switchboard number is (+45) 33 38 67 00.

4.2 Staffing

The total number of people employed in the ICES Secretariat during 2003 is 35. They have occupied 13 posts at the Professional level, and 22 posts at the General Service level.

Neil Holdsworth (UK) resigned from his post as Data Systems Analyst on 31 December 2003.

4.3 Distinguished Visitors

On 24 January 2003 the General Secretary was visited by the French Ambassador in Copenhagen, H.E. Mr Régis de Belenet accompanied by the First Secretary and Press Officer Ms Marion Dehais. They discussed the role of ICES with particular relation to France.

On 31 January 2003 ICES received a visit from Professor K.A. Bekiashev, Adviser to the Chairman of the State Committee for Fisheries of the Russian Federation and Yury Piskarev, Representative of the State Committee for Fisheries of the Russian Federation in Denmark. They discussed the structure and processes of ICES, particularly relating to fishery matters and scientific advice.

On 26 May, the General Secretary received a visit from Mr Monde Mayekiso, Chief Director (Research) of the Marine and Coastal Management Directorate of the Department of Environmental Affairs and Tourism, South Africa.

4.4 Communications Officer

The Communications Officer spent the first few months of the year working almost full-time on the report "Environmental Status of the European Seas" for the German government. The 70-page report was delivered on time in March, and was highly praised by the customer, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

Special thanks should be given to the work put into it by the authors and by Secretariat colleagues, in particular Louise Scharff, Vivian Piil, and Søren Lund.

Press queries have been steady on a wide range of other issues with a few calls every week from European journalists along with general information requests. It is particularly encouraging that journalists are using ICES as an initial starting point for marine related stories.

5 Publications

5.1 ICES Journal of Marine Science (Journal du Conseil)

The Institute for Scientific Information (ISI) impact factor for the *Journal* for 2002 (figure released in 2003) was 1.76. This placed the *Journal* in 12th place among the 73 journals tallied in the category "Marine and Freshwater Biology", and most notably in 4th place among the 37 journals tallied in the category "Fish and Fisheries". Of course there are many, many more journals published in these fields than the numbers mentioned above, but only the top ones are registered. Given the competition and differing resources available, the impact factor of 1.76 is extremely good, and reflects very well on the ICE editors and on the publishers (Elsevier).

Volume 59(5), pages 861–1132, was off press in October 2002 as scheduled. It carries the proceedings stemming from the ICES Symposium on "Capelin – What Are They Good For?" held in Reykjavík, 23–27 July 2001. This number was also registered as Volume 216 in the *ICES Marine Science Symposia* series. (Note: the previous proceedings number to be published in the *ICES Journal* is Volume 58(5), designated as Volume 214 in the *MSS* series; *MSS* Volume 215 was not included in the *Journal*.)

Volume 59 includes a special Supplement (constituting a seventh issue, one more than the customary six in a volume), pages S1–S364, which was also issued in October 2002. It contains the proceedings of the "Seventh International Conference on Artificial Reefs and Related Aquatic Habitats", or "7th CARAH", held in San Remo, 7–11 October 1999. It was registered as Volume 217 in the *ICES Marine Science Symposia* series. With its status as a Supplement, this number was issued under conditions of full cost recovery, with all expenses covered by external funds secured by the CARAH Chair and principally provided by the EC. This is the first time ICES has published a set of proceedings stemming from a conference when it was not actively involved in the planning or conduct of the meeting.

Volume 59(6), pages 1133–1368, was off press in late November, just before its cover date of December 2002. With its final page count of 1368 added to the 364 pages of the Supplement, the page budget for Volume 59 (1424 pages) was exceeded by 308, but as noted, the extra pages were covered by external funding.

For Volume 59 in 2002 the rates were set at GBP 459 and GBP 137 respectively for institutional and personal subscriptions. Among other things, the increased rates (from the previous GBP 400 and GBP 119) made it possible to expand the page budget by approximately 100 (from 1312), used at the discretion of the Editor-in-Chief.

Volume 60(1), pages 1–176, was off press in mid-January, one month before its cover date of February 2003.

Volume 60(2), pages 177–434, was published in late April 2003, thus meeting its cover date.

Volume 60(3), pages 435–708, was off press as scheduled in June 2003. It carries Part 1 of the proceedings of the ICES Symposium on "Acoustics in Fisheries and Aquatic Ecology", which was held in Montpellier, 10–14 June 2002. This number was also designated as Volume 218 in the *ICES Marine Science Symposia* series. Part 2 of the proceedings was published in *Aquatic Living Resources*, Volume 16(3), pages 105–339, in July 2003.

Volume 60(4), pp. 709–914, a regular mixed issue, was published in July, a month before its cover date of August 2003.

Volume 60(5), pp. 915–1166, met its cover date of October 2003.

The final number for the year, Volume 60(6), pp. 1167–1400, was issued as scheduled in December 2003. In addition to papers on mixed topics it carries an editorial by Niels Daan, concluding his two terms as Editor-in-Chief (1998–2003), as well as an article by the current Editors marking publication of the sixtieth volume of the *ICES Journal* with a brief overview of the series since the first volume was issued in 1926.

Volume 61(1), with a cover date of February 2004, will carry an editorial by Andrew I. L. Payne, the new Editorin-Chief appointed during the 2003 ICES Statutory Meeting, setting the scene and vision for the *Journal* for the next few years.

Starting in 2004, the previous allocation of six numbers to a volume will be increased to eight. Six regular mixed issues of approximately 150 pages each will be published according to the existing alternate-month schedule, and two symposium proceedings issues of approximately 250 pages each will be published as soon as they are ready. (For the time being, the current annual page allocation will be maintained.) Increasing the number of issues will have the great advantage of ensuring that standard papers can be published more quickly and according to a fixed schedule that is not subject to external interruptions, and similarly that symposium proceedings can be issued when convenient without disturbing the alternate-month schedule as has sometimes happened in the past.

The 2003 subscription rates for the *ICES Journal* in its traditional paper format were established in a slightly different way than previously, reflecting the shift of ownership of the Academic Press imprint from Harcourt to Elsevier Science. Institutional subscriptions for Volume 60 in 2003 were set at \in 796 for European countries and at USD 707 or JPY 85 948 for other countries, and personal subscriptions at respectively \notin 236, USD 222, or JPY 25 500. For 2004, the institutional rates for Volume 61

will be \notin 848, USD 735, or JPY 91600. Institutional subscriptions also continue to be available in different combinations of Web and paper versions (at varying rates determined by criteria established by Elsevier), with electronic versions playing an ever greater role in the proportion of the revenue received. Subscribers can download full-text versions of articles, usually several weeks before paper versions are off press, and non-subscribers can access tables of contents and abstracts of articles at <u>www.ScienceDirect.com</u>, which replaced the Academic Press platform, IDEAL, at the end of 2002. As the world's largest scientific full-text database, ScienceDirect has greatly increased the outreach of the *ICES Journal*.

The net profit for 2002 from the ICES / Academic Press (Elsevier) joint account for the *ICES Journal* was GBP 89 601, a sharp rise compared with the unadjusted figure of GBP 45 280 for 2001. In consequence, the ICES share for 2002, GBP 44 800, was also much greater than that for the previous year, GBP 27 049 after adjustment. The Secretariat received \in 65 207 as its share of the profit in April 2003. The increase is principally attributable to income derived from electronic subscriptions, which for 2002 increased to 38% of the total, compared with 28% for the previous year.

5.2 ICES Marine Science Symposia (Actes du Symposium)

Volume 200 and most others beginning with 202 have been or will be included in the series *ICES Journal of Marine Science*, but will retain a place in the consecutive numbering system of *ICES Marine Science Symposia (MSS)*. (Volume 201, published in 1995, Volume 215, published in 2002, and Volume 219, published in 2003, were issued solely in the *MSS* series.)

Volumes 200 and 202–214, 216, 217, and 218 are described in previous Reports or the current one under the *ICES Journal of Marine Science* as, respectively, Volumes 52(3/4), 53(2), 53(6), 54(4), 54(6), 55(4), 56(6), 56 Supplement, 57(2), 57(3), 57(5), 57(6), 58(2), 58(5), 59(5), 59 Supplement, and 60(3).

Owing to their special nature, two proceedings volumes were scheduled for publication in this series only, and not in the *ICES Journal*.

The first comprises contributions to the ICES Symposium on "100 Years of Science under ICES", a meeting held in Helsinki from 1 to 4 August 2000 as one of the principal "Centenary events". The 610-page volume was published in September 2002 as Volume 215 in the series.

The second contains the proceedings of the ICES Symposium on "Hydrobiological Variability in the ICES Area, 1990–1999", held in Edinburgh from 8 to 19 August 2001. The 453-page volume was issued in September 2003 as Volume 219.

5.3 ICES Cooperative Research Report (*Rapport des Recherches Collectives*)

The following numbers in the *ICES Cooperative Research Report* series have been published since the last update on this series:

- No. 252: Report of the ICES/GLOBEC Workshop on the Dynamics of Growth in Cod, dated July 2002 and issued in September.
- No. 253: ICES Science 1979–1999: The View from a Younger Generation, dated September 2002.
- No. 254: Report of the ICES Advisory Committee on Ecosystems, 2002, dated December 2002.
- No. 255: Report of the ICES Advisory Committee on Fishery Management, 2002 (Parts 1–3), dated December 2002.
- No. 256: Report of the ICES Advisory Committee on the Marine Environment, 2002, dated February 2003.
- No. 257: Proceedings of the Baltic Marine Science Conference, dated April 2003.
- No. 258: Seabirds as Monitors of the Marine Environment, dated May 2003.
- No. 259: The 2002/2003 ICES Annual Ocean Climate Status Summary, dated June 2003.
- No. 260: Stockholm 1999 Centenary Lectures, dated June 2003.
- No. 261: Report of the ICES Advisory Committee on Fishery Management, 2003 (Parts 1–3), dated December 2003.
- No. 262: Report of the ICES Advisory Committee on Ecosystems, 2003, dated December 2003.

Additional CRRs covered by Council Resolutions are in the pipeline in various stages of preparation.

5.4 ICES Fisheries Statistics (Bulletin Statistique des Pêches Maritimes)

Fisheries catch statistics now appear on CD-ROM. The most recent version (October 2003) includes nominal catch statistics collected under the STATLANT programme, for the Northeast Atlantic for 1973–2001, presented using FishStat Plus software made available by FAO. Catch statistics for the entire Atlantic for 1950–1999 were also included in a file developed by EUROSTAT, CCAMLR, ICCAT, NAFO, FAO, and ICES. Statistics for the Northeast Atlantic for 1973–2000 are also available on the ICES Website.

5.5 ICES Identification Leaflets for Plankton (Fiches d'Identification du Plancton)

Two leaflets, No. 186 on Dendrobranchiata and No. 187, entitled "Numerical and Taxonomic Index of ICES Plankton Identification Leaflets, 1939–2001", were issued in November 2001. Although no other manuscripts are in hand, several have been promised, including one on *Clausocalanus*. During an ICES Zooplankton Taxonomy Workshop held in Plymouth, the need for both new and revised leaflets was discussed.

The entire series (1939–2001), incorporating older leaflets published under other series titles, was made available during the autumn of 2003 at:

http://www.ices.dk/products/fiche/plankton/start.pdf. It will later be published on CD-ROM as well.

5.6 ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish (Fiches d'Identification des Maladies et Parasites des Poissons, Crustacés et Mollusques)

The most recent publications in this series are Nos. 51– 56 on respectively *Stephanostomum tenue*, Gaffkemia, *Diplostomum spathaceum*, Pasteurellosis, *Flexibacter maritimus*, and Streptococcosis, issued in September 1999. The Editor has received and prepared for publication four new manuscripts on respectively: SPX disease, brown ring disease, M-47 disease, and salmon pancreas disease. Revisions of earlier manuscripts are in the pipeline, and several new titles have been proposed, as well as other candidates for updating; prospective authors have been approached in all cases. Plans for digitizing the "Disease Leaflets" are in a preliminary stage.

