

ICES Annual Report

for

1998/1999

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

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FOREWORD TO THE ICES ANNUAL REPORT FOR 1998/1999

BY THE GENERAL SECRETARY OF ICES, PROFESSOR CHRISTOPHER C.E. HOPKINS

As required by Rule 15 of the Rules of Procedure of the International Council for the Exploration of the Sea (ICES), I have the honour to present the *ICES Annual Report for 1999*, which outlines the Council's activities between 1 November 1998 and 31 October 1999, and incorporates the proceedings of the 1999 Annual Science Conference (87th Statutory Meeting) held in Stockholm, Sweden.

Highlights of 1998/1999

1) *The ICES Work Programme*

The Council at the 1998 ICES Annual Science Conference (Estoril, Portugal) adopted the Work Programme for 1998/1999. The Programme, comprising both Core Science and the Advisory Function, was carried out between 1 November 1998 and 31 October 1999. It involved the participation of over 1,500 scientists and experts from the 19 Member Countries, the 4 Scientific Observer Countries, and representatives of collaborating international organisations, attending the meetings of numerous Study/Working Groups, Planning Groups, Workshops, Science and Advisory Committees, and international Symposia. These aspects are reported on further under the "*Report on Administration for the Year 1 November 1998 to 31 October 1999*".

2) *The First of the ICES Centenary Conferences: The 1999 Annual Science Conference, Sweden*

ICES will celebrate its one hundredth anniversary in 2002. ICES is not merely the world's oldest intergovernmental marine science organisation: more importantly, through the ebb and flow of changing demands over the century it has retained its unique position at the centre of international cooperative studies of the sea and its living resources.

As a leading forum for the promotion, coordination, and dissemination of research on the North Atlantic and adjacent seas, ICES works with experts from the 19 Member Countries. A primary responsibility involves providing scientific information and advice in response to requests by member governments as well as regional and international regulatory commissions and the European Commission. Work with the three classic areas of interest—fisheries, oceanography, and the marine environment—has continued to develop and expand, gradually eroding boundaries as interdisciplinary studies and a focus on marine ecosystems have assumed increasing importance.

None of these developments could have taken place without decades of work that preceded the actual establishment of ICES. While the vital importance of the fisheries, and the problems posed by overfishing, have long been recognised as lying at the core of the Council's foundation, more

recent studies have argued that the origins of ICES lie in hydrographic work initiated in the late 1870s. Such work, dealing as it did with the fundamental nature of the oceans with all their variability and constant change was crucial in making it evident that the living resources and the environment were mutually independent. The relative balance between these two broad areas of interest in influencing developments a century ago remains to be settled by additional work.

In the meantime, however, there is no doubt that the role and eventual impact of early hydrographic and oceanographic studies were of immeasurable importance. Two Swedish chemists, Gustaf Ekman and Otto Pettersson, were the primary movers in studies that made it apparent that local investigations would have to be extended across international boundaries if they were to have validity. Pettersson was instrumental in persuading the Sixth International Geographical Congress, held in London in 1895, to pass a resolution urging that international investigations be conducted in the North Atlantic, the North Sea, and the Baltic. Responding to these initiatives, the Swedish Government invited other governments to participate in a meeting to discuss a programme of cooperative research and exploration. The conference that was convened in Stockholm in June 1899 was the first to lay the ground for what would eventually be established three years later in Copenhagen as the International Council for the Exploration of the Sea.

To commemorate the inception of ICES, four principle programmes and events will take place between 1999 and 2002. The ICES Symposium on '100 Years of Science under ICES' will be held in Helsinki (Finland) from 1-3 August 2000, and ICES Annual Science Conferences will include special programmes respectively focusing on three topics: 'The Challenges Facing ICES' to be held in Oslo (Norway) in 2001, 'The ICES Strategy for the Living Oceans, to be held in Copenhagen (Denmark) in 2002, and as the first in the ASC series, 'The Evolution of ICES' held in Stockholm (Sweden) in 1999.

The 1999 ICES ASC was held from 29 September to 2 October at the Stockholm City Conference Centre/Folkets Hus, by kind invitation of the Government of Sweden. A highlight of the 1999 ASC was the participation and address at the General Assembly by the current King, Carl XVI Gustaf. The King was accompanied by a number of dignitaries, including the Swedish Minister of Agriculture, Margareta Winberg.

Besides the General Assembly that also included the Open Lecture by David de G. Griffith 'On the Evolution of ICES', the other special ICES Centenary observance encompassed a half day of Centenary Activities featuring an address by the Swedish Minister of the Environment,

Kjell Larsen, followed by a series of Centenary Lectures given by: Artur Svensson on 'Otto Pettersson and the Birth of ICES'; Professor Warren Wooster on 'ICES and Ocean Exploration'; Professor Jakob Jakobsson on 'ICES and the Overfishing Problem'; and Professor Alasdair McIntyre on 'ICES and Environmental Issues'. Interspersed with the lectures were musical interludes, and presentations of '100 Years of ICES Personalities from Sweden' that recognised the contributions to ICES by 29 veteran scientists and administrators from Sweden since the formation of ICES.

During the course of the 1999 ASC more than 650 participants—including scientists and other delegates, representatives of other international and intergovernmental organisations, senior government officials and dignitaries—attended the scientific and business sessions as well as the above-mentioned events.

Thanks to Swedish planning and hospitality, the 1999 ASC Conference also featured several memorable receptions and dinners, including experiencing the grandeur of the Golden Hall—famed for part of the Nobel Prize arrangements—at the Stockholm City Hall.

There is little doubt that the superb arrangements in Stockholm will set the standard for the 2001 and 2002 ASCs.

These aspects are further reported on under the section of this Annual Report entitled "*Proceedings of the 1999 Annual Science Conference*".

3) *Preparing the ICES Strategic Plan*

As ICES begins the celebration of one hundred years of excellence in marine science, it is also aware of the need to look towards the future. Needs for scientific understanding and advice have never been greater, and they are continuously evolving. To meet these challenges, a draft Initial Strategic Plan to guide ICES into the 21st Century was adopted by the Council of Delegates in Stockholm for future consultations in order to gain input reflecting the interests of Member Countries, Partner Commissions, and other stakeholders.

The above-mentioned consultations will take place during the course of the year 2000. Multi-year operating plans will be prepared for implementation purposes. During the implementation of the plan, performance will be monitored and evaluated, and regular updating will occur.

Through consultation and agreement, the ICES Strategic Plan will determine the future scientific and advisory development, as well as the overall support framework, for the role of ICES.

4) *The ICES Advisory Function*

- a) Eleventh ICES Dialogue Meeting: The Eleventh ICES Dialogue Meeting on the Relationship Be-

tween Scientific Advice and Management was held in Nantes, France, 25-26 January 1999. A total of 63 delegates from ICES Member Countries and the fisheries-related partner commissions (EC/DG XIV, IBSFC, NASCO, and NEAFC) and collaborating organisations (FAO, ICCAT, and NAFO) addressed the Terms of Reference for the meeting as agreed by the Council at the 1998 ASC. The following three topics, which were central to the main theme of the Dialogue Meeting, formed the focus of the discussion. They were first introduced by invited speakers in plenary, then discussed during separate meetings held by complementary Working Groups, and subsequently considered during plenary sessions when reports and conclusions were presented.

Topics examined at the Eleventh Dialogue Meeting:

- i) The Precautionary Approach;
- ii) The Form and Nature of the Advice;
- iii) Confidence Building.

Plenum Sessions reviewing the summaries of the findings were held, and many views were forthcoming on the value of the exercise before the Dialogue Meeting was concluded.

The report of the Eleventh ICES Dialogue Meeting is published as *ICES Cooperative Research Report No. 228*.

The Coordinating Group on ICES Advice (CGADV) was tasked with developing the ICES follow-up response to the proposals put forward at the Dialogue Meeting by the various stakeholders as to how they would like to see the ICES Advisory Function respond to current and future challenges. CGADV submitted its reports to the Council at the 1999 ASC in Stockholm.

- b) Enhancing the Advisory Function: The Coordinating Group on ICES Advice (CGADV) also reported to the Council at the 1999 ASC with respect to the Terms of Reference set the previous year by the Council. These tasks included overseeing the protocols concerning the 'Scoping of Advice', 'Form of Advice', and 'Quality of Advice', as well as the formulation of a draft ICES Quality Policy including initiating the development of Quality Management Procedures for the Advisory Function.

In addition to the above-mentioned tasks set by the Council, CGADV had developed proposals to establish a single Advisory Committee ("Best Forum for Advice"). However, the Council of Delegates was unable to agree on adopting the proposal made by CGADV due to significant differences in views on the precise nature of the

changes to be made to the advisory process. Accordingly, it was resolved that a *Bureau Working Group on the ICES Advisory Process (BWGADVP)*, to be chaired by Dr Scott Parsons (President of ICES), would be established to advise on modifications to the ICES advisory process in order to:

1. Improve the management of the Advisory Process and Committees and address questions of their programme and workload, and those of their Working Groups, and
2. Facilitate the efficient and flexible delivery of quality integrated advice of fisheries and environmental issues.

Such modifications will be of a form that will permit Delegates to vote on proposed changes at the ASC in 2000.

As this is one of the most important matters needing to be resolved successfully, the outcome of the Working Group's deliberations will be eagerly awaited both in and outside ICES.

These issues are further reported on under the section of this Annual Report entitled "*Proceedings of the 1999 Annual Science Conference – Report of Delegates Meeting*".

5) *The 2000 ICES Annual Science Conference*

By kind invitation of the Government of Belgium, the 2000 ASC (88th Statutory Meeting) will be held from 27–30 September 2000 in the charming city of Bruges. The ICES community can look forward to experiencing a combination of a stimulating Conference programme and the justly celebrated Belgian hospitality and cuisine.

Layout of the Annual Report for 1998/1999

The *Annual Report for 1998/1999* is arranged under the following main headings (c.f. Table of Contents):

1. *ICES and Activities in 1998/1999*, including
 - a) *Foreword by the General Secretary* – draws attention to specific highlights of the past year, and providing a summary overview of the layout of the Annual Report;
 - b) *The International Council for the Exploration of the Sea: An Introductory Note* – providing a summary account of the function and organisation of ICES for readers who are unfamiliar with these matters;
 - c) *Report on Administration for the Year 1 November 1998 to 31 October 1999* – providing specific information during

the past year about

- i) *The Council and its Members;*
- ii) *Cooperation with Other International Organisations;*
- iii) *Meetings and Other Activities Organised by the Council;*
- iv) *Secretariat Matters;*
- v) *Publications.*

2. *Proceedings of the 1999 Annual Science Conference*, including

- a) *Agenda for the 1999 Annual Science Conference* – details the main items comprising the Statutory Meeting;
- b) *General Assembly, with Addresses by the King of Sweden, Carl XVI Gustaf, and Dr Scott Parsons (President of ICES)* – providing a review of the General Assembly, including key addresses, and the Open Lecture;
- c) *Centenary Session* – providing a summary record of the Special Commemorative Lectures, as well as the Address by Kjell Larsson (Swedish Minister of the Environment), and response by Dr Scott Parsons (President of ICES);
- d) *Closing of the Scientific Sessions* – review of elections and appointments by the Council, key addresses, and the closing of the Science Conference *sensu stricto*;
- e) *Report of Delegates Meeting* – providing a summary report of the deliberations and endorsements of the Council of National Delegates with regard to policy, operations, and the work-programme for 1999/2000;
- f) *Resolutions Adopted at the 1999 Annual Science Conference* – providing the Terms of Reference for the work of the numerous Committees and subsidiary Groups to support both the ICES Core Science Programme as well as the Advisory Function conducted for the collaborating regulatory Commissions in the forthcoming year;
- g) *Report of the Finance Committee* – comprising a review of the ICES Accounts, and various Budgets, prior to further consideration and approval by the Council;
- h) *Audited Income and Expenditure Accounts for Financial Year 1997/1998* – shows the audited ICES Accounts for 1997/1998 as approved by the Finance Committee;
- i) *Budget for Financial Year 1999/2000* – shows the ICES Budget for the forthcoming year as endorsed by the

- j) Council;
Report of the Publications Committee – reviews ICES publication activities during 1998/1999 as well as possible future needs, prior to further consideration and approval by the Council;
- k) *Reports of Science Committees and Theme Sessions* – together with Supplements 1 and 2, providing the reports of the Consultative Committee, the seven Science Committees, and the reports of the Theme Sessions at the 1999 Annual Science Conference. A list of names and addresses of officially registered participants at the 1999 Annual Science Conference is given in Supplement 4.

3. *Overview of ICES Membership, Organisation and International Collaboration*, including

- a) *Composition of the Council in 1999/2000* – providing an overview of the identity of Officials, National Delegates, Bureau members, the Publications Committee, the Consultative Committee, Editors of Council Publications, and the ICES Secretariat;
- b) *Composition of the Advisory and Science Committees in 1999/2000* – providing an overview of the identity of Chairs and *ex officio* members of the Advisory Committees on Fishery Management (ACFM) and the Marine Environment (ACME), and the seven Science Committees;

- d) *Organisational Overview of ICES Committees and Subsidiary Groups* – depiction of the hierarchical relationship between the 'parent' Advisory and Science Committees and their subordinate Groups, e.g., Study and Working Groups, Workshops, and Steering Groups;
- e) *Directory of ICES Committees and Subsidiary Groups* – providing a catalogue of specific pages of the *Annual Report* where relevant Council Resolutions and details concerning Chairs of particular Committees and Groups can be found;
- f) *Chairs of ICES Committees and Subsidiary Groups* – identifies who chairs these;
- g) *Names and Addresses of Council Officials and Chairmen of Committees and Groups* – providing fax, phone, and mail details;
- h) *International Organisations having Observer Status and Cooperative Relations with ICES* – identifies the more than 50 collaborating organisations that work closely with ICES.

4. *Acronyms Appearing in ICES Annual Report 1999* – attempts to untangle the numerous abbreviations.

PART I

ICES AND ACTIVITIES IN 1998/1999

THE INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA

An Introductory Note

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 1970s, a major task for ICES has involved the provision of scientific information and advice to intergovernmental regulatory commissions, the European Commission, 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.

Scientific Observer status has been granted to Australia (CSIRO), Greece (Institute of Marine Biology of Crete), New Zealand (National Institute of Water and Atmospheric Research), 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), with the General Secretary and Chair of the Consultative Committee as *ex officio* members, constitute the Bureau, the executive arm of ICES. 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 and Publications Committees advise the Council and the Bureau on financial and publications matters, respectively.

The General Secretary—the chief executive officer of ICES—heads a group of Professional and General Service category staff currently numbering 35 persons, 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 1500 scientists involved in ICES activities located in the Member Countries, the growing number of Scientific Observer countries, 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 standing committees. On the scientific side, there are seven Science Committees providing a wide coverage of the main facets of marine science, two Advisory Committees, and a Consultative Committee. The Consultative Committee, consisting of the Chairs of the Science Committees and the Advisory Committees, plus a 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, upon 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 neces-

sary, for further work. All Member Countries 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; fish diseases, 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, and 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);
- ◊ 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. ICES Rules of Procedure state that "The Advisory Committee on Fishery Management (ACFM) shall be responsible for scientific information and advice on living resources and their exploitation" on behalf of the Council. In formulating its advice on the management of 90-100 stocks of fish and shellfish, ACFM utilises information prepared by numerous stock assessment Working Groups. ACFM meets twice a year (summer and late 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). ICES Rules of Procedure also state that "The Advisory Committee on the Marine Environment (ACME) shall be responsible for scientific information and advice on the status of the marine environment (including marine pollution) and its consequences on living resources and related human activities". ICES provides such services to Member Country governments and the following commissions:

- ◊ Oslo and Paris Commissions (OSPAR, Convention 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).

As a basis for this advice, ACME reviews the reports of approximately 20 Working Groups that coordinate work on various topics related to the marine environment and marine contamination. ACME meets annually and publishes its report in the *ICES Cooperative Research Report* series.

Although the Advisory Committees were initially established to address largely different areas of interest, there is an increasing need for multidisciplinary advice, particularly in relation to the interaction between the exploitation of living resources and the environment and ecosystems. For this reason, the two Advisory Committees now collaborate in preparing their advice and, when appropriate, issue joint reports.

3. 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 new 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 fisheries, contaminants/pollution, and oceanographic databases. 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 in the North Sea, and catch statistics for the Northeast Atlantic. 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. 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 Oceanographic Cruises and Data Stations (ROSCOP), which summarises all cruise activities in Member Countries related to physical oceanographic, marine biological, pollution, fisheries, and geophysical research.

Coordination of Cooperative Programmes

ICES has played an active role in coordinating cooperative research programmes in the North Sea and elsewhere in the ICES area. One of the best known of such recent enterprises was the North Sea Task Force (NSTF), which was established jointly by ICES and the Oslo and Paris Commissions following the Ministerial Declaration made at the Second International Conference on the Protection of the North Sea in London, UK, in 1987. Among other activities, the North Sea Task Force initiated measures for enhancing the scientific knowledge and understanding of the North Sea. As a result, the *North Sea Quality Status Report 1993* (1993 QSR) was published, providing a "dependable and comprehensive statement of circulation patterns, inputs and dispersion of contaminants, ecological conditions, and effects of human activities in the North Sea".

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 which 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 will appear as special numbers of the *ICES Journal*, above)
- *ICES Cooperative Research Report*
- *ICES Fisheries Statistics*
- *ICES Oceanographic Data Lists and Inventories* (now available on Internet)
- *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 Information* (Newsletter)

Collaboration With Other International Organizations

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 Organization (IMO), the World Meteorological Organization (WMO), and the United Nations Environment Programme. Other organisations with which ICES cooperates range from the Arctic Monitoring and Assessment Programme (AMAP) to the World Wide Fund for Nature (WWF).

REPORT ON ADMINISTRATION FOR THE YEAR

1 NOVEMBER 1998 TO 31 OCTOBER 1999

1 THE COUNCIL AND ITS MEMBERS

1.1 Country Membership

On 17 September 1997, the Government of the Republic of Lithuania submitted an application for membership in the Council with the Danish Ministry of Foreign Affairs as depository of the ICES Convention. Having received endorsement of this application by the necessary three-fourths of ICES Member Countries, Lithuania will become the 20th Member Country of ICES as soon as it has submitted its Instrument of Accession.

1.2 Payment of National Contributions

As of 30 April 1999, all national contributions except from Belgium—whose payment was DKK 20,000 short—have been paid to the Budget for the Financial Year 1998/1999.

1.3 National Delegates

The following national Delegates have been announced since the 1998 Annual Science Conference (86th Statutory Meeting):

- a) Dr R. Aps was appointed to replace Dr A. Järvi as Delegate of Estonia;
- b) M. Vasconcelos was appointed to replace Dr Carmen Lima as Delegate of Portugal;
- c) Dr W. Turrell was appointed to replace Dr P.A.M. Stewart as Delegate of the U.K.;
- d) Dr E. López-Jamar was appointed to replace Orestes Cendrero as Delegate of Spain.

1.4 Appointment of New Members of the Advisory Committees

Based on the decision by the Council at the 1998 ASC, the composition of ACFM and ACME will be determined before each meeting from a pool of five experts nominated by each Member Country, based on the agenda for the specific meeting.

2 COOPERATION WITH OTHER INTERNATIONAL ORGANISATIONS

The Council has continued its active cooperation during the past year 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/pollution (HELCOM and OSPARCOM).

Meetings during the period 1 November 1998 – 31 October 1999 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 1999 Annual Science Conference as Doc. C.M. 1999/Gen:1.

2.1 IOC, SCOR, and IGBP

SCOR co-sponsored with ICES the very successful Symposium on the Ecosystem Effects of Fishing, held in Montpellier, France, from 15–19 March 1999.

The NOAA/IOC/SCOR/ICES Symposium on the Changing States of Large Marine Ecosystems of the North Atlantic and Global Environmental Trends, was held in Bergen, Norway, from 16–18 June 1999. ICES was represented by the President.

ICES will also co-sponsor, together with PICES, the NAFO Scientific Council Symposium on "Pandalid Shrimp Fisheries – Science and Management at the Millennium", Halifax, N.S., Canada, to be held from 8–10 September 1999. This Symposium marks the 50th Anniversary of ICNAF/NAFO. The Symposium's Co-Conveners are P. Koeller (NAFO), S. Tveite (ICES), and J. Boutillier (PICES).

IOC agreed to co-sponsor the new Study Group on an ICES/IOC Checklist of Phytoplankton but, due to various difficulties, this group did not meet. The group intends to continue its work by correspondence during 2000, under a new Chair.

IOC also co-sponsored the Workshop on GOOS which was held in Bergen, Norway, from 22–24 March 1999. IOC was represented by the GOOS Director, and the Workshop made a number of recommendations which develop the very close and on-going relationship between the stakeholders in order to allow for a full implementation of GOOS in ICES Member Countries. These recommendations included the co-sponsorship of the ICES Steering Group on GOOS with IOC. This was supported by IOC in a recommendation of the IOC Assembly, July 1999. The ICES Oceanographer represented ICES.

The IOC-ICES Working Group on Harmful Algal Bloom Dynamics met in Jena, Germany, from 16–20 March 1999. The group has recommended a number of joint ICES and IOC activities, including cooperation on a Harmful Algal Bloom database, and joint web sites of harmful algal bloom incidence maps.

The recent IOC Assembly approved the establishment of GEOHAB (Global Ecology and Oceanography of

Harmful Algal Blooms) under the co-sponsorship of IOC and SCOR. GEOHAB is a plan for coordinated scientific research and cooperation to develop international capabilities for assessment, prediction, and mitigation of harmful algae. It is a science programme within a general framework provided by the IOC Harmful Algal Bloom Programme, and builds on the Physiological Ecology of HAB and the ICES/IOC Working Group on Harmful Algal Bloom Dynamics. This new activity will be chaired by the retiring Chair of the ICES/IOC Group. Since it is not clear how the new IOC/SCOR Group will co-reside with the existing ICES/IOC Group, the ICES representative at the IOC Assembly (ICES Oceanographer) informed the Assembly of his concerns in this direction. As a result, IOC and SCOR will be examining the issue with the intent to ensure that the ICES/IOC Group will continue its valuable work.

IGBP recognises ICES and PICES as regional co-sponsors of GLOBEC and the five-year plan of research drawn up by the ICES Working Group on Cod and Climate Change is included in the International Implementation Plan for GLOBEC which was published in 1999. The ICES/GLOBEC Coordinator attended the second IGBP congress in Japan in May 1999 and presented a paper.

2.2 OSPAR

The OSPAR Convention 1992 has now been ratified by all Contracting Parties and entered into force on 25 March 1998; the Commission under this new Convention is called the OSPAR Commission. ICES has been represented at the following meetings of OSPAR and its subsidiary bodies:

- a) The Working Group on Inputs to the Marine Environment (INPUT), London, UK, from 7–11 December 1998 (ICES Representative: S. Uhlig);
- b) The Fifth Meeting of the Working Group on Concentrations, Trends, and Effects of Substances in the Marine Environment (SIME) held in Dublin, Ireland, from 22–26 February 1999 (ICES Representative: ICES Environment Adviser);
- c) The Seventh Meeting of the Environmental Assessment and Monitoring Committee (ASMO) held in The Hague, Netherlands, from 14–16 April 1999 (ICES Representative: ICES Environment Adviser).

Sections of the 1998 Report of ACME containing information and advice to OSPAR were presented and considered at all of the above-mentioned meetings.

The Seventh Meeting of ASMO also prepared a Draft ICES Work Programme for 2000. This Draft Work Programme has been costed by the ICES Secretariat for consideration at the OSPAR meeting in June 1999. The OSPAR Commission viewed the Draft Work Programme and adopted a number of requests for scientific advice

and data handling activities to be conducted by ICES during 2000.

2.3 The North Sea Conference Process

Having played a significant role in the preparations for the March 1997 Intermediate Ministerial Meeting on the Integration of Fisheries and Environmental Issues (IMM97), ICES continues to collaborate closely with the North Sea Secretariat and the Committee of North Sea Senior Officials (CONSSO) in further work connected with following-up IMM97, and in preparing for the Fifth North Sea Conference scheduled to be held in Norway in 2002.

At the November 1998 CONSSO meeting, it was agreed that a Workshop on Ecosystem Quality Objectives (EcoQOs) should be held, with the Netherlands and Norway taking the lead on the issue of EcoQOs under OSPAR, and with co-sponsorship by several intergovernmental organisations. ICES was requested to serve as a co-sponsor and has agreed to do so. A background document for this Workshop, prepared by experts in the Netherlands and Norway, was reviewed by ACME in June 1999 and comments were provided for the further development of this document.

The EcoQOs Workshop was held in Scheweningen, Netherlands, from 1–3 September 1999, and ICES was represented by the Chair of the Marine Habitat Committee, Dr A. Jarre, and the ICES Fisheries Adviser.

2.4 Helsinki Commission (HELCOM)

The meetings of HELCOM and its subsidiary bodies at which ICES has been represented include:

- a) The Fourth Meeting of the Working Group on Monitoring and Assessment (EC MON), held in Gothenburg, Sweden, from 19–23 April 1999 (ICES Representative: ICES Environment Adviser);
- b) An extra meeting of the Helsinki Commission, held in Helsinki on 6–7 September 1999 (ICES Representative: ICES Environment Adviser);
- c) The Tenth Meeting of the Environment Committee (EC), held in Copenhagen from 4–8 October 1999 (ICES Representatives: ICES Environmental Data Scientist, and (part time) ICES Environment Adviser).

Scientific information and advice in response to requests from HELCOM, prepared by ACME at its June 1998 meeting, were presented to the EC MON meeting; scientific information and advice prepared by ACME at its June 1999 meeting were presented to the EC meeting.

The General Secretary and the ICES Environment Adviser represented ICES at the Twentieth Meeting of the Helsinki Commission held in Helsinki, Finland, from 22–25 March 1999, with the General Secretary representing ICES at the Ministerial level meeting held

on 25 March 1999. The Commission was informed of the activities that ICES has coordinated for HELCOM and the advice provided to its subsidiary groups during the past year. The Commission also agreed in principle to the draft ICES/HELCOM Memorandum of Understanding (MoU), subject to a number of changes being made to reflect on-going structural changes in HELCOM. The MoU was signed by the ICES President in late August and was counter-signed by HELCOM in early September, based on adoption at the extra meeting of the Helsinki Commission in September.

On the basis of a recommendation from the HELCOM Environment Committee, the Helsinki Commission accepted the written offer from ICES to serve as the data centre for Baltic Monitoring Programme data. A contract was negotiated between ICES and HELCOM to cover the period 1 July 1998 to 30 June 2001. This contract was finally signed in December 1998.

2.5 NEAFC

The General Secretary, Fisheries Adviser and the Chair of ACFM represented ICES at the Seventeenth Annual Meeting of the North-East Atlantic Fisheries Commission (NEAFC) held in London, UK, from 17–20 November 1998. The ICES advice on the status and management of the principal fish stocks in the NEAFC area was presented. The MoU between NEAFC and ICES was finalised and was signed in December 1998 by the Presidents of NEAFC and ICES. ICES was asked, as in previous years, to provide the full range of scientific advice on the status of all major fish stocks in the NEAFC area in 1999 and catch forecasts for 2000.

2.6 NASCO

Information and advice on the status and management of North Atlantic salmon and the compilation of tag releases in 1998 were prepared for NASCO. The ICES advice was prepared by ACFM at its May 1999 meeting based on the report of the April 1999 meeting of the Working Group on North Atlantic Salmon (C.Res. 1998/2:4:11).

The ICES advice on North Atlantic salmon was presented by the Chair of ACFM at the Sixteenth Annual Meeting of NASCO in Westport, Ireland, from 7–12 June 1999. The draft ICES/NASCO MoU was approved by the Council of NASCO and was signed by the President of NASCO and ICES on 23 June 1999. ICES was also represented at this meeting by the General Secretary.