5.7 ICES Techniques in Marine Environmental Sciences

The following manuscripts are now complete and are expected to be published in early 2004:

- No. 32: Guidelines on quality assurance of chemical measurements in the Baltic Sea.
- No. 33: Guidelines on quality assurance of biological measurements.
- No. 34: Biological effects of contaminants: quantification of δ-aminolevulinic acid dehydratase (ALA-D) activity in fish blood.
- No. 35: Measurement of lysosomal membrane stability in selected marine organisms.
- No. 36: Biological effects of contaminants: Use of intersex in the periwinkle (*Littorina littorea*) as a biomarker of tributyltin pollution.

One manuscript that was originally approved for publication in the ICES Cooperative Research Report

series was deemed more suitable for publication as a technical leaflet and will be published in this series:

No. 37: Manual on precision and accuracy of tools in recruitment studies.

The numbers listed below (working titles) were covered by Council Resolutions in 2002, and the manuscripts are in different stages of preparation:

Biological effects of contaminants: PAH metabolites in bile.

Biological effects of contaminants: Scope for growth in mussels.

Biological effects of contaminants: Oyster (*Crass-ostrea gigas*) embryo bioassay.

Guidelines for the study of the epibiota of subtidal environments.

5.8 ICES Annual Report

The *ICES Annual Report for 2002* was issued in May 2003, in a revised format incorporating illustrations and figures in colour. It was accompanied by a CD-ROM (completed in March) containing most of the ICES 2002 CM documents on which the Annual Report was based.

5.9 ICES CIEM Newsletter

The issue which would normally have appeared early in 2003 was replaced by the publication of the special report "Status of the European Seas" in March 2003 (see [Section 4.4] [page 6]).

Annex I

Meetings at which ICES was represented by observers

- 1. ASFA Advisory Board Meeting, Havana, Cuba, 15-18 July 2003. ICES Representative: ICES Librarian
- 2. BAFICO. 8th Baltic Fisheries Cooperation Seminar, St. Petersburg, Russia, 21–23 October 2003. ICES Representative: Fisheries Adviser.
- 3. EC DG-Environment Working Group on European Monitoring and Assessment (EMMA), Copenhagen, 9 October 2003. ICES Representative: Environment Adviser.
- 4. EC DG-Fisheries Meeting on the Provision of Scientific Advice in Fisheries, Brussels, Belgium, 19 May 2003. ICES Representatives: General Secretary and Chair of ACFM.
- 5. EC DG-Fisheries. Development of Preliminary Indicators of Environmental Integration of Common Fisheries Policy, Brussels, Belgium, 22 May 2003. ICES Representative: Fisheries Adviser.
- 6. EC Inter-Organisation Consultation Forum, ICES Headquarters, 9 July 2003. ICES Representatives: General Secretary, Environment Adviser, and Fisheries Adviser.
- 7. EC Working Group on European Marine Monitoring and Assessment, Copenhagen, 9 October 2003. ICES Representative: Environment Adviser.
- 8. EC DG-Fisheries *ad hoc* meeting on ICES-EC MoU, Brussels, Belgium, 17 July 2003. ICES Representative: Fisheries Adviser.
- 9. EC DG-Fisheries. Trilateral meeting between national fisheries research institutes, national fisheries administrators and representatives from STECF, GFCM and the JRC, Brussels, Belgium, 16 September 2003. ICES Representatives: General Secretary and Fisheries Adviser.
- 10. EC DG-Fisheries. Review of the Final Report on Ecosystem Indicators for use in Fisheries Advice, Brussels, Belgium, 28–29 October 2003. ICES Representative: Fisheries Adviser.
- 11. EEA. Presentation of Indicator Report for Fisheries, Copenhagen, 20 June 2003. ICES Representative: Fisheries Adviser.
- 12. EEA Expert meeting on Climate Change State and Impact Indicators, Copenhagen, 26 June 2003. ICES Representative: ICES/GLOBEC Coordinator.
- 13. EEA. Inter-Organisational Consultation Forum (IOCF), ICES Headquarters, 9 July 2003. ICES Representative: Environment Adviser.
- 14. EEA meeting on Marine Habitat Mapping, Copenhagen, 25 July 2003. ICES Representative: Environmental Data Scientist.
- 15. ETG. The Eutrophication Task Group, London, UK, 7–10 October 2003. ICES representative: Science Coordinator/Oceanographer.
- 16. EU Quality of Life and Management of Living Resources. Framework for the Evaluation of Management Strategies (FEMS), Sustainable Agriculture, Fisheries and Forestry and Integrated Development of Rural Areas including Mountain Areas, Madrid, Spain, 21–22 January 2003. ICES Representative: Fisheries Assessment Scientist.
- 17. EU Multishare Concerted Action, Barcelona, Spain. 23–26 January 2003. ICES Representative: Fisheries Assessment Scientist.

- 18. FAO. FIGIS-FIRMS Status Meeting, Indian Ocean Tuna Commission (IOTC), Victoria, Seychelles, 20 January 2003. ICES Representative: Fisheries Adviser.
- FAO. 20th Session of Coordinating Working Party on Fishery Statistics (CWP-20), Victoria, Seychelles, 21–24 January 2003. ICES Representative: Fisheries Adviser.
- 20. FAO. Third Meeting of the FAO Regional Fisheries Body, Rome, Italy, 3–4 March 2003. ICES Representative: General Secretary.
- 21. FAO FIGIS-FIRMS Status Meeting, Rome, Italy, 30 June to 2 July 2003. ICES Representative: Environment Adviser.
- 22. HELCOM MONAS 5, Helsinki, Finland 23–24 April 2003. ICES Representative: Environmental Data Scientist.
- 23. HELCOM/OSPAR Joint Ministerial Meeting, Bremen, Germany, 25–26 June 2003. ICES Representatives: President and General Secretary.
- 24. HELCOM BSRP Commencement Meeting, Helsinki, Finland, 9 October 2003. ICES Representative: General Secretary.
- 25. HELCOM Monitoring and Assessment Group, Gdynia, Poland, 20–24 October 2003. ICES Representative: Environment Adviser.
- 26. IBSFC Extraordinary Meeting, Krakow, Poland, 25–27 June 2003. ICES Representatives: Fisheries Adviser and Chair of ACFM.
- 27. IBSFC Annual meeting, Vilnius, Lithuania, 29 September to 3 October 2003. ICES Representatives: Chair of ACFM and Fisheries Adviser.
- 28. ICES/FAO Symposium on Fish Behaviour in Exploited Ecosystems, Bergen, Norway, 23–26 June 2003. ICES Representatives: President and Communications Officer.
- 29. ICES/GLOBEC Workshop on a Synthesis of the Cod and Climate Programme, New Bedford, MA, USA, 5–7 May 2003. ICES Representative: ICES/GLOBEC Coordinator.
- 30. ICES. Third International Zooplankton Production Symposium, Gijón, Spain, 20–23 May 2003. ICES Representatives: President and Communications Officer.
- 31. IOC. 17th Session of the IOC Committee on International Oceanographic Data and Information Exchange (ODE), Paris, France, 3–7 March 2003. ICES Representative: Science Coordinator/Oceanographer.
- 32. IOC. High-Level meeting with IOC, Paris, France, 10 June 2003. ICES Representatives: President, First Vice-President, General Secretary, Science Coordinator/Oceanographer.
- NAFO Scientific Council Annual Meeting, Dartmouth, N.S., Canada, 15–19 September 2003. ICES Representative: Fernando González Costas.
- 34. NASCO 20th Annual Meeting, Edinburgh, UK, 2–6 June 2003. ICES Representative: General Secretary.
- 35. NEAFC Extraordinary Meeting, London, UK, 14–15 May 2003. ICES Representative: Fisheries Assessment Scientist.
- 36. NEAFC 22nd Annual Meeting, London, UK, 10–14 November 2003. ICES Representatives: Chair of ACFM, Fisheries Assessment Scientist, and Scientific Secretary.
- 37. NSCFP. 8th Meeting of the North Sea Commission Fisheries Partnership, Newcastle, UK, 20–21 February 2003. ICES Representative: Fisheries Assessment Scientist.

- 38. NSCFP Meeting of the North Sea Commission Fisheries Partnership, ICES Headquarters, 5–6 October 2003. ICES Representative: Fisheries Adviser.
- 39. OECD Round Table on Sustainable Development, Paris, France, 5–6 June 2003. ICES Representative: General Secretary.
- 40. OSPAR Biodiversity Committee (BDC), Dublin, Ireland, 20–24 January 2003. ICES Representative: Environment Adviser.
- 41. OSPAR Working Group on Concentrations, Trends and Effects of Substances in the Marine Environment (SIME), London, UK, 18–20 March 2003. ICES Representative: Environment Adviser).
- 42. OSPAR Environmental Assessment and Monitoring Committee (ASMO), Svolvær, Norway, 28 April to 2 May 2003. ICES Representative: Environment Adviser.
- 43. OSPAR Working Group on Monitoring, ICES Headquarters, 16–18 December 2003. ICES Representatives: Environment Adviser, Data Scientist, Data Manager and Data System Analyst.
- 44. PICES 12th Annual meeting, Seoul, Republic of Korea, 10–18 October 2003. ICES Representatives: General Secretary and Chris Frid (UK) representing ICES' view on ecosystem approach.
- 45. Swedish Fishermen Association, Malmö, Sweden, 22 August. ICES Representative: Fisheries Adviser.
- 46. UNEP Workshop to Develop a Global POPs Monitoring Programme to Support the Effectiveness Evaluation of the Stockholm Convention, Geneva, Switzerland, 24–27 March 2003. ICES Representative: Environment Adviser.
- 47. University of Tromsø, Norway. Seminar on Fisheries Management and Fisheries Research, Tromsø, Norway, 23–24 April 2003. ICES Representative: Fisheries Adviser.
- 48. WG 2 Expert Meeting on the Detection and Attribution of the Effects of Climate Change, New York, USA, 17–19 June 2003. ICES Representative: ICES/GLOBEC Coordinator.

Annex 2

ICES Working/Study/Steering Group Meetings and Workshops in 2003

Management Committee on the Advisory Process

Study Group on ACFM, ACE and ACME Working Group Working Protocols (C.Res. 2002/2MCAP01) Chair: Gerd Hubold Held at ICES Headquarters, 20–22 February 2003 Countries represented: Denmark:1, Estonia:1, Latvia:1, Netherlands:1, Sweden:2, UK:1, as well as Chairs of MCAP, ACE, ACFM, Fisheries Adviser, Environment Adviser Report available as Doc. C.M. 2003/MCAP:02

Advisory Committee on Fishery Management

Study Group on Biological Reference Points for Northeast Arctic Cod (C.Res. 2002/2ACFM18) Chair: Yuri A. Kovalev Held in Svanhod, Norway, 13–17 January 2003 Countries represented: Norway:9, Russia:8, UK:1 Report available as Doc. C.M. 2003/ACFM:11

Study Group on the Revision of Data for North Sea Herring (C.Res. 2002/2ACFM19) Chair: Christopher Zimmermann Held at ICES Headquarters, 27–29 January 2003 Countries represented: Denmark:2, Germany:1, Netherlands:1, Norway: 2, UK:2 Report available as Doc. C.M. 2003/ACFM:10

Workshop on Catch Control, Gear Description and Tag Reporting in Baltic Salmon (C.Res. 2002/2ACFM20) Chair: Stig Pedersen Held in Rønne, Denmark, 27–29 January 2003 Countries represented: Denmark:3, Estonia:2, Finland:4, Latvia:1, Sweden:1 Report available as Doc. C.M. 2003/ACFM:12

Workshop to Develop Improved Methods for Providing Harp and Hooded Seal Harvest Advice (C.Res. 2002/2ACFM21) Chair: Richard Merrick Held in Woods Hole, MA, USA, 11–13 February 2003 Countries represented: Canada:3, Denmark:1, Norway:5, Russia:2, USA:10 Report available as Doc. C.M. 2003/ACFM:13

ICES/NSCFP Study Group on the Incorporation of Additional Information from the Fishing Industry into Fish Stock <u>Assessment</u> (C.Res. 2002/2ACFM22) Co-Chairs: Hugo Anderson (NSCPF) and Adriaan Rijnsdorp (ICES) Held in Newcastle, UK, 17–19 February 2003 Countries represented: Belgium:1, Denmark:4, Germany:2, Ireland:2, Netherlands:3, Norway:1, Sweden:1, UK: 11 Report available as Doc. C.M. 2003/ACFM:14