2.7 IBSFC

Information and advice on the status and management of the stocks of cod, herring, sprat, and salmon in the Baltic were prepared for the International Baltic Sea Fishery Commission (IBSFC) at the May 1999 ACFM meeting. This advice will be presented at the Twenty-fifth Session of IBSFC from 6–10 September 1999 in Warsaw, Poland. The ICES advice to IBSFC was presented by the

Chair of ACFM. ICES was also represented at this meeting by the ICES Fisheries Assessment Scientist.

ICES was represented by the Fisheries Assessment Scientist at the IBSFC Working Group on 'Baltic 21 Sector Fisheries, including Working Group on Cod Management Strategies', held in Visby, Sweden, from 27–30 April 1999.

2.8 European Commission

As in previous years, a considerable amount of the Council's work was devoted to the preparation of scientific information and advice on the status of fish stocks and their management in response to requests for the European Commission's Directorate General for Fisheries (DG XIV). An observer from DG XIV attended the October 1998 and May 1999 ACFM meetings.

ICES was represented by the Fisheries Adviser at the "Internal and External Resources" meeting of the European Commission's Advisory Committee on Fisheries in Brussels, Belgium, on 1 December 1998, where he gave a presentation of the ACFM advice.

The Secretariat has now completed its first EC MAST Project, ESOP. A CD-ROM portraying the results will be distributed soon by the ICES Secretariat. The EC MAST Data Committee has now been terminated, its function having been replaced by another MAST Project EURONODIM. The ICES Secretariat is not participating in this project which is developing a number of services building on various services provided by the Secretariat.

The third meeting of the EEA, ETC/MC Inter-Regional Forum was held in Venice, Italy, on 27–28 September 1999. ICES was represented by the ICES Environmental Data Scientist. Three topics were covered at this meeting: 1) the development of marine environmental indicators; 2) data availability, access and management; and 3) GIS for marine parameters. Further intersessional follow-up activities will be conducted on these three topics.

2.9 AMAP and IASC

The Arctic Science Summit Week held from 26–29 April 1999 in Tromsø, Norway, included a Workshop on Impacts of Climate Change in the Arctic, at which the ICES/GLOBEC Coordinator gave a talk on impacts on the marine environment.

During 1999, ICES has served—under a second contract with the Arctic Monitoring and Assessment Programme (AMAP)—as the Thematic Data Centre for the monitoring data collected from the marine component of AMAP.

2.10 FAO

ICES continues to collaborate actively with FAO within the framework of the 1996 ICES/FAO Memorandum of Understanding. The General Secretary and the Fisheries

Adviser represented the Council at the Twenty-third Session of the Committee on Fisheries (COFI), held at FAO Headquarters in Rome, Italy, from 15–19 February 1999.

2.10 CWP

The Coordinating Working Party on Fisheries Statistics (CWP) is responsible for coordinating global fishery statistics policy, and ICES is a founder member. The CWP Inter-Sessional Meeting (ISM) met at EUROSTAT Headquarters in Luxembourg from 5–9 July 1999. ICES was represented by the Fisheries Adviser.

2.12 QUASIMEME II

ICES has a place on the Advisory Board of the subscription-funded laboratory proficiency testing scheme, QUASIMEME II, coordinated by the FRS Marine Laboratory in Aberdeen, UK. ICES was represented by the ICES Environmental Data Scientist at the meeting of the QUASIMEME II Advisory Board held in Egmond aan Zee, Netherlands, from 9–11 October 1999.

3. MEETINGS AND OTHER ACTIVITIES ORGANISED BY THE COUNCIL

3.1 Symposia

The Symposium on “Confronting Uncertainty in the Evaluation and Implementation of Fisheries-Management Systems” (Co-Conveners: Dr T.K. Stokes, UK; Dr R.L. Stephenson, Canada; Prof. D. Butterworth, South Africa) was held in Cape Town, South Africa, from 16–19 November 1998. Co-sponsors included the European Commission, FAO, and ICLARM. A total of 144 participants from 24 countries attended the Symposium. Selected papers will be published in a special number in the *ICES Journal of Marine Science*.

The ICES/SCOR Symposium on the “Ecosystem Effects of Fishing” (Co-Conveners: Prof. H. Gislason, Denmark; Dr M.M. Sinclair, Canada) was held in Montpellier, France, from 16–19 March 1999. Co-sponsors included ORSTOM, ICLARM, FAO, and IOC. A total of 340 participants from 54 countries attended the Symposium. Selected papers will be published in a special number in the *ICES Journal of Marine Science*.

The Symposium on “Population Dynamics of *Calanus* in the North Atlantic: Results from the Trans-Atlantic Study of *Calanus finmarchicus*” (Co-Conveners: Prof. K.S. Tande, Norway; Prof. C. Miller, USA) will be held in Tromsø, Norway, from 24–27 August 1999. A Scientific Steering Committee has been established (including Prof. J.O. Backhaus, Germany; Prof. B.W. Frost, USA; Dr R. Harris, UK; Dr A. Ianora, Italy; Dr J. Runge, Canada; and Dr P. Wiebe, USA) to assist the Co-Conveners in planning the Symposium. Co-sponsors include EC DG XII (MAST Programme), the US National Science Foundation, and the Norwegian College of Fishery Science, University of Tromsø,

Norway. A flyer/prospectus was distributed in December 1998. Selected papers will be published in a special number in the *ICES Journal of Marine Science*.

The Symposium on the “Environmental Effects of Mariculture” (Co-Conveners: Dr. D. Wildish, Canada; Dr M. Héral, France) was held in St. Andrews, N.B., Canada, from 13–16 September 1999. A total of 102 participants from twelve countries attended the Symposium. Selected papers will be published in the *ICES Journal of Marine Science*.

The Symposium on “100 Years of Science under ICES” (Convener: Dr E.D. Anderson, USA) will be held in Helsinki, Finland, from 1–3 August 2000. A Scientific Steering Committee (including O. Cendrero, Spain; Dr R.R. Dickson, UK; D. de G. Griffith, Ireland; Prof. J. Jakobsson, Iceland; Prof. W. Lenz, Germany; Prof. E.L. Mills, Canada; Dr T.D. Smith, USA) has been established to assist the Convener in planning the Symposium. A flyer/prospectus was distributed in June/July 1998. Selected papers will be published in a special number in the *ICES Journal of Marine Science*.

The Symposium on “Hydrobiological Variability in the ICES Area, 1990–1999” (Co-Conveners: Dr R.R. Dickson, UK; Prof. J. Meincke, Germany) will be held in Edinburgh, UK, from 8–10 August 2001. A Scientific Steering Committee will be established to assist the Co-Conveners in planning the Symposium. Co-sponsorship is being sought from appropriate international organisations.

The Symposium on “Fisheries and Plankton Acoustics” (Co-Conveners: Dr F. Gerlotto; Dr J. Massé, France) will be held in Montpellier, France, from 10–14 June 2002 (C.Res. 1997/2:1). A Scientific Steering Committee will be established to assist the Co-Conveners in planning the Symposium. Co-sponsorship is being sought from appropriate international organisations.

ICES has agreed to co-sponsor, at no financial cost to the Council, the Seventh International Conference on Artificial Reefs and Related Aquatic Habitats, to be held in San Remo, Italy, from 7–11 October 1999 (C.Res. 1997/2:3), and the Second International Pandalid Shrimp Symposium – entitled Science and Management at the Millennium, which is to be held in Halifax, N.S., Canada, from 15–17 September 1999.

3.2 Dialogue Meetings

The Eleventh ICES Dialogue Meeting on the Relationship Between Scientific Advice and Fisheries Management was held in Nantes, France, from 25–26 January 1999. The meeting was attended by a total of 50 participants from 18 Member Countries, as well as the European Commission, FAO, IBSFC, ICCAT, NASCO, and NEAFC. The Report of this meeting has been published as *ICES Cooperative Research Report* No. 228.

3.3 Bureau

The Bureau (Chair: Dr S. Parsons, President of ICES) held its Meeting in Nantes, France, from 27–28 January 1999 to review and approve the draft ICES Secretariat Workplan for 1998/1999, and to consider key ICES issues. All members were present, except Dr G. Pestana, who was unable to attend. In addition, Dr M.P. Sissenwine (Chair of the Bureau Working Group on Strategic Planning) attended the meeting to present the Status Report on Progress on Development of the ICES Strategic Plan, and Professor J. Thulin, (Delegate of Sweden) attended to present the Review of the Format and Arrangements for the 1999 Annual Science Conference, and also an Update on Developments in the Steering Group for Global Environment Facility Baltic Sea Regional Project.

The Mid-Term Meeting of the Bureau was held at ICES Headquarters from 23–24 June 1999. All members were present, as were the General Secretary and the Chair of the Consultative Committee as *ex officio* member, and the two members of the Secretariat's Finance and Office Administration Group.

The Bureau will meet again on 27–28 September 1999 in Stockholm, Sweden, immediately prior to the 1999 Annual Science Conference (87th Statutory Meeting).

The Bureau Working Group on Strategic Planning (Chair: Dr M.P. Sissenwine) met at ICES Headquarters from 8–11 June 1999 jointly with the Consultative Committee to address the Terms of Reference set by the Council at the 1998 ICES Annual Science Conference. Its report is available as Doc. C.M. 1999/Del.20.

The Coordinating Group on ICES Advice (Chair: N.A. Nielsen) met at ICES Headquarters from 10–11 May 1999 to address the Terms of Reference set by the Council at the 1998 ICES Annual Science Conference. Its report is available as Doc. C.M. 1999/Del:21.

The Bureau Working Group on Planning for the ICES Centenary continued its work by addressing the Terms of Reference set by the Council at the ICES 1998 Annual Science Conference. The next meeting of the Group will be held during the 1999 Annual Science Conference in Stockholm, Sweden.

3.4 Advisory Committees

ACFM

ACFM (Chair: J.-J. Maguire) has held two meetings, both at ICES Headquarters, since the 1998 ICES Annual Science Conference, the first from 21–29 October 1998 and the second from 12–20 May 1999. At both of these meetings the first three days were held in Sub-Groups to which the Chairs of relevant Assessment Working Groups were invited, followed by a plenary meeting.

All members or their alternates were present at the meeting in October 1998, as well as the ICES Fisheries

Adviser, Dr H. Sparholt and L. Pedersen (part-time) from the ICES Secretariat, and Observers from the European Commission (O. Hagström), NAFO (P. Cornus), and the Faroe Islands and Greenland Home Governments (H. í Jakupsstovu and J. Boje, both part-time). The Chairs of five Stock Assessment Working Groups were also present for the Sub-Group meetings. Information on the status of numerous fish, shellfish, and seal stocks, and advice on their management were prepared and submitted to NEAFC and the European Commission.

All members or their alternates were present at the meeting in May 1999, as well as the ICES Fisheries Adviser, Dr H. Sparholt, and L. Pedersen (part-time) from the Secretariat, the Chairs of the seven Stock Assessment Working Groups whose reports were being discussed (for the Sub-Groups), and Observers from the European Commission (O. Hagström), NAFO (P. Cornus), and the Faroe Islands and Greenland Home Governments (J. Reinert and J. Boje, both part-time). Information on the status of numerous fish and shellfish stocks and advice on their management were prepared for submission to NASCO, IBSFC, NEAFC, and the European Commission.

ACME

ACME (Chair: S. Carlberg) met at ICES Headquarters from 31 May to 5 June 1999. Members from all Member Countries, except Ireland, were present at the meeting, as well as the ICES Environment Adviser, the ICES Oceanographer (part-time), ICES Fisheries Adviser (part-time), the ICES/GLOBEC Coordinator (part-time), the Chair of the Working Group on Statistical Aspects of Environmental Monitoring (S. Uhlig) (part-time), and the Chair of the Working Group on Marine Mammal Habitats (Dr A. Bjørge) (part-time). The Committee compiled scientific information and advice on topics requested by the OSPAR Commission and the Helsinki Commission (HELCOM), particularly on quality assurance of marine monitoring, statistical aspects of the detection of trends in inputs of contaminants via rivers and the atmosphere, and monitoring contaminants in Baltic sediments. In addition, a request from the European Commission on sandeels was handled. It also prepared information and advice on other topics of interest to ICES Member Countries, including information on specific marine contaminants, fish disease issues, introductions and transfers of marine organisms, and effects of extraction of marine sand and gravel on marine ecosystems.

3.5 Consultative Committee

The Mid-Term Meeting of the Consultative Committee (Chair: Dr R.M. Cook) was held at ICES Headquarters from 8–11 June 1999 in accordance with C.Res.1998/2:3 to prepare a draft programme of sessions for the 1999 Annual Science Conference (Stockholm, Sweden) and to address other Terms of Reference set by the Council at the 1997 Annual Science Conference. The report of the meeting is available as Doc. C.M. 1999/A:5.

3.6 Working/Study Group Meetings and Workshops

The meetings of Working, Study, and other Groups and Workshops specified in C.Res.1997/2:5-3:3, have been arranged in consultation with their respective Chairs and members. Many of these have already taken place, and several changes to dates and venues were also made. The reports of Groups concerned with fish stock assessments which met from November 1997–May 1998 were reviewed by ACFM at its meeting from 18–22 May 1998 (C.Res.1997/2:11). The reports of Groups concerned with marine environmental and ecosystem issues were reviewed by ACME at its meeting from 31 May – 5 June 1999 (C.Res.1998/2:5).

The list of the above meetings is given in **Annex 2**.

4 SECRETARIAT MATTERS

4.1 Staffing

The total number of persons employed in the ICES Secretariat on a permanent basis during the current Financial Year is 34. These persons have occupied 10 posts at the Professional level, and 24 posts at the General Service level.

Hans Lassen (Danish citizen) took up the post of Fisheries Adviser (P5 grade) on 1 November 1998 to succeed Dr Roger S. Bailey, who resigned on medical grounds.

Marianne Neldeberg (Danish citizen) was selected to fill the post of IT Assistant (C6-grade), starting on 1 June 1999, to succeed Herbert Kwizera (Danish citizen).

Karin Bundgaard (Danish citizen) who started employment on 1 July 1994 in the MOD Group (C4-grade) has been granted leave of absence without pay for three months from 1 July 1999 to take up a post in Brussels.

Michala Ovens (Danish citizen), Assistant Librarian (C3 grade), was granted maternity leave from 1 August 1999.

Jane Ugilt (Danish citizen) has temporarily taken over the post of Karin Bundgaard during her leave of absence from 1 July to 30 September 1999.

Arne Facius (Danish citizen) has continued in temporary, part-time employment (P1), under the supervision of the ICES Fisheries Adviser and the ICES Oceanographer, to provide computer programming assistance with the International Bottom Trawl Surveys (IBTS) database and two EC-projects (Old IBTS Data, and BITS: Baltic Survey Database).

Peter Rasch (Danish citizen) was employed on a part-time basis in support of the work of the MAST Projects ESOPS and VEINS, under the supervision of the ICES Oceanographer until July 1999.

Janus Larsen (Danish citizen) started employment in July 1999 on a part-time basis in support of the work of the MAST Project VEINS, under the supervision of the ICES Oceanographer.

Lena Larsen (Danish citizen) has continued on a full-time basis in support of the work of two EC-projects (Old IBTS Data, and BITS: Baltic Survey Database) under the supervision of Dr H. Sparholt.

4.3 Improved Facilities and Equipment

Owing to a very limited budget in 1998/1999, little progress has been made in making improvements to the Headquarters' facilities in the past year.

5 PUBLICATIONS

Activities with respect to publications since the 1998 Annual Science Conference (86th Statutory Meeting) are reviewed below.

5.1 ICES Journal of Marine Science (*Journal du Conseil*)

Volume 55(5), pages 825–979, was off press during its cover month, October 1998, and distributed in November.

Volume 55(6) pages 981–1153, was issued in December 1998. It contains standard articles on a range of topics but was originally scheduled to include the proceedings of the Symposium on "Recruitment Dynamics of Exploited Marine Populations: Physical–Biological Interactions", which was held in Baltimore, Maryland, USA, 22–24 September 1997. Delays in the submission of material will postpone publication of the proceedings until the year 2000 (Part 1) and tentatively 2001 (Part 2).

The page budget for 1998 was increased by about 250 pages to reduce the backlog of articles waiting for publication, but they were not used in full, since the large proceedings volume (above) was not published.

The subscription rates for Volume 55 in 1998 were set at GBP 320 for institutional subscriptions and GBP 105 for personal subscriptions.

Volume 56(1), pages 1–127, was off press in February 1999.

Volume 56(2), pages 129–250, was off press in April 1999 and distributed in May. In addition to standard articles it contains nine papers and short communications stemming from the BMB/ICES Sea-going Workshop "Fish Diseases and Parasites in the Baltic Sea" held in 1994.

Volume 56(3), pages 251–404, was published in June 1999. It includes standard articles as well as a selection of papers from the Theme Session on "The Catching Performance of Fishing Gears Used in Surveys" held during the 1997 ASC in Baltimore, Maryland, USA.

Volume 56(4), was issued in August 1999, In addition to standard articles it contains selected papers from the Theme Session on "Diadromous Fish Extinction: Threats on Local and Global Scales", which was also held during the 1997 ASC.

The subscription rates for Volume 56 in 1999 were set at GBP 336 for institutional subscriptions and again at GBP 105 for personal subscriptions.

For Volume 57 in 2000, the rates will be set at GBP 360 for institutional subscriptions and GBP 120 for personal subscriptions.

In 1996 Academic Press launched IDEAL (International Digital Electronic Access Library) and APPEAL (Academic Press Print and Electronic Access Licence) on the World Wide Web for its serial publications, including the *ICES Journal*. IDEAL makes tables of contents and abstracts, *inter alia*, available to any WWW user, and APPEAL provides facsimile texts of full articles on a site-licence basis. Full-text versions of articles in the *ICES Journal* are thus available to a very wide public. The first tangible results were seen in the report on the ICES/Academic Press joint account for 1998, showing an income of GBP 11,113 from the site-licensing system.

5.2 ICES Marine Science Symposia (*Actes du Symposium*)

Volume 201, issued in November 1995, is the last set of ICES Symposium proceedings to be published solely under this series title. Volume no. 200 and most subsequent issues beginning with no. 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*.

Volumes 200 and 202–206 are described in previous Reports under the *ICES Journal of Marine Science* as, respectively, Volumes 52(3/4), 53(2), 53(6), 54(4), 54(6), and 55(4). Several more proceedings volumes are now in the pipeline for publication in the JMS series, including those stemming from ICES Symposia on respectively "Recruitment Dynamics of Exploited Marine Populations" (see JMS 55(6) above), "Brackish Water Ecosystems" (as a special supplement), "Marine Benthos Dynamics: Environmental and Fisheries Impacts", "Confronting Uncertainty in the Evaluation and Implementation of Fisheries-Management Systems", and "Ecosystem Effects of Fishing".

5.3 ICES Cooperative Research Report (*Rapport des Recherches Collectives*)

The following *ICES Cooperative Research Reports* have been published:

- No. 224 Ballast Water: Ecological and Fisheries Implications, dated November 1998.
- No. 225 North Atlantic–Norwegian Sea Exchanges: The ICES NANSEN Project, dated November 1998.

- No. 226 Report on the Results of the ICES/IOC/OS-PARCOM Intercomparison Programme on the Determination of Chlorobiphenyl Congeners in Marine Media—Steps 3a, 3b, 4 and Assessment, dated November 1998.

- No. 227 Tenth ICES Dialogue Meeting ("Fisheries and Environment in the Bay of Biscay and Iberian Region: Can the Living Resources Be Better Utilized?"), dated March 1999.

- No. 228 Report of the 11th ICES Dialogue Meeting on the Relationship between Scientific Advice and Fisheries Management, issued in February 1999.

- No. 229 Report of the ICES Advisory Committee on Fishery Management, 1998 (Part 1 and Part 2), dated March 1999.

- No. 230 Working Group on Methods of Fish Stock Assessment – Reports of Meetings in 1993 and 1995, dated April 1999.

- No. 231 Status of Introductions of Non-Indigenous Marine Species to North Atlantic Waters 1981–1991, dated May 1999.

- No. 232 Diets of Seabirds and Consequences of Changes in Food Supply, dated May 1999.

- No. 233 Report of the ICES Advisory Committee on the Marine Environment, 1998, dated May 1999.

- No. 234 Report of the Workshop on Ocean Climate of the NW Atlantic during the 1960s and 1970s and Consequences for Gadoid Populations, dated September 1999.

- No. 235 Methodology for Target Strength Measurements (with special reference to *in situ* techniques for fish and mikronekton), dated September 1999.

The publication of these 12 numbers represents stringing progress compared with the record of recent years, which saw the build-up of a considerable backlog of material waiting to be handled when resources became available. Not since the late 1970s have more CRRs been published between two Council Meetings.

5.4 ICES Fisheries Statistics (*Bulletin Statistique des Pêches Maritimes*)

The last number to be published in this series was Volume 73 (data for 1988), issued in November 1992. It has now been agreed that future publication will occur on CD-ROM and will be based on all the data submitted, and not wait until complete data sets are available. Plans are underway for a possible CD-ROM publication together with FAO and EUROSTAT.

5.5 Oceanographic Data Lists and Inventories

This series, in its traditional form issued on paper, has become outmoded, and pertinent information regarding oceanographic services and data available from the Secretariat is currently found via the ICES Homepage on the World Wide Web.

5.6 ICES Identification Leaflets for Plankton (*Fiches d'Identification du Plankton*)

Following protracted delays in the production of this series owing to a severe shortage of capacity in the Secretariat, the following numbers were published in July 1999:

- No. 181 *Acartiidae*.
- No. 182 *Euchaetidae*.
- No. 183 *Phyllodocidae*.
- No. 184 *Prorocentrum* (Dinophyceae).
- No. 185 *Pseudo-nitzschia* (Diatomophyceae/
Bacillatiophyceae).

5.7 ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish (*Fiches d'Identification des Maladies et Parasites des Poissons, Crustacés et Mollusques*)

Similar delays as those described above for the preceding series have also affected progress on this series, but Nos. 51–56 on respectively *Stephanostomum tenue*, *Gaffkemia*, *Diplostomum spathaceum*, *Pasteurellosis*, *Flexibacter maritimus*, and *Streptococcosis* are on schedule for publication during the last week of September 1999.

5.8 ICES Techniques in Marine Environmental Sciences

Four new issues have been published since the 1998 Council Meeting. They are:

- No. 20 Temporal trend monitoring: Robust method for analysing contaminant trend monitoring data.
- No. 21 Chlorobiphenyls in marine sediments: Guidelines for determination.
- No. 22 Biological effects of contaminants: Cholinesterase inhibition by organophosphate and carbamate compounds.
- No. 23 Biological effects of contaminants: Determination of CYP1A-dependent monooxygenase activity in dab by fluorimetric measurement of EROD activity.

It is expected that four additional numbers will be published by the end of the current year.

5.9 ICES Annual Report *Procès-Verbal de la Réunion*

The *ICES Annual Report for 1997/1998* was issued in March 1999.

5.10 ICES/CIEM Information

No. 33 was issued in June 1999 as a Web version only, and No. 34 will be issued in September 1999 in both paper and Web versions.

ANNEX I

MEETINGS AT WHICH ICES WAS REPRESENTED BY OBSERVERS

1. 24th General Meeting of SCOR, Amsterdam, Netherlands, 1–5 November 1998. ICES Representative: Prof. B. Rothschild.
2. 11th Special Meeting of the ICCAT Commission, Santiago de Compostela, Spain, 16–23 November 1998. ICES Representative: Dr M.P. Sissenwine.
3. AMAP/EEA/ICES Workshop on Combined Effects in the Marine Environment, Copenhagen, Denmark, 16–17 November 1998. ICES Representative: Environment Adviser.
4. Seventeenth Annual Meeting of the North-East Atlantic Fisheries Commission (NEAFC), London, UK, 17–20 November 1998. ICES Representatives: General Secretary, Chair of ACFM, and Fisheries Adviser.
5. Meeting of the Committee of North Sea Senior Officials (CONSSO), Oslo, Norway, 19–20 November 1998. ICES Representative: Environment Adviser.
6. EC Advisory Committee on Fisheries Working Group “Internal and External Resources”, Brussels, Belgium, 1 December 1998. ICES Representative: Fisheries Adviser.
7. OSPAR Working Group on Inputs to the Marine Environment, London, UK, 7–11 December 1998. ICES Representative: S. Uhlig.
8. 23rd Session of the Committee on Fisheries (COFI), Rome, Italy, 15–19 February 1999. ICES Representatives: General Secretary and Fisheries Adviser.
9. Fifth Meeting of the OSPAR Working Group on Concentrations, Trends, and Effects of Substances in the Marine Environment (SIME), Dublin, Ireland, 22–26 February 1999. ICES Representative: Environment Adviser.
10. Living Marine Resource Panel of the Global Ocean Observing System (LMR-GOOS), Montpellier, France, 22–24 March 1999. ICES Representative: Dr M.M. Sinclair.
11. 20th Meeting of the Helsinki Commission, Helsinki, Finland, 22–25 March 1999. ICES Representatives: General Secretary and Environment Adviser.
12. Seventh Meeting of the OSPAR Environmental Assessment and Monitoring Committee (ASMO), The Hague, Netherlands, 14–16 April 1999. ICES Representative: Environment Adviser.
13. Fourth Meeting of the HELCOM Working Group on Monitoring and Assessment (EC MON), Gothenburg, Sweden, 19–23 April 1999. ICES Representative: Environment Adviser.
14. IBSFC Working Group on Baltic 21 Sector Fisheries, including the Workshop on Cod Management Strategies, Visby, Sweden, 27–30 April 1999. ICES Representative: Fisheries Assessment Scientist.
15. 16th Annual Meeting of NASCO, Westport, Ireland, 7–11 June 1999. ICES Representatives: General Secretary and Chair of ACFM.
16. Coordinating Working Party on Fisheries Statistics (CWP); Intersessional Meeting, Luxembourg, 5–9 July 1999. ICES Representative: Fisheries Adviser.
17. 20th Session of the IOC Assembly, Paris, 29 June – 9 July 1999. ICES Representative: ICES Oceanographer (part-time).

18. Workshop on Ecosystem Objectives of the North Sea, Scheweningen, Netherlands, 1–3 September 1999. ICES Representatives: Chair of Marine Habitat Committee and Fisheries Adviser.
19. Extraordinary Meeting of the Helsinki Commission – Baltic Marine Environment Commission, Helsinki, 6–7 September 1999. ICES Representative: Environment Adviser.
20. 25th Session of the International Baltic Sea Fisheries Commission (IBSFC), 6–10 September 1999. ICES Representatives: Chair of ACFM and Fisheries Assessment Scientist.
21. Twenty-First Annual Meeting of NAFO, Dartmouth, NS, Canada, 13–17 September 1999. ICES Representative: Hans-Peter Cornus.
22. EEA MTC/CE Inter-Regional Forum, Venice, Italy, 27–28 September 1999. ICES Representative: Environmental Data Scientist.
23. 10th Meeting of the HELCOM Environment Committee, Copenhagen, 4–8 October 1999. ICES Representatives: Environmental Data Scientist and Environment Adviser (part-time).
24. QUASIMEME Advisory Board, Egmond an See, Netherlands, 9–11 October 1999. ICES Representative: Environmental Data Scientist.
25. Meeting of the Committee of North Sea Senior Officials (CONSSO), Oslo, Norway, 14–15 October 1999. ICES Representatives: General Secretary and Fisheries Adviser.
26. 34th Executive Committee Meeting of SCOR, Goa, India, 25–29 October 1999. ICES Representative: Prof. B. Rothschild.

ANNEX 2

ICES WORKING/STUDY/STEERING GROUP MEETINGS AND WORKSHOPS IN 1998/1999

Advisory Committee on Fishery Management

1. Study Group on IIIa Herring
(C. Res. 1998/2:4:20)
Chair: Dr T. Gröhsler
Held in Charlottenlund, Denmark, 11–15 January 1999
Countries represented: Denmark (2), Latvia (1), Sweden (1), Germany (2), Norway (1)
Report available as Doc. C.M. 1999/ACFM:10.
2. Study Group on Multinational Assessment Procedures
(C. Res. 1998/2:4:18)
Chair: S. Iversen
Held in Vigo, Spain, 22–26 February 1999
Countries represented: Canada (1), France (2), Norway (3), Portugal (2), Spain (4), Sweden (1), UK (3)
Report available as Doc. C.M. 1999/ACFM:11.
3. Workshop on Standard Assessment Tools for Working Groups
Chair: S. Rees
Held in Aberdeen, UK, 3–6 March 1999
Countries represented: Denmark (3), Norway (1), UK (6)
Report available as Doc. C.M. 1999/ACFM:25.
4. Herring Assessment Working Group for the Area South of 62°N
(C. Res. 1998/2:4:4)
Chair: J. Simmonds
Held at ICES Headquarters, 15–24 March 1999
Countries represented: Denmark (3), France (1), Germany (5), Ireland (2), Netherlands (2), Norway (4), Sweden (1), UK (5)
Report available as Doc. C.M. 1999/ACFM:12.
5. Working Group on North Atlantic Salmon
(C. Res. 1998/2:4:11)
Chair: Dr L. Marshall
Held in Quebec City, Canada, 12–22 April 1999
Countries represented: Canada (11), Finland (1), France (2), Greenland (1), Ireland (1), Iceland (1), Norway (2), Russia (1), Sweden (1), UK (4), USA (3)
Report available as Doc. C.M. 1999/ACFM:14.
6. Baltic Fisheries Assessment Working Group
(C. Res. 1998/2:4:6)
Chair: Dr T. Raid
Held at ICES Headquarters, 14–23 April 1999
Countries represented: Denmark (3), Estonia (1), Finland (3), Germany (4), Latvia (4), Poland (2), Russia (2), Sweden (2)
Report available as Doc. C.M. 1999/ACFM:15.
7. Working Group on Nephrops Stocks
(C. Res. 1998/2:4:14)
Chair: Dr F. Redant
Held in Ostende, Belgium, 15–22 April 1999
Countries represented: Belgium (1), Denmark (1), France (1), Ireland (1), Norway (1), Poland (1), Spain (1), Sweden (1), UK (5)
Report available as Doc. C.M. 1999/ACFM:13.

8. Baltic Salmon and Trout Assessment Working Group
(C.Res. 1998/2:4:3)
Chair: T. Pakarinen
Held at ICES Headquarters, 15–23 April 1999
Countries represented: Denmark (1), Estonia (1), Finland (3), Latvia (1), Russia (1)
Report available as Doc. C.M. 1999/ACFM:16.
9. North-Western Working Group
(C.Res. 1998/2:4:5)
Chair: J. Boje
Held at ICES Headquarters, 26 April – 4 May 1999
Countries represented: Faroe Islands (4), Greenland (3), Germany (1), Iceland (5), Norway (2), Russia (1), Spain (1)
Report available as Doc. C.M. 1999/ACFM:17.
10. Northern Pelagic and Blue Whiting Fisheries Working Group
(C.Res. 1998/2:4:2)
Chair: Dr J. Carscadden
Held at ICES Headquarters, 27 April – 5 May 1999
Countries represented: Canada (1), Denmark (1), Faroe Islands (1), Greenland (1), Iceland (2), Norway (9), Portugal (1), Russia (1), Sweden (1)
Report available as Doc. C.M. 1999/ACFM:18.
11. Study Group on Effects of Sandeel Fishing
(C.Res. 1998/2:4:19)
Chair: Dr J. Rice
Held at ICES Headquarters, 11 May 1999
Countries represented: Canada (1), Denmark (4), Norway (1), UK (5)
Report available as Doc. C.M. 1999/ACFM:19.
12. Working Group on the Assessment of Northern Shelf Demersal Stocks
(C.Res. 1998/2:4:9)
Chair: S. Reeves
Held at ICES Headquarters, 14–23 June 1999
Countries represented: Belgium (1), Ireland (2), UK (5)
The Report will be available as Doc. C.M. 2000/ACFM:1.
13. Pandalus Assessment Working Group
(C.Res. 1998/2:4:13)
Chair: S. Tveite
Held in Flødevigen, Norway, 23–26 August 1999
Countries represented: Norway (1), Sweden (1)
The Report will be available as Doc. C.M. 2000/ACFM:2.
14. Arctic Fisheries Working Group
(C.Res. 1998/2:4:1)
Chair: Dr R. Bowering
Held at ICES Headquarters, 23 August – 1 September 1999
Countries represented: Canada (1), China (1), Germany (1), Norway (13), Russia (3), Spain (2)
The Report will be available as Doc. C.M. 2000/ACFM:3.
15. Group on the Assessment of Southern Shelf Demersal Stocks
(C.Res. 1998/2:4:10)
Chair: A. Biseau
Held at ICES Headquarters, 1–10 September 1999
Countries represented: Belgium (1), France (5), Ireland (2), Portugal (3), Spain (5), UK (2)
Report will be available as Doc. C.M. 2000/ACFM:4.

16. Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy
(C.Res. 1998/2:4:8)
Chair: Dr K. Patterson
Held at ICES Headquarters, 14–23 September 1999
Countries represented: Faroe Islands (1), France (1), Germany (1), Netherlands (1), Norway (2), Portugal (6), Russia (2), Spain (4), UK (6)
The Report will be available as Doc. C.M. 2000/ACFM:5.
17. ICES/EIFAC Working Group on Eels
(C.Res. 1998/2:4:15)
Chair: Dr W. Dekker
Held in Silkeborg, Denmark, 20–24 September 1999
Countries represented: Belgium (2), Canada (2), Denmark (3), France (4), Germany (2), Ireland (3), Italy (1), Japan (1), Macedonia (1), Netherlands (4), New Zealand (2), Portugal (2), Sweden (3), UK (6), USA (4)
The Report will be available as Doc. C.M. 2000/ACFM:6.
18. Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak
(C.Res. 1998/2:4:7)
Chair: F. van Beek
To be held at ICES Headquarters, 11–20 October 1999
Countries represented: Belgium (1), Denmark (4), France (2), Germany (2), Netherlands (3), Norway (2), UK (5)
The Report will be available in 2000.

Advisory Committee on the Marine Environment

19. AMAP/EEA/ICES Workshop on 'Combined Effects' in the Marine Environment
(C.Res. 1998/3:2)
Chair: L.-O. Reiersen
Held at ICES Headquarters, 16–18 November 1998
Countries represented: Bulgaria (1), Croatia (1), Denmark (4), Estonia (1), Faroe Islands (1), Finland (2), France (5), Germany (6), Greece (1), Iceland (1), Italy (1), Lithuania (1), Monaco (1), Netherlands (3), Norway (4), Poland (1), Russia (1), Spain (1), Sweden (2), UK (4), USA (1)
Report available as Doc. C.M. 1999/ACME:7.
20. ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea
(C.Res. 1998/2:5:5)
Chair: Dr M. Krysell
Held at ICES Headquarters, 8–11 February 1999
Countries represented: Denmark (2), Estonia (1), Finland (1), Germany (2), Latvia (1), Poland (1), Sweden (1)
Report available as Doc. C.M. 1999/ACME:4.
21. ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea
(C.Res. 1998/2:5:4)
Chair: Dr L. Hernroth
Held at ICES Headquarters, 15–17 February 1999
Countries represented: Denmark (2), Estonia (1), Finland (1), Germany (2), Latvia (1), Russia (1), Sweden (2)
Report available as Doc. C.M. 1999/ACME:3.
22. ICES/OSPAR Steering Group on Quality Assurance of Biological Measurements Related to Eutrophication Effects
(C.Res. 1998/2:5:6)
Chair: Dr H. Rees
Held at ICES Headquarters, 16–19 February 1999
Countries represented: Denmark (2), Estonia (1), Finland (1), Germany (2), Latvia (1), Russia (1), Sweden (2)
Report available as Doc. C.M. 1999/ACME:5.
23. ICES/HELCOM Workshop on Baltic Sea Sediments: Conditions and Contaminants
(C.Res. 1998/2:5:8)
Co-Chairs: Prof. M. Perttilä and Dr B. Winterhalter
Held in Helsinki, Finland, 14–16 April 1999
Countries represented: Denmark (1), Finland (20), Latvia (1), Norway (1), Sweden (3)
Report Available as Doc. C.M. 1999/ACME:8.

24. ICES/IOC/IMO Study Group on Ballast Water and Sediments
(C.Res. 1998/2:5:3)
Chair: Prof. J.T. Carlton
Held in Conwy, UK, 12–13 April 1999
Countries represented: Australia (2), Bermuda (1), Brazil (1), Canada (3), Chile (1), Estonia (1), Finland (1), France (1), Germany (4), Georgian (2), Italy (1), Israel (1), Netherlands (2), Norway (2), Sweden (2), Turkey (2), UK (11), USA (6)
Report available as Doc. C.M. 1999/ACME:2.
25. Working Group on Introductions and Transfers of Marine Organisms
(C.Res. 1998/2:5:1)
Chair: Prof. J.T. Carlton
Held in Conwy, UK, 14–16 April 1999
Countries represented: Australia (1), Canada (4), Estonia (1), Finland (1), France (1), Germany (2), Georgia (2), Ireland (1), Israel (1), Italy (1), Netherlands (1), Norway (3), Sweden (2), UK (7), USA (5)
Report available as Doc. C.M. 1999/ACME:1.
26. Working Group on Ecosystem Effects of Fishing Activities
(C.Res. 1998/2:5:2)
Chairman: Dr J. Rice
Held at ICES Headquarters, 22 November – 1 December 1999
The Report will be available in 2000.
27. Second ICES/HELCOM Workshop on Quality Assurance of Chemical Procedures for the Baltic Monitoring Programme
(C.Res. 1998/2:5:7)
Chair: Dr M. Krysell
Held in Helsinki, Finland, 20–23 October 1999
The Report will be available in 2000.

Oceanography Committee

28. Workshop on Gadoid Stocks in the North Sea during the 1960s and 1970s, the Fourth ICES/GLOBEC Backward-Facing Workshop
(C.Res. 1998/2:22)
Co-Chairs: Dr M. Heath, Dr J. Alheit, and Dr M. St John
Held in Aberdeen, UK, 11–14 March 1999
Countries represented: Denmark (2), Germany (4), Norway (1), UK (11), USA (2)
Report available as Doc. C.M. 1999/C:15.
29. Working Group on Shelf Seas Oceanography
(C.Res. 1998/2:14)
Chair: B. Sjöberg
Held in Hamburg, Germany, 15–17 March 1999
Countries represented: Canada (1), Estonia (1), Finland (1), Germany (6), Norway (2), Sweden (2) UK (2)
Report available as Doc. C.M. 1999/C:9.
30. ICES/IOC Working Group on Harmful Algal Bloom Dynamics
(C.Res. 1998/2:13)
Chair: Dr P. Gentien
Held in Jena, Germany, 16–20 March 1999
Countries represented: Canada (3), Denmark (1), Finland (1), France (2), Germany (5), Netherlands (1), Norway (1), Poland (1), Spain (2), Sweden (2), UK (1), USA (1)
Report available as Doc. C.M. 1999/C:4.
31. Workshop on GOOS
(C.Res. 1998/2:23)
Co-Chairs: R. Sætre, Prof. C. Mooers, and Dr H. Dahlin
Held in Bergen, Norway, 22–24 March 1999
Countries represented: Canada (2), Denmark (1), Germany (2), Norway (5), Sweden (1), UK (1), USA (1)
Report available as Doc. C.M. 1999/C:14.

32. Working Group on Seabird Ecology
(C.Res. 1998/2:54)
Chair: Dr M. Tasker
Held at ICES Headquarters, 22–26 March 1999
Countries represented: Canada (1), Germany (1), Norway (1), UK (1)
Report available as Doc. C.M. 1999/C:5.

33. Working Group on Oceanic Hydrography
(C.Res. 1998/2:15)
Chair: Dr S. Narayanan
Held in Murmansk, Russia, 13–15 April 1999
Countries represented: Canada (2), Germany (2), Iceland (1), Netherlands (1), Norway (1), Poland (1), Russia (7), Spain (1), UK (2), USA (1)
Report available as Doc. C.M. 1999/C:8.

34. Working Group on Phytoplankton Ecology
(C.Res. 1998/2:11)
Chair: Dr D. Mills
Held in Lowestoft, UK, 13–17 April 1999
Countries represented: Finland (2), Germany (1), Iceland (1), Norway (1), Spain (1), Sweden (1), UK (2), USA (1)
Report available as Doc. C.M. 1999/C:3.

35. Working Group on Zooplankton Ecology
(C.Res. 1998/2:12)
Chair: Dr R. Harris
Held in Reykjavik, Iceland, 19–21 April 1999
Countries represented: Canada (2), Denmark (1), Germany (1), Spain (1), UK (1)
Report available as Doc. C.M. 1999/C:6.

36. Working Group on Marine Data Management
(C.Res. 1998/2:19)
Chair: Dr R. Gelfeld
Held in Ottawa, Canada, 3–6 May 1999
Countries represented: Canada (7), Denmark (2), Finland (2), France (1), Germany (1), Ireland (1), Netherlands (1), Poland (1), Sweden (1), UK (2), USA (2)
Report available as Doc. C.M. 1999/C:7.

Fisheries Technology Committee

37. Study Group on Methods for Measuring the Selectivity of Static Gear
(C.Res. 1998/2:9)
Chair: A. Carr
Held in St John's, Canada, 17–18 April 1999
Report available as Doc. C.M. 1999/B:4.

38. Working Group on Fishing Technology and Fish Behaviour
(C.Res. 1998/2:6)
Chair: Dr A. Engås
Held in St John's, Canada, 19–22 April 1999
Countries represented: Belgium (2), Canada (9), Denmark (5), France (3), Germany (1), Italy (1), Netherlands (1), Norway (3), Portugal (2), South Africa (1), Spain (1), Sweden (1), UK (7), USA (7)
Report available as Doc. C.M. 1999/B:1.

39. Working Group on Fisheries Acoustics Science and Technology
(C.Res. 1998/2:7)
Chair: Dr F. Gerlotto
Held in St John's, Canada, 20–22 April 1999
Countries represented: Canada (9), Belgium (2), Denmark (5), France (3), Germany (1), Norway (3), Netherlands (1), Portugal (2), Spain (1), Sweden (1), South Africa (1), UK (7), USA (8)
Report available as Doc. C.M. 1999/B:2.

40. Joint Session of the Working Group on Fisheries Acoustics and Technology and the Working Group on Fishing Technology and Fish Behaviour
(C.Res. 1998/2:8)
Chair: J. Massé
Held in St John's, Canada, 23 April 1999
Countries represented: Australia (1), Canada (14), Denmark (2), France (6), Germany (2), Iceland (1), Ireland (1), Italy (1), Netherlands (2), Norway (3), Peru (1), Portugal (2), South Africa (1), Spain (1), Sweden (1), UK (6), USA (6)
Report available as Doc. C.M. 1999/B:3.

Resource Management Committee

41. Comprehensive Fishery Evaluation Working Group
(C.Res. 1998/2:24)
Chair: Dr G. Stefánsson
Held in Miami, FL, USA, 14–21 January 1999
Countries represented: Belgium (1), Denmark (2), Germany (2), Netherlands (3), UK (2)
Report available as Doc. C.M. 1999/D:1.
42. International Bottom Trawl Survey Working Group
(C.Res. 1998/2:25)
Chair: A. Newton
Held in Lisbon, Portugal, 7–10 April 1999
Countries represented: Denmark (2), France (2), Germany (1), Ireland (1), Norway (1), Portugal (2), Spain (1), UK (3)
Report available as Doc. C.M. 1999/D:2.
43. Workshop on the Evaluation of the Plaice Box
(C.Res. 1998/2:29)
Chair: Dr A. Rijnsdorp
Held in IJmuiden, Netherlands, 22–25 June 1999
Countries represented: Belgium (1), Denmark (2), Germany (2), Netherlands (3), UK (2)
The Report will be available as Doc. C.M. 1999/D:6.
44. Working Group on Crangon Fisheries and Life History
(C.Res. 1998/2:47)
Chair: Prof. A. Temming
Held in Newcastle, UK, 4–6 September 1999
The Report will be available in 2000.
45. Planning Group on Surveys on Pelagic Fish in the Norwegian Sea
(C.Res. 1998/2:26)
Chair: Dr J.C. Holst
Held in Hamburg, Germany, 17–19 August 1999
Countries represented: Faroe Islands (1), Germany (5), Iceland (1), Netherlands (1), Norway (4), Russia (1)
The Report will be available as Doc. C.M. 1999/D:3.
46. Study Group to Evaluate the Effects of Multispecies Interactions
(C.Res. 1998/2:27)
Chair: Dr N. Daan
Held in Lowestoft, UK, 7–11 September 1999
Countries represented: Denmark (2), Estonia (1), Germany (2), Iceland (1), Netherlands (1), Norway (1), UK (10)
The Report will be available as Doc. C.M. 1999/D:4.

Marine Habitat Committee

47. Working Group on Marine Sediments in Relation to Pollution
(C.Res. 1998/2:36)
Chair: Dr M. Kersten
Held in Haren, Netherlands, 1–5 March 1999
Countries represented: France (1), Germany (1), Netherlands (2), Portugal (1), UK (1)
Report available as Doc. C.M. 1999/E:7.

48. Working Group on Environmental Assessment and Monitoring Strategies
(C.Res. 1998/2:33)
Chair: L. Føyn
Held at ICES Headquarters, 1–5 March 1999
Countries represented: Denmark (1), Norway (1), Poland (1)
Report available as Doc. C.M. 1999/E:4.
49. Working Group on Marine Mammal Habitats
(C.Res. 1998/2:35)
Chair: Dr A. Bjørge
Held at ICES Headquarters, 18–12 March 1999
Countries represented: Denmark (1), Germany (1), Iceland (1), Netherlands (2), Norway (5), Sweden (2), UK (3)
Report available as Doc. C.M. 1999/E:6.
50. Marine Chemistry Working Group
(C.Res. 1998/2:31)
Chairman: Dr B. Pedersen
Held in Dublin, Ireland, 8–12 March 1999
Countries represented: Canada (1), Belgium (2), Denmark (4), Estonia (1), France (4), Germany (3), Iceland (1), Ireland (6), Netherlands (3), Norway (2), Poland (1), Portugal (1), Spain (2), Sweden (3), UK (2)
Report available as Doc. C.M. 1999/E:2.
51. Joint Working Group on Biological Effects of Contaminants and Working Group on Statistical Aspects of Environmental Monitoring
(C.Res. 1998/2:38)
Chair: Dr R. Fryer
Held in The Hague, Netherlands, 8–10 April 1999
Countries represented: Canada (2), Belgium (1), Denmark (1), Germany (1), Netherlands (4), Norway (2), UK (4)
Report available as Doc. C.M. 1999/E:9.
52. Working Group on Statistical Aspects of Environmental Monitoring
(C.Res. 1998/2:37)
Chair: Dr S. Uhlig
Held in The Hague, Netherlands, 12–16 April 1999
Countries represented: Canada (1), Denmark (1), France (1), Germany (2), Netherlands (2), Norway (1), Sweden (1), UK (1)
Report available as Doc. C.M. 1999/E:8.
53. Working Group on Biological Effects of Contaminants
(C.Res. 1998/2:32)
Chair: Dr P. Matthiessen
Held in The Hague, Netherlands, 12–16 April 1999
Countries represented: Canada (2), Belgium (1), Denmark (1), Germany (1), Netherlands (4), Norway (1), UK (4)
Report available as Doc. C.M. 1999/E:3.
54. Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem
(C.Res. 1998/2:34)
Chair: Dr J. Side
Held in Uppsala, Sweden, 20–24 April 1999
Countries represented: Belgium (2), Canada (2), Denmark (2), France (1), Germany (3), Ireland (1), Netherlands (3), Norway (1), Poland (1), Sweden (1), UK (5), USA (1)
Report available as Doc. C.M. 1999/E:5.
55. Benthos Ecology Working Group
(C.Res. 1998/2:30)
Chair: Dr K. Essink
Held in Kristineberg, Sweden, 28 April – 1 May 1999
Countries represented: Canada (2), Belgium (1), Denmark (1), Germany (1), Netherlands (4), Norway (1), UK (4)
Report available as Doc. C.M. 1999/E:1.

56. Study Group on Marine Habitat Mapping
(C.Res. 1998/2:39)
Chair: Dr E. Jagtman
Held in Oban, UK, 6–10 September 1999
Countries represented: Canada (3), Germany (1), Norway (1), Netherlands (2), Portugal (1), Spain (1), UK (7), USA (1)
The Report will be available as Doc. C.M. 1999 /E:10.

Mariculture Committee

57. Working Group on Pathology and Diseases of Marine Organisms
(C.Res. 1998/2:44)
Chair: Dr S. Møllergaard
Held in Oporto, Portugal, 2–6 March 1999
Countries represented: Belgium (1), Canada (1), Denmark (1), Estonia (1), France (2), Finland (1), Germany (3), Ireland (1), Norway (1), Portugal (5), Russia (2), Spain (1), Sweden (1), UK (2), USA (1)
Report available as Doc. C.M. 1999/F:4.
58. Working Group on Environmental Interactions of Mariculture
(C.Res. 1998/2:42)
Chair: Dr I. Davies
Held in Montpellier, France, 15–19 March 1999
Countries represented: Canada (4), France (7), Germany (1), Ireland (1), Norway (2), Sweden (1), UK (1)
Report available as Doc. C.M. 1999/F:2.
59. Working Group on the Application of Genetics in Fisheries and Mariculture
(C.Res. 1998/2:41)
Chairman: Prof. J. Mørk
Held in Reykjavik, Iceland, 12–15 April 1999
Countries represented: Belgium (1), Canada (2), Denmark (1), Estonia (1), Finland (1), France (1), Germany (1), Iceland (2), Ireland (3), Norway (3), Poland (1), Portugal (1), Sweden (1), UK (2), USA (1)
Report available as Doc. C.M. 1999/F:1.
60. Working Group on Marine Fish Culture
(C.Res. 1998/2:43)
Chair: Dr B. Howell
Held in St Andrews, Canada, 14–16 June 1999
Countries represented: Australia (1), Belgium (3), Denmark (3), Canada (4), Finland (1), France (2), Germany (3), Iceland (1), Ireland (1), Latvia (1), Norway (6), Portugal (2), Spain (3), Sweden (2), UK (4), USA (2)
Report available as Doc. C.M. 1999/F:3.

Living Resources Committee

61. Horse Mackerel Otolith Workshop
(C.Res. 1998/2:59)
Chair: Dr A. Eltink
Held in Lowestoft, UK, 15–19 January 1999
Countries represented: Denmark (1), Germany (3), Ireland (2), Netherlands (3), Norway (2), Portugal (1), South Africa (1), Spain (2), UK (2)
Report available as Doc. C.M. 1999/G:16.
62. Planning Group for Herring Surveys
(C.Res. 1998/2:51)
Co-Chairs: E. Torstensen and K.-J. Stæhr
Held in Hirtshals, Denmark, 2–4 February 1999
Countries represented: Denmark (2), Germany (5), Netherlands (1), Norway (1), Sweden (2), UK (2)
Report available as Doc. C.M. 1999/G:7.

63. Planning Group for Pelagic Acoustic Surveys in ICES Sub-Areas VIII and IX
(C.Res. 1998/2:50)
Chair: Dr P. Carrera
Held in Nantes, France, 2–4 February 1999
Countries represented: France (3), Portugal (2), Spain (1)
Report available as Doc. C.M. 1999/G:8.

64. Study Group on Redfish Stocks
(C.Res. 1998/2:57)
Chair: T. Sigurdsson
Held in Reykjavik, Iceland, 16–18 February 1999
Countries represented: Greenland (1), Germany (1), Iceland (1), Russia (2)
Report available as Doc. C.M. 1999/G:9.

65. Working Group on Marine Mammal Population Dynamics and Trophic Interactions
(C.Res. 1998/2:45)
Chair: Dr G.T. Waring
Held at ICES Headquarters, 12–15 March 1999
Countries represented: Canada (1), Denmark (1), Germany (1), Norway (2), Spain (1), Sweden (1), UK (1), USA (1)
Report available as Doc. C.M. 1999/G:3.

66. Study Group on Elasmobranch Fishes
(C.Res. 1998/2:54)
Chair: Dr P. Walker
Held in Santander, Spain, 23–27 March 1999
Countries represented: Denmark (1), France (1), Germany (1), Ireland (1), Netherlands (2), Portugal (1), Spain (4)
Report available as Doc. C.M. 1999/G:11.

67. Working Group on Cephalopod Fisheries and Life History
(C.Res. 1998/2:48)
Chair: Dr G. Pierce
Held in Heraklion, Greece, 25–27 March 1999
Countries represented: France (3), Greece (2), Ireland (3), Portugal (6), Spain (6), UK (8)
Report available as Doc. C.M. 1999/G:4.

68. Working Group on Mackerel and Horse Mackerel Egg Surveys
(C.Res. 1998/2:49)
Chair: J. H. Nichols
Held in Hamburg, Germany, 13–17 April 1999
Countries represented: Canada (1), Germany (1), Ireland (1), Netherlands (1), Norway (1), Portugal (1), Spain (5), UK (5)
Report available as Doc. C.M. 1999/G:5.

69. Workshop on the Usefulness of Scale Growth Analyses and Other Measures of Condition in Salmon
(C.Res. 1998/2:60)
Co-Chairs: Dr J.C. MacLean and Dr K. Friedland
Held in Amherst, USA, 5–10 July 1999
Countries represented: Canada (4), UK (2), USA (11)
Report available as Doc. C.M. 1999/G:15.

Baltic Committee

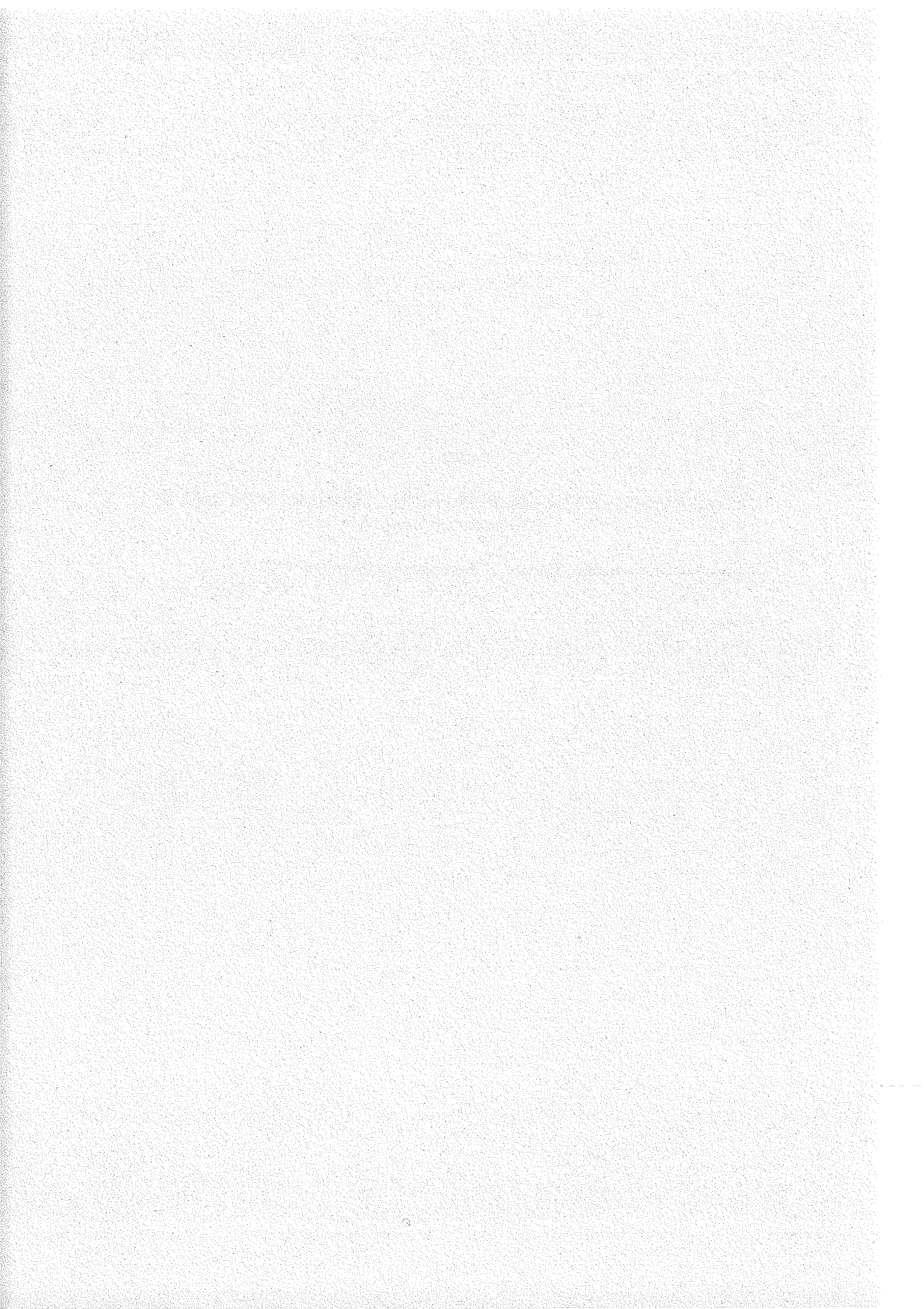
70. Second Scale-Reading Workshop on Baltic Salmon
(C.Res. 1997/2:43)
Chair: E. Ikonen
Held in Helsinki, Finland, 16–18 November 1998
Countries represented: Denmark (1), Estonia (3), Finland (12), Latvia (2), Lithuania (1), Poland (1), Russia (5), Sweden (1)
Report available as Doc. C.M. 1999/H:6.