<u>Study Group on the Development of Fishery-based Forecasts</u> (C.Res. 2002/2ACFM24) Chair: Paul Marchal Held in Boulogne, France, 18–21 February 2003 Countries represented: Belgium:2, Denmark:3, France:2, Germany:1, Netherlands: 2, Spain:2, UK:3 Report available as Doc. C.M. 2003/ACFM:08 Study Group on Precautionary Reference Points for Advice on Fishery Management (C.Res. 2002/2ACFM23) Chair: Poul Degnbol Held at ICES Headquarters 24–26 February 2003 Countries represented: Norway:8, Russia:8, UK:1, as well as the Chair of ACFM Report available as Doc. C.M. 2003/ACFM:15

Planning Group on Commercial Catch, Discards and Biological Sampling (C.Res. 2002/2ACFM25) Chair: Jørgen Dalskov Held at FAO, Rome, Italy, 4–7 March 2003 Countries represented: Belgium:1, Denmark:2, Estonia:1, Finland:2, France;2, Germany:1, Latvia:1, Ireland:2, Netherland:2, Nortway:2, Portugal:2, Spain:2, Sweden:1, UK:4, USA:1. One participant from the European Commission Report available as Doc. C..M. 2003/ACFM:16

Herring Assessment Working Group for the Area South of 62° South (C.Res. 2002/2ACFM02) Chair: Else Torstensen Held at ICES Headquarters, 11–20 March 2003 Countries represented: Denmark: 3, Germany:3, Ireland:3, Netherlands:3, Norway:3, Sweden:1, UK:4 Report available as Doc. C.M. 2003/ACFM:17

Working Group on Nephrops Stocks (C.Res. 2002/2ACFM06) Chair: Mike Bell Held in Galway, Ireland, 18–26 March 2003 Countries represented: Belgium:1, Denmark:2, France:1, Ireland:3, Norway:1, Portugal:2, Spain:2, Sweden:1, UK:6 Report available as Doc. C.M. 2003/ACFM:18

Working Group on North Atlantic Salmon (C.Res. 2002/2ACFM03) Chair: Walther Crozier Held at ICES Headquarters, 31 March to 10 April 2003 Countries represented: Canada;4, Denmark:2, Finland:2, Iceland:2, Norway:3, Sweden:1, UK:1, USA:3 Report available as Doc. C.M. 2003/ACFM:19

Baltic Salmon and Trout Assessment Working Group (C.Res. 2002/2ACFM04) Chair: Ingemar Perä Held in Karlskrona, Sweden, 2–11 April 2003 Countries represented: Denmark:2, Estonia:1, Finland:3, Latvia:1, Poland:3, Russia:1, Sweden:3, UK:2 Report available as Doc. C.M. 2003/ACFM:20

Baltic Fisheries Assessment Working Group (C.Res. 2002/2ACFM05) Chair: Maris Pliksh Held at ICES Headquarters, 7–16 April 2003 Countries represented: Denmark:5, Estonia:1, Finland:3, Germany:3, Latvia:4, Poland:1, Russia:3, Sweden:3 Report available as Doc. C.M. 2003/ACFM:21

Arctic Fisheries Working Group (C.Res. 2002/2ACFM07) Chair: Sigbjörn Mehl Held in Pasaia, Spain, 23 April to 2 May 2003 Countries represented: Canada:1, Germany:1, Norway:13, Russia:11, Spain:4 Report available as Doc. C.M. 2003/ACFM:22 Northern Pelagic and Blue Whiting Fisheries Working Group (C.Res. 2002/2ACFM08) Chair: Asta Gudmundsdóttir Held at ICES Headquarters, 29 April to 8 May 2003 Countries represented: Canada:1, Denmark:1, Iceland:3, Ireland:1, Netherlands:1, Norway:7, Russia:3, Spain:1 Report available as Doc. C.M. 2003/ACFM:23

North-Western Working Group (C.Res. 2002/2ACFM09) Chair: Einar Hjorleifsson Held at ICES Headquarters, 29 April to 8 May 2003 Countries represented: Denmark:6, Iceland:6, Netherlands:1, Norway:2, Russia:1, Spain:1 Report available as Doc. C.M. 2003/ACFM:24

Working Group on the Assessment of Northern Shelf Demersal Stocks (C.Res. 2002/2ACFM13) Chair: Rick Officer Held in Aberdeen, UK, 13–22 May 2003 Countries represented: Belgium:1, Ireland:3, Russia: 1, UK:7 Report available in 2004

Working Group on the Assessment of Southern Shelf Stocks of Hake, Monk and Megrim (C.Res. 2002/2ACFM10) Chair: Valentin Trujillo Held at ICES Headquarters, 14–23 May 2003 Countries represented: France:2, Ireland:1, Portugal:2, Spain:9, UK:2 Report available in 2004

Working Group on the Assessment of Southern Shelf Demersal Stocks (C.Res. 2002/2ACFM12) Chair: Steve Flatman Held in Oostende, Belgium, 1–10 July 2003 Countries represented: Belgium:2, France:2, Ireland:2, UK:3 Report available in 2004

<u>Study Group on Sea Bass</u> (C.Res. 2002/2ACFM26) Chair: Mike Pawson Held in Lowestoft , UK, 18–22 August 2003 Countries represented: France:2, Ireland:1, UK:5 Report available in 2004

<u>Pandalus Assessment Working Group</u> (C.Res. 2002/2ACFM14) Chair: Sten Munch Petersen Held in Lysekil, Sweden, 26–29 August 2003 Countries represented: Denmark:2, Norway:2, Sweden:2 Report available in 2004

ICES/NAFO Working Group on Harp and Hooded Seals (C.Res. 2002/2ACFM27) Chair: Tore Haug Held in Arkangelsk, Russia, 2–6 September 2003 Countries represented: Canada:2, Denmark:1, Norway:6, Russia:12, USA:1 Report available in 2004

Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (C.Res. 2002/2ACFM11) Chair: Martin Pastoors Held in Boulogne-sur-Mer, France, 9–18 September 2003 Countries represented: Belgium:1, Denmark:5, France:2, Germany:3, Netherlands:4, Norway:4, Sweden:1, UK:7 Report available in 2004 Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy (C.Res. 2002/2ACFM15) Chair: Dankert Skagen Held at ICES Headquarters, 9–18 September 2003 Countries represented: Denmark:2, France:1, Germany:2, Ireland:2, Netherlands:2, Norway:3, Portugal:2, Russia:3, Spain:8, UK:4 Report available in 2004

ICES/EIFAC Working Group on Eels (C.Res. 2002/2ACFM16) Chair: Willem Dekker Held in Sukarrieta, Spain, 7–11 October 2003 Countries represented: Denmark:1, France;5, Germany:1, Ireland:2, Italy:2, Netherlands:3, Spain:2, UK:3, USA:1 Report available in 2004

Advisory Committee on the Marine Environment

ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea (C.Res. 2002/2ACME02) Chair: Elzbieta Pastuszak Held at ICES Headquarters, 24–27 February 2003 Countries represented: Denmark:1, Finland:1, Germany:3, Latvia:1, Lithuania:1, Poland:1, Sweden:1 Report available as Doc. C.M. 2003/ACME01

ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea (C.Res. 2002/2ACME03) Chair: Anda Ikauniece Held at ICES Headquarters, 25–28 February 2003 Countries represented: Estonia:1, Finland:1, Germany:2, Latvia:1, Lithuanaia:1, Poland:1 Report available as Doc. C.M. 2003/ACME02

ICES/IMO/IOC Study Group on Ballast and Other Ship Vectors (C.Res. 2002/2ACME05) Chair: Stephan Gollasch Held in Vancouver, Canada, 24–25 March 2003 Australia:1, Belgium:1, Brazil:1,Canada:8, Finland:1, France:1, Germany:9, Ireland:1, Italy:1, Japan:1, Netherlands:1, New Zealand:2, Norway:4, Russia:1, Slovenia:1, Sweden:2, UK:4, USA:11 Report available as Doc. C.M. 2003/ACME:03

Working Group on Introductions and Transfers of Marine Organisms (C.Res. 2002/2ACME06) Chair: Stephan Gollasch Held in Vancouver, Canada, 26–28 March 2003 Countries represented: Belgium:1, Canada:2, France:1, Germany:3, Ireland:1, Italy:1, New Zealand:1, Norway:2, Sweden:1, USA:4 Report available as Doc. C.M. 2003/ACME:04

Advisory Committee on Ecosystems

Working Group on Marine Mammal Ecology (C.Res. 2002/2ACE03) Chair: Gordon Waring Held in Hel, Poland, 25–29 March 2003 Countries represented: Denmark:1, Estonia:2, Finland:1, Norway:2, Poland:2, Spain:1, Sweden:3, UK:2, USA:1 Report available as Doc. C.M. 2003/ACE:03 Working Group on Ecosystem Effects of Fishing Activities (C.Res. 2002/2ACE04) Chair: Chris Frid Held at ICES Headquarters, 1–8 April 2003 Countries represented:, Canada:2, Denmark:1, France:1, Ireland:1, Netherlands:2, Portugal:1, Russia:1, Sweden:3, UK:6 Report available as Doc. C.M. 2003/ACE:05

Regional Ecosystem Study for the North Sea (C.Res. 2002/2ACE05) Chair: Andrew Kenny Held in Nantes, France, 4-7 April 2003 Countries represented: France:2, Norway:3, UK:5 Report available as Doc. C.M. 2003/ACE:04

Oceanography Committee

Working Group on Zooplankton Ecology (C.Res. 2002/2C02) Chair: Steve Hay Held in Gijón, Spain, 24–26 February 2003 Countries represented: Canada:1, Norway:1, Spain:7, UK:4, USA:1 Report available as Doc. C.M. 2003/C:01

Working Group on Seabird Ecology (C.Res. 2002/2C04) Chair: Bob Furness Held at ICES Headquarters, 7-10 March 2003 Countries represented: Canada:1, Denmark:3, Germany:2, Norway:2, UK:3, USA:1 Report available as Doc. C.M. 2003/C:03

Study Group on Modelling of Physical/Biological Interactions (C.Res. 2002/2C05) Chair: Charles Hannah Held in Chapel Hill, USA, 10–12 March 2003 Countries represented: Canada:2, Denmark:2, Finland:1, Germany:1, Norway:1, Spain:2, UK:1, USA:4 Report available as Doc. C.M. 2003/C:04

Working Group on Phytoplankton Ecology (C.Res. 2002/2C06) Chair: Lars Edler Held in Villefranche-sur-Mer, France, 11–14 March 2003 Countries represented: France: 1, Germany: 1, Netherlands: 1, Norway: 1, Spain: 1, Sweden: 1 Report available as Doc. C.M. 2003/C:05

Working Group on Oceanic Hydrography (C.Res. 2002/2C08) Chair: Alicia Lavín Held in Bergen, Norway, 31 March to 3 April 2003 :Countries represented: Canada:3, France:1, Germany:3, Iceland:1, Netherlands: 1, Norway:3, Poland:1, Spain:1, Russia:1, UK:2 Report available as Doc. C.M. 2003/C:07

ICES-EuroGOOS Planning Group on the North Sea Pilot Project NORSEPP (C.Res. 2002/2C09) Co-Chairs: Anthony Richardson (ICES) and Martin Holt (EuroGOOS) Held in Nantes, France, 7–8 April 2003 Countries represented: UK:5, IOC:1, EuroGOOS:5 Report available as Doc. C.M. 2003/C:08
ICES-IOC Steering Group on GOOS (C.Res. 2002/2C10) Co-Chairs: Bill Turrell and W. H. Harrison and a representative from IOC Held in Nantes, France, 9–10 April 2003 Countries represented: Canada:1, France:1, Germany:1, Norway:1, Spain:1, Sweden:1, UK:2, IOC:1, PICES:1 Report available as Doc. C.M. 2003/C:08

Workshop on a Synthesis of the Cod and Climate Programme (C.Res. 2002/2C11) Co-Chairs: Ken Drinkwater and Keith Brander Held in New Bedford, USA, 5–7 May 2003 Countries represented: Canada:3, Denmark:3, Norway:3, USA:5, ICES/GLOBEC Coordinator Report available as Doc. C.M. 2003/C:10