71. Study Group on Baltic Cod Age-Reading
(C.Res. 1997/2:42)
Co-Chairs: Dr P. Ernst and Dr J. Netzel
Held in Charlottenlund, Denmark, 16–20 November 1998
Countries represented: Denmark (2), Germany (1), Latvia (2), Poland (1), Sweden (3)
Report available as Doc. C.M. 1999/H:4.
72. Study Group on Multispecies Model Implementation in the Baltic
(C.Res. 1997/2:39)
Chair: Dr F. Köster
Held at ICES Headquarters, 2–8 December 1999
Countries represented: Denmark (4), Estonia (1), Germany (4), Poland (1), Sweden (2)
Report available as Doc. C.M. 1999/H:5.
73. Workshop on Baltic Trawl Experiments
(C.Res. 1998/2:64)
Co-Chairs: H. Hovgaard and Dr P. Ernst
Held in Rostock, Germany, 11–14 January 1999
Countries represented: Denmark (2), Estonia (1), Germany (6), Latvia (1), Poland (1) Sweden (1)
Report available as Doc. C.M. 1999/H:7.
74. Study Group on Baltic Acoustic Data
(C.Res. 1998/2:62)
Chair: Dr E. Götze
Held at ICES Headquarters, 12–13 April 1999
Countries represented: Denmark (2), Finland (1), Germany (2), Latvia (1), Poland (1), Sweden (2)
Report available as Doc. C.M. 1999/H:3.
75. Baltic International Fish Survey Working Group
(C.Res. 1998/2:61)
Chair: E. Aro
Held in Tallinn, Estonia, 2–6 August 1999
Countries represented: Denmark (5), Estonia (4), Finland (2), Germany (7), Latvia (4), Poland (3), Russia (4), Sweden (3)
Report available as Doc. C.M. 1999/H:1.

PART II

**PROCEEDINGS OF THE 1999 ICES ANNUAL SCIENCE CONFERENCE
(87th Statutory Meeting)**

Stockholm, Sweden 27 September to 6 October 1999



AGENDA FOR COUNCIL: 1999 ICES ANNUAL SCIENCE CONFERENCE (87TH STATUTORY MEETING)

GENERAL ASSEMBLY

1. General Secretary: Call to Order and Welcome
2. President: Opening Address
3. HM The King of Sweden, Carl XVI Gustaf: Address to the General Assembly
4. Musical Interlude
5. President: Resumption of Address
6. David de G. Griffith: Open Lecture 'On the Evolution of ICES'
7. Finale

DELEGATES MEETING

1. Progress Report on Administration
2. Elections and Appointments at 1999 Annual Science Conference
3. Appointment of New General Secretary
4. Elections of Two Vice-Presidents
5. Appointment of One Member of Finance Committee
6. Appointments of New Chairs of ACFM and ACME
7. Report on Accession Process of Lithuania to ICES Convention
8. Swedish Proposal to Modify the Existing System for Calculating Member Countries' Contributions to ICES
9. Application by BirdLife International for Observer Status
10. Arrangements for 2000 (88th Statutory Meeting; Belgium), 2001 (89th Statutory Meeting; Norway), and Subsequent Annual Science Conferences
11. Developing and Agreed Memoranda of Understanding
12. Report on 1999 Meeting of ICES/Commissions Working Group on Cooperative Procedures
13. Progress on Planning and Funding for the ICES Centenary
14. Report of 1999 Meeting of Bureau Working Group on Strategic Planning
15. Report of Coordinating Group on ICES Advice
16. Status of ICES/GLOBEC Project Office
17. Progress with GEF Baltic Sea Regional Project
18. Report of Finance Committee
 - 18.1. Audited Accounts for Financial Year 1997/1998
 - 18.2. Estimated Accounts for Financial Year 1998/1999
 - 18.3. Budget for Financial Year 1999/2000
 - 18.4. Forecast Budget for Financial Year 2000/2001
 - 18.5. Possible Change of ICES Financial and Operational Year to Run from 1 January to 31 December
 - 18.6. Appointment of Auditors for 1999/2000
19. Report of Publications Committee
20. Reports and Recommendations of Consultative Committee
21. ACFM and ACME Matters
22. Actions Following 11th Dialogue Meeting
23. Proposed ICES Environmental Dialogue Meeting
24. Any Other Business

GENERAL ASSEMBLY

Stockholm City Conference Centre/Folkets Hus
Stockholm
29 September 1999

The General Secretary, Professor Christopher C.E. Hopkins, called the General Assembly of the 1999 ICES Annual Science Conference (87th Statutory Meeting) to order at 09.00. On behalf of the Council and the Secretariat he extended a warm welcome to His Majesty, the King of Sweden, and the Assembly with the following words:

Your Majesty, Minister, Distinguished Guests, Ladies and Gentlemen. As the General Secretary of ICES it is a pleasure for me on behalf of the Council and the ICES Secretariat to extend a very warm welcome to you all at this the 1999 ICES Annual Science Conference. As I am sure you all know, this year's Conference besides being our 87th Statutory Meeting also celebrates the passage of 100 years since the 1889 preparatory meeting of ICES held here in Stockholm. Besides reflecting on this Centenary in the current session of the General Assembly, there will also be a special session of Centenary lectures tomorrow afternoon. In my function at this session, as Master of Ceremonies, I wish to introduce our first speaker, the ICES President, Dr Scott Parsons. Dr Parsons has had a long and distinguished career with the Canadian Department of Fisheries and Oceans, both as a scientist and as a manager. He has served as Assistant Deputy Minister in turn for Atlantic Fisheries for Science and for the Oceans. In June of this year, he was appointed as Chief Scientist International Marine Sciences. In addition, he is the author of a major book on the Management of Marine Fisheries in Canada. I call upon Dr Parsons to give the Opening Address.

The President, **Dr Scott Parsons**, opened the General Assembly:

Good morning your Majesty, Minister, distinguished guests, and dear colleagues. It was with great pleasure that we in ICES received the invitation from the Government of Sweden to hold this 1999 Annual Science Conference, and the 87th Statutory Meeting here in Stockholm. On behalf of the participants in this Annual Science Conference, I would like to express our appreciation to the Government of Sweden for inviting us to meet here on this particular occasion in 1999, because of course 1999 is a very special occasion for Sweden and ICES. 100 years ago here in Stockholm the Preparatory Conference which led to the establishment of the International Council for the Exploration of the Sea was held. In that respect we are deeply honoured to have with us today his Majesty the King of Sweden, Carl XVI Gustaf. He will be speaking to us in a few minutes. We are also pleased to have the Minister of Agriculture, Food and Fisheries with us, and other representatives of the Swedish Government. We have with us our dear colleague, Ingemar Olssen, long time Delegate of Sweden to ICES, and a former Vice-President of ICES.

At this point this morning I would like to note in fact the absence of the second Swedish Delegate to ICES, Jan Thulin, who cannot be with us today because of serious injuries that he experienced in a major automobile accident in late August. Jan Thulin who is known to many of us as a friend and a colleague has been heavily involved now for some time in the organisation, the arrangement and organisation of this Conference. Last night when I returned to my hotel room I received the following message from Jan which I would like to pass on to the participants in this General Assembly, and I quote the message; "Your Majesty, your excellencies, Mr President, dear Staff of ICES, and dear participants, from the depth of my heart I wish you a very successful Annual Science Conference, a very pleasant Centenary Day, and a really enjoyable stay in our beautiful Capital" signed Jan Thulin. I am sure I speak for all of you when I say that we deeply regret that Jan cannot be with us today, and I am sure you will join me in sending a very strong message from this General Assembly to Jan, wishing him a speedy and successful recovery, and a return to his activities.

This Annual Science Conference begins the series of special meetings leading up to the actual Centenary celebrations in Copenhagen in 2002. To commemorate the establishment of ICES, four major events will take place between this year and that event in Copenhagen in 2002, including three Annual Science Conferences beginning with this one, including one in Oslo in 2001 and the one in Copenhagen in 2002. This Conference has as its theme 'The Evolution of ICES', and following this opening portion we will have an open lecture on that topic. In Norway in 2001, the theme will be the challenges facing ICES, and in Copenhagen in 2002, the ICES strategy for the living oceans. In addition to this, next year in Helsinki, we will be holding a special Symposium on 100 years of science under ICES. Also from the Programme you have received, you will note that as part of these Centenary celebrations tomorrow afternoon in this Hall we will have a Centenary Lectures session, featuring lectures by four prominent scientists, who have made major contributions to the work of ICES over many years. These events will focus on ICES history, the evolution of ICES and ICES accomplishments. At the same time of course as we celebrate the past, we must also examine the major challenges facing ICES as we move forwards towards the 21st Century. I will say a few words about that later in the morning. Before going down that path, I would like in a few moments to turn the forum over to his Majesty. As some of you are aware, back at the end of the last Century when ICES was being established, when scientists were discussing the possible establishment, King Oscar II of Sweden, played a pivotal role in encouraging the establishment of ICES. So it is very

fitting that you, your Majesty, are able to be with us today on this historical occasion, the 100th Anniversary of that preparatory meeting in Sweden. His Majesty Carl XVI Gustaf, has been very actively involved in national and international environmental business and scientific matters over the recent years. As Crown Prince, he worked in the Permanent Swedish Mission in New York, and with the Swedish International Development Cooperation Agency in Africa. His great interest in nature and the environmental protection led to his participation and preparations for – it was a very historic event – the UN Conference on the Environment in Stockholm in 1972. His Majesty became Sweden's Head of State in 1973. In 1988 his knowledge of the environment and his interest in environment and nature led him to become Chair of the Swedish Branch of the World Wide Fund for Nature (WWF). The King has personally instituted the King Carl Gustaf Environmental Competition, and the Royal Collegium, an International Environmental Symposium, held regularly here in Stockholm. His Majesty has received the United States Protection Agency award in recognition of his environmental commitment, and of course these things link very naturally to the functions of ICES and the reasons for which we are meeting here today. The King is also a patron of the Royal Swedish Academies, and plays an active part in their activities. As I mentioned earlier, his predecessors played a very key role in encouraging the establishment of ICES, so it is very fitting that he is with us today at this General Assembly, celebrating as I said the 100th Anniversary of the meeting in Sweden at which the foundation of ICES was laid. So please join me in welcoming His Majesty, King Carl XVI Gustaf.

The President then introduced His Majesty the King of Sweden who addressed the Assembly as follows:

Mr President, Minister, and Ladies and Gentlemen, good morning to everybody, and thank you for a very nice presentation. So it is a great honour for Sweden to host the 87th Annual Meeting of the International Council for the Exploration of the Sea, and I am therefore very pleased to be able to welcome you all to Stockholm. As some of you might know, I am personally concerned with the development of the marine environment, not only in the Baltic Sea, but in many other areas around the world. Therefore, I am in favour for all initiatives to solve the problems we already have. But I also welcome private programmes that can help us avoid future catastrophes. A hundred years ago ICES was initiated right here in Stockholm by the Swedish Hydrographic Commission, after preparatory work, and diplomatic contacts involving my great-great-grandfather King Oscar II, very much interested in scientific issues, and an inaugural Conference was held here in Stockholm in June of 1899. This was the work of great pioneers. Today, mankind is confronted with environmental problems, causing great concern in the world. The quality and quantity of a significant part of the marine resources have been strongly influenced by general degradation in the coastal waters. For a number of economies based on the fishing that has developed in the

coastal regions, production increase is a major goal, but the result has in many cases become over-investment, and then overfishing. The 1972 and 1992 Environment Conferences in Stockholm underline the needs of new development policies, with the moderate economic progress into sustainability as a goal. Today, it is more crucial than ever to integrate issues of fishing, environment, and economy. The marine ecosystems are highly complex, therefore it is vital to avoid disrupting the overall balance of the ecological web and to preserve the necessary bio-diversity. Today, there are a number of international agreements helping nations with real interest to strengthen the regional organisation for supervision of the fisheries. Scientific information and advice is a basis for sound management, and this can be found within ICES. We are looking for solutions in the cooperation, and the work that ICES is doing is of great importance. It is the oldest marine science organisation in the world today. With all of your knowledge and experience, you are not only capable of being governed by conviction, but also of being led by the principle of sustainable development, defined through the Brundtland Commission in 1987, "meeting the needs of the present without compromising the ability of future generations to meet their own needs". ICES indeed faces great challenges, but I wish to congratulate the Organisation of 100 years of important achievement. I am convinced that you are prepared to continue your commitments to excellence in science and research, and to integrity in the approach to understanding the potential of our oceans. So, I hereby declare this Jubilee and the Centenary meeting open, and I would like to say good luck in your work, at this meeting as well as in the future. Thank you very much.

The President thanked His Majesty the King of Sweden with the following words:

Your Majesty, on behalf of all the participants in this Annual Science Conference I would like to thank you for taking the time in a very busy schedule to join us here today. We very much appreciate your thoughtful and your stimulating remarks; as you indicated this meeting represents a landmark for ICES, 100 years after the initial meeting here in Stockholm. We recognise the very key role that Sweden and that your predecessors, the Swedish Royal Family have played in promoting the establishment of ICES, and in particular, we too share the concerns that you have expressed in your remarks about the environmental challenges that humanity faces at the moment, and the need to embrace this in a comprehensive ecosystem, holistic and balanced way. Again your Majesty, many thanks for being here and for giving – sharing your views with us. Please join me in thanking the King.

General Secretary:

We will now be entertained by a musical interlude, given by the celebrated Stockholm Student Choir. The Choir was founded in 1905, so it's approximately the same vintage as ICES, and is one of the leading male voice choirs in Sweden. It comprises in total about 60 members

who are drawn from an academic background, both students and professional persons from all disciplines. They have a wide repertoire of songs, and they perform in Sweden and abroad. Please, the floor is yours.

I would like to thank the King for joining us, and would you please rise as the King departs. Thank you.

President:

So this in effect begins the celebration of the ICES Centenary, we have much to celebrate, but at the same time we are engaged in a process of renewal, and a process of building for the next century, the 21st Century. Over the past several years as most of you are aware, ICES has been making substantial changes as we approach the millennium. Including major changes in the way we can organise our business and the way that we function. This includes the changes that have already been introduced recently, the restructuring of the Annual Science Conference, to provide a greater focus on science and the way that science is presented, and the restructuring of the Statutory Meeting, and you will see some of this in terms of the way Theme Sessions and other Sessions are organised at this Conference. We have also, as you are aware, restructured our Science Committees in a major way, to provide a greater opportunity and a greater focus on a more multispecies, a more interdisciplinary, a more ecosystem, and a more holistic approach to tackle the major scientific and management challenges that we face. At the moment we are also examining ways of improving our advisory process, because the advisory function of ICES is vitally important to our clients, to partner organisations and to the Member Countries of ICES themselves. I believe the result of all of this will be a strengthening of ICES as an international scientific organisation, both on the science side and on the advisory side. From its original role, concerned with the development coordination and promotion of marine science in the North Atlantic, which of course still remains a vital function, ICES has of course developed substantially over recent decades during the 1970s, 1980s, and the 1990s, perhaps we will hear more about that in tomorrow's session. We have seen the advisory function assuming increasing prominence, while at the same time the science role and function are being maintained and enhanced. Efforts are being made to clarify the nature and type of the scientific information and advice that is required from our clients, both in the fisheries and in the environmental fields. We face emerging pressures for new types of information, new types of integrated advice on ecosystem issues, and I think we face some challenges in terms of how we best position ourselves to address these sorts of questions. This past January in Nantes in France, we held a Dialogue Meeting with our fisheries clients, with representatives from both Member Countries and from those Commissions tasked with the business of managing and regulating fisheries. We discussed with them, what their needs, what their requirements were, how best to develop and communicate scientific advice to portray better the uncertainties and the risks associated with the advice and with the implications of various management

options, while at the same time seeking to avoid the use of the uncertainty that surrounds the science as an excuse for management inaction in situations where we have conservation threats. At this year's meeting of the Council of Delegates, held in conjunction with this Annual Science Conference and following it, we will also be discussing the progress to date on implementing the recommendations from the Dialogue Meeting last January. We will also be discussing at the Council a proposal to have an environmental Dialogue Meeting in the year 2000, a parallel meeting to the one held last January. I personally believe that ICES must pursue and must enlarge upon this process of dialogue by opening up the discussions with clients and with partner organisations, in a frank and pragmatic way, so that we can all better advance the goals and objectives which we share in common. I think this is essential to assist us in identifying and meeting the challenges that we face in the years ahead. But at the same time as we discuss these issues with respect to the advisory function of ICES, we must also continue to encourage the discussion and dialogue, the sharing of information on new advances amongst scientists and emerging scientific challenges, how these too can best be addressed. And this discussion occurs both in our new Science Committees, in the exciting themes – if you look at the programme, there are many exciting Theme Sessions at this particular Annual Science Conference – and of course in the various Symposia that ICES holds or co-sponsors each year. Since our last Annual Science Conference in Lisbon, last September, ICES in fact has sponsored four Symposia, and co-sponsored another. Last fall in Cape Town, South Africa, ICES sponsored a Symposium on Confronting Uncertainty in the Evaluation and Implementation of Fisheries Management Systems, dealing with some major scientific issues and challenges surrounding the issue of fisheries management. In that meeting we worked with others, co-sponsors included the European Commission, FAO, and ICLARM. A hundred and forty-four participants from twenty-four countries attended that Symposium, a broader group than just the scientists and managers from ICES Member Countries themselves. Also another major Symposium was held in March of this year in 1999, in Montpellier, France, the topic was the Ecosystem Effects of Fishing, an issue which is, I think, receiving increasing attention and interest in some quarters. That Symposium attracted a total of three hundred and forty participants from fifty-four countries. At the moment the membership of ICES is nineteen countries, so I think that in itself indicates that ICES is dealing with issues which have a major significance on a world scale and is bringing together people, not just within ICES Member Countries, but reaching out to other organisations and to other people in other parts of the world to bring the best talent and the best expertise together to address the challenges and the issues, and to try to make progress on these. Just preceding this Meeting, here in Stockholm, there was another Symposium on a topic which on the surface might seem a little obscure, the Population Dynamics of Calanus in the North Atlantic; but in fact, of course, as we talk about ecosystems and ecosystem approaches, it's important that we have an understanding of not just the fish, but of

other components of the ecosystem. Again in that Symposium, we were co-sponsored by other significant organisations, including DG XII in the European Commission, the US National Science Foundation, and the Norwegian College of Fisheries Science at the University of Tromsø. Again participants from twenty countries attended that Symposium. Most recently, in fact just a few days before the beginning of this Conference, there was a Symposium on the Environmental Effects of Mariculture, held in St. Andrews in Canada. Again a topic which I think is of significant interest, not only within the Member Countries of ICES, but also in many other areas of the world, in fact participation at that Conference also included representatives from as far away as Australia, New Zealand, and South Africa. As I mentioned in the beginning, in the context of the Centenary celebrations, in the coming year we will also have a special Symposium on 100 Years of Science under ICES, about which I will say a little bit more tomorrow.

As we meet here this week, to discuss, to celebrate accomplishments, to review developments in science in the various sessions, and in the Delegates, Council and Committees to discuss plans for the future, we are missing some colleagues who have made significant, in fact in some cases tremendous contributions to ICES over the years. As is customary, I now have the sad duty to announce the deceased in the past year of several colleagues previously active in the work of ICES. It is with deep regret that I mention the passing of three individuals who contributed in a major way to the working of ICES. The first one I would mention is M Robert Letaconnoux, formerly of IFREMER France. Robert was President of ICES during 1972 to 1975; he died in June of this year. He would have been eighty this year. He started in ICES as far back as 1946, served as a French Delegate to ICES for twenty years or so, from 1962 – 1982, chaired Committees; in fact, Robert was President of ICES when I attended my first ICES meeting as a young scientist in Montreal, Canada, in 1975, and I remember sitting in the audience and seeing him standing up there wearing this chain. Personally I feel a great loss at his passing. Ms Eva Christiansen, who was a long-time employee of ICES and well-known to people who have participated in ICES for many years, died in June this year at the age of 93. Eva worked for forty-five years in the ICES Statistics Department. Finally, with deep personal regret I must mention the passing of a colleague who was held in high regard within ICES, and was a good friend to many people in this room today. I speak of Roger Bailey. Roger, who was most recently ICES Fisheries Adviser, retired because of ill health only a little over a year ago. Before joining the ICES Secretariat Roger had worked at the Marine Institute in Aberdeen, which he joined back in 1968. Roger was very active before becoming a member of the Secretariat. He was very active in many ICES Working Groups and Committees. He chaired the Pelagic Fish Committee, he served as a member of the Advisory Committee on Fisheries Management, and was unfortunately stricken with a major illness. Roger died in February of this year. He was taken at a relatively young age, and our thoughts go out to his wife Jane, who is with us in the audience

today. On behalf of ICES I would like to offer our condolences to the families of all three of these departed colleagues, and our sincere thanks for their contribution to the ICES community. Could you please rise and join me in paying our respect with a minutes silence.

After a pause, the **President** continued:

As we will see, in particular at the Centenary lecture session tomorrow afternoon, ICES has had an illustrious past, and has many accomplishments to celebrate through the Centenary-related events of the next three years that we have mentioned. But at the same time as we are now on the verge of the 21st Century, as we approach this Century, it is time for ICES to develop a new vision for the next Century, to look back, to learn, to consider what lessons we have learned from our experience of recent years, to build on what we have learned, and to chart new directions for the future. Over the past year a Working Group established by the Bureau, which is the Executive Committee of the Council, has been working and developing a strategic plan for the next few years. As many of you recall, last year in Lisbon, the Council of Delegates approved the basic framework for the strategic plan, considered the question of the vision, the mission statement of goals, the issues we face as we move forward, the challenges. Since then a great deal of work has been done within the various components and the various bodies of ICES, including many people in this room who participate in the Science Committees, Consultative Committee and so forth, in contributing to building the strategic plan, by discussing objectives and actions to be taken to accomplish our strategic goals. This draft strategic plan has been made available for discussion at this meeting, for everyone to read and to review. It is a general document and should be in your packages – I refer you to it – it is Gen:4. I request that you take the time to review this report, to offer your suggestions on the proposal to members of the Bureau, to Delegates of the Council (there are two Delegates per Member Country), to Chairs of the various Committees, and to members of the Committees. Certainly Prof. Mälikki and myself, Dr Mike Sissenwine from the US, who chaired the Working Group, the other members of the Bureau, the other Vice-Presidents, Niels Axel Nielsen from Denmark, Prof. Ojaveer from Estonia, Gracia Pestana from Portugal, Alfred Post from Germany, and Roald Vaage from Norway – all of us would be pleased to hear your views and to discuss with you the ideas that are contained in that strategic plan document. We will be discussing this document at this year's Council Meeting, over the next days; the intent is that we endorse this initial strategic plan, and that this would then form the basis to enter into discussions within Member Countries on ICES priorities, or what should be ICES priorities, and also with our clients and partners in an organised fashion, and we will do that over the coming year. But in looking at this document you have to remember and bear in mind that a strategic plan is just a snapshot at the point in time, it's a living process document, it's a dynamic process, and of course it will evolve over the coming years. But it does

contain some ideas and a good picture of where we think ICES needs to go in the years ahead.

So, in summary, ICES must continue to enhance its efforts to provide scientific advice in an exemplary, responsive, and timely manner, to make improvements where needed, to address problem areas that have been identified by our clients or within the ICES system itself. At the same time, through the Science Committees, the Workshops, the Theme Sessions, and the Symposia that we hold, we need to encourage and foster development of the scientific knowledge base, without which any advice on implication of management actions will prove inadequate, because sound science, and advances in science, were the *raison d'être* for ICES formation and remain fundamental underpinning of the vision and mission of ICES, in fact they are essential to the discharge also of the advisory function. So over the next three years let us celebrate ICES accomplishments, so far, but at the same time let us build on a strength to develop a better organisation, an even better ICES. I believe that through working together and working with our clients, working with our partners, we can better position ICES to meet major challenges and take advantage also of the opportunities that we face as we enter the next century. Thank you.

General Secretary:

It is now my pleasure to introduce the presenter of the Open Lecture, David Griffith. David Griffith is known to many of you, and has been Scientific Adviser to Ireland's Minister of the Marine, and Director of the Fisheries Research Centre, and is shortly to take over new responsibilities at the Institute as the Senior Policy Adviser. His scientific interests and activities have mainly been in the field of fisheries biology. He has

served on the staff of ICES Secretariat as Statistician—that post is now known as Fishery Adviser—in the early 1970s, and since returning to Ireland in 1975 he has held various selective positions within the Council of ICES. He has been a former Chair of the Statistics Committee, and a former Chair of the Advisory Committee on Fishery Management (ACFM). After some years on the Bureau as Vice-President, and First Vice-President, he was elected President of ICES for the period 1991 to 1994. He has had extensive experience within the European Commission system, within a number of high-level fisheries, aquaculture, and marine science committees. As a Scientific Adviser to the Minister for the Marine, David has actively taken part in the annual catch quota negotiations within the European Union's Council of Fisheries Ministers. And since 1996 David has been developing Memoranda of Understanding with the ICES Partner Commissions, as Chair of our Joint ICES Commissions Working Group on Cooperative Procedures. The main objective of this operation, which is to provide an appropriate administrative and financial framework for the cost of ICES scientific advice, has been achieved in a spirit of mutual partnerships. David, the floor is now yours to present the Open Lecture on the Evolution of ICES.

D. de G. Griffith presented a 40-minute lecture entitled *On the Evolution of ICES*, illustrated by slides.

A full illustrated text of David de G. Griffith's lecture is available on the ICES web site at:

[<http://www.ices.dk/asc/1999/open/>]

The **President** thanked David Griffith for a highly informative and enjoyable Open Lecture, and adjourned the session.

Documents

Gen:1	Observers' Reports from Cooperating Organisations
Gen:2	ICES Activities in 1998/1999
Gen:3	Elections and Appointments of Council Officials at 1999 Annual Science Conference (87th Statutory Meeting) (E+F)
Gen:4	Report of the Bureau Working Group on Strategic Planning
Gen:5	Report on ICES Symposia
Gen:6	1998/1999 Overview of ICES Committees and Subsidiary Groups and their Shadowing by Secretariat Staff, and Schedule of ICES Meetings and List of CM Codes

1999 ASC - Scientific Programme

Wednesday 29 September			
09.00–11.00	11.30–13.00	14.00–16.00	16.30–18.00
GENERAL ASSEMBLY In the presence of His Majesty the King of Sweden OPEN LECTURE: "On the Evolution of ICES" by D. de G. Griffith)	Mini: Plans for Major International Programmes in the North Atlantic Region over the Next Decade: Should ICES Be Involved?		L: Nordic Seas Exchanges
	Section A		Section A
	Q: The Language of Fisheries Science and Management		P: Sustainability Criteria
	Section B		Section B
Sections A, B, C	U: The M-74 Syndrome and Similar Reproductive Disturbances in Marine Animals		N: On Management and Mitigation for Harmful Algae
	Section C		Section C
	K: Application of Coupled Bio-Physical Models in Studies of Zooplankton and Ichthyoplankton Advection and Dispersion Rooms 203+204		X: Size-Based Processes in the Sea (Poster Session) Rooms 203+204

Thursday 30 September			
08.30-10.30		11.00-12.30	
L: Nordic Seas Exchanges Section A		13.30-18.00 <u>Centenary Activities</u> "Otto Pettersson and the Birth of ICES" by Dr A. Svanarson 18.00-20.00 Poster Session	
AA: Microprocessors and Things that Swim in the Ocean: Smart Tags in the Study of Marine Life Section B		"ICES and Ocean Exploration" by Prof. W. Wooster	
R: The Relationship Between Fishing Capacity, Effort, and Mortality Section C		"ICES and the Overfishing Problem" by Prof. J. Jakobsson	
V: The North East Atlantic Environment – The Current Status Rooms 203+204		"ICES and Environmental Issues" by Prof A.D. McIntyre Sections A, B, C Exhibition hall	

1999 ASC - Scientific Programme

Friday 1 October			
08.30-10.30		11.00-12.30	
13.30-15.30		16.00-18.00	
L: Nordic Seas Exchanges Section A		Fisheries Technology Committee (B) Section A Oceanography Committee (C) Room 203	
Y: Cod and Haddock Recruitment Processes – Integrating Stock and Environmental Effects Section B		Resource Management Committee (D) Section B	
S: Evaluation of Complete Fisheries Systems: Economic, Social, and Ecological Analyses Section C	T: The Bayesian Approach to Fisheries Analysis Section C	Marine Habitat Committee (E) Göteborgssalen Mariculture Committee (F) Room 204	
J: Application of Acoustic Techniques to Bottom Trawl Surveys Rooms 203+204		Living Resources Committee (G) Section C Baltic Committee (H) Saxofonen	

Saturday 2 October			
08.30–10.30		11.00–12.30	13.30–15.30
W: Health and Welfare of Cultivated Aquatic Animals		O: Global Change Aspects	
Section A		Section A	
Y: Cod and Haddock Recruitment Processes – Integrating Stock and Environmental Effects			
Section B			
AA: Microprocessors and Things that Swim in the Ocean: Smart Tags in the Study of Marine Life		Z: Ecosystem Management – Can We Make It Operational?	
Section C		Section C	
J: Application of Acoustic Techniques to Bottom Trawl Surveys		M: 4-D Sampling of the Oceans at Micro- to Mesoscales	
Rooms 203+204		Rooms 203+204	
		Sections A. B. C	

87th Statutory Meeting - Business Sessions

Monday 27 September
Bureau (09.00- Klarinetten) ACFM (08.30-18.00 Stockholmssalen) ACME (08.30-18.00 Göteborgssalen)
Tuesday 28 September
Bureau (09.00- Klarinetten) Consultative Committee (08.30-09.30 Göteborgssalen) Fisheries Technology Committee (09.30-13.30 Stockholmssalen) Oceanography Committee (14.00-18.00 Room 203) Living Resources Committee (14.00-18.00 Stockholmssalen) Resource Management Committee (09.30-13.30 Room 203) Marine Habitat Committee (09.30-18.00 Göteborgssalen) Mariculture Committee (14.00-18.00 Room 204) Baltic Committee (09.30-13.30 Room 204)
Wednesday 29 September
Delegates (16.00-18.00 Stockholmssalen)
Thursday 30 September
Finance Committee (08.30-12.30 Klarinetten)
Friday 1 October
Delegates (08.30-12.30 Stockholmssalen) Publications Committee (08.30-12.30 Klarinetten)
Monday 4 October
Delegates (08.30-12.30 Stockholmssalen) Consultative Committee (08.30-17.30 Göteborgssalen)
Tuesday 5 October
Consultative Committee (08.30- Göteborgssalen) Delegates (08.30-17.30 Stockholmssalen)
Wednesday 6 October
Delegates (08.30-17.30 Stockholmssalen)

Social Events

Wednesday 29 September
Reception at the Vasa Museum hosted by the Swedish Ministry of Agriculture
Friday 1 October
Grand Conference Dinner at the Stockholm City Hall

CLOSING OF THE SCIENTIFIC SESSIONS

Stockholm City Conference Centre/Folkets Hus

Stockholm

Saturday, 2 October 1999

The **General Secretary, Professor Chris Hopkins**, opened the Closing of the Scientific Sessions at 16.00 hrs and announced:

- Two new Chairs had been appointed by the Council for the Advisory Committee on Fishery Management (ACFM) and the Advisory Committee on the Marine Environment (ACME). For ACFM **Tore Jacobsen** (Norway) succeeded Jean-Jacques Maguire (Canada), and for ACME **Professor Hein-Rune Skjoldal** (Norway) succeeded Stig Carlberg (Sweden);
- A new Chair had been elected for the Mariculture Committee. **Dr Anthony Calabrese** (USA) succeeded Dr Maurice Héral (France);
- For the Finance Committee, **Professor Jan Thulin** (Sweden) had been appointed as a new member succeeding Dr Rudy de Clerck (Belgium).

He congratulated the above-named new officials on their appointments. The Council was most appreciative of the services of the outgoing officials.

The number of registered participants at this Annual Science Conference had been close to five hundred and fifty, and actually might be revised upward on subsequently checking. The 1999 ASC, by any standards, could be viewed as an excellent arrangement.

Looking to the coming year, he drew attention to a) the Symposium on 'One Hundred Years of Science Under ICES', scheduled to be held in August 2000 in Helsinki (Finland), and b) the 2000 ICES ASC to be held in late September 2000 in Bruges (Belgium).

On behalf of the Secretariat, he warmly thanked the Swedish Delegates, Dr Ingemar Olsson and Prof. Jan Thulin, and the Swedish hosts for making the 1999 ASC a truly memorable meeting. He also expressed the Secretariat's gratitude to all the persons who had prepared for and provided support for the various arrangements behind the scenes. Special thanks were extended to his staff in the ICES Secretariat staff for the successful culmination of many months of hard work.

The **General Secretary and Görel Kjeldsen**—who co-arranged the Annual Science Conference—gave, on behalf of the ICES Secretariat, a personal gift to Dr Ingemar Olsson.

After presenting the gift to Dr Olsson, the **General Secretary** continued by extending his very best wishes to David de G. Griffith, who would be taking over as custodian of the General Secretary position at the end of the 1999 calendar year.

The **Chair of the Consultative Committee** (Dr Robin Cook) noted that although it had become tradition in ICES to provide three awards, i.e. for best poster, for best newcomer, and for best paper, this year it had been decided to embark on a slightly different way of selecting papers. In the past it had been a rather arbitrary selection by the Consultative Committee. This year John Ramster (Editor of the ICES Newsletter) had been invited to convene a sub-group of people, representing the Science Committees, who had moved around the proceedings and discussed the various presentations before making selections. He then announced the prize winners for Poster, Paper, and Newcomer awards, and he and the President presented the certificates:

- a) **Best Paper Presentation Award** to **I. McQuinn, Y. Simard, J.-L. Beaulieu, J. Landry, D. Lavoie, and S. Walsh** (Canada) for Doc. C.M. 1999/J.11 "An adaptive integrated acoustic trawl survey on Atlantic cod".
- b) **Best Poster Presentation Award** to **G. Eidung, L. Byren, R. Elmgren, and H. Cederwall** (Sweden) for Doc. C.M. 1999/Post:03 "Large and Small Scale Studies of Oxygen Deficiency on Baltic Benthos".
- c) **Newcomer Award** to **C. Ulrich, B. Le Gallic**, (France), and **M. R. Dunn** (UK) for Doc. C.M. 1999/S:04 "Bioeconomic modelling of English Channel fisheries and their technical interactions: presentation of the simulation model BECHAMEL (BioEconomic CHannel Model).

He noted, as this would be the last Annual Science Conference that Professor Chris Hopkins would attend as General Secretary, that the Consultative Committee wanted to mark the occasion. Chris had helped the Consultative Committee for a number of years, and the Committee wished to show its appreciation for his efforts. However, taking into account the purported high salary of the General Secretary, it was felt more appropriate to give him a personal memento—in the form of a certificate—of the ICES Rule of Procedure pertaining to his post. As Chris had probably got a significant number of sheets of notepaper with the signatures of the President of ICES, it was considered more appropriate to have the certificate signed by the lady who is President of the International Cake Exploration Society (ICES), a very auspicious body, which is found on the world-wide website as 'ices.org'. The members of the Consultative Committee also counter-signed the certificate. On behalf of the Consultative Committee, he expressed their best wishes for the future and handed over the certificate.

The **President** noted that this year's ASC participants had witnessed an historic event, i.e. ICES celebrating the 100th anniversary of the Preparatory Conference held in Sweden in 1899. At the General Assembly the presence of the King of Sweden, and the themes addressed by the Open Lecture, the Centenary Lectures and the Swedish Minister of the Environment had provided a fitting marking of the anniversary. This year's arrangement would pave the way for other ICES centenary-related arrangements in 2001 in Oslo (Norway) and in 2002 in Copenhagen (Denmark).

The 1999 ASC had been a very successful meeting, with an exciting range of topical scientific Theme Sessions to follow. Through the changes that have been implemented over the past several years, one had been trying to improve the structure of the meeting. There was a greater opportunity to focus on the scientific Theme Sessions, whereas previously several arrangements had been 'blurred' together, e.g. business and science sessions had been mixed. The feedback that had been received over the past two or three years indicated that the changes had been viewed as generally beneficial. These improvements had been implemented *inter alia* by the members of the Consultative Committee, and in this context special tribute was due to the outgoing Science Committee and Advisory Committee Chairs mentioned previously by the General Secretary.

Earlier in the week, the President had announced that the Council had appointed David de G. Griffith as the new General Secretary of ICES, starting in January 2000. At this time, he also wished to pay tribute to the outgoing General Secretary, Professor Chris Hopkins, for his valuable contribution to ICES. Dr Robin Cook, as Chair of the Consultative Committee, had just marked the occasion in a very entertaining way. However, as ICES President, he wanted to draw further attention to Chris' substantial involvement with ICES, that substantially predated his role as General Secretary. Chris Hopkins was no stranger to ICES when he came to the position of General Secretary in 1994, and had a long and distinguished career in oceanography and marine population ecology in both governmental research laboratories and in the university world. During this period his work included long sea-going trips to remote northern seas and arctic seas. Later Chris was a founder member of the Working Group on the Ecosystem Effects of Fishing Activities, and was the Chair of the Shellfish Committee where he contributed to bringing it closer to the mainstream of population dynamics and fisheries

management thinking. He became known to very many in the ICES community as an excellent Chair of the Consultative Committee in the early 1990s, and personally played a key role in establishing the Advisory Committee on the Marine Environment (ACME) as the successor to the previous Advisory Committee on Marine Pollution (ACMP), and addressing several important strategic issues as outlined by the first Bureau Working Group in 1993. These eventually led to the far-reaching changes in the structure of ICES, including the establishment of the new-style ASC and the interdisciplinary Science Committees. Since Chris became General Secretary in 1994, he had served as General Secretary during a period of further significant evolution in ICES.

The President then presented Professor Hopkins with a gift, on behalf of the Council and his many friends in the wider ICES community, in appreciation of the contributions made throughout a memorable career in ICES.

The **General Secretary** underlined that there was a long tradition in ICES that had impressed him during his association with the organisation, namely the dedication, professionalism, and friendship in the whole community. He thanked the numerous good friends and colleagues throughout ICES for their cooperation and contributions over the years, including the collaboration from his counterparts in the international organisations and Partner Commissions. In particular, he proffered the wish, in nautical phraseology, for the occasion: '*May fair winds and a full sail go with ICES and with us all*'. Thank you very much!

The **President** continued by thanking the Swedish hosts and Delegates for the excellence of the recently experienced Conference facilities and hospitality in Stockholm. In particular he paid a special tribute to Dr Ingemar Olsson, the Delegate who had played the key role in masterminding the 1999 Conference and who would be soon retiring. A challenge clearly would be going out to colleagues in Norway and Denmark to match this for the coming Centenary Conferences in 2001, and 2002, respectively. However, in the meanwhile, he and the Council looked forward to the 2000 ASC to be held in Bruges, Belgium, where it was already apparent that the Delegates of Belgium were planning for a memorable meeting. He wished everyone a safe journey home, and adjourned the meeting at 17.00 hrs.

CENTENARY LECTURES

The Centenary Lectures were opened on 30 September by **Dr Ingemar Olsson** and included the following components: Address by **Kjell Larsson**, Swedish Minister of the Environment, who provided a short welcome speech, highlighting the challenges faced by ICES and the scientific community in developing an advisory and regulatory system for exploitable living marine resources, and the protection of the marine environment that is in accord with the Precautionary Approach and the Ecosystem Approach. He emphasised the key role of ICES as the provider of the best available scientifically objective and politically neutral information and advice in the Convention Area.

Dr Scott Parsons, President of ICES responded by taking a brief look back at the late 1800s and the forces which led to the establishment of ICES. He then referred to the enormous changes that had taken place in the 20th Century. ICES itself has grown from a small body of like-minded scientists to a complex intergovernmental organisation with 19 Member Countries, involving many scientists, seven scientific and two advisory committees, close to 100 working groups, and a very diverse and wide range of publications. He particularly emphasised the statement that "the mission of ICES is to lead the way by mobilising scientific assets with both people and other resources to advance the capacity to understand, and to advise on the effects of human activity and natural change on the marine ecosystems".

To actually make progress in these areas, and to provide the institutional arrangements necessary to support the scientific goals, ICES has identified six institutional objectives. These include:

- Broadening the diversity of scientists who participate in ICES activities;
- Maintaining and strengthening the infrastructure to support ICES scientific activities;
- Enhancing communication and dialogue with organisations which share the ICES vision which also includes the practical issues of improved dialogue with those Member Countries, international organisations, and regulatory commissions which are dependent on ICES for scientific advice.

The **President** then closed his speech by pointing out that one should bear in mind not just the question of what has happened over the last 100 years, but what are the lessons that one can learn in terms of how to move forward to the future. With these words the Centenary lectures were officially opened.

Dr I. Olsson "nominated" three persons (Dr Hans Ackefors, Dr Armin Lindquist, and Dr Artur Svansson) to introduce each of the lectures with a "Veterans' Parade" which included Hans Ackefors, Karl Andersson,

Börje Carlin, Per Cleve, Bernt Ingemar Dybern, Gustaf Ekman, Vagn Walfrid Ekman, Stig Fonselius, Lennart Hannerz, Christian Hessle, Jöran Hult, Hans Höglund, Nils Jerlov, Fritz Koczy, Börje Kullenberg, Gunnar Kullenberg, Armin Lindquist, Rudolf Lundberg, August Malm, Arvid Molander, Gunnar Otterlind, Hans Pettersson, Otto Pettersson Wilhelm Pettersson, Nils Rosén, Artur Svansson, Filip Trybom, Curt Wendtand and Nils Zeilon. The lectures started with Dr Artur Svansson on "Otto Pettersson and the Birth of ICES", followed by Prof. Warren Wooster on "ICES and Ocean Exploration", Prof. Jakob Jakobsson on "ICES and the Overfishing Problem, and Professor Alasdair McIntyre on "ICES and Environmental Issues. The abstracts of the four lectures are given at the end of this chapter. Between the lectures there was a musical interlude on sea shells.

During the Closing Ceremony, a "torch" in the form of a crystal vase was handed over to a representative of Norway to the tune of Grieg's Peer Gynt suite.

The second History Award was presented to Dr Artur Svansson in recognition of his work on the early history of ICES, particularly from the Swedish perspective.

A presentation was made at the end of the Centenary Lectures by the General Secretary and Mrs Görel Kjeldsen, thanking Dr I. Olsson for his valuable collaboration in orchestrating the 1999 Annual Science Conference in Stockholm.

ABSTRACT OF OPEN LECTURE AND CENTENARY LECTURES

ON THE EVOLUTION OF ICES (D. de G. Griffith)

The status and personal characteristics of the founding figures of ICES – Otto Pettersson, Fridtjof Nansen, Gustaf Ekman, Johan Hjort, Sir John Murray and others, and with the generous support of the King of Sweden and Norway (as he then was) Oscar II – gives a clear sense of the driving force of the early years. Once the preliminary groundwork had been covered, ICES had no slow beginning – the Big Bang is a much closer analogy. They moulded the shape of an idea whose time had come.

By looking at changing perceptions and priorities as represented by archival material of various sorts, one is struck by the extent to which the same problems arise repeatedly throughout the Council's history. Although they may differ in detail, or in the nature of their manifestation, and even though the ICES response varied in accordance with the solutions available at the time, one sees recurrent expressions of the need for improvements in:

- fisheries statistics;
- research funds in the Member Countries;
- resource conservation measures;
- inter-disciplinary communications between ICES scientists.

More positively, there are also clear and repeated examples of how the ICES programme has stimulated and supported national and international action, at government level, in relation to the sustainable use of the sea's biological and environmental resources.

In tracing ICES developments in scientific thought, and the steady growth in international impact of the organisation since its earliest days, clear evolutionary trends can be discerned in the areas of fish stock assessment, marine mammal population dynamics, fisheries economics, hydrography and the marine environment. In demonstrating these trends, and borrowing the geologists' format, the first 100 years of ICES can be arranged into four principal eras:

1st Holistic era: 1902 – 1919. Holistic approach to marine science, even though there is an overt fisheries orientation.

Growth and Specialisation era: 1920 – 1959. Much diversification; flowering of new ideas achieves significant advances in knowledge.

Quantification era: 1960 – 1979. Developments across the fisheries and environmental areas of ICES move, broadly speaking, from a predominantly qualitative mode into a generally quantitative one.

2nd Holistic era: 1980 – 1999. Genuinely cross-discipline Committee structure, scientific emphasis on ecosystem interactions and the Precautionary Approach. Inclusion of human ecology (fisheries economics, sociology). Central involvement of ICES in the assessment of marine environmental quality.

OTTO PETTERSSON AND THE BIRTH OF ICES (C. Artur Svensson)

The main driving force behind the establishment of ICES was, it may be argued, the Swedish chemist Otto Pettersson (1848–1941). His colleague Gustaf Ekman aroused Pettersson's interest in oceanography in the 1870s by demonstrating the relationship between hydrographic conditions and the presence of herring. This connection made an indelible impression on Pettersson, who devoted the next two decades to promoting international cooperation in oceanography, focusing especially on hydrography and fisheries. By 1890 Pettersson and Ekman had arranged for simultaneous sampling by five Swedish ships, and in the following decade they expanded this synoptic work to include five countries. Seeking the support of international scientific organizations to expand this sort

of cooperative research, Pettersson grew impatient when groups such as the International Geographical Congress limited themselves merely to issuing resolutions in support of Pettersson's proposal. In October 1897, he and his partners in the Swedish Hydrographic Commission handed over what I have called the ICES Conception Letter in an audience with King Oskar II. This lecture chronicles the diplomatic and scientific communications and decisions during the years when ICES was designed and founded, at preparatory conferences in Stockholm in 1899 and in Christiania (Oslo) in 1901, and finally at the constitutional meeting in Copenhagen in 1902. While Pettersson was very likely pleased at the achievement of a permanent international institution, he was probably disappointed by the separation of hydrography and biology in its scientific programme.

ICES AND OCEAN EXPLORATION

(Warren S. Wooster)

The task of assessing ICES contributions to oceanography during the last hundred years is complicated by the distinction between such contributions and those to fisheries and to pollution studies. From the beginning, the purpose of ICES, "to promote and encourage research and investigations for the study of the sea particularly those related to the living resources thereof" has been tied to the application of science rather than to science itself. The principal applications were initially fisheries management, and more recently pollution management, so by that logic, there is little for me to report.

From another point of view, the principal characteristics of oceanography as a field are its international and interdisciplinary flavor. The former is dictated by the nature of the ocean, the fact that it is in continuous motion and that its waters and contents, living or otherwise, exchange freely across man-made boundaries. Even in the era of extended national jurisdiction, understanding of offshore events, populations, and processes can seldom be achieved by, or confined to, a single national scientific community. This is particularly true when the understanding is to be applied to the use of shared resources.

The interdisciplinary character of oceanography has gradually become apparent to the point where it is hard to remember the arbitrary taxonomy of the field when it first began to coalesce. Even fifty years ago, when I was a graduate student, study of the ocean was neatly divided into physics, chemistry, biology, and geology. With the passage of time, boundaries of these categories have steadily eroded to the point where modern studies of marine ecosystems involve a blend of all of these fields, even submarine geology when the sea floor nears the surface.

The actual birth date of oceanography can be debated, but it could be argued that as an international and interdisciplinary field, it arrived on the scene with the

establishment of ICES. In the years that followed, emphasis has shifted as understanding increased and as application priorities evolved, but the main themes in the development of oceanography can be identified in the scientific programs and publications of ICES.

In an effort to identify "oceanographic" contributions of ICES, as distinguished from fishery or pollution contributions, I looked at the lectures, symposia, and publications of ICES in the last quarter of ICES' existence. Somewhat to my surprise, there were at least as many lectures and symposia on oceanographic topics as on the more applied topics. In fact, if one considers ecosystem studies in the broad sense, well more than half of ICES communications have been ecosystem directed. One can identify and trace the emergence of important themes. For example, a discussion of physical variability in the North Atlantic in 1969 was followed by a mini-symposium in 1982 on climatic variations in the North Atlantic and their effects in biota and fisheries. By 1993, there was the cod and climate change symposium, and global change aspects are under discussion at the present conference.

I am led to conclude that the principal contribution of ICES in oceanography has been to broaden the meaning and approach of the field to include the application of all the fields of natural science to the study of marine ecosystems, to the forces that transform them, and to the consequences for their future condition and the uses to which they are put. ICES has provided a fertile environment within which this transformation has taken place.

ICES AND THE OVERFISHING

(Jakob Jakobsson)

During the 19th century it was generally believed that the resources of the seas were so great that man could hardly make any impression on them. However, with the expansion in the trawling fleet and the introduction of steam power and otter trawls, the efficiency of the fishing fleet was rapidly changing towards the end of the last century and many thinking scientists were changing their views. In fact some were satisfied that overfishing was already actually taking place already about one hundred years ago. This belief was one of the reasons why ICES was established, and this problem has lived with ICES for the last one hundred years.

During the first quarter of this century the problem of overfishing was mainly limited to the plaice fishery in the North Sea where great quantities of very small unmarketable plaice were thrown back into the sea or taken to reduction factories for animal feed. During the 1930s ICES diverted its attention to the exploitation of the haddock and cod stocks in the North Sea. This led to the discovery of the possibility of releasing small fish from the trawl by increasing the mesh size of the gear, thus allowing the young fish to grow to a larger size and increasing the yield from the fishery. A consequence of this was the establishment of the overfishing convention in 1946, which was later replaced by the North-East

Atlantic Fisheries Commission in 1963. From the early 1930s to the mid-1970s the conservation measures in the NE Atlantic were mainly restricted to the establishment of minimum mesh sizes, minimum landing sizes of fish, and to some extent to closed area regulations.

Throughout this period ICES was involved in evaluation of the various technical measures and became the principal advisory organization in marine science.

Despite these measures overfishing continued, and it became clear that the problem could not be solved by technical measures alone. This could only be done by restricting fishing operations in some way, either by limiting fishing effort or by limiting catches.

Great advances in the science of fish population dynamics in the 1950s and 1960s made it possible for ICES to evaluate the effect of such measures and assess the abundance of the various marine resources as well as the yield that they could sustain. This led to a new phase in the advisory role of ICES, which is still developing with the introduction of a new attitude to the wild animal populations in the world oceans. Bitter experience has taught those who wish to harvest the resources of the various marine ecosystems to appreciate how vulnerable at least some of them are to overexploitation.

ICES AND ENVIRONMENTAL ISSUES

(Alasdair D. McIntyre)

Since the establishment in 1902, the International Council for the Exploration of the Sea has been expanding its interests and activities. In its early days, the focus was entirely on fish stocks, and other work such as associated investigations on hydrography and plankton, was closely tied to explicit and immediate fishery matters. However, over the decades, attention has been increasingly paid to a wider range of considerations.

By about the middle of the century it began to be recognised that a diversity of chemical inputs was affecting the sea. First metals and synthetic organic compounds attracted attention, and oil was highlighted, then the multiple effects of nutrients were headlined. Later, it became evident that discharges from shipping included large volumes of ballast water which transported round the world not just chemicals, but also species of plants and animals which could settle as aliens and cause ecological havoc. International concern was not infrequently stimulated by particular incidents or disasters, so that priorities for action changed from one period to another.

While pollution was initially thought of exclusively in terms of these inputs, a broader definition came to be accepted when, for example, the impacts of dredging and of aggregate extraction were examined, and when the physical and biological effects of fishing were documented.

The paper gives an account of the progressive involvement of ICES in these topics, showing how it adapted its organisational structures to cope with the

changing scene, and evaluating its contribution to international action in the marine environment.

REPORT OF DELEGATES MEETING

The sessions of the Delegates Meeting were chaired by Dr Scott Parsons, President of ICES, on the following days:

Wednesday 29 September	16.00–18.00 hrs
Friday 1 October	08.30–12.30 hrs
Monday 4 October	08.30–17.00 hrs
Tuesday 5 October	08.30–17.30 hrs
Wednesday 6 October	08.30–14.30 hrs

All Member Countries were represented, together with the General Secretary. The Chair of the Consultative Committee and the Professional Secretaries attended appropriate sessions.

The **President** opened the first session of the Delegates Meeting by greeting all Delegates. He welcomed several new Delegates and Acting Delegates, as well as noting the absence of Professor Jan Thulin (Delegate of Sweden) who had been seriously injured in a road accident in Estonia in August 1999 whilst on ICES/GEF business. The best wishes of the Council were sent to Professor Thulin for a speedy and successful recovery. The **Delegate of Sweden** read a message he had received from Professor Thulin in which he conveyed his best wishes for a successful Annual Science Conference (ASC).

The Revised Draft Agenda was adopted with the addition of one item (Agenda Item 23) on 'Proposed ICES Environmental Dialogue Meeting'.

The General Secretary took a roll-call of Member Countries for each session.

Agenda Item 1 PRELIMINARY REPORT ON ADMINISTRATION

The **General Secretary** briefly presented Doc. C.M. 1999/Del:2, noting that several issues would be dealt with in more detail under other Agenda Items. He drew the attention of Delegates to Section 15 on Publications that indicated that the backlog in Internal Publications reported last year had now been removed. In the *ICES Cooperative Research Report Series*, a record 12 new numbers had been issued since 1 November 1998.

The **Council approved** the Preliminary Report on Administration.

Agenda Item 2 ELECTIONS AND APPOINTMENTS AT THE 1999 ANNUAL SCIENCE CONFERENCE

The **President** drew attention to Doc. C.M. 1999/Del:7 concerning the various elections and appointments that would be taking part during the course of the 1999 ASC. Two new members of the Bureau would be appointed to replace Professor E. Ojaveer (Estonia) and R.

Vaage (Norway), who would complete their three-year terms of office at the end of October. A new member of the Finance Committee would be appointed to replace Dr N. Riekstins (Latvia). The Chairs of ACFM and ACME would also complete their term of office at the end of October, and nominations for approval by Delegates had been made by these Committees. An election for a new Chair of the Mariculture Committee to replace Dr M. Héral (France) would also take place. The time and venue for this election was noted.