ICES/GLOBEC Working Group on Cod and Climate Change (C.Res. 2002/2C12) Co-Chairs: Ken Drinkwater and Geir Ottersen Held in New Bedford, USA, 7–9 May 2003 Countries represented: Canada:6, Denmark:3, Norway:2, Spain:1, USA:9, ICES/GLOBEC Coordinator Report available as Doc. C.M. 2003/C:11

ICES-IOC Study Group on the Development of Marine Data Systems Using XML (C.Res. 2002/2C13) Co-Chairs: Bob Gelfeld and Anthony Isenor Held in Gothenburg, Sweden, 26–27 May 2003 Countries represented\; Belgium:1, Canada:2, Finland:2, France;1, Germany:1, Japan:2, Netherlands:1, Norway:1, Poland:2, Russia:2 Sweden:1, UK:3, USA:3, IOC:1 Report available as Doc. C.M. 2003/C:12

Working Group on Marine Data Management (C.Res. 2002/2C14) Co-Chairs: Bob Gelfeld and Leslie Rickards Held in Gothenburg, Sweden, 28–30 May 2003 Countries represented: Belgium:2, Canada:2, Denmark:1, Finland:2, France:1, Germany:2, Netherlands:1, Poland:2, Portugal:1, Spain:1, Sweden:2, UK:3, USA:1 Report available as Doc. C.M. 2003/C:13

Workshop on Zooplankton Taxonomy (C.Res. 2002/2C15) Chair: Alistair Lindley Held in Plymouth, UK, 10–13 June 2003 Countries represented: Germany:1, Norway:3, Poland:1, Portugal:2, Spain:3, UK:18, USA:1 Report available as Doc. C.M. 2003/C:14

Workshop on Real-Time Coastal Observing Systems for Ecosystem Dynamics and Harmful Algal Blooms (C.Res. 2002/2C16) Chair: Marcel Babin and John Cullen Held in Villefranche-sur-Mer, France, 11–21 June 2003 Countries represented: Australia:4, Belgium:2, Brazil:1, Canada:10, Chile:1, China:2, Estonia:1, Finland:1, France:7, Germany:4, Ireland:1, Italy:2, Netherlands:1, New Zealand:1, Norway:2, Poland:1, South Africa:2, Spain:3, Sweden:2, UK:10, USA:30 Report available as Doc. C.M. 2003/C:15

Fisheries Technology Committee

Study Group on Survey Trawl Gear for the IBTS Western and Southern Areas (C.Res. 2002/2B01) Chair: Francisco Velasco Held in Vigo, Spain, 12–14 February 2003 Countries represented: France:1, Germany:1, Ireland:2, Spain:4, UK:3 Report available as Doc. C.M. 2003/B:01 <u>Study Group on Mesh Measurements Methodology</u> (C.Res. 2002/2B02) Chair: Ronald Fonteyne Held in Oostende, Belgium, 19–21 March 2003 Countries represented: Belgium:4, Canada: 1, France:2, Italy:2, Netherlands:2, Norway:2, Portugal:2, Spain:1, Sweden:1, UK:3 Report available as Doc. C.M. 2003/B:02

<u>Planning Group on the HAC Data Exchange Format</u> (C.Res. 2002/2B03) Chair: Dave Reid Held in Bergen, Norway, 17 June 2003 Countries represented: Australia:1, Canada:2, France:2, Norway:3, UK:1 Report available as Doc. C.M. 2003/B:03

Study Group on Acoustic Seabed Classification (C.Res. 2002/2B05) Chair: John Anderson Held in Bergen, Norway, 17–18 June 2003 Countries represented: Australia:2, Canada:5, France:1, New Zealand:1, Norway:7, Poland:1, Russia:1, UK:4, USA:5 Report available as Doc. C.M. 2003/B:04

Study Group on Target Strength Estimation in the Baltic Sea (C.Res. 2002/2B04) Chair: Bo Lundgren Held in Bergen, Norway, 17–18 June 2003 Countries represented: Argentina:1, Denmark:1, Latvia:2, Norway:1, Poland:2, Russia:1, Sweden:2, USA:2 Report available as Doc. C.M. 2003/B:05

Working Group on Fisheries Acoustics Science and Technology

(C.Res. 2002/2B06) Chair: Yves Simard Held in Bergen, Norway, 18–20 June 2003 Countries represented: Argentina:1, Australia:4, Canada:5, Chile:1, Denmark:2, France:8, Greece:1, Latvia:2, New Zealand:2, Norway:14, Peru:1, Poland:1, Russia:2, Spain:3, Sweden:2, UK:7, USA:18 Report available as Doc. C.M. 2003/B:06

ICES-FAO Working Group on Fishing Technology and Fish Behaviour (C.Res. 2002/2B07) Chair: David A. Somerton Held in Bergen, Norway, 27–28 June 2003 Countries represented: Belgium:2, Canada:2, Iceland:1, Ireland:1, Italy:2, Netherlands:1, Norway:7, Poland:2, Portugal:2, Russia:3, Sweden:2, Thailand:1, Turkey:1, UK:13, USA:10, FAO:1 Report available as Doc. C.M. 2003/B:07

Resource Management Committee

<u>Planning Group on Redfish Stocks</u> (C.Res. 2002/2D01) Chair: Torstein Sigurdsson Held at ICES Headquarters, 21–22 January 2003 Countries represented: Germany:1, Iceland:2, Russia:1 Report available as Doc. C.M. 2003/D:02

Working Group on Methods of Fish Stock Assessments (C.Res. 2002/2D02) Chair: Carl O'Brien Held at ICES Headquarters, 29 January to 5 February 2003 Countries represented: Canada:1, Denmark:1, France:1, Iceland:1, Netherlands:1, Norway:4, Spain:1, Russia:4 Report available as Doc. C.M. 2003/D:03 Workshop on Fish Stock Assessment Techniques (C.Res. 2002/2D03) Co-Chairs: Coby Needle and Chris Darby Held at ICES Headquarters, 5–12 March 2003 Countries represented: Belgium:1, Canada:3, Denmark:3, Germany:1, Ireland:3, Norway:3, Netherlands:2, Spain:3, Sweden:2, UK:3, Russia:4 Report available as Doc. C.M. 2003/D:04

International Bottom Trawl Survey Working Group (C.Res. 2002/2D04) Chair: Andrew Newton Held in Lorient, France, 25–28 March 2003 Countries represented: Denmark:2, France:3, Germany:1 Ireland;2, Netherlands:2, Norway:1, Spain:1, Sweden:1,, UK:4 Report available as Doc. C.M.2003/D:05

Working Group on Fishery Systems (C.Res. 2002/2D06) Co-Chairs: Carl O'Brien and Jon Sutinen Held at ICES Headquarters, 29 April to 2 May 2003 Countries represented: Denmark:6, Norway:1, UK:4 Report available as Doc. C.M. 2003/D:06

<u>Study Group on Age-Length Structured Assessment Models</u> (C.Res. 2002/2D07) Chair: Kirstin G. Frøysa Held in Bergen, Norway, 3–6 June 2003 Countries represented: France:1, Netherlands:1, New Zealand:2, Norway:5, Russia:3, UK:3 Report available as Doc. C.M. 2003/D:07

<u>Planning Group on Redfish Stocks</u> (C.Res. 2002/2D01) Chair: Torstein Sigurdsson Held in Hamburg, Germany, 9–10 July 2003 Countries represented: Germany:3, Iceland:5, Russia:5 Report available as Doc. C.M. 2003/D:08

<u>Planning Group on Surveys of Pelagic Fish in the Norwegian Sea</u> (C.Res. 2002/2D09) Chair: Jan Arge Jacobsen Held in Tórshavn, Faroe Islands, 27–29 August 2003 Countries represented: Denmark:3, Iceland:3, Ireland:1, Netherlands:1, Norway:4, Russia:1 Report available as Doc. C.M. 2003/D:10

Marine Habitat Committee

<u>Steering Group on Quality Assurance of Biological Measurements in the Northeast Atlantic</u> (C.Res. 2002/2E04) Chair: Hubert Rees Held at ICES Headquarters, 25–28 February 2003 Countries represented: Germany:2, Netherlands:1, Norway:1, Sweden:1, UK:3 Report available as Doc. C.M. 2003/E:01

Marine Chemistry Working Group (C.Res. 2002/2E01) Chair: Robin Law Held in Tallinn, Estonia, 3–7 March 2003 Countries represented: Belgium:2, Canada;1, Denmark:2, Estonia:1, Finland:2, France:1, Germany:3, Ireland:1, Netherlands:2, Norway:2, Portugal:1, Spain:1, UK:3 Report available as Doc. C.M. 2003/E:02 Working Group on Statistical Aspects of Environmental Monitoring (C.Res. 2002/2E02) Chair: R. Fryer Held at ICES Headquarters, 10–14 March 2003 Countries represented: Denmark:2, Germany:2, Norway:1, Sweden:2, UK:2 Report available as Doc. C.M. 2003/E:03

<u>Study Group on the North Sea Benthos Project 2000</u> (C.Res. 2002/2E03) Chair: Hubert Rees Held at Yerseke, The Netherlands, 24–26 March 2003 Countries represented: Belgium:1, Germany:3, Netherlands:2, UK:2 Report available as Doc. C.M. 2003/E:05

Working Group on Marine Sediments in Relation to Pollution (C.Res. 2002/2E04) Chair: Foppe Smedes Held in Tromsø, Norway, 24–28 March 2003 Countries represented: Belgium:1, Canada:1, Denmark:1, Estonia:1, France:1, Ireland:1, Netherlands:1, Norway:1, Portugal:1, Spain:1, Sweden:1, UK:2 Report available as Doc. C.M. 2003/E:04

Working Group on Biological Effects of Contaminants (C.Res. 2002/2E05) Chair: Ketil Hylland Held in Tromsø, Norway, 31 March to 4 April 2003 Countries represented: Belgium:2, Canada:2, Finland:1, France:1, Iceland:1, Netherlands:2, Norway:1, Spain:2, UK:3 Report available as Doc. C.M. 2003/E:06

Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem (C.Res. 2002/2E07) Chair: Jon Side Held in Oostende, Belgium, 1–5 April 2003 Countries represented: Belgium:3, Denmark:2, France:2, Germany:1, Ireland:1, Netherlands:5, Poland:1, Sweden:1, UK:7 Report available as Doc. C.M. 2003/E:07

Working Group on Marine Habitat Mapping (C.Res. 2002/2E06) Chair: David Connor Held in Sandy Hook, NJ, USA, 1–4 April 2003 Countries represented: Canada:4, Germany:1, Ireland:1, Spain:2, UK:5, USA:6 Report available as Doc. C.M. 2003/E:08

Benthos Ecology Working Group (C.Res. 2002/2E08) Chair: Heye Rumohr Held in Fort Pierce, FL, USA, 28 April to 1 May 2003 Countries represented: Belgium:2, France;2, Germany:3, Ireland:1, Netherlands:1, Norway:1, Spain:1, Sweden:2, UK:2, USA:3 Report available as Doc. C.M. 2003/E:09

Study Group on Information Needs for Coastal Zone Management (C.Res. 2002/2E09) Chair: Josianne Støttrup Held in Palma de Mallorca, Spain, 5–7 May 2003 Countries represented: Canada:1, Denmark:2, Netherlands:1, Norway:2, Poland:1, Spain:3, Sweden:2, UK:2 Report available as Doc. C.M. 2003/E:10

Mariculture Committee

Working Group on Marine Fish Culture (C.Res. 2002/2F02) Chair: Anders Mangor Jensen Held in Vigo, Spain, 10–14 March 2003 Countries represented: Canada:1, Denmark:1, France:2, Germany:1, Norway:1, Poland:1 Report available as Doc. C.M. 2003/F:02

Working Group on the Application of Genetics in Fisheries and Mariculture

(C.Res. 2002/2F01) Chair: Ellen Kenchington Held in La Tremblade, France, 10–12 March 2003 Countries represented: Canada:1, Denmark:1, France:3, Germany:1, Norway:1, Poland:1 Report available as Doc. C.M. 2003/F:01

Working Group on Pathology and Diseases of Marine Organisms (C.Res. 2002/2F03) Chair: Thomas Lang Held at Aberdeen, UK, 11–15 March 2003 Countries represented: Denmark:1, Finland:1, France:2, Ireland:1, Spain:1, Russia:1, UK:2, USA:2 Report available as Doc. C.M. 2003/F:03

Working Group on Environmental Interaction of Mariculture (C.Res. 2002/2F04) Chair: Edward Black Held in Vigo, Spain, 31 March to 4 April 2003 Countries represented: Canada:4, France:1, Germany:2, Ireland:1, Norway:1, Portugal:1, Spain:3, Sweden:1, UK:1 Report available as Doc. C.M. 2003/F:04

Working Group on Marine Shellfish Culture (C.Res. 2002/2F05) Chair: Alain Bodoy Held in Trondheim, Norway, 13–15 August 2003 Countries represented: Canada:2, France:2, Netherlands:1, UK:1, USA:1 Report available as Doc. C.M. 2003/F:05

Living Resources Committee

<u>Planning Group for Herring Surveys</u> (C.Res. 2002/2G02) Chair: Paul G. Fernandes Held in Aberdeen, UK, 21–24 January 2003 Countries represented: Germany:3, Netherlands:1, Norway:1, UK:3 Report available as Doc. C.M. 2003/G:03

Working Group on Fish Ecology (C.Res. 2002/2ACE07) Chair: Jim Ellis Held at ICES Headquarters, 3–7 March 2003 Countries represented: Denmark:2, France:1, Netherlands:1, Norway:1, Portugal:1, UK:6 Report available as Doc. C.M. 2003/G:04

Baltic International Fish Survey Working Group (C.Res. 2002/2G04) Chair: Rainer Oeberst Held at ICES Headquarters, 24–28 March 2003 Countries represented: Denmark:3, Estonia:1, Germany:1, Latvia:2, Poland:1, Russia:3, Sweden:2 Report available as Doc. C.M. 2003/G:05 Working Group on Mackerel and Horse Mackerel Egg Surveys (C.Res. 2002/2G05) Chair: Evgeny Shamray Held in Lisbon, Portugal, 6–8 April 2003 Countries represented: Denmark:1, Ireland:2, Norway:2, Portugal:2, Russia:2, UK:2 Report available as Doc. C.M. 2003/G:08

Planning Group on Aerial and Acoustic Surveys for Mackerel (C.Res. 2002/2G06) Chair: David Reid Held in Lisbon, Portugal, 29 March to 4 April 2003 Countries represented: Germany:2, Greece:1, Ireland;1, Italy:1, Netherlands:3, Norway:2, Portugal:8, Spain:7, UK:5 Report available as Doc. C.M. 2003/G:07

Working Group on Elasmobranch Fisheries (C.Res. 2002/2G07) Chair: Maurice Clarke Held in Vigo, Spain, 28 April to 2 May 2003 Countries represented: Belgium:1, Canada:1, Ireland:1, Netherlands:1, Portugal:2, Spain:2, Sweden:1, UK:3, USA:1 Report available as Doc. C.M. 2003/G:09

<u>Study Group on the Biology and Life History of Crabs</u> (C.Res. 2002/2G08) Chair: Oliver Tully Held in Tromsø, Norway, 2–3 June 2003 Countries represented: France:1, Ireland:3, Norway:2, Sweden:1, UK:2 Report available as Doc. C.M. 2003/G:11

Study Group on the Estimation of Spawning Stock Biomass of Sardine and Anchovy (C.Res. 2002/2G03) Chair: Yorgos Stratoudakis Held in Malaga, Spain, 23–27 June 2003 Countries represented: Greece:1, Portugal:4, Spain:11 Report available as Doc. C.M. 2003/G:12

Planning Group on North Sea Cod and Plaice Egg Surveys in the North Sea (C.Res. 2002/2G05) Chair: Clive Fox Held in IJmuiden, Netherlands, 24–26 June 2003 Countries represented: Denmark:1, Germany:2, Netherlands:1, Norway:1, UK:1 Report available as Doc. C.M. 2003/G:06

Workshop on Lobster Reference Points for Fishery Management (C.Res. 2002/2G09) Co-Chairs: Michel Comeau and Oliver Tully Held in Tracadie-Sheila, NB, Canada, 8–11 September 2003 Countries represented: Canada:16, Ireland:1, Norway:1, Sweden:1, UK:1, USA:5, FAO:1 Report available as Doc. C.M. 2003/G:10

Working Group on Cephalopod Fisheries and Life History (C.Res. 2003/2G01) Chair: Jean-Paul Robin Held in Lesvos, Greece, 9–10 October 2003 Countries represented: France:1, Germany:2, Greece:1, Portugal:4, Spain:4, UK:3 Report available in 2004 Workshop on Mackerel and Horse Mackerel Egg Staging and Identification (C.Res. 2002/2G10) Chair: Steve Milligan Held in Lowestoft, Suffolk, UK, 20–25 October 2003 Countries represented: Germany:3, Ireland:2, Netherlands:2, Norway:2, Spain:6, UK:1 Report available as Doc. C.M. 2003/G:13

<u>Planning Group on North Sea Cod and Plaice Egg Surveys in the North Sea</u> (C.Res. 2003/G02) Chair: Clive Fox Held in Kiel, Germany, 11–12 November 2003 Countries represented: Denmark:1, Germany:3, Netherlands:3, Norway:1, UK:2 Report available in 2004

Working Group on Beam Trawl Surveys (C.Res. 2003/2G04) Chair: Gerjan Piet Held in IJmuiden, Netherlands, 8–11 December 2003 Countries represented: Belgium:1, Germany:2, Netherlands:2, UK:2 Report available in 2004

Baltic Committee

<u>Study Group on Herring Assessment Units in the Baltic Sea</u> (C.Res. 2002/2H03) Chair: Georgs Kornilovs Held in Gdynia, Poland, 10–14 March 2003 Countries represented: Estonia:1, Latvia:1, Poland:3, Russia:2 Report available as Doc. C.M. 2003/H:02

<u>Study Group on Multispecies Assessment in the Baltic</u> (C.Res. 2002/2H02) Chair: Eero Aro Held in Charlottenlund, Denmark, 2–4 April 2003 Countries represented: Denmark:5, Finland:2, Germany:1, Latvia:1, Russia:1 Report available as Doc. C.M. 2003/H:03

<u>Study Group on Baltic Sea Productivity Issues in Support of the BSRP</u> (C.Res. 2003/2H01) Chair: Bärbel Müller-Karulis Held in Riga, Latvia, 29–31 October 2003 Countries represented: Denmark:2, Estonia:2, Latvia:7, Poland:1, USA:1 Report available in 2004

Study Group on Baltic Pollution and Ecosystem Health Issues in Support of the BSRP (C.Res. 2003/2H02) Chair: Eugene Andrulewicz Held in Gdynia, Poland, 9-12 November 2003 Countries represented: Denmark:2, Estonia:2, Finland:3, Germany:1, Latvia:3, Lithuania:4, Poland:5, Russia:2, Sweden:4, USA:1, BSRP:1 Report available in 2004

Member Countries	MCAP*	A CFM*	A CMF*	V CF*	Fich	Oreanoaranhy	Decoured	onine M	Marianthua	I itina	Raltic	TOTAL
	TEOM				Technology	(C)	Management	Habitat	(F)	Resources	(H)	all
					(B)		(D)	(E)		(G)		Groups
Belgium		6	2		6	5	1	11		2		36
Canada		11	10	2	15	31	4	6	8	17		107
Denmark	1	47	1	2	3	12	15	6	3	8	6	110
Estonia	1	5	1	2		1		2		1	5	18
Finland		14	3	1		9		3	1		5	33
France		19	2	ω	14	12	5	L	10	3		75
Germany		18	17		1	16	9	15	4	18	2	97
Iceland		11			1	1	11	1				25
Ireland		22	2	1	3	1	9	5	2	10		52
Latvia	1	7	2		4					2	12	28
Netherlands	1	22	1	2	3	5	7	15	1	14		71
Norway		71	9	5	34	20	18	6	3	13		179
Poland		4	2	2	9	7		2	2	1	6	35
Portugal		8		1	4	3		2	1	21		40
Russian Federation		53	1	1	7	3	18		1	5	5	94
Spain		31		1	8	20	5	10	4	30		109
Sweden	2	17	4	9	7	7	3	6	1	5	4	65
United Kingdom	1	69	4	13	31	51	14	31	4	31		249
USA		15	15	1	35	55		6	3	9	2	141
Non-members**		2	10		22	26	2			4	5	71
Total participants	7	455	83	43	204	282	115	149	48	191	58	1635
No. of Groups	-	25	4	ŝ	7	13	∞	10	5	14	4	94
	* Particip	ants in the	Advisory Comn	nittee me	etings are NOT	included						
**Non-member counti	y.	Italy 1	Australia 1		Australia 7	Australia 4	New Zealand 2			Greece 2	Lithuania 4	
participants (Affiliates		FAO 1	NewZealand 3		Chile 1	Chile 1				Italy 1	BSRP 1	
in bold), and other			Brazil 1		Greece 1	New Zealand 1				FAO 1		
participants:			Japan 1	. -	New Zealand 3	South Africa 2						
			Italy 2		Peru: 1	Brasil 1						
			Lithuania 2		Argentina 2	China 2						
			Slovenia 1		Italy 4	Italy 2						
					Thailand 1	Japan 2						
					Turkey 1	EuroGOOS 5						
					FAO 1	GLOBEC 2						
						IOC 3						
						PICES 1						



Part IV

Overview of ICES Membership, Organisation and International Collaboration

Officials of the Council/Administrateurs du Conseil (as per 1 January 2004/dès du 1er janvier 2004)

President/Président

(as from 1 November 2003/dès du 1er novembre 2003)

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(from 1 January 2004/dès du 1er janvier 2004)

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Chair of Management Committee for the Advisory Process/ Président du Comité de Gestion pour le Processus d'Avis	Paul Connolly
Chair of Advisory Committee on Fishery Management/ Président du Comité d'Avis sur la Gestion des Pêches	Poul Degnbol
Chair of Advisory Committee on the Marine Environment/ Président du Comité d'Avis sur l'Environnement Marin	Stig Carlberg
Chair of Advisory Committee on Ecosystems/ Président du Comité d'Avis sur les Ecosystèmes	Simon Jennings
Chair of Fisheries Technology Committee/ Président du Comité sur la Technologie de Pêche	Stephen Walsh
Chair of Oceanography Committee/Président du Comité sur l'Océanographie	Einar Svendsen
Chair of Resource Management Committee/ Président du Comité sur la Gestion des Ressources	Carl O'Brien
Chair of Marine Habitat Committee/ Président du Comité sur l'Habitat Marin	Heye Rumohr
Chair of Mariculture Committee/ Président du Comité sur la Mariculture	Tom Sephton
Chair of Living Resources Committee/ Président du Comité sur les Ressources Vivantes	David G. Reid
Chair of Baltic Committee/ Président du Comité de la Baltique	Brian McKenzie
Chair of Diadromous Fish Committee/Président du Comité des Poissons Diadromes	Niall O'Maoileidigh
Chair of Publications Committee/ Président du Comité des Publications	Bill Turrell

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Chair of Advisory Committee on the Marine Environment/ Président du Comité d'Avis sur l'Environnement Marin	Stig Carlberg
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Publications Committee/Comité des Publications

Bill Turrell (UK), Chair/Président

Editor-in-Chief of the ICES Journal of Marine Science/Rédacteur-en-Chef du Journal du Conseil: Andrew I. L. Payne

Fredrik Arrhenius (Sweden) Orestes Cendrero (Spain) Anders Fernö (Norway) Paul Keizer (Canada) Pierre Pepin (Canada) Fred Serchuk (USA)

Advisory Committees/Comités d'Avis

Membership of each of the Advisory Committees below (ACFM, ACME, and ACE) will consist of the Chairs of such other Committees as the Council decides, and of one scientist nominated by each delegation who so wishes, and subsequently appointed by the Council. Membership of the Advisory Committees will be reviewed by the Delegates in response to the Terms of Reference of each session, which shall be circulated to Delegates in a timely manner. Delegates may choose to send an alternate for the national member of a particular Advisory Committee, taking into account the agenda and the need for the participation to be tailored to match the scientific needs for specific types of advice.