Agenda Item 3 APPOINTMENT OF NEW GENERAL SECRETARY

The **President** informed Delegates that Professor C.C.E. Hopkins, the current General Secretary, had indicated early in 1999 that he would not seek a new term of office following the completion of his six-year term at the end of this year. As a result, the Bureau had launched the process of selecting a new General Secretary at its meeting in Nantes (France) in January 1999. Reference was made to Doc. C.M. 1999/Del:8 which described the procedure involved and listed the criteria for selection. The applications of the 10 candidates were reviewed in the context of these criteria during the June 1999 Mid-Term Bureau Meeting. Four candidates were deemed to satisfy these criteria, and these candidates were interviewed by PA Consulting who prepared personal profiles of each candidate. The four candidates were interviewed in late August in Copenhagen by a panel comprising the President, First Vice-President, and R. Vaage (Vice-President). As a result of this process, three of the candidates were considered to have excellent credentials for the position of General Secretary. One of these candidates later withdrew his application. The Bureau recommended the appointment of D. de G. Griffith as General Secretary for a six-year term from January 2000. The President noted the exceptional qualifications of the proposed incumbent and observed that he would bring to ICES and its Secretariat a wealth of skills and experience.

The **Council approved** the Bureau's recommendation to appoint D. de G. Griffith as the new General Secretary of ICES.

D. de G. Griffith (Delegate of Ireland) thanked the Bureau and Delegates for their confidence in him, and indicated that he was pleased to accept the position.

Agenda Item 4 ELECTIONS OF TWO VICE-PRESIDENTS

The **President**, in drawing attention to Doc. C.M. 1999/Del:7, noted that Professor E. Ojaveer (Delegate of Estonia) and R. Vaage (Delegate of Norway) would conclude their three-year terms as Vice-Presidents of the Council on 31 October 1999. He thanked them for their services. He drew attention to Doc. C.M. 1999/Del:7 which *inter alia* drew attention to the elec-

tions of new Vice-Presidents of the Council. The General Secretary then conducted the elections in accordance with Rules 4 and 5 of the Rules of Procedure, the pertinent features being reviewed before the nominations and elections were proceeded with.

The following two Vice-Presidents were elected for three-year terms commencing 1 November 1999:

- Dr T. Linkowski (Poland)
- Dr J. Sigurjónsson (Iceland)

Following their election, **Dr J. Sigurjónsson** thanked his fellow Delegates for their support and pledged to actively conduct his duties. **Dr T. Linkowski** was not present during the election, but Dr Z. Gandra (Delegate of Poland) assured the Delegates that Dr Linkowski would be honoured to accept this post. Dr. Linkowski subsequently thanked Delegates for electing him to the post.

Agenda Item 5 APPOINTMENT OF TWO MEMBERS OF FINANCE COMMITTEE

The **President** referred to Doc. C.M. 1999/Del:7, noting that the Council was obliged to appoint a new member of the Finance Committee to replace Dr N. Riekstins (Latvia) for the three-year period commencing 1 November 1999. Furthermore, J. Browne (Ireland) had informed the Finance Committee that for personal reasons he wished to step down as member of the Committee. Therefore, Delegates were requested to give their approval to the Bureau's proposal that:

- Drs G. van Balsfoort (Netherlands) should be appointed to replace Dr N. Riekstins;
- Dr T. Linkowski (Poland) should be appointed to replace J. Browne (Ireland).

The **Council approved** the Bureau's proposal, and expressed its gratitude to Dr Riekstins and J. Browne for their services as members.

Agenda Item 6 APPOINTMENT OF NEW CHAIRS OF ACFM AND ACME

The **President** referred to Doc. C.M. 1999/Del:9, and noted that neither Advisory Committee had been able to make nominations for new Chairs at their meetings in the summer. Following discussion of this matter at the June 1999 Mid-Term Bureau Meeting, he had written to all Delegates to explain the seriousness of this situation. Only two Delegates had responded indicating that they would be prepared to put forward candidates for nomination. The President expressed substantial concern that no other candidates were being put forward, and Delegates were reminded of the constant need to ensure that capable candidates were available to perform these very visible and vital functions of ICES. The Advisory Committees had, at their meeting at this ASC, now

nominated candidates for the new Chairs for approval by the Council. These were:

- ACFM: T. Jacobsen (Norway)
- ACME: Professor H.-R. Skjoldal (Norway)

The **Council approved** the appointment of both the nominees.

The **President** paid special tribute to the efforts of R. Vaage (Delegate of Norway) in ensuring the availability of suitable candidates.

Agenda Item 7 REPORT OF THE ACCESSION PROCESS OF LITHUANIA TO ICES CONVENTION

The **General Secretary** drew attention to Doc. C.M. 1999/Del:10 which outlined the progress being made with regard to the Republic of Lithuania's application to become the 20th ICES Member Country. He also referred to a letter dated 8 September 1999 that he had received from the Lithuanian Ministry of Foreign Affairs. This indicated that Lithuania accepted the contribution protocol for payment, and that ratification of this by the Lithuanian Parliament was expected shortly. As Lithuania had already received approval for its membership by the necessary number of Member Countries, it was anticipated that Lithuania would soon deposit its Instrument of Accession and become the 20th Member Country of ICES before the end of this year.

The **Council approved** the process that had been embarked on.

Agenda Item 8 SWEDISH PROPOSAL TO MODIFY THE EXISTING SYSTEM FOR CALCULATING MEMBER COUNTRIES' CONTRIBUTION

The **President** noted Doc. C.M. 1999/Del:11, and underlined that the request by Sweden was considered sufficiently important by the Bureau to be put before the Council. He invited the Delegate of Sweden to elaborate upon the proposal.

The **Delegate of Sweden** referred to the letter of 15 December 1998, signed by Dr I. Olsson and Professor J. Thulin, where it was pointed out that the existing system for calculating Member Countries contributions to ICES reflects circumstances that were valid decades ago. However, there were other factors of recent importance to be taken into account. Major relevant tasks are being finished, such as the Memoranda of Understanding/Agreements between ICES and the Client Commissions which will be successfully concluded by the end of 1999 with 100% cost recovery being assured. The Strategic Plan is being elaborated which may have budgetary implications, e.g. Appendix IV of the Strategic Plan showed some associated costings including the:

- Cost of Secretariat support;

- National commitments expected;
- Anticipated sources of additional funding.

Furthermore, necessary improvements to the Advisory Function, as noted by the Coordinating Group on ICES Advice may also have budgetary implications. ICES is aiming at being a modern organisation, viz.:

- It has a Strategic Plan;
- Gives advice in a timely and quality-assured manner;
- MoU work is finished defining the partnership with the Commissions for the provision of scientific advice.

Accordingly, Sweden believed it appropriate that a modification of the existing system for calculating Member Countries' contributions to ICES be considered. The first step towards this might include the Secretariat elaborating one or more alternatives for a modern system of shares with appropriate contributions to ICES.

The **President** emphasised that the process involved is much more than a simple calculation involving an equation. Thus it would have to involve Delegates as well as the Secretariat. He drew attention to Article 14 of the ICES Convention which provided the possibility of modifying the scheme of shares. However, he noted that implementation of a new scheme required the consent of all Contracting Parties, and the resulting process would probably be very protracted.

The **Delegate of Belgium** considered that changing the current scheme was likely to produce 'winners and losers'. Nevertheless, a fairer system of shares might be established, with a more equitable balance between countries depending on their reliance on marine living resources and the associated environment.

The **Delegate of the United Kingdom** stressed that such a review should not result in increased costs.

The **Delegate of Germany** believed that with such a new scheme Germany would probably end up with lower financial contributions to ICES, due to fisheries now having a significantly reduced priority compared with earlier.

The **Delegate of Norway** argued that both environmental as well as fisheries matters must be considered.

The **Delegate of Denmark** agreed that the whole issue was complex, but emphasised that a more programme-related view of budgeting was needed to evaluate the costs involved.

The **Delegates of Iceland and Ireland** supported the Danish view.

The **Delegate of the United States** was against entering into formal discussions and negotiations on changing the current scheme of shares. Although recognising that the issue of resources would need to be considered in

the light of the Strategic Plan, the likely elements involved in a review of such resources would encompass a range of relevant factors beyond the annual financial contributions to the ICES Budget.

The **Delegates of the Netherlands, Portugal and France** did not support a review of the current scheme.

After some further discussion, the **President** proposed that a vote be held on the question of whether the Council wished to enter into detailed discussions on changing the current scheme of shares.

The **Council rejected** the Swedish proposal to enter into discussions on modifying the existing scheme of shares by the necessary 2/3 majority (13 against, two for, and four abstentions) in a roll-call vote.

The **Delegate of Sweden** acknowledged that the wish of the Council not to proceed on the issue at this time had been made clear. However, he hoped that it might be possible in the future to reconsider matters once the contributions from the Client Commissions had actually reached 100% cost recovery and the Strategic Plan had been established and agreed.

Agenda Item 9 APPLICATION BY BIRDLIFE INTERNATIONAL FOR OBSERVER STATUS

The **General Secretary** briefly reviewed Doc. C.M. 1999/Del: 12, and indicated that a review had been made by the Secretariat concerning whether BirdLife International met the requirements for becoming an ICES Observer. On the basis of such a review, the Bureau had recommended that the Council approve the application.

The **President** emphasised that a decision would have to be made, through a roll-call vote with a ¾ majority of Member Countries in favour, on the acceptability of the application by BirdLife International as outlined in the agreed protocols for Observers.

The **Council unanimously approved** the application by BirdLife International by a roll-call vote.

Agenda Item 10 ARRANGEMENTS FOR 2000 (88th STATUTORY MEETING: BELGIUM), 2001 (89th STATUTORY MEETING; NORWAY), AND SUBSEQUENT ANNUAL SCIENCE CONFERENCES

The **General Secretary** drew attention to Docs C.M. 1999/Del:18, Del:14, Del:15 and Del:24.

The **Delegate of Belgium** noted that there might be a financial problem for the host country for the 2000 ASC (88th Statutory meeting) in Bruges to meet the very high standards set in recent years. The division, at least in part, of the proposed Conference Fee between ICES and the host country would be a desirable step to help meet the escalating costs of holding the new-style ASC. It

was recommended that early booking of accommodation (the organisers had provisionally reserved ca. 400 rooms) by the participants occurs.

The **President** and the **Chair of the Bureau Working Group on Strategic Planning** (Dr M.P. Sissenwine) drew attention to the need to hold an Open Forum at the 2000 ASC to discuss the ICES Strategic Plan, including how to attract a wider scientific community to ICES. A Steering Group for the Open Forum should be established in due course.

The **Delegate of Norway** noted with regard to the 2001 ASC in Oslo that Dr Gro Harlem Brundtland (Director General of WHO, and Chair of the former Brundtland Commission) was unable to give the Open Lecture due to other commitments. Thorvald Stoltenberg (who had held positions as *inter alia* Norwegian Ambassador, Minister of Foreign Affairs) had been approached and agreed to give the Open Lecture on "Our Common Future: How to Achieve Sustainability in the Oceans".

The **Delegate of Denmark** noted with regard to the 2002 ASC in Copenhagen that the Centenary Day was scheduled for 4 October. Plans were being developed for a celebratory signing ceremony for the Strategic Plan. In order to attract Ministers and Senior Officials a more practical forum would be required beyond just the ceremonial. Denmark is prepared to host supplementary meetings and discussions in which both Fisheries and Environment Ministers would be invited to take part. Such plans will need to be closely coordinated with ICES. It is necessary for the Council to determine the level of ambition to be aimed, e.g. simply a signing ceremony or a more substantive arrangement. Coordination of the event with initial contacts for information purposes need to be underway soon, to ensure that the required steps leading up to a successful arrangement would occur in an appropriate fashion.

The **Co-Chair of the Bureau Working Group on Planning for the Centenary** emphasised that the Consultative Committee had not been involved in or contributed to the preparatory celebrations for the Centenary. The Consultative Committee should be requested to plan the scientific themes for the 2002 ASC with a view to complementing the Centenary celebrations that year.

The **Delegate of the United Kingdom** believed that the relationship between the Strategic Plan and its Implementation is not clear. Ministers and Senior Officials would wish to see what concrete matters would be involved concerning possible commitments such as resources and the supporting finances.

The **Delegate of Iceland** believed that it was essential to have a proper balance between historical aspects of ICES and the continuing evolution of ICES to meet current and future challenges. He had noted some concern amongst younger participants at the 1999 regarding a surfeit of history. Continuing attention should be given to making the ASC more attractive for younger scientists.

The **President** agreed that a high level of priority should be given to maximising the impacts of the 2000 Open Forum and the proposed presentation of the finalised Strategic Plan for adoption by Senior Officials at the 2002 ASC. The proposals for the 2002 arrangements should be already submitted and discussed at the 2000 ASC.

The **Delegate of Estonia** noted with regard to the 2003 ASC in Tallinn that planning had already begun. The ICES Secretariat will be invited to review the facilities in the summer of 2000.

The **President** noted that the dates for the 2003 ASC would be discussed in consultation with the Delegate of Estonia.

With regard to possible new ASCs after 2003, the **Delegate of Spain** announced that he was pleased to notify the Council that Spain was prepared to host the 2004 ASC. An official communication would follow shortly from the Government of Spain.

The **President**, on behalf of the **Council**, expressed appreciation for the invitation from Spain to host the 2004 ASC. The Council agreed to accept this invitation with pleasure.

The **President** briefly reviewed the contents of Doc. C.M. 1999/Del:14 with respect to specific details concerning *inter alia* the programme, funding, press matters and the issue of special philatelic stamps for the 1999, 2001, and 2002 ASCs. He further drew attention to the contents of Doc. C.M. 1999/Del:15 dealing with press matters in relation to the ICES Centenaries. It would be necessary to return to the matter of publicity again at the 2000 ASC, to ensure that suitable arrangements would be established for the 2001 and 2002 ASCs.

The **Council** received this information *ad notam*.

The **President** briefly reviewed Doc. C.M. 1999/Del:24 dealing with the possible establishment of a Conference Fee for the ASC. The Bureau had agreed in principle that a fee of about USD 100 should be considered. The money raised could be used either by the host country or ICES, but the Bureau believed that the latter option should be adopted.

The **Delegate of Belgium** supported the idea of a Conference Fee for the ASC. The host country had more home-based participants and thus it was logical that it covers a greater proportion of the costs. Thus, he favoured an equitable division of the fee between ICES and the host country.

The **Delegate of Canada** supported the implementation of a Conference Fee specifically for the 'open ASC'. The fee should apply in principle to everyone, attending these sessions, with the exception of pensioners and students.

The **Delegate of Denmark** supported the idea of a Conference Fee.

The **Delegate of Estonia** supported the establishment of a USD 100 Conference Fee. However, the fee should not be levied on students and ICES 'veterans', and it should be related to the 'open ASC' but not other ICES activities.

The **Delegate of Finland** supported the establishment of a USD 100 Conference Fee for the ASC.

The **Delegate of France** recognised that the world is becoming more commercial. Conferences frequently paid their speakers to attend.

The **Delegate of Germany** did not support the proposal to establish a Conference Fee for the ASC viewing it as being counter-productive to the desire to attract participants to the ASC. He did not believe that the ICES 'grass roots' community was supportive of such a fee.

The **Delegate of Iceland** supported the establishment of a USD 100 Conference Fee for the ASC.

The **Delegate of Ireland** supported the idea of a USD 100 Conference Fee for the ASC.

The **Delegate of Norway** did not favour establishing a Conference Fee, but if it was decided to have one this should apply to everyone.

The **Delegate of Portugal** supported the establishment of a USD 100 Conference Fee for the ASC, which should go to ICES.

The **Delegate of Sweden** supported the establishment of a USD 100 Conference Fee for the ASC.

The **Delegate of the United Kingdom** would support a motion for establishing a USD 100 Conference Fee, which was relatively low. This should go to ICES.

The **Delegate of the United States** considered it non-realistic to host an ASC that is both open and free as neither ICES nor the host country could continue to cover the escalating costs of such arrangements. The fee should apply to the science sessions, whether the person is an official or not. However, a reduced fee was appropriate for students providing an appropriate supporting affidavit.

The **President** indicated that he would put the motion, in the form of a roll-call vote, to the Council that ICES should establish a USD 100 Conference Fee to apply to everyone attending the 'open ASC' but, with a reduction to students, to start with the 2000 ASC in Belgium.

The **Council adopted** this motion with fourteen votes in favour, three votes against, and two abstentions, i.e. carried by the required 2/3 majority.

After some further discussion concerning views on whether or not to allocate the income from the fee between ICES and the host country, the **President** proposed that this and other remaining operational details should be elucidated by the Bureau at its early 2000 meeting.

The **Council endorsed** this proposal.

Agenda Item 11 DEVELOPING AND AGREED MEMORANDA OF UNDER- STANDING

The **General Secretary** briefly reviewed Doc. C.M. 1999/Del:16, noting that the Memoranda of Understanding (MoUs) with NASCO and HELCOM had been signed in June and September 1999, respectively. This left the Agreement with the European Commission as the sole remaining one to be completed with the partner Commissions, and it was anticipated that this would be concluded shortly once some issues related to the EC's internal protocols had been resolved.

The **President** stated that he had received assurances from senior officials in the EC/DG XIV that the ICES – EC Agreement would be approved for signing in the coming months.

After some discussion and clarification, the **Council commended** David de G. Griffith and the General Secretary for having brought the MoUs with the partner Commissions to a very satisfactory conclusion since the first MoU was signed with the OSPARCOM in 1995.

Agenda Item 12 REPORT ON 1999 MEETING OF THE ICES/COMMISSIONS WORKING GROUP ON CO- OPERATIVE PROCEDURES

David de G. Griffith, the **Chair of the Joint/ICES Commissions Working Group on Cooperative Procedures** (WGCOOP), summarised Doc. C.M. 1999/Del:17. He noted that the atmosphere of the February 1999 WGCOOP Meeting had been both cordial and constructive, and reviewed the costs of providing recurrent as well as extraordinary advice within the framework of the developing and agreed Memoranda of Understanding (MoU)/Agreements. An invoicing scheme had been agreed for ICES to submit to the Commissions for payments. Progress with concluding the outstanding MoUs/Agreements had been favourably reviewed. The Commissions had been particularly keen to emphasise the need for the ICES advice to be provided in a timely manner with respect to their annual meetings.

The **President** emphasised that it was necessary for ICES to resolve the issue of the timeliness of the advice as some Commissions, such as NASCO, found it very difficult to operate according to their management protocols if the required deadlines for advice were not met. He trusted that CGADV and ACFM would be able to

propose revised working procedures that would appropriately respond to the needs of the Commissions.

After some discussion and clarification, the **Council approved** the WGOOP Report and commended the Group for the progress that had been made.

Agenda Item 13 PROGRESS ON PLANNING AND FUNDING FOR THE ICES CENTENARY

The **General Secretary** summarised Docs C.M. 1999/Del:13 and its Addendum, as well as Docs C.M. 1999/Del:14 and Del:19.

After some discussion, the **President** invited comments. These emphasised the following points:

- Dr H. Rozwadowski was making substantial progress with the preparation of the book on the History of ICES, and discussions were underway with a publisher. It was agreed that a schedule should be established for the key elements of the timetable to be met (e.g. delivery of manuscript to publishers, proofs, and printing), as well as the strategy for sales to be carried out in the ICES community and by the publisher. The President emphasised that the book should be available by May 2002 to ensure its availability for the Centenary Meeting;
- E.M. Thomasson's book on 'The Study of the Sea: The Development of Marine Research Under the Auspices of the International Council for the Exploration of the Sea' would be updated and reissued. For the updated version, Dr P. Petitgas would edit a review of relevant developments in ICES since 1980;
- It was proposed that material (e.g. photos, and memorabilia) related to ICES, its Member Country laboratories and well-known scientists, be brought together with the proposed congregation of Research Vessels in 2002 in Copenhagen. This would be followed up by Prof. P. Mäkki (Finland) and Dr M.P. Sissenwine (United States) who recalled the collection of photographs shown at the 1997 ASC (Baltimore) and suggested that such a collection be assembled for the Symposium on 100 Years of Science Under ICES to be held in August 2000;
- The Bureau Working Group on the Planning of the Centenary (BWG100) should be disbanded owing to it being considered redundant. It was recommended that the work should be carried out elsewhere, e.g. in the Bureau and the Consultative Committee.

The **President**, while concurring with the proposal to disband BWG100, emphasised that there was a clear need to continue with the task of providing advice from the point of view of the Bureau and the Council on the development of the book on the History of ICES. Thus, he recommended that an extended group of advisers be formed for this purpose.

The **Council approved** the above-mentioned proposals.

The **President** then reviewed the pledges and donations to the Centenary Fund as outlined in Doc. C.M. 1999/Del:13, and called for clarification regarding any delays in contributions or the lack of pledges forthcoming as yet from certain Member Countries.

The following responses emerged:

- The **Delegate of Estonia** indicated that his country's contribution had apparently been transferred;
- The **Delegate of France** stated that a process to find the money has been launched in his country but that there was no clear outcome as yet;
- The **Delegate of Germany** announced that he was pleased to confirm that his country would be contributing to the fund, but that that size of the contribution had not yet been provided in writing;
- The **Delegate of the Netherlands** believed that his country's contribution had been transferred to ICES and was surprised that the amount did not appear in the table of payments. It was later confirmed that the payment had been made;
- The **Delegate of the United Kingdom** announced that his country would provide a single contribution of DKK 50,000 or £ 5000 to the fund;
- The **Delegate of Portugal** had requested the authorities to make a contribution to the fund. This would be followed up in due course.

Agenda Item 14 REPORT OF 1999 MEETING OF BUREAU WORKING GROUP ON STRATEGIC PLANNING

The President invited the **Chair of the Bureau Working Group on Strategic Planning** and the **First Vice-President** to review progress on developing the draft Strategic Plan as outlined in Doc. C.M. 1999/Del:14. They emphasised that the discussion in the Council at the 1998 ASC had been highly supportive of the developing document. Three types of comment had emerged at that time, namely concerning language, substance, and certain kinds of emphasis (e.g. ecosystem versus fisheries issues). The Consultative Committee strongly felt that the existing balance and emphasis was essentially correct, but it had been agreed that various improvements should be made as appropriate, and there had been consensus on the amendments. It was, however, necessary to carry out extensive discussion within Member Countries about the development and implementation of the plan. It was also necessary to prepare multi-year operating plans, and to develop performance criteria for monitoring progress. A system should be established for revising and updating the plan at appropriate intervals.

The **President** commended all those involved in having further improved the Strategic Plan since the 1998 ASC. It was now appropriate to seek a general endorsement of the draft that had been tabled for Delegates.

The **Delegate of Denmark** emphasised the requirement to move into an open discussion on the actual work within the Plan. The basic structure of the Plan was very satisfactory, in relating to science and advice. The Plan should be seen as a tool for soliciting support and resources for the science and advisory programmes of ICES. Thus, he recommended that more detail be forthcoming on the process of communicating with the Member Countries and the partner Commissions. The Plan would obviously be used as an internal ICES document, but it should be made clearer who might use the plan and for what purposes amongst the wider group of ICES stakeholders. The resource and costing requirements would need to be developed before very long, and ICES must develop closer contacts with the various institutions that actually provide the funds. The Bureau should immediately start planning an Open Forum, associated with the 2000 ASC, for holding a dialogue with the relevant stakeholders to get feedback on the Strategic Plan.

The **Delegate of Spain** commended those who had produced the report. The Plan addressed the issues facing Spain and the ICES community at the national as well as the international level, and would prove very valuable.

The **Delegate of Ireland** believed that maintaining and improving the facilities at ICES Headquarters for Working Groups should be highlighted. He supported the move to having a multi-year operating plan for ICES.

The **Delegate of Iceland** emphasised the importance of the Strategic Plan in fisheries and environmental advice and the recognition that holistic aspects had become increasingly intertwined.

The **Delegate of the United Kingdom** viewed the Strategic Plan as highly valuable; it challenged the Council in thinking how far one could go in producing specific action. There was a need for rapid action in some cases, as it was necessary to: a) increase the science base and attract scientists outside the traditional ICES community. Accordingly, ICES needed to build stronger partnerships with other organisations, b) maintain and even increase the commitment to support the aims of the organisation, through the application of resources. Fisheries advice was an example of the practical role of ICES, but there was a pressing need to move into wider ecological areas and explain the reasoning behind this. The launch of the Strategic Plan provided an opportunity to propel the proposed increase in funding for ICES. In this context, individual Working Groups should be expected to contribute to the multi-year operating plan and better convince sponsors of the needs for appropriate resources.

The **Delegate of Latvia** approved of the Strategic Plan. The relationship between the ICES Plan and national plans also needed to be considered. Appendix III should include mention of how the national institutes will adopt and be supported by the ICES Plan.

The **Delegate of France** believed that the draft Plan was an excellent document. The financial implications needed to be considered from a strategic point of view and Member Countries should be made aware of them.

The **Delegate of Germany** wished to see the importance of survey and monitoring work (see p. 18, second paragraph) emphasised as this was becoming increasingly difficult to finance despite the fact that it proves the fundamental basis for fisheries and environmental assessments. He hoped that the interest in ICES from fishers as stakeholders would be mentioned.

The **Delegate of Canada** viewed the development of multi-year plans as crucial to the operative success of the whole enterprise. The emphasis on science was very welcome, as was the emphasis on the activities of Member Countries as customers and users of the advice, in addition to the Commissions. The work done so far was excellent and the team producing it deserved congratulations.

The **Delegate of Norway** firmly supported the draft Strategic Plan. He believed that the Secretariat had an important role in the future in presenting the Plan to appropriate national institutions and meetings.

The **First Vice-President** responded that Appendix 5 of Doc. C.M. 1999/Del:20 was specifically designed for this task.

The **Delegate of Portugal** was impressed by the document. She anticipated that the Secretariat would make it available on the ICES Website once appropriate technical editing and layout enhancement had occurred. Many people in Portugal would be interested in viewing the document, and a Website presentation was the most appropriate way to make it widely available.

The **Delegate of the Netherlands** believed that the report was admirable. It was very ambitious; this aspect would no doubt be tested in various consultations during the next few years. A new dialogue meeting should be established to present the Plan and consider the resource implications of its implementation.

The **Delegate of Sweden** commended those involved in producing the Plan, which would be viewed as most valued in his country when it was presented to a range of stakeholders. He was, however, concerned that ICES had given the impression during the last few years, as a result of disbanding the ANACAT Committee, that it gave less priority to salmonid issues. This needed to be rectified in the Strategic Plan in order to maintain ICES position in science and advice on these matters.

The **Delegate of Iceland** firmly supported the need for ICES to continue to give a lead in salmonid affairs, and to emphasise this point in the Strategic Plan.

The **Delegate of the United States** and the **Delegate of the United Kingdom** emphasised the need to prepare

specific proposals for advertising the Strategic Plan and putting it into operation. ICES should plan to bring together Government Ministers and senior officials, and thus it would be essential to raise the profile of the plan.

The **President** concluded that there was overwhelming consensus that the Strategic Plan provided a solid basis for the next steps in the process. He believed that the Bureau had indicated that the document submitted as Doc. C.M. 1999/Del:20 would function as the Initial ICES Strategic Plan to be technically edited and professionally formatted for consultations with the various stakeholders, such as the Member Countries and the partner Commissions. The details and timetable for this consultative process required to be elaborated, with respect to these stakeholders. The proposals in Appendix 5 should be seen as an explicit part of the implementation process.

After some further clarification, the **Council** agreed that:

As ICES begins the celebration of one hundred years of excellence in marine science, it is also cognisant of the need to look towards the future. Needs for scientific understanding and advice have never been greater, and they are continuously evolving. This situation requires a strategic plan to guide ICES into the 21st Century. While a strategic plan is a critical element of a strategic approach, the actions and accomplishments that follow the plan are ultimately what counts. Therefore, the International Council for the Exploration of the Sea:

- 1) Adopts an Initial Strategic Plan for ICES as it appears in Doc. C.M. 1999/Del:20/Gen:4, with appropriate revisions reflecting discussions at the 1999 Annual Science Conference, as the basis for future consultations, and
- 2) In accordance with the schedule appended to the Plan, agrees to:
 - a) Obtain input reflecting the interests of Member Countries, Partner Commissions, and other stakeholders;
 - b) Prepare multi-year operating plans;
 - c) Monitor performance and
 - d) Update the plan on a regular basis.

Agenda Item 15 REPORT OF COORDINATING GROUP ON ICES ADVICE

The President noted that this was one of the most important items on the Council's agenda and drew attention to the documentation provided by CGADV. The **Chair of the Coordinating Group on ICES Advice** (CGADV) referred to Doc. C.M.1999/Del:21 and a handout distributed at the meeting (Addendum to Doc. Del:21) which provided a summary table of the activities and decisions made in the past year. He explained that CGADV had addressed all the tasks set by Council at the 1998 ASC (Portugal). In addition to the Terms of Reference given by the Council, CGADV had been requested by the Bureau to plan the follow-up to the 11th Dialogue Meeting (Nantes, France), and in particular to propose how ICES could be responsive to proposals put forward by Partner Commissions at the Dialogue

Meeting. CGADV had also been asked by the Bureau to plan the ICES participation in the North Sea Conference Workshop which was held in the Netherlands in early September, and to review progress in the ICES project for the Nordic Council of Ministers (SGFIRENS).

Following a review of the CGADV report at the June 1999 Mid-Term Bureau Meeting, the Bureau proposed that most of the recommendations in the CGADV report be adopted. Some of these recommendations would be taken up in other Agenda items. However the Bureau had requested a closer examination of CGADV's proposals to establish a single Advisory Committee ("Best Forum for Advice") before this could be recommended for adoption by the Council. This had now been prepared by CGADV, the details of which were included in the Addendum to Doc. C.M. 1999/Del:21.

The progress made by CGADV on the "Scoping of Advice", "Form of Advice" and "Quality of Advice" was described.

With regard to the "Scoping of Advice", CGADV had reviewed the status of the various MoUs between ICES and its Partner Commissions. They concluded that these form the basis for establishing adequate procedures for scoping advice and the establishment of associated checklist procedures. The CGADV had also concluded on a nine-step procedure for responding to requests from the Commissions, according to the MoUs and the report of the February 1999 Meeting of the Joint ICES/Commissions Working Group on Cooperative Procedures. CGADV considered that the basis of ICES advice is now well formulated. It also emphasised that close collaboration between members of the Secretariat, the Chairs of the Advisory Committees and the Chairs of the Working Groups in the scoping process is of extreme importance, so that ICES can remain responsive and provide the best possible advice in an efficient manner.

With regard to the "Form of Advice", CGADV recommended that a new schedule of Working Group and Advisory Committee activities be developed at forthcoming ACFM Consultations and subsequently at ICES Consultations with Partner Commissions in February 2000 for implementation in 2001/2002. In considering at length the current shortcomings of the ACFM Advisory Process, CGADV identified the need to (a) rationalise the need for elaborate and time consuming stock assessments every year, and (b) evaluate the necessity for last minute survey data in catch forecasts. Consequently CGADV recommended that, as a matter of priority, ICES initiates an appropriate forum to identify stocks and assessments which may be performed on a simplified and more flexible basis. With regard to the ICES advisory role in implementing the precautionary approach (PA) the CGADV believed that the adoption of precautionary reference points required discussion with fishery management agencies at the national and international levels. CGADV recommended that this issue be pursued *inter alia* at the February 2000 consultation between ICES and the Commissions.

With regard to the "Quality of Advice", CGADV considers that the text in Section 5.1 of Doc. C.M.1999/Del:21 formed the basis of the ICES Quality Policy. This required endorsement by the Council. CGADV had concluded that the main quality elements required for the new advisory system should be:

- Transparency, Responsiveness, Credibility, Independence, Consensus, and Integration.

In order to meet this Quality Policy, CGADV recommended that ICES implement procedures to ensure:

- a) Quality Control;
- b) Internal Peer Review;
- c) External Peer Review.

Following his presentation the **Chair of CGADV** responded to various comments and requests for clarification.

Scoping of the advice

The **Chair of CGADV** stated that the issue was described in the CGADV report on pp. 2 — 3. The key issue was to ensure that the advice was provided in a timely manner according to the requests received and the relevant MoU. CGADV felt that the present procedures appeared to be adequate in this respect and that no changes were required.

The **Council accepted** this conclusion without comment.

The **Chair of CGADV** noted that the scheduling of Working Group meetings in relation to meetings of ACFM and meetings of the relevant Commissions had been considered by CGADV. It was recommended that ACFM, in close contact with the Secretariat, should review the schedules and propose any changes that were needed. Two issues should be covered first: advice to NASCO and updating of advice on cod for the Baltic. ICES should adapt its system to meet the needs of the Commissions. This may entail some changes in the procedures used by ACFM in developing advice.

The **President** stated that he had spoken to the Secretary of NASCO and assured him that the timing of advice to NASCO would be considered very seriously by ICES, and ICES will do its best to accommodate NASCO's requirements. The Chair of ACFM stated that ACFM was reviewing a means of responding positively to this request.

The **Delegate of the Netherlands** stated that the needs of ACME should not be overlooked in this work, but that it may be best to await the outcome of the proposed Environmental Dialogue Meeting before considering the schedule for delivering environmental advice.

The **Delegate of Iceland** stated that the fisheries year started in his country on 1 September, so delivery of the

advice relevant to Iceland by mid-July would be appropriate. The present schedule, with advice available by mid-June was very acceptable. The Chair of ACFM stated that ACFM will develop scheduling proposals for Working Group meetings for the consideration of WGOOP at its February 2000 meeting.

The **Chair of CGADV** drew attention to the proposal that ICES consider the possibility of making simplified assessments. To increase the flexibility of the system, which presently relies on the conduct of surveys, it may be necessary to decrease the dependence on the outcome of such activities as surveys. This would need to be discussed with the Commissions because there may be implications on the quality of the data on which the assessments are based.

The **Chair of ACFM** noted that ACFM had considered the issue of whether assessments could be done on a different schedule, e.g. every second year, but had concluded that the loss would be too great if annual assessments were not done. However, the annual assessments could be simplified and this would be considered in greater detail in the coming year.

The **Chair of CGADV** pointed out that fisheries managers need information in a manner that would enable them to work with the recommendations of ACFM in a more flexible way, so that options can be worked out by the managers during negotiations. One way to assist this was to prepare diskettes with simulation models and relevant stock data so that new runs could be conducted during the negotiations. The Secretariat would prepare an action plan to make these simulation tools available with the ACFM advice.

The **Delegate of the Netherlands** stated that the Dialogue Meeting identified that further types of information should also be presented by ACFM. This was covered in Doc. C.M. 1999/Del:25, on Follow-Up to the Dialogue Meeting.

The **President** noted that some participants in the Dialogue Meeting had expressed concern at the way in which ICES had followed up implementation of the Precautionary Approach.

The **Chair of CGADV** stated that the Dialogue Meeting requested that ICES does not propose how the Precautionary Approach be implemented, but rather presents several scenarios depicting possible ways of implementing the Precautionary Approach in specific cases.

The **Delegate of the United Kingdom** noted that there was no clear consensus on how the Precautionary Approach should be implemented. There was a significant interest on the part of all stakeholders with regard to the means of implementing the Precautionary Approach.

The **Chair of CGADV** noted that the Commissions should be encouraged to discuss potential means of implementation with all stakeholders. The responsibility for implementing the Precautionary Approach rests with

managers; however, in taking on that task the managers need the proper tools from ICES so that they will be aware of the proper measures that can be used in this implementation. The means of implementation may change over time, and it must be made clear to managers what is their responsibility, and what is the responsibility of scientists. Communication with the fishing industry should be emphasised, and it should be made clear which bodies have the responsibility for this communication.

With these comments, the **Council endorsed** these parts of the CGADV report and the follow-up activities begun by ACFM.

Quality Management

The **Chair of CGADV** noted that this issue had been considered over the past few years, particularly with regard to fish stock assessments. It had been decided by the Council that the Secretariat should consider this issue and propose potential ways of developing an ICES quality policy. The CGADV developed a framework for the implementation of a quality policy within the ICES advisory system. Two documents had been prepared in draft form, and were annexed to the CGADV report. CGADV recommended that a pragmatic approach be taken to the development of a quality management system and that the system should be developed by the Secretariat, rather than by hiring a consultant to devise a system (see pp. 7 and 9 of the CGADV report).

The **Delegate of France** commented on the proposals for internal peer review of Working Group reports. He was concerned that the peer review process would increase the amount of time needed to prepare the advice, thus slowing down the process.

The **Chair of ACFM** stated that peer review would be conducted on a periodic basis but would not be part of the main flow of the formulation of advice.

The **Delegate of Canada** stated that on the environmental side, peer review takes place to a certain extent in the Working Group itself; in addition, members of ACME consult experts in their countries for peer review of texts prepared for the draft ACME report. The Science Committees also conduct peer review of their Working Group reports.

The **Chair of CGADV** stated that great efforts were made to reach consensus on fisheries advice, but there was room for minority opinions if consensus could not be reached.

The **Delegate of the United States** believed that the CGADV report provided a valuable framework for an ICES quality policy. It listed elements of a quality policy, but did not actually formulate a quality policy. In addition, it did not distinguish between the elements that were necessary for a quality policy and those that were subsumed under these elements.

The **Delegate of the United Kingdom** stated that the Council had recognised that the development of a quality policy was a major task, including identifying the steps in the Advisory Process that were particularly prone to errors. The document presented a policy, but did not identify specific procedures that were needed to implement this policy. In addition, no financial implications were identified in association with the implementation of a quality policy. Peer review of assessment Working Group reports was a substantial task and it could not be done without financing.

The **Delegate of Finland** noted that there were financial implications both for the external peer review process and also for the Secretariat to implement the quality policy.

The **Delegate of Belgium** also stressed that peer review was a time-consuming and very important aspect of quality assurance. ICES must recognise that there would be financial costs involved.

The **Chair of CGADV** pointed out that there are several models for how peer review can be conducted, with different financial implications. However, if ICES would like to take on the full aspect of quality management, serving as a documentation centre for the entire process of quality control, this would cost a considerable amount of money. Full implementation would be a significant task for the Working Groups and the Secretariat, but the present proposal would cater for a Secretariat-based implementation rather than one based on work by an external consultant.

The **Delegate of Germany** stated that the other part of the quality control procedures is based on adequate quality procedures being followed in the laboratories and institutes collecting and providing the data to ICES. This should be stressed in the quality policy document.

The **Chair of ACME** stated that, at the institute level, there is an initial cost increase when quality management procedures are first implemented. However, these procedures result in an efficiency of work and a decrease in the loss of data owing to poor quality, so overall the financial implications are about neutral.

The **Delegate of Estonia** indicated that it could be useful if a formal procedure for quality management at the institute level were to be initiated, so that the laboratories would be sure that they were following standard guidelines.

The **President** summed up the discussion, indicating that there was general agreement that the CGADV proposal could form the framework for a quality management policy and this should be followed in further work. The Secretariat, working with the Chair of CGADV, should develop an explicit quality management policy document.

The **Council endorsed** this statement.

In terms of a quality manual, the **Chair of CGADV** proposed that the Chairs of the Advisory Committees should consider the implementation of the quality management framework, with initial efforts concentrating on priority areas where there is agreement that steps must be taken.

The **Delegate of the United States** pointed out that strict quality control procedures would require strict procedures for the collection and reporting of data. However, this could conflict with other initiatives regarding the use of other types of data, particularly those resulting from sources that cannot be made subject to quality procedures.

The **Council endorsed** further work on the development of quality management procedures, beginning with the steps that are most critical or in need of quality attention. In this context, the financial implications should be reviewed for further discussion as the process continues.

Structure of the Advisory Committees

The **President** stated that, when the Bureau considered the CGADV report in June 1999, it endorsed most of the recommendations, as the Council had now done. However, the Bureau did not at that time endorse the recommendation for a single Advisory Committee, but asked CGADV to develop further the proposals for Advisory Committee structure. He asked the Chair of CGADV to elaborate on the options that had been developed.

The **Chair of CGADV** stated that in 1998 two changes were made to the advisory structure: 1) rather than having strict membership in each Advisory Committee, a roster of five experts per Member Country was established to provide a broader range of expertise for use in the Committees; 2) ACFM was requested to continue its standard work on fish stock assessment, but ACME was requested to handle all other issues. In reviewing the outcome of these changes, the CGADV in 1999 felt that further measures were required to make the advisory system more efficient and transparent. Accordingly, CGADV proposed that ICES move towards a single Advisory Committee structure, with proposals being developed in 1999 and early 2000 so that a new structure could be adopted at the 2000 ASC. However, as the June meeting of the Bureau did not endorse the proposal for a single advisory structure, CGADV, at the request of the Bureau, prepared possible scenarios for a new structure, which also highlighted the types of questions that needed to be resolved in changing the advisory structure. The Addendum to Doc. C.M. 1999/Del:21 provided three models for advisory structures. Model 2 proposed a regional structure for the advisory system, which permitted the advice to be prepared in depth for each area, but it would also lead to less cooperation among the various regions of the ICES area, as one example.

The first question was whether ICES needed to change its advisory structure. If it was agreed that a change was necessary, then a model would need to be developed describing the new structure. CGADV suggested that a new model could be implemented in one year, the final decision being taken at the 2000 ASC. Some of the models proposed by CGADV had an executive Management Committee to coordinate the Advisory Process, with national representation occurring at different levels in different models. If it was agreed that there would be only one Advisory Committee, the next question was whether there should be Sub-Committees to handle different aspects of advice. There were a number of questions concerning costs, ranging from whether the national representatives needed to have the costs of their travel and *per diem* covered by ICES to whether the Chair of the overall Committee should receive an *honorarium*, given the significant amount of time that would need to be devoted to this work. These models were intended to stimulate thought and discussion on the need for reform and how that reform could be implemented; however, there was no specific proposal for a new structure.

The **Chair of ACFM** stated that there were two main issues for ACFM: 1) workload and quality, and 2) strategic issues. If quality issues could be handled satisfactorily, the workload issue would also be solved. When the workload was reduced, there would be more time available for strategic issues.

The **Chair of ACME** stated that there was an error in the Addendum to Doc. C.M. 1999/Del:21, concerning the second bullet point on p. 2. The ACME works to prepare material in advance of the meeting based on Working Group reports. The draft sections of the ACME report were made available to all members for review and consultation with national experts in advance of the ACME Meeting. However, owing to the late submission of Working Group reports, this process was often delayed and thus pre-review was not possible for all parts of the draft report. In addition, owing to the wide range of issues handled by ACME, expertise was not available for all issues.

The **President** queried why it had been so difficult to find Chairs for the Advisory Committees in recent years.

The **Chair of ACME** believed that this was primarily owing to the heavy workload on scientists in institutes in ICES Member Countries, and it was often difficult or impossible to receive further assistance when taking on the responsibilities of chairing an Advisory Committee.

The **Delegate of the United States** believed that there were serious problems in the current ICES advisory system. The document identified a series of problems, but he felt that the workload was very important and the most critical issue. In addition, integration was necessary and the proper structures needed to be developed to permit integrated advice, but this should follow the solution of the workload problem. He recognised that the

issue of *honoraria* should be part of the consideration of the Advisory Process, but the Commissions had already indicated that they would not be willing to support such costs. Thus, further consideration of *honoraria* should involve discussion with the Commissions, but this was probably an overtly simplistic approach to the problem of attracting new Chairs. The workload in the advisory system should be adjusted so that it was manageable, and the issue of peer review should be considered and enhanced. The issue of national representation may represent a considerable constraint on any structural proposals; this issue should be interpreted with greater flexibility. The question of workload suggested that the workload was too great for the organisation as presently structured. Quality assurance may possibly decrease the workload, but may have the opposite effect. Integration would definitely increase the workload. He welcomed suggestions as to how the workload of the Advisory Chairs might be reduced; any reduction of the workload of the Chairs would undoubtedly lead to a structural change.

The **Delegate of the Netherlands** stressed the need to work out proposals that also included the financial aspects. Thus, the entire package could be endorsed next year, including the financial implications.

The **Delegate of Belgium** believed that the issue of workload should be tackled first, and then the structural issues should be considered after the workload problems had been solved. Although he was in favour of improving the advisory procedure, this should include considerations of the financial consequences of any change. The requirement of change may not be able to be financed, but this should not hinder the development of various proposals.

The **Delegate of Ireland** believed that change was needed, but noted that it would be a difficult task to determine the changes needed and to budget for these changes. For example, external review would be a very costly alternative, and the cost of advice must be considered very carefully. He stated that it must be recognised that ACFM and ACME had done a very good job, but the newer cross-disciplinary issues must now be handled in a proper manner. In developing a system for this type of advice, there must be national representation and flexibility in the types of expertise needed, given also the problems of smaller countries having the full range of expertise. Finally, the issue of *honoraria* must be considered carefully, as compensation to the institute of the Chair was a very important issue in finding new Chairs.

The **Delegate of Iceland** seconded the importance of providing *honoraria* for the Chairs of the Advisory Committees. This had been a very important factor in the problem of finding Chairs for the Advisory Committees this year. He then commended the authors for the production of a good CGADV report, particularly in the attempt to find ways of streamlining the fisheries advice. For certain stocks in certain areas, annual assessments would not be necessary. Criteria should be

developed for determining when annual assessments may not be necessary.

The **Delegate of Norway** stated that he was not convinced that the problems are associated with the structure of the Advisory Committees, but rather in the procedures used. He agreed that the workload is a very important problem and that potential ways of alleviating the heavy workload should be explored immediately. In addition, in relation to incorporating ecosystem measures, a bottom-up process should be initiated so that changes were made at the Working Group level, thereby bringing in the ecosystem issues at the lowest level.

The **Delegate of Estonia** agreed with the statements made by the Delegates of Norway and Iceland. The problem was not in the work of ACFM itself. He also agreed that ecosystem issues should be handled by the Working Group in developing assessments of the stocks. When approaching multidisciplinary issues, it must be kept in mind that ecosystems are regional and that specific ecosystems must be addressed.

The **Delegate of France** agreed with the statement of the Delegate of Norway. He noted that critical analysis of assessments of stocks were often not handled at the Working Group level but had been brought up to the level of ACFM. This work should be conducted at the Working Group level, and some quality control must take place at that level.

The **Delegate of Portugal** pointed out that while the Commissions were paying a large proportion of the ICES budget, they felt that Member Countries should pay a larger share. ICES should change its structure immediately because there was a proliferation of organisations handling the same topics, and smaller institutes could not be represented at all of these different organisations. Furthermore, regionalisation of ICES groups was not a good idea; handling of issues should be integrated, not separated according to region. This was important for the exchange of ideas and expertise; one should integrate knowledge, not develop knowledge separately. A single Advisory Committee would be best for this integrated view. The Council should examine the budgetary issues and should provide *honoraria* for the Chairs of the Advisory Committees.

The **Delegate of Latvia** agreed with the bottom-up approach of incorporating ecosystem issues in the Working Groups. Assessment Working Groups work on a regional basis and could take the specific environmental conditions of the region into account at the bottom level. A system should be established with procedures for preparing for Working Group meetings so that national laboratories are made aware of the data that should be provided for the Working Group meeting and the schedule for providing it. This could assist in solving the workload problem at the Advisory Committee level. However, national contributions to ICES and ICES-related scientific activities should not be allowed to increase as the costs were already very high for smaller

countries, also counting the contributions to the Fisheries Commissions.

The **Delegate of Sweden** noted that one important problem in the Advisory Process was the integration of fisheries and environmental work, and that a change was required to permit this integration. He stated that a simple structure should be elaborated that was as transparent as possible. Compensation for the Chairs should be seriously considered. Quality assurance should be implemented at all levels.

The **Delegate of the United Kingdom** stated his agreement with the report of the CGADV and the Addendum to Doc. C.M. 1999/Del:21. He agreed with the need for change and that this must be achieved at a rapid rate. Clear quantum changes were required. Efficiency, appropriate workload, and a better focus for integrated advice were the key issues. While solutions from the bottom might be advantageous, they had not appeared over the six-year period during which these issues had been considered. Thus, steps must be taken at the top level to ensure a change. Also, Chairs with the best expertise must be able to be attracted to this work. He supported the concept of national representation at the advisory level. The workload of the Chairs should be reduced so that Chairs could be found. The provision of *honoraria* should preferably be avoided. Issues should be handled in only one Advisory Committee. He believed that there should be a new Ecosystem Committee that was not simply made up of some members of each of ACFM and ACME. The process should be implemented without disruption to the preparation of advice during the transition.

The **Delegate of Spain** stated that, in addition to the problem of the workload, the difficulty of integrating fisheries and environmental issues had to be recognised. It was difficult to find expertise on these issues. The lack of persons willing to serve as Chairs was also a problem. Regionalisation would create more problems than it would solve and should be avoided.

The **Chair of CGADV** believed that any changes to the organisation should be made in order to enhance the ability of ICES to provide the best advice. He agreed that issues related to ecosystem effects of fisheries were very important and needed to be tackled in a proper way.

The **Delegate of Estonia** noted that adjustments were needed at all levels to accommodate the integration of fisheries and environmental issues. This integration must begin at the level of scientific research, otherwise there would be no basis for the preparation of integrated advice. This had to be started at the national level immediately. Also, integrated advice would not be less labour- or time-consuming than the present types of advice. At both the national level and the level of ICES, consideration must be given to improving the manner in which fisheries and environmental advice was integrated. However, he sought assurances that the quality of fisheries advice would not be degraded during an

eventual restructuring process. So far no convincing model of integration of fisheries and environmental advice had been presented.

The **Delegate of Russia** supported the comments of the Delegate of Norway. He further pointed out that the total financial contributions, including also those made by the Member Countries to the partner Commissions, needed to be taken into account.

The **Delegate of Germany** stated that change was needed, but it did not necessarily need to be structural in the first instance. Changes in procedures should be implemented first. The document on quality management attached to the CGADV report should be implemented, as this will decrease the workload of the advisory committees. Ultimately some structural changes might be needed, particularly in relation to the integration of fisheries and environmental advice.

The **Delegate of Latvia** stated that it was not clear whether the problems lay in the structure or the procedures. If they were associated with the procedures, then the structures should not be changed, but rather the procedures should be carefully reviewed and changes made. Thus, he favoured implementing procedural changes first, before determining whether structural changes were also needed.

The **Delegate of Poland** stated that CGADV went very far in proposing structural changes to the advisory system; the magnitude of these changes caused several Member Countries to hesitate in making structural changes. He supported the proposal of the Delegate of Norway to begin with changes at the Working Group level. The three models proposed in the addendum to the CGADV report did not promote an integrated approach to the development of scientific advice.

The **Delegate of Norway** stated that his country favoured evolution in the change in the advisory system, beginning with further development in the Working Group system. This, in turn, would ease the workload of the Advisory Committees. He hesitated to make any radical changes, as the advice of ACFM was greatly needed at present and change should not be made until it was very clear as to the direction and consequences of change. National representation, in his view, should be the basis for any advisory system.

The **Delegate of Canada** agreed that there were very pressing problems that needed to be solved, but noted that they might not require major changes to the structure of ICES. He supported the comments of the Delegate of Norway that Working Groups must begin to implement new means to integrate environmental considerations with the fisheries work.

The **Delegate of Finland** favoured gradual change, beginning with integration at the Working Group level. Additionally, the issue of integrating the work of the Science Committees should be considered in this overall process.

The **President** concluded that about half of the delegations favoured significant change, while the other half favoured implementing changes within the existing structure. Several problems had been identified including: 1) an excessive workload; 2) the need for integration; and 3) the need to be able to attract candidates for Chairs. In order to make further progress, the **President** proposed that a Sub-Group of six Delegates, covering a balanced spectrum of the opinions expressed, should meet on 2 October 1999. The group should comprise Dr S. Parsons (Chair, ICES President), R. Vaage (Norway), Dr J. Horwood (United Kingdom), Dr R. Aps (Estonia), Dr M.P. Sissenwine (United States), N.A. Nielsen (Denmark), and J. Sigurjónsson (Iceland).

After a meeting of the above-mentioned Sub-Group, the **Council agreed**, recognising the difference in views as to the precise nature of the changes needed, that:

A Bureau Working Group on the ICES Advisory Process (BWGADVP), comprising Dr S. Parsons (Chair), Dr R. Aps (Estonia), Dr J. Horwood (UK), N.A. Nielsen (Denmark), Dr J. Sigurjónsson (Iceland), Dr M.P. Sissenwine (USA), and R. Vaage (Norway), along with the Officers of the Council as required, will be established to advise on modifications to the ICES Advisory Process that will:

- 1) Improve the management of the Advisory Process and the Committees and address questions of their programme and workload, and those of their Working Groups, and
- 2) Facilitate the efficient and flexible delivery of quality integrated advice of fisheries and environmental issues.

Such modifications will be of a form that will permit Delegates to vote on proposed changes at the ASC in 2000.

It is anticipated that the Group will have to meet several times at ICES expense, and will report to the Bureau by June 2000.

In arriving at its advice the Bureau Working Group will take:

- a) Account of the need for national representation where appropriate;
- b) A realistic view of the costs of any changes;
- c) Account of the need for a responsive and flexible management within-year and across disciplines.

In conducting this work, the Bureau Working Group should:

- i) Inform and consult with the users of ICES advice, and
- ii) Seek the views of current and former members of ACFM and ACME, and current Delegates, as to

the constraints on staff taking up posts as Chairs of the Advisory Committees, and their views on any other problems they may wish to draw to the attention of the Bureau Working Group.

After some further discussion, the **Council also agreed** that:

The Coordinating Group on ICES Advice (CGADV) will continue its work chaired by N.A. Nielsen (Bureau member) with membership of Dr G. Pestana (Bureau member), Drs G. van Balfort (Delegate of the Netherlands), Dr J. Horwood (Delegate of the United Kingdom) and the Chairs of the Advisory, the Consultative, Marine Habitat, Living Resources and Resource Management Committees, assisted by the General Secretary and the Professional Secretaries, in order to:

- Coordinate and manage the ICES Advisory Process.

This task should be addressed in a manner that increases the efficiency and flexibility of providing advice, and ensures coordination between traditional fisheries and environmental advice.

CGADV will work by correspondence and report to the 2000 Mid-Term Meeting of the Bureau, and to the Council at the 2000 Annual Science Conference.

Agenda Item 16 STATUS ICES/GLOBEC PROJECT OFFICE

The **President** drew attention to Doc. C.M. 1999/Del:22 *inter alia* outlining the work carried out during the year.

The **Delegate of the USA** strongly supported an ICES role in the GLOBEC programme and believed that the GLOBEC Steering Committee should continue its function for the coming year.

The **Delegate of Canada** stated that the GLOBEC programme had been a very important and useful programme and ICES should have a strong role in it.

The **Delegate of Iceland** supported this statement and considered that GLOBEC should become part of the Core Science Programme of ICES.

After some further discussion, the **President** proposed that a member of the Bureau be requested to lead a review of the Office and develop options on the future of the ICES GLOBEC office. He proposed that Dr A. Post chair the proposed review as a Bureau member and Delegate of Germany, not in his capacity as Chair of the Finance Committee.

After some further discussion, the **Council agreed** that Dr Post should chair the Review and that the **President** would establish the Terms of Reference for the task as well as the membership of a group to support Dr Post.

In accordance with the above-mentioned decision and following subsequent consultations, the President determined that:

A **Review of the ICES/GLOBEC Office** will be conducted by a Bureau Working Group, chaired by Dr A. Post (member of the Bureau) with the assistance of Dr J. Horwood (Delegate of the United Kingdom), R. Vaage (Delegate of Norway), M. Schou (Delegate of Denmark), Dr M.M. Sinclair (Delegate of Canada), and the General Secretary, *inter alia* to:

- 1) Review the functions of the ICES/GLOBEC Office to date;
- 2) Examine funding arrangements so far;
- 3) Examine future requirements for this type of function within the ICES Secretariat and how it relates, for example, to the work of the Science Coordinator/Oceanographer;
- 4) Determine whether the GLOBEC-related requirements justify the continuation of a senior Professional Secretary dedicated specifically to this function;
- 5) If the answer to (4) is yes, examine funding scenarios, identifying the pros and cons of each option, and propose a preferred solution. This will include examining whether there is sufficient interest among certain key countries in continuing to fund this on a special contribution basis. There should be a tentative exploration of possible contributions from existing and potential donor countries prior to finalisation of the report;
- 6) Determine whether there are alternative ways of absorbing this type of work within the ICES Secretariat without additional financial implications for ICES Member Countries.