Advisory Committee on Fishery Management Comité d'Avis sur la Gestion des Pêches

Chair/Président	Poul Degnbol
Chair of Living Resources Committee/ Président du Comité des Ressources Vivantes	David G. Reid
Chair of Resource Management Committee/ Président du Comité de la Gestion des Ressources	Carl O'Brien
Chair of Baltic Committee/ Président du Comité de la Baltique	Brian McKenzie
Scientists nominated by the Delegates (see above)	

Advisory Committee on the Marine Environment Comité d'Avis sur l'Environnement Marin

Chair/Président	Stig Carlberg
Chair of Mariculture Committee/ Président du Comité sur la Mariculture	Tom Sephton
Chair of Marine Habitat Committee/ Président du Comité sur l'Habitat Marin	Heye Rumohr
Chair of Oceanography Committee/ Président du Comité sur l'Océanographie	Einar Svendsen

Scientists nominated by the Delegates (see above)

Advisory Committee on Ecosystems/Comité d'Avis sur les Ecosystèmes

Chair/Président

Simon Jennings

Scientists nominated by the Delegates (see above)

Editors of Council Publications *Rédacteurs des Publications du Conseil* (as per 1 January 2003/*dès du 1er janvier 2003*)

ICES Fisheries Statistics	Fisheries Adviser/ Conseiller des Pêches
ICES Cooperative Research Report	General Secretary/ Secrétaire Général
ICES Identification Leaflets for Plankton	J. Alistair Lindley ¹
ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish	Sharon McGladdery ²
ICES Journal of Marine Science	Andrew I. L. Payne ³ , Editor- in-Chief/ <i>Rédacteur-en-Chef</i> Editors: Chris L. J. Frid ⁴ Bernard Megrey ⁵ Pierre Pepin ⁶ Verena Trenkel ⁷ John W. Ramster ⁸
ICES Marine Science Symposia	Editor specially appointed for each volume/ un rédacteur est spécialement désigné pour chaque volume
ICES Techniques in Marine Environmental Sciences	Environment Adviser/ Conseiller de l'Environnement

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Working Group on Ecosystem Effects of Fishing Activities (WGECO)
Study Group on Management of Integrated Data (SGMID)
Study Group on Mapping the Occurrence of Cold Water Corals (SGCOR)
Regional Ecosystem Study Group for the North Sea (REGNS)
Study Group on Ecological Quality Objectives for Sensitive and for Opportunistic Benthos Species (SGSOBS)
Study Group to Parameter Sensitive Technication (SCELUT)

Study Group to Review Ecological Quality Objectives for Eutrophication (SGEUT)

Advisory Committee on Fishery Management (ACFM)

Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP)

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Working Group on Statistical Aspects of Environmental Monitoring (WGSAEM)
Working Group on Marine Sediments in Relation to Pollution (WGMS)
Marine Chemistry Working Group (MCWG)
Study Group on the North Sea Benthos Project 2000 (SGNSBP)
Study Group on Information Needs for Coastal Zone Management (SGINC)

Mariculture Committee (MCC)

Working Group on Marine Fish Culture (WGMAFC) Working Group on the Application of Genetics in Fisheries and Mariculture (WGAGFM) Working Group on Environmental Interactions of Mariculture (WGEIM) Working Group on Pathology and Diseases of Marine Organisms (WGPDMO) Working Group on Marine Shellfish Culture (WGMASC)

Living Resources Committee (LRC)

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Diadromous Fish Committee (DFC)

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The membership lists for the following Working/Study Groups, workshops and other groups are not provided here, but are available on request from the ICES Secretariat, the National Delegates to ICES (an overview of their names and addresses is provided on pp. 230–232), or from the Chairs themselves (addresses and e-mails provided on pp 262–267).

Management Committee for the Advisory Process Comité de gestion pour le processus d'avis

Study Group on Quality Assurance (SGQUA) *Groupe d'étude sur l'assurance qualité* Mike Waldock (UK)

Advisory Committee on Fishery Management Comité d'avis sur la gestion de la pêche

Working Group on Nephrops Stocks (WGNEPH) Groupe de travail sur les stocks de Nephrops	Mike Bell (UK)
Joint ICES/NAFO Working Group on Harp and Hooded Seals (WGHARP) Groupe de travail CIEM/NAFO conjoint sur les phoques du Groenland et les phoques à capuchon	Tore Haug (Norway)
Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK) Groupe de travail sur l'évaluation des stocks démersaux dans la Mer du Nord et le Skagerrak	Coby Needle (UK)
Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy (WGMHSA) Groupe de travail sur l'évaluation des stocks de maquereaux, de chinchards, de sardines et d'anchois	Ciaran Kelly (Ireland)
Working Group on the Assessment of Northern Shelf Demersal Stocks (WGNSDS) Groupe de travail sur l'évaluation des stocks démersaux du plateau continental du nord	Rick Officer (Ireland)
North-Western Working Group (NWWG) Groupe de travail nord-ouest	Einar Hjorleifsson (Iceland)
Northern Pelagic and Blue Whiting Fisheries Working Group (WGNPBW) Groupe de travail sur la pêche pélagique du nord et du merlan bleu	Asta Gudmundsdóttir (Iceland)
Baltic Salmon and Trout Assessment Working Group (WGBAST) Groupe de travail sur l'évaluation des stocks de saumon et de truite dans la Baltique	Ingemar Perä (Sweden)
Baltic Fisheries Assessment Working Group (WGBFAS) Groupe de travail sur l'évaluation de la pêche dans la Baltique	Thomas Gröhsler (Germany)
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Working Group on North Atlantic Salmon (WGNAS) Groupe de travail sur le saumon de l'Atlantique Nord	Walther Crozier (UK)
Arctic Fisheries Working Group (AFWG) Groupe de travail sur la pêche de l'Arctique	Yuri Kovalev (Russia)
Working Group on the Assessment of Southern Shelf Demersal Stocks (WGSSDS) Groupe de travail sur l'évaluation des stocks démersaux du plateau continental du sud	Steve Flatman (UK)
Working Group on the Assessment of Southern Shelf Stocks of Hake, Monk, and Megrim (WGHMM) Groupe de travail sur l'évaluation des stocks de merlu, de baudroies et de cardines du plateau continental du sud	Valentin Trujillo (Spain)
Pandalus Assessment Working Group (WGPAND) Groupe de travail sur l'évaluation du pandalus	Sten Munch Petersen (Denmark)
Herring Assessment Working Group for the Area South of 62°N (HAWG) Groupe de travail sur l'évaluation des stocks de hareng pour la zone au sud de 62°N	Else Torstensen (Norway)
Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP) Groupe de travail sur la biologie et l'évaluation des stocks de ressources halieutiques des grands fonds	Odd Aksel Bergstad (Norway)
Fisheries Statistics Liaison Working Group (WGSTAL) Groupe de liaison sur les statistiques de pêche	David Cross (EUROSTAT)
Study Group on Seabass (SGBASS) <i>Groupe d'étude sur le bar commun</i>	Mike Pawson (UK)
ICES/NSCPF Study Group on the Incorporation of Additional Information from the Fishing Industry into Fish Stock Assessments (SGFI) Groupe d'étude CIEM/NSCPF sur la prise en compte dans les évaluations de stocks d'information complémentaires provenant de l'industrie des pêches	Hugo Andersson [NSCFP] and Niels Hammer (Germany)
Study Group on the Development of Fishery-Based Forecasts (SGDFF) <i>Groupe d'étude pour le développement de prévisions par</i> <i>pêcheries</i>	Paul Marchal (France)
Study Group on Assessment Methods Applicable to Assessment of Norwegian Spring-Spawning Herring and Blue Whiting Stock (SGAMHBW) <i>Groupe d'étude sur les méthodes d'évaluation applicables aux</i> <i>stocks de hareng de printemps norvégien et de merlan bleu</i>	Steve Murawski (USA)
Study Group on Stock Identity and Management Units of Redfishes (SGSIMUR) <i>Groupe d'étude sur l'identification des stocks et des unités de</i> <i>gestion pour les sébastes</i>	Kjell Nedreaas (Norway)

Study Group on Closed Spawning Areas of Eastern Baltic Cod (SGCSA) <i>Groupe d'étude sur les aires de ponte protégées pour la morue</i> <i>de l'est de la mer Baltique</i>	Hans-Harald Hinrichsen (Germany) and Fritz Köster (Denmark)
Study Group on Ageing Issues in Baltic Cod (SGABC) Groupe d'étude sur les problèmes de détermination d'âge de la morue de la mer Baltique	Johan Modin (Sweden)
Study Group for Long-Term Advice (SGLTA) <i>Groupe d'étude sur les avis à long terme</i>	Poul Degnbol (Denmark)
Planning Group on Commercial Catch, Discards, and Biological Sampling (PGCCDBS) Groupe de planification sur les captures commerciales, les rejets et l'échantillonnage biologique	Jørgen Dalskov (Denmark)
Workshop on Sampling and Calculation Methodology for Fisheries Data (WKSCMFD) Atelier sur l'échantillonnage et les méthodes de traitement des données sur les pêches	Joël Vigneau (France)
Advisory Committee on the Marine En Comité d'avis sur l'environnement	nvironment <i>marin</i>
Working Group on Introductions and Transfers of Marine Organisms (WGITMO) Groupe de travail sur les introductions et les transferts d'organismes marins	Stephan Gollasch (Germany)
ICES/IOC/IMO Working Group on Ballast Water and Other Ship Vectors (WGBOSV) Groupe de travail CIEM/COI/OMI sur les eaux de ballast et autres modes d'introduction par les navires	Stephan Gollasch (Germany)
ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea (SGQAC) <i>Groupe directeur CIEM/HELCOM sur l'assurance de qualité des</i> <i>mesures chimiques dans la Mer Baltique</i>	Elzbieta Lysiak Pastuszak (Poland)
ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea (SGQAB) Groupe directeur CIEM/HELCOM sur l'assurance de qualité des mesures biologiques dans la Mer Baltique	Anda Ikauniece (Latvia)
Joint ICES/OSPAR Workshop on Integrated Monitoring of Contaminants and their Effects in Coastal and Open Sea Areas (WKIMON) Atelier CIEM/OSPAR sur la surveillance intégrée des	Kjetil Hylland (Norway) and Robin Law (UK)

Atelier CIEM/OSPAR sur la surveillance intégrée des contaminants et leurs effets en zone côtière et en mer ouverte

Advisory Committee on Ecosystems Comité d'avis sur les ecosystems

Working Group on Marine Mammal Ecology (WGMME) Groupe de travail sur l'écologie des mammifères marins	Gordon Waring (USA)
Working Group on Ecosystem Effects of Fishing Activities (WGECO)	Chris Frid (UK)
Groupe de travail sur les effets écologiques des activités de pêche	
Study Group on Management of Integrated Data (SGMID) <i>Groupe d'étude sur la gestion des données intégrées</i>	Peter Wiebe (USA) and Christopher Zimmermann (Germany)
Study Group on Cold Water Corals (SGCOR) <i>Groupe d'étude sur les coraux d'eaux froides</i>	Mark Tasker (UK)
Regional Ecosystem Study Group for the North Sea (REGNS)	Andrew Kenny (UK)
Groupe régional d'étude des écosystèmes pour la mer du Nord	
Study Group on Ecological Quality Objectives for Sensitive and for Opportunistic Benthos Species (SGSOBS) <i>Groupe d'étude sur les objectives de qualité écologique pour les</i> <i>espèces sensibles et opportunistes du benthos</i>	Karel Essink (Netherlands)
Study Group to Review Ecological Quality Objectives for Eutrophication (SGEUT) <i>Groupe d'étude pour reviser les objectifs de qualité écologique</i> <i>pour l'eutrophisation</i>	Ted Smayda (USA) and Gunni Ærtebjerg (Denmark)
Fisheries Technology Committee Comité sur la technologie de pêche	
Working Group on Fisheries Acoustics Science and Technology (WGFAST) Groupe de travail sur l'étude de la science et la technologie acoustique de la pêche	Dave Demer (USA)
ICES/FAO Working Group on Fishing Technology and Fish Behaviour (WGFTFB) Groupe de travail CIEM/ONUAA sur la technologie de pêche et le comportement des poissons	Norman Graham (Norway)
Study Group on Target Strength Estimation in the Baltic Sea (SGTSEB)	Bo Lundgren (Denmark)
Groupe à étude sur l'estimation des index de reflection dans la mer Baltique	
Study Group on Survey Trawl Gear for the IBTS Western and Southern Areas (SGSTG) <i>Groupe d'étude sur l'engin de pêche pour les campagnes IBTS des zones ouest et sud</i>	Francisco Velasco (Spain)
Study Group on Acoustic Seabed Classification (SGASC) <i>Groupe d'étude pour la classification des fonds marins par</i> <i>acoustique</i>	John Anderson (Canada)

Study Group on Collection of Acoustic Data from Fishing Vessels (SGAFV) <i>Groupe d'étude sur la collecte des données acoustiques des</i> <i>navires de pêche</i>	William Karp (USA)
Study Group on Unaccounted Fishing Mortality (SGUFM) <i>Groupe d'étude sur les mortalités par pêche non prises en</i> <i>compte</i>	Mike Breen (UK)
Planning Group on the HAC Data Exchange Format (PGHAC) <i>Groupe de planification sur le format d'échange des données</i> <i>HAC</i>	David Reid (UK)
Workshop on Survey Design and Data Analysis (WKSAD) <i>Atelier sur la stratégie d'échantillonnage et l'analyse des</i> <i>données des campagnes scientifiques</i>	Paul G. Fernandes (UK) and Michael Pennington (Norway)
Oceanography Committee Comité sur l'océanographie	
Working Group on Recruitment Processes (WGRP) Groupe de travail sur les processus de recrutement	Tom Miller (USA) and Richard Nash (UK)
ICES/GLOBEC Working Group on Cod and Climate Change (WGCCC) Groupe de travail CIEM/GLOBEC sur la morue et les changements du climat	Ken Drinkwater (Canada) and Geir Ottersen (Norway)
Working Group on Oceanic Hydrography (WGOH) Groupe de travail sur l'hydrographie océanique	Alicia Lavín (Spain)
Working Group on Marine Data Management (WGMDM) <i>Groupe de travail sur la gestion des données marines</i>	Michèle Fichaut (France) and Helge Sagen (Norway)
Working Group on Seabird Ecology (WGSE) Groupe de travail sur l'écologie des oiseaux de mer	Bob Furness (UK)
Working Group on Zooplankton Ecology (WGZE) Groupe de travail sur l'écologie du zooplancton	Steve Hay (UK))
Working Group on Phytoplankton Ecology (WGPE) Groupe de travail sur l'écologie du phytoplancton	Lars Edler (Sweden) and Francisco Rey (Norway)
ICES-IOC Working Group on Harmful Algal Bloom Dynamics (WGHABD) Groupe de travail CIEM-COI sur la dynamique des éclosions planctoniques nuisibles	Jennifer Martin (Canada)
Working Group on Modelling of Physical/Biological Interactions (WGPBI) Groupe de travail sur le modelage des interactions physiques/biologiques	Charles Hannah (Canada)
ICES-IOC Study Group on the Development of Marine Data Exchange Systems using XML (SGXML) CIEM-COI Groupe d'étude sur le développement de l'échange de données marines à l'aide de XML	Bob Gelfeld (USA) and Anthony Isenor (Canada)

ICES/IOC Steering Group on GOOS (SGGOOS)

Groupe directeur CIEM/COI sur GOOS

Steering Group for the ICES/GLOBEC North Atlantic Programme and Regional Office (SGNARO)

Groupe directeur CIEM/GLOBEC pour le programme de la région atlantique nord

ICES-EuroGOOS Planning Group on the North Sea Pilot Project (PGNSP)

Groupe de planification CIEM-EuroGOOS du projet pilote de la mer du Nord

Workshop on New and Classic Techniques for the Determination of Numerical Abundance and Biovolume of HAB-species – Evaluation of the Cost, Time-Efficiency and Intercalibration Methods (WKNCT)

Atelier sur les méthodes nouvelles et classique pour la détermination de l'abondance numérique et du biovolume des espèces HAB – l' évaluation des coûts, l' éfficacité par rapport au temps et les méthodes d'étalonnage

Workshop on Future Directions in Modelling Physical-Biological Interactions (WKFDPBI)

Atelier sur les orientations futures pour la modélisation des interactions entre phénomènes physiques et biologiques

Resource Management Committee *Comité sur la gestion des ressources*

International Bottom Trawl Survey Working Group (IBTSWG)	Jean Claude Mahé (France)
Groupe de travail sur les campagnes internationales de chaluts de fond	
Working Group on Fishery Systems (WGFS) <i>Groupe de travial sur les systèmes de pêche</i>	Martin Pastoors (Netherlands)
Working Group on Methods of Fish Stock Assessment (WGMG)	Carl O'Brien (UK)
Groupe de travail sur les méthodes d'évaluation des stocks de pêche	
Study Group on Growth, Maturity, and Condition in Stock Projections (SGGROMAT) <i>Groupe de travail sur la croissance, la maturité et les</i> <i>coefficients de condition pour les projections de stocks</i>	Coby Needle (UK) and Tara Marshall (Norway)
Study Group on Age-Length Structured Assessment Models (SGASAM) Groupe d'étude sur les méthodes d'évaluation structurées en age et longueur	Helen Dobby (UK)
Study Group on Multispecies Assessments in the North Sea (SGMSNS)	Morten Vinther (Denmark) and E. D. Bell (UK)

Groupe d'étude sur l'évaluation multispécifique dans la mer du Nord

W. R. Turrell (UK) and W. H. Harrison (Canada) [IOC Representative]

Ken Drinkwater (Canada) and Fritz Köster (Denmark)

Anthony Richardson (UK) and Martin Holt (EuroGOOS)

Odd Lindahl (Sweden)

Francisco Peters (Spain) and Charles Hannah (Canada)

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Study Group on Redfish Stocks (SGRS) <i>Groupe de planification sur les stocks de sébastes</i>	Chair to be identified
Planning Group on Northeast Atlantic Pelagic Ecosystem Surveys (PGNAPES) <i>Groupe de planification sur les campagnes des écosystèmes</i> <i>pélagiques de l'Atlantique nord-est</i>	Jan Arge Jacobsen (Faroe Islands)
Workshop on Advanced Fish Stock Assessment Techniques (WKAFAT) Atelier sur les techiques perfectionnées d'évaluation des stocks	Dankert Skagen (Norway), Einar Hjorleifsson (Iceland) and Laurie Kell (UK)
Marine Habitat Committee Comité sur l'habitat marin	
Benthos Ecology Working Group (BEWG) Groupe de travail sur l'écologie de la faune benthique	Heye Rumohr (Germany)
Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem (WGEXT) Groupe de travail sur les effets d'extraction des sédiments marins sur l'écosystème marin	Jon Side (UK)
Working Group on Biological Effects of Contaminants (WGBEC) Groupe de travail sur les effets biologiques des contaminants	Kjetil Hylland (Norway)
Working Group on Statistical Aspects of Environmental Monitoring (WGSAEM) Groupe de travail sur les aspects statistiques de la surveillance de l'environnement	Rob Fryer (UK)
Working Group on Marine Sediments in Relation to Pollution (WGMS) Groupe de travail sur les sédiments marins par rapport à la pollution	Foppe Smedes (Netherlands)
Marine Chemistry Working Group (MCWG) Groupe de travail sur la chimie marine	Robin Law (UK)
Working Group on Marine Habitat Mapping (WGMHM) <i>Groupe travail sur la cartographie de l'habitat marin</i>	David Connor (UK)
Study Group on Information Needs for Coastal Zone Management (SGINC) <i>Groupe d'étude sur les besoins en informations pour la gestion</i> <i>des zones côtières</i>	Josianne G. Støttrup (Denmark)
Study Group on the North Sea Benthos Project 2000 (SGNSBP) Groupe d'étude sur le projet 2000 de la faune benthique en mer du Nord	Hubert Rees (UK)
ICES/OSPAR Steering Group on Quality Assurance of Biological Measurements in the Northeast Atlantic (SGQAE) Groupe directeur CIEM/OSPAR sur l'assurance de qualité des mesures biologiques dans l'Atlantique nord-est	Jon Davies (UK)

Mariculture Committee Comité sur la mariculture

Working Group on Marine Fish Culture (WGMAFC) <i>Groupe de travail sur la culture marine des poissons</i>	Anders Mangor Jensen (Norway)
Working Group on the Application of Genetics in Fisheries and Mariculture (WGAGFM) <i>Groupe de travail sur l'application de la génétique dans la pêche et la mariculture</i>	Ellen Kenchington (Canada)
Working Group on Environmental Interactions of Mariculture (WGEIM) <i>Groupe de travail sur les interactions environnementales de la</i> <i>mariculture</i>	Edward Black (Canada)
Working Group on Pathology and Diseases of Marine Organisms (WGPDMO) Groupe de travail sur la pathologie et les maladies des organismes marins	Thomas Lang (Germany)
Working Group on Marine Shellfish Culture (WGMASC) <i>Groupe de travail sur l'aquaculture des invertébrés</i>	Alain Bodoy (France)
Living Resources Committee Comité sur les ressources vivantes	
Stock Identification Methods Working Group (SIMWG) <i>Groupe de travail sur les méthodes d'identification des stocks</i>	Kevin Friedland, John Waldman, and Steve Cadrin (USA)
Working Group on Mackerel and Horse Mackerel Egg Surveys (WGMEGS) Groupe de travail sur les études d'oeufs de maquereaux et de chinchards	Dave Reid (UK)
Working Group on Crangon Fisheries and Life History (WGCRAN) Groupe de travail sur la pêche et stades de vie des Crangons	Axel Temming (Germany)
Working Group on Cephalopod Fisheries and Life History (WGCEPH) Groupe de travail sur la pêche et stades de vie des céphalopodes	Jean-Paul Robin (France)
Working Group on Beam Trawl Surveys (WGBEAM) <i>Groupe de travail sur les campagnes de chaluts à perche</i>	Gerjan Piet (Netherlands)
Baltic International Fish Survey Working Group (WGBIFS) Groupe de travail sur les campagnes internationales des poissons baltiques	Rainer Oeberst (Germany)
Working Group on Fish Ecology (WGFE) <i>Groupe de travail sur l'écologie des poissons</i>	Jim Ellis (UK)
Study Group on Elasmobranch Fishes (WGEF)	Maurice Clarke (Ireland)

Groupe d'étude sur les poissons élasmobranches

Study Group on the Biology and Life History of Crabs (SGCRAB) <i>Groupe d'étude sur la biologie et stades de vie des crabes</i>	Oliver Tully (Ireland)
Study Group on the Estimation of Spawning Stock Biomass of Sardine and Anchovy (SGSBSA) <i>Groupe d'étude sur l'estimation de la biomasse des reproducteurs de sardine et d'anchois</i>	Yorgos Stratoudakis (Portugal)
Study Group on Regional Small Pelagic Fish (SGRESP) Groupe d'étude régional sur les petits poissons pélagiques	Pierre Petitgas (France)
Planning Group for Herring Surveys (PGHERS) Groupe de planification sur les études du hareng	Bram Couperus (Netherlands)
Planning Group on Aerial and Acoustic Surveys for Mackerel (PGAAM) <i>Groupe de planification des campagnes aériennes d'évaluation</i> <i>acoustique pour le maquereau</i>	Evgeny Shamray (Russia)
Planning Group on North Sea Cod and Plaice Egg Surveys in the North Sea (PGEGG) <i>Groupe de planification des campagnes d'études des oeufs de morue et de plie en mer du Nord</i>	Clive Fox (UK)
Baltic Committee Comité sur la Baltique	
Study Group on Multispecies Assessment in the Baltic (SGMAB) Groupe d'étude sur les prévisions multispécifiques en mer Baltique	Ero Aro (Finland) and Fritz Köster (Denmark)
ICES/IOC/SCOR Study Group on GEOHAB Implementation in the Baltic (SGGIB) Groupe d'étude CIEM/COI/SCOR sur la mise en place de GEOHAB en mer Baltique	Markku Viitasalo (Finland)
Study Group on Salmon Scale Readings (SGSSR) Groupe d'étude sur les lectures des écailles de saumon	Lars Karlsson (Sweden)
Study Group on Baltic Fish and Fisheries Issues in the BSRP (SGBFFI) <i>Groupe d'étude sur les stocks de poissons et les pêcheries dans</i> <i>le projet BSRP</i>	Maris Pliksh (Latvia)
Study Group on Baltic Sea Productivity Issues in Support of the BSRP (SGPROD) <i>Groupe d'étude sur la productivité de la mer Baltique en appui au projet BSRP</i>	Bärbel Müller-Karulis (Latvia)
Study Group on Baltic Ecosystem Health Issues in Support of the BSRP (SGEH) <i>Groupe d'étude sur l'état de santé de l'écosystème en mer</i> <i>Baltique en appui au projet BSRP</i>	Eugene Andrulewicz (Poland)
Study Group on Baltic Ecosystem Model Issues in Support of the BSRP (SGBEM) <i>Groupe d'étude sur les modèles d'écosystème en mer Baltique en appui au projet BSRP</i>	Wolfgang Fennel (Germany)

Diadromous Fish Committee

Comité des poissons diadromes

Study Group on the By-Catch of Salmon in Pelagic Trawl Fisheries (SGBYSAL)

Groupe d'étude sur les captures accessoires de saumon dans les pêcheries au chalut pélagique

Study Group on the Status of Diadromous Fish Species (SGSDFS)

Groupe d'étude sur l'état des poissons amphihalins

Marianne Holm (Norway)

Niall Ó Maoiléidigh (Ireland)

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International Organisations having Affiliate Status, Observer Status, and Cooperative Relations with ICES

- 1 Arctic Monitoring and Assessment Programme (AMAP)
- 2 Atlantic Salmon Trust
- 3 Arctic Ocean Science Board (AOSB)
- 4 Baltic Marine Biologists (BMB)
- 5 Baltic Marine Environment Protection Commission (HELCOM)
- 6. BirdLife International
- 7 Comisión Tecníca Mixta del Frente Maritimo
- 8 Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)
- 9 Commission Internationale pour l'Exploration Scientifique de la Mer Méditerranée (CIESM)
- 10 Commonwealth Scientific and Industrial Research Organization (CSIRO) (Australia)
- 11 Danish Institute for Fisheries Economics Research
- 12 European Commission
 - 12.1 Directorate-General for Fisheries (DG-Fish)
 - 12.2 Directorate-General for Science, Research and Development (DG-Environment)
- 13 European Environment Agency (EEA)
- 14 European Inland Fisheries Advisory Commission (EIFAC)
- 15 European Aquaculture Society
- 16 European Association of Fisheries Economists
- 17 European Association for Marine Science and Technology
- 18 European Global Ocean Observing System (EuroGOOS)
- 19 European Science Foundation
 - 19.1 European Marine and Polar Science Board (EMaPS)
- 20 Fisheries Society of the British Isles
- 21 Global Environment Facility (GEF)
- 22 Global International Water Assessment (GIWA)
- 23 Global Ocean Ecosystem Dynamics (GLOBEC)
- 24 Global Ocean Observing Systems (GOOS)
- 25 Institute for Fisheries Research and Development (INIDEP) (Argentina)
- 26 Institute of Marine Biology of Crete (Greece)
- 27 Instituto de Fomento Pesquero (IFOP) (Chile)
- 28 Instituto del Mar del Peru (IMARPE)
- 29 International Arctic Science Committee (IASC)
- 30 International Association for Biological Oceanography (IABO)
- 31 International Baltic Sea Fishery Commission (IBSFC)
- 32 International Center for Living Aquatic Resource Management (ICLARM)
- 33 International Commission for the Conservation of Atlantic Tunas (ICCAT)
- 34 International Council of Scientific Unions (ICSU)
- 35 International Institute of Fisheries Economics & Trade (IIFET)
- 36 International Maritime Organization (IMO)

36.1 London Convention on Dumping

- 37 International Pacific Halibut Commission (IPHC)
- 38 International Union for the Conservation of Nature and Natural Resources (IUCN)
- 39 International Whaling Commission (IWC)
- 40 National Institute of Water and Atmospheric Research (NIWA) (New Zealand)
- 41 Nordic Council of Ministers
- 42 North Atlantic Marine Mammal Commission (NAMMCO)
- 43 North Atlantic Salmon Conservation Organization (NASCO)
- 44 North-East Atlantic Fisheries Commission (NEAFC)
- 45 North Pacific Anadromous Fish Commission (NPAFC)
- 46 North Pacific Marine Science Organization (PICES)
- 47 North Sea Commission Fisheries Partnership (NSCFP)
- 48 Northwest Atlantic Fisheries Organization (NAFO)
- 49 Organization for Economic Cooperation and Development (OECD)
- 50 Oslo and Paris Commissions (OSPAR)
- 51 Scientific Committee on Oceanic Research (SCOR)
- 52 Sea Fisheries Research Institute (South Africa)
- 53 Statistical Office of the European Communities (EUROSTAT)
- 54 United Nations Educational, Scientific and Cultural Organization (UNESCO)
 54.1 Intergovernmental Oceanographic Commission (IOC)
- 55 United Nations Environment Programme (UNEP)
- 56 United Nations Food and Agriculture Organization (FAO)

Fisheries Department

57 World Wide Fund for Nature (WWF)

Part V

Annexes

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Acronyms Appearing in ICES Annual Report

Abbreviation	Title
ACE	Advisory Committee on Ecosystems
ACFM	Advisory Committee on Fishery Management
ACME	Advisory Committee on the Marine Environment
AFSC	Alaska Fisheries Science Center
AMAP	Arctic Monitoring and Assessment Programme
ANG	Award Nominations Group
AOS	Acoustic Observation Systems
ASC	ICES Annual Science Conference
AtlantNIDO	Atlantic Scientific Posserch Institute of Marine Fisheries and Oceanography
	Autonomous Underwater Vahieles
	Hudroscoustic database
DADI	
BAD2 DCC	Acoustic database
BCC	
BECPELAG	ICES/IOC Workshop on the Biological Effects of Contaminants in Pelagic Ecosystems
BEEP	Biological Effects of Environmental Pollution in Marine Coastal Ecosystems
BEQUALM	Biological Effects Quality Assurance in Monitoring Programmes
BIAS	Baltic International Acoustic Survey
BITS	Baltic International Trawl Survey
BOOS	Baltic Operational Oceanographic System
BONUS	BONUS for the Baltic Sea Science – Network of Funding Agencies (ERA-NET)
BSRP	Baltic Sea Regional Project
CDOM	Coloured dissolved organic matter
CD-ROM	Compact Disc-Read Only Memory
CEFAS	The Centre for Environment, Fisheries & Aquaculture Science (UK)
CEMP	Coordinated Environmental Monitoring Programme (OSPAR)
CEN	Comité Européen de Normalisation
CM	ICES Council Meeting
COMBINE	Cooperative Monitoring in the Baltic Marine Environment
CONC	Consultative Committee
CPR	Continuus Plankton Recorder
CPUE	Catch Per Unit of Effort
CPP	ICES Cooperative Desearch Deport
CSIDO	Commonwealth Scientific and Inductrial Passarah Organization (Australia)
CWD	The Coordinating Working Dorty on Fishery Statistics
	Detabase Trevel Surveys
DAIKAS	diablase Hawi Surveys
DEL	Delegate
DFC	Diadromous Fish Committee
DG	Directorate-General
DIFRES	Danish Institute for Fisheries Research
DIN	dissolved inorganic nitrogen
DIP	dissolved inorganic phosphate
DKK	Danish Kroner
DPSIR	Driving forces, Pressures, State, Impacts, and Responses Framework
DSS	Decision Support Systems
EC	European Commission
EcoQO	Ecological Quality Objective
EDMED	The European Directory of Marine Environmental Data
EEA	European Environment Agency
EFARO	European Fisheries and Aquaculture Research Organization
EMAS	The Eco-Management and Audit Scheme
EU	European Union
EU BEEP	EU - Research Program. BEEP - Biological Effects of Environmental Pollution in Marine
	Coastal Ecosystems
EuroGOOS	A European association fostering European co-operation on GOOS
FAO	Food and Agriculture Organization of the United Nations
FEMS	Framework for the Evaluation of Management Systems
FIEFA	Framework for Improved European Fisheries Assessment
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FIGIS/FIRMS	The Fisheries Global Information System/ The Fishery Resources Monitoring System
FTC	Fisheries Technology Committee
GEF	Global Environment Facility
GEOHAB	Global Ecology and Oceanography of Harmful Algal Blooms
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (UN)
GLOBEC	Global Ocean Ecosystem Dynamics Programme
GMO	Genetically modified organisms
GOOS	Global Ocean Observing System
HAB	Harmful Algal Blooms
HAC	Hydro Acoustic
HAE-DAT	Harmful Algae Event Data Base
HELCOM	Helsinki Commission (Baltic Marine Environment Protection Commission)
HERSUR	Herring surveys in the North Sea and West of Scotland
IAOCSS	ICES Annual Ocean Climate Status Summary
IBSFC	International Baltic Sea Fishery Commission
IBTS	International Bottom Trawl Survey
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
ICZM	Integrated Coastal Zone Management
IFOP	Instituto de Fomento Pesquero
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer (France)
IGBP	International Geosphere – Biosphere Programme
IJMS	ICES Journal of Marine Science
IMARPE	Instituto del Mar del Peru
IMO	International Maritime Organization
IMR	Institute of Marine Research
IOC	Intergovernmental Oceanographic Commission
IPIMAR	Instituto de Investigação das Pescas e do Mar
ISO	International Organization for Standardization
ITIS	Integrated Taxonomic Information System
IWC	International Whaling Commission
JCOMM	The Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology
JNRFC	The Joint Norwegian-Russian Fishery Commission
LIDAK	Light Detection and Ranging
LME	Large Marine Ecosystems
LKC	Living Resources Committee
MAKAQUA	Monitoring and Regulation of Marine Aquaculture
MCAP	Management Committee for the Advisory Process
MCC	Mariculture Committee
MHC	Marine Habitat Committee
MODIS	Moderate Resolution Imaging Spectroradiometer
MOU	Memorandum of Understanding
MSS	ICES Marine Science Symposia
MSVPA	Multi-Species Virtual Population Analysis
NAFU	North Atlantic Fisheries Organization
	North Augnue Oscillation
NASA	North Atlantic Solution Concernation Operation
NASCO	North Fast Atlantic Commission
NEAC	North East Atlantic Commission
NEAFU	Non accommental ergenisation
NMES	Notional Marina Fisherias Service (USA)
	National Oceanic and Atmospheric Administration (USA)
NORA	ICES EuroCOOS North Son Engewater Bilot Brainet
NORSET	The NOPWagian ECOlogical Model system
OMEGA	Development and Testing of an Objective Mech Gauge (EC Project)
OWIEGA	Oclo and Paris Commissions
DA DA	Osio and Falis Commissions Drecautionary Approach
рлн	Polycyclic aromatic hydrocarbon
PRDES	Polybrominated dinhanlathers
PCB	Polychlorinated Binhanyls (PCRs)
PFA	Pre-fishery abundance
DICES	North Pacific Marine Science Organization
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PINRO	Polar Research Institute of Marine Fisheries and Oceanography
0A	Ouality Assurance
0C	Quality Control
RIVO	Netherlands Institute for Fisheries Research
RMC	Resource Management Committee
RMP	Revised Management Procedure
ROSCOP	Cruise Summary Report
SAMFISH	Improving Sampling of Western and Southern European Atlantic Fisheries
SCOR	Scientific Committee on Oceanic Research
SIMFAMI	Species Identification Methods from Acoustic Multifrequency Information
SMHI	Swedish Meteorological and Hydrological Institute
SOOP	Ship-of-Opportunity
SPACC	The Small Pelagic and Climate Change Program
SPICES	Senior People of ICES
STACFIS	The Standing Committee of Fishery Science
TAC	Total Allowable Catch
TCPMe	Tris(4-chlorophenyl)methane
TIMES	ICES Techniques in Marine Environmental Sciences
ToRs	Terms of Reference
TS	Target strength
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization
VNIRO	Russian Federal Research Institute of Fisheries and Oceanography
VPA	Virtual Population Analysis
WFD	Water Framework Directive
WG	Working Group
WMO	World Meteorological Organization
WWF	World Wide Fund for Nature
WWW	World Wide Web
XML	Extended Mark-up Language
XSA	Extensible markup language