The Secretariat will provide assistance as required.

The report of the Review will be submitted to the 2000 Mid-Term Meeting of the Bureau.

Agenda Item 17 PROGRESS WITH GEF BALTIC SEA REGIONAL PROJECT

The **General Secretary** drew attention to Doc. C.M. 1999/Del:23. He recalled that in September 1998, HELCOM, IBSFC, and ICES had received a PDF Block B Grant of USD 350.000 from the Global Environment Facility (GEF) to prepare a Baltic Sea Regional Project (BSRP) in close cooperation with the implementing agencies (World Bank and United Nations Development Programme). The proposed GEF BSRP would serve as a mechanism for management of the common resources of the Baltic Sea ecosystem through strengthened cooperation between IBSFC, ICES, and HELCOM. It would implement priority actions to address transboundary environmental concerns associated with sustainable production of biomass, conservation of living marine

resources, and control of non-point source pollution from agriculture. Measures would also be taken to improve decision-making at the regional, national, and local level by strengthening assessment and monitoring systems and supporting the development of a series of indicators. As part of the project preparation process, a transboundary environmental analysis will be undertaken, as well as an incremental cost analysis to evaluate how GEF funds will leverage national and international resources.

After holding two meetings (November 1998, March 1999) of the Core Group for steering the project, it became clear that the maintenance of further progress had become delayed by the lack of funds made available from the GEF to initiate resource-demanding activities (e.g. Workshops, Working Groups, and Consultations). Thus, contracts had been established between HELCOM and the International Bank for Reconstruction and Development (acting as an Implementing Agency of the GEF) in May 1999, and between HELCOM and ICES in August 1999, to *inter alia* allow the disbursement of funds to allow ICES to cover the costs related to Component 1 (Interrelationships of Living Marine Resources to the Baltic Sea Environment and Ecosystem) of the project that ICES was responsible for.

In August 1999, Prof. J. Thulin (Chair of the Core Group and Delegate of Sweden) and Dr S. Lintner (World Bank) had been seriously injured in a car crash in Estonia when travelling on business connected with the GEF BSRP. The extent of their injuries indicated that they were unlikely to be certified fit for work much before the end of the 1999 calendar year. This would delay any further progress being made with Component 1 of the project until then. However, preliminary information from the GEF indicated that the resultant delay in producing the Project Brief (originally scheduled for completion by 30 June 2000) would probably be treated as a Force Majeure. Thus, an extension for the delay arising from the Force Majeure was likely to be granted by the GEF.

After some discussion and clarification, the **President** proposed, and the **Council agreed**, that sincere best wishes for a safe and speedy recovery should be sent to Prof. Thulin and Dr Lintner who were still receiving treatment in hospital. The specific actions that might be necessary for ICES to carry out under the circumstances would become apparent once further information had been received from the GEF, taking into account the prevalent medical condition of Prof. Thulin and Dr Lintner.

It was agreed that the President was authorised to take appropriate decisions during the coming year to ensure that ICES met the obligations with respect to this project, once the medical prognosis for Professor Thulin and Dr Lintner was clarified.

Agenda Item 18 **REPORT OF FINANCE COMMITTEE**

On Monday 4 October, **Dr A. Post** (Chair of the Finance Committee) presented the Committee's Report (see Report of the Finance Committee later in this *ICES Annual Report for 1999*), the main features of which are highlighted in Items 18.1–18.5.

18.1 Audited Accounts for Financial Year 1997/1998

The Committee had reviewed the Audited Accounts and Balance Sheet for 1997/1998, contained in Doc. C.M. 1999/Del:1, and noted the Long-Form Audit Report.

Having noted that the Committee had signed the Accounts and Balance Sheet, as well as for receipt of the Long-Form Audit Report, the **Council unanimously approved** the Audited Accounts for 1997/1998.

18.2 Estimated Accounts for Finan- cial Year 1998/1999

The Committee had reviewed the Estimated Accounts for Financial Year 1998/1999 presented in Doc. C.M. 1999/Del:4, drawing attention to the achievement of a positive budgetary balance under a very tight fiscal situation. The Chair noted that the Committee had accepted the Estimated Accounts for 1998/1999 and recommended their approval by the Council.

The **Council unanimously approved** the Estimated Accounts.

18.3 Draft Budget for Financial Year 1999/2000

The Committee had reviewed the draft Budget for Financial Year 1999/2000 presented in Doc. C.M. 1999/Del:5, and attention was drawn to the particular points in the Committee's report. The Chair noted that the Committee had accepted the draft Budget for 1999/2000 and recommended its approval by the Council.

During the ensuing discussion the following questions and clarifications occurred:

The **Delegate of the United Kingdom** queried the notable rise a) in the Professional Category staff salaries and to a lesser extent General Service staff salaries in the Draft Budget for 1999/2000, and b) the ICES Pension Scheme compared with the Forecast Budget for the same year as approved at the 1998 Council Meeting. In response, the **Chair of the Finance Committee** noted that the adjustment under Professional Category salaries had been necessitated to cover the installation and repatriation costs of the incoming and outgoing General Secretaries, which had been unforeseen at the time of the previous year's Council Meeting. Further, the Bureau had agreed at its January 1999 meeting—in accord with

its mandate—to elevate the grading of the Information Technology Assistant post to ensure suitable recruitment, and this had increased not only the General Service Category salaries but also the associated pensions. The decision of a Professional Secretary (P5) to join the ICES Pension Scheme had increased costs but had also lowered the costs of Personnel Services accordingly.

The **Delegate of France** queried why the proposed extra ACME Meeting in January 2000, to review the Quality Status Report 2000 for the OSPAR Commission, had not increased the costs of ACME under Travels, Meetings etc. In response, the **General Secretary** explained that the OSPAR Commission request was an extraordinary one for which the terms of reference and costs had not yet been fully agreed with the Commission. The January 2000 ACME Meeting costs would also be allocated *pro rata* to the EC/DG XIV and the Nordic Council of Ministers for tasks to be conducted for these institutions. Thus, it was intended that the expenses incurred would be fully covered according to 100% cost recovery protocols by Clients.

The **Council unanimously approved**, by a roll-call vote, the Budget for 1999/2000.

18.4 Forecast Budget for Financial Year 2000/2001

At the session of the Delegates Meeting on Thursday 30 September, the **President** solicited preliminary views on the Draft Forecast Budget for Financial Year 2000/2001 (Doc. C.M. 1999/Del:6) that had been submitted in March 1999 by the Bureau to Contracting Parties and Delegates.

During the ensuing discussion the following comments and clarification occurred:

The **Delegate of Sweden** asked whether the future costs of preparing a Quality Manual and Quality Handbook as outlined in Doc. C.M. 1996/Del:25 had been included in the Draft Forecast Budget and whether the proposed Database Manager post was in any way related to improving the quality assurance of data used by the Advisory Function. After the significant increase in the Forecast Budget last year, it was necessary to constrain further increases to about the level of inflation.

In response, the **President** and **First Vice-President** emphasised that a) the existing arrangements for managing and integrating the ICES databases in the areas of fisheries, environment, and oceanography were not satisfactory and that the Bureau had concluded that a new Professional Category post as Database Manager was necessary, and b) the development of final text of the post description had not been fully concluded.

The **President** underlined that the Bureau had engaged in substantial discussion on this position, and the conclusion was that the ICES Professional Advisers and the ICES Oceanographer were over-extended to lead such an important data project in the Secretariat Workplan.

The **Delegate of the United Kingdom** emphasised that he had found it difficult to accept the 9% increase last year due to a lack of strategic justification for the measures. The currently proposed increase of 5% was also above inflation. Thus, it was necessary to place above-inflation budget proposals in a strategic context, particularly regarding the demand for support for some of the areas of ICES work that will probably increase.

The **Delegate of the United States** noted that although the individuals in the Secretariat had been constrained to inflation rate increases in their salaries, the aggregate increase for the Secretariat as a whole was above inflation. It was difficult to support the large increase in last year's Forecast Budget, and it had been explicitly anticipated that a substantial increase would not be repeated. The year 1998/1999 was expected to be a grave situation financially, but in the event good management resulted in an improved situation. The current outlook for ICES is beneficial, following the recent cost recovery agreements with the Client Commissions. The use of the increase in funds is now a matter of concern, as it had not been explicitly stated that the Capital Reserve Fund should be increased and the Draft Forecast Budget did not address the Core Science Programme issues, such as GLOBEC, which the US regards as important, but which is in financial jeopardy.

The **Delegate of Latvia** stated that his country was not in a position last year to support an increase, and the situation had not improved since then. The national contributions to ICES had increased substantially since Latvia rejoined ICES in 1993.

The **Delegate of Belgium** emphasised that he was not able to support last year's Forecast Budget nor the one proposed this year as the cumulative rate of increase was unacceptable.

The **Delegate of Norway** expressed frustration at the negative views on the currently proposed increase at a time when ICES should be developing a forward-looking strategy for its Centenary.

The **Delegate of Denmark** did not believe that a big increase in the Budget was appropriate at present. The Strategic Plan provided a better tool to use in a dialogue with Member Countries and Clients. As a result of the ensuing dialogue ICES would be better positioned to return to the argument over appropriate increases, using a project-oriented approach to the necessary work and its financing.

The **Delegate of Canada** indicated that he would have difficulty in supporting the increase as proposed. However, he wished to see an enhancement of the Core Science Programme of ICES, including a greater involvement by ICES in international programmes, such as GLOBEC. The ICES Secretariat should be able to contribute towards the management and coordination of relevant international programmes.

The **Delegate of the Netherlands** presumed that ICES had ambitions as suggested in the Strategic Plan. He believed that ICES should be willing to invest wisely in the improvement of its Core Science Programme and its Advisory Function, including the integration of databases. Accordingly he would be prepared to recommend the increase to his administration.

The **President** noted that the financial outlook had improved since the Draft Forecast Budget was circulated early in the year because of the successful conclusion of MoUs with certain Commissions and the impending signatures of the MoU with the EC.

After some further discussion, the President concluded the initial discussion until after the Report of the Finance Committee had been made available to Delegates.

On Tuesday 5 October, at the request of the President, a revised Draft Forecast Budget (Doc. C.M. 1999/Del:6 Revised) was submitted to the Council.

In tabling the revised Draft Forecast Budget, the **President** noted that the rate of progress in concluding and signing the MoUs with the Client Commissions and the schedule for achieving 100% cost recovery was uncertain in January 1999 when the Bureau prepared the Draft Forecast Budget. Currently, the MoUs had been concluded with all but one exception that was expected to be signed before the end of the year. A revised Draft Forecast Budget had been prepared involving:

- Under Income, adjustments to National Contributions to reduce the increase per share to 3%;
- Under Expenditure, a reduction of post 10 ('To Cover Extra Facilities and Work Needs') to DKK 231,425.00 from DKK 566,375.00 in the former proposal.

Thus, the new proposal was tabled for the consideration and comments of Delegates.

The **Delegate of Sweden** expressed appreciation of the adjustments to limit the increase in national contributions to 3%. If put to the vote, Sweden would be prepared to vote in favour of the revised proposal.

The **Delegate of Latvia** still had difficulties in accepting the revised proposal as it would lead to increased staffing of the Secretariat and replenishing of the Capital Reserve Fund immediately after the previous year's 9% increase.

The **Delegate of Canada** accepted the revised proposal.

The **Delegate of Denmark** accepted the revised proposal, but urged that in future increases in the Budget should also be related to project-related initiatives and improvements efficiency. ICES should take steps to change its budgetary system towards a transparent project and workplan based one, so that it was possible to understand what the contributions were used for.

The **Delegate of Iceland** supported the revised proposal that could be viewed as an acceptable compromise.

The **Delegate of the United Kingdom** appreciated the efforts to respond to the need to reduce the increase in national contributions towards an acceptable level. While being prepared to support the revised Forecast Budget and the importance of data integration it was not obvious that the best way forward was by incurring a permanent and long-term commitment to Secretariat staffing. Thus, he proposed that a fixed-term appointment should be considered rather than establishing a permanent post.

The **President** indicated that the proposed Database Manager post was intended as a term-appointment, subject to extension based on satisfactory progress.

The **Delegate of Spain** indicated his support of the revised Draft Forecast Budget.

The **Delegate of Norway** was willing to support the revised proposal, but would have preferred the 5% increase to cover work needs. He emphasised that ICES had to meet the increasing work requirements and challenges that had occurred and would continue over recent years. Unless budget resources followed work demands, the quality and the quantity of the work output would be placed in jeopardy. The increased costs for many national laboratories of paying the proposed Conference Fee for future ASCs was significantly greater than the increase in national contributions.

The **Delegate of Belgium** was still unable to agree to the revised proposal.

The **Delegate of the Netherlands** was prepared to accept the new proposal.

Having ascertained that there were no further comments on the revised proposal, the **President** put the matter to a vote.

The **Council** approved the Forecast Budget for 2000/2001 by the necessary 2/3 majority (17 for and 2 against) in a roll-call vote.

18.5 Possible Change of ICES Financial and Operational Year to Run from 1 January to 31 December

The **President** briefly reviewed Doc. C.M. 1999/Del:3, pointing out that several Delegates and Bureau members over the last few years had recommended that a change to the dates of the fiscal and operational years be seriously considered as a desirable step. It was emphasised that there was not a formal proposal on the table to change the system at the current moment. The purpose of the discussion was to solicit views on the desirability of a possible change, and consideration of some of the practical aspects of implementing such a change. Given a willingness to move, and being aware of the logistics

involved, a decision as to the next steps might be made. As the matter had been referred to the Finance Committee before dealing with it in the Delegates Meeting, he invited Dr Post to report on the outcome in the Committee.

The **Chair of the Finance Committee** drew attention to the views expressed under Agenda Item 9 of the Report of the Finance Committee. In essence, if one proceeded with the proposal, there would be a perceptual bridging problem to cover the extra two months, i.e. an initial 14-month year would be created. The extra costs in the first instance could be drawn against the Capital Reserve Fund, but a scheme for repayments into the Fund would eventually be agreed. If there was sufficient support for the proposed change, there would be a requirement to change Rule of Procedure 17 as outlined in Doc. C.M. 1999/Del:3.

The **Delegate of the United States** supported the proposal for change and noted that a significant amount of rationale for this had been given in Doc. C.M. 1999/Del:3. An additional important factor was the movement by ICES and its Secretariat into a project planning system that required substantial consideration and time to carry out each year. Thus, allowing more time to digest the conclusions from the ASC before implementing the next year's project plans was an important justification for the proposed change. He did not envisage a very serious problem regarding the practicalities involved in making a change to the new system. The costs of running ICES each year on a yearly basis would be unchanged and the amount of the national contributions for the yearly period would be unchanged. A cash-flow problem would be caused by the gap in delaying the payments by two months. As long as a prudent and gradual adjustment occurred of the time at which annual contributions were due, an eventual transition should not cause a major problem.

The **Delegate of Sweden** firmly supported the possible change. From personal experience on national budget work, it had been difficult to explain the intricacies of the ICES fiscal and operational year to national authorities.

The **Delegate of Latvia** did not see a significant problem from the national point of view, as long as it was made clear what the amount of the fiscal contribution was per year and the deadline for these dues. Thus, unless there were additional costs involved, it would be viewed as an internal ICES matter. However, it would be desirable to consult with the relevant national Ministries in the Member Countries.

The **Delegate of Norway** supported the proposal for change, and for achieving it in a single step: he proposed that the Council's Auditors should be officially asked to review the matter and make an appropriate recommendation as to acceptable ways in which the transition might be brought about.

The **Delegate of Ireland**, the **Delegate of the United Kingdom**, and the **Delegate of Denmark** indicated their willingness in principle to support the calendar-year based proposal, but emphasised that it would be necessary to review the practical details of the specific options available to bring it about. This would entail a transparent presentation of any extra costs involved, including the possible use of the Capital Reserve Fund as an interim measure. As Rule of Procedure 17 would have to be changed, the Council would finally have to vote on the matter.

Noting the general willingness of Delegates to further consider changing the ICES Financial and Operational Year to run from 1 January to 31 December, the **President proposed** that the following steps should be carried out:

- The Secretariat should request that the Council's Auditors consider the matter and report on possible options for bringing the transition about;
- The General Secretary should draft a document for the Bureau outlining the practical details of the specific options available to bring the change about. This should involve a transparent presentation of how to deal with the transitional year, including the possible use of the Capital Reserve Fund as an interim measure;
- Delegates should brief their appropriate Ministries on the issue and solicit possible responses which should be communicated to the General Secretary in time to be considered at the 2000 Mid-Term Meeting of the Bureau;
- On the basis of the above-mentioned steps, the Bureau would make a proposal to the Council at the 2000 ASC as to the desirability of implementing a calendar-year based operational system, and changing Rule of Procedure 17 accordingly.

The Council approved this proposal.

18.6 Appointment of Auditors 1999/2000

The Chair noted that the Committee was very satisfied with the manner in which the Auditors, KPMG C. Jespersen, had conducted its business on behalf of the Council during the past year. The Committee recommended that the Council's Auditors be appointed for another year.

The Council endorsed the appointment of KPMG C. Jespersen as ICES Auditors for 1999/2000.

On behalf of the Council, the **President thanked** the Chair and the Finance Committee for the services they had rendered at the current meeting.

Agenda Item 19 REPORT OF PUBLICATIONS COMMITTEE

The **Chair of the Publications Committee** presented his personal summary report for the Delegates Meeting

as follows, noting that the full Report of the Publications Committee would be produced in due course.

1. ICES Journal of Marine Science

Editors of the *ICES JMS* reported an increased number of manuscripts submitted for the regular journal issues, from 105 (1997/1998) to 134 (1998/1999). While over 50% of these papers went to press within eight months, the range was from four to 17 months. The new editorial team under Dr N. Daan was working well together and relationships between the *ICES JMS* Editors and Academic Press remained excellent.

With one significant exception, arrangements for the publication of the ICES Symposium proceedings in the *JMS* had proceeded smoothly with forward planning for volumes resulting from Symposia up to the early part of 2002. The planning figure of two volumes annually, averaging 250 pages each, was being achieved within the *JMS* budget with exceptional additional cases supported from external funds. For the six volumes that had already been published, the interval between the meeting and publication had been from eight to 17 months.

The Editors asked the Publications Committee to consider the issue of the delay in processing the proceedings of the Recruitment Dynamics Symposium from September 1997 in Baltimore, USA. After 24 months only 26 of the possible 53 papers from this Symposium had reached the Editors for final processing. This had lead to unacceptable delays for all the authors involved and was undermining regular production of the journal and the continued reduction of publication times.

After considerable discussion of the issues involved, the Publications Committee proposed the following actions:

- To proceed with publication of the papers in hand as 'Part 1' of the Baltimore Symposium proceedings;
- To ask ICES, via the General Secretary, to request the return to the Editor-in-Chief of the remaining manuscripts and referees' reports from the Guest Editor within a defined period of time for eventual publication as 'Part 2';
- To amend the guidelines for Guest Editors to clarify the procedures to be followed should they not be able to sustain the indicative timetable for their volume.

Academic Press, the publishers of the *ICES JMS*, reported satisfactory maintenance of the subscription base of the journal. For the first year a proportion (10%) of the revenues had arisen from the uptake of the *ICES JMS* electronic access route (APPEAL). Financially the situation continued to improve, with a net profit of GBP 20,979 previously reported for 1997 having increased to GBP 38,040 for 1998. The improved profit reduced the deficit in the Academic Press/ICES Joint Account to GBP 31,526. If this trend was sustained, the accumulated debt on the journal account would be paid off during 1999 and the *ICES JMS* would move into gener-

ating a surplus that could be retained for publications purposes.

The Publications Committee had noted these improvements and commended the work of the editorial team.

2. ICES Cooperative Research Reports; ICES Identification Leaflets for Plankton; ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish; ICES Techniques in Marine Environmental Sciences

The Editors of each of these ICES publication series reported that over the last year there have been respectively 12 *Cooperative Research Reports*; five *Identification Leaflets for Plankton*; six *Identification Leaflets for Diseases and Parasites*; and four issues of *Techniques in Marine Environmental Sciences*, published and released.

These reports represented significant improvements in processing the previously serious backlog of these publications, which was a matter for criticism last year. The Publications Committee welcomed these improvements and recognised that they had been achieved through the higher priority given to publications by the Secretariat and the Bureau.

Although the previously stagnant situation of these publication series has been relieved, the Publications Committee believes that much more needs to be done to rationalise their efficient production and offers the following comments on the present situation with respect to these publications:

- There are still unacceptable delays in publication of planned items, especially significant to those techniques-based publications which may become rapidly out of date;
- There is no clear plan for sustaining the improvement of publication rate noted in the current year;
- The *ICES Fisheries Statistics* series remains stalled with volume 73 (data for 1988!);
- Although the Secretariat has established a 'New Project DP2 in the Workplan for 1998/1999 to *inter alia* better focus on internal publications' (Bureau Doc.1131) – there was no indication to the Committee of its project leader, objectives, remit, or timescale for implementation.

For the internal publications the Committee continued to recommend that ICES:

- a) Gives close attention to identifying the need for each publication;
- b) Ensures matching of resources to publishing commitments;
- c) Urgently explores the options for electronic publishing;
- d) Seeks professional advice and uses further contracting-out of services wherever appropriate.

3. ICES Council and ASC papers in CD-ROM format

At the request of the Consultative Committee (Doc. ICES C.M. 1999/A:5) the Publications Committee discussed the production of the ICES documents for 1998 in CD-ROM format for the libraries in Member Countries. This has replaced their production as microfiche, the way in which libraries have received the documentation since the mid-1980s.

After demonstration of the CD-ROM and subsequent discussion the Committee offered the following comments:

- The CD-ROM has advantages of completeness, portability, and most importantly the capability of searching for key words;
- Annual production would allow a searchable database of ICES documents to become feasible, but complete years would probably not be ready on CD-ROM at the time of the ASC;
- Most of the documents can be available on the Web site earlier than the CD-ROM can be produced annually;
- Continued production of full sets of paper copies for the ASC is outmoded and unjustified, but a change from paper to CD-ROM would have to be complete and not optional.

Changing production format does not alter the status of the Council Meeting documents. The Publications Committee again urged the Council to reconsider the content of these papers by distinguishing more clearly between the contributed C.M. documents and those ICES outputs which are highly edited and peer-reviewed, such as Working Group Reports, before deciding the method of dissemination.

4. Role of ICES publications in the work of the Council

The Committee noted little change in the role of publications in ICES since it considered this item last year in the context of the Bureau Working Group on Strategic Planning (Doc. C.M. 1998 Del:15/Gen:4), but again drew attention to the central role intended for publications in the ICES Convention (Article 1):

"to publish or otherwise disseminate the results of research and investigations carried out under its auspices or to encourage the publication thereof"

The **President** then invited comments from Delegates:

The **Delegate of Canada** inquired as to the possibility of publishing certain ICES Symposia and other relevant documentation in the *ICES Marine Science Symposia* series outside the *ICES Journal* subject to sufficient funds being found.

The **Chair of the Publications Committee** answered affirmatively, noting that Academic Press was only committed to publishing two Symposia proceedings each year according to the current agreement with ICES. It was possible to publish more, but these would have to be fully financed from other sources.

With regard to the issue of producing CD-ROMs, the **Delegate of Cañada** believed that this was desirable, but emphasised that this was likely to be most pertinent after the ASC had been held and would be of greatest interest for libraries. It was difficult to foresee very many participants actually using laptops at the ASC to access electronic documents.

The **Delegates of Estonia and the Netherlands** supported the use of part of the proposed conference fee for the ASC in the production of CD-ROMs, and queried whether it would be possible to supply CD-ROMs at, or prior to the ASC.

The **Chair of the Publications Committee** underlined that libraries would put CD-ROMs on their network to act as a substitute for a reference set of C.M. papers. The main advantage of a CD-ROM was its use as a searchable database. ICES was the only organisation which sent out a full set of reference papers to Delegates after the Annual Meeting. He supported a move to the production of CD-ROMs for accessing the C.M. papers after the ASC. A significant part of the costs of producing the microfiches and compiling and posting the sets of documents for Delegates after the ASC would be saved by producing CD-ROMs. The Secretariat intended to carry this out for the first time in December 1999. However, he viewed the desirability of producing CD-ROMs prior to the ASC as questionable, owing to the tight deadlines involved.

The **Delegate of the United States** noted that CD-ROMs of previous and historical C.M. papers should be put on CD-ROM. If this was done, the USA would pledge to buy sets.

The **President** concluded that there was consensus on making progress with having C.M. papers on CD-ROMs and that these should be produced after the ASC, and not before. Website downloading should also be considered further.

After some further discussion, the **Council adopted** the Report of the Publications Committee, and **endorsed** the recommendations made by the Committee.

On behalf of the Council, the **President thanked** Professor Boyle and the Publications Committee for the work that it had carried out. He noted that the issues connected with ICES publications would be further considered at the February 2000 Bureau Meeting.

Agenda Item 20 REPORTS AND RECOMMENDATIONS OF CONSULTATIVE COMMITTEE

Report of 1998 Mid-Term Meeting of Consultative Committee

The **Council** noted the report provided as Doc. C.M. 1999/A:5.

Election of New Science Committee Chairs

Delegates noted that the following new Science Committee Chair had been nominated to serve in office from 1 November 1999:

Mariculture Committee: Dr A. Calabrese (USA)

Consultative Committee

The **Council** considered and approved the Recommendation for the 2000 Mid-Term Meeting of the Consultative Committee, but the President noted that careful consideration needed to be given to the timetable for the meetings in May and June, given the large number of very important meetings occurring at that time.

The reports of the Theme Sessions from the 1999 ASC were noted. The President suggested that a common format for these reports should be developed to enable them to be more informative to the Council and the wider community. Currently, the reports vary widely in quality and format and not all were equally informative. The Committee was requested to draw up a format for use at the next ASC.

The **Chair of the Consultative Committee** reported on the outcome of the Committee's meeting at the 1999 ASC. The Committee had generally been pleased with the day of Committee sessions on the first Tuesday, and would recommend continuation of this schedule. Concerns have been expressed that the structure of the new Science Committees and the new style broader-based Theme Sessions leaves a number of persons feeling that their topics of interest are no longer covered in the ASC. This appears to be a particular problem in the Living Resources Committee, which is an amalgam of a number of former Committees. These concerns will need to be addressed in greater detail in the coming year.

The **Delegate of Estonia** queried whether the issue of a lack of 'homes' for certain scientific disciplines had contributed to the decrease in the number of papers contributed to the 1999 ASC. In response, the **Chair of the Consultative Committee** stated that this may be more related to the lack of 'open sessions', but it was clear that scientists in the areas of shellfish biology, salmon, and other topics formerly covered by specific Committees, believed that this had been a negative influence.

The **Delegate of Iceland** reported that he had received a complaint from a member of his delegation that there was little at this ASC to attract salmonid biologists. He noted that ICES has been making changes in the structure of its work, but that there is no methodology or process to analyse the impact of these changes. This analysis should also include a measure of the quality of the work involved. He suggested that the Secretariat should develop a methodology to assess the impact of changes made in the structure of ICES and whether the objectives that have been set have been met.

The **Delegate of Ireland** stated that salmon topics are of great importance in his country. Previously, about 40 scientists with expertise in salmonids have attended ASCs, but at this meeting only about ten salmonid scientists were present. With very few papers on salmonids at the ASC, it is nearly impossible for young scientists to obtain funding to attend an ASC. The Secretary of NASCO had also expressed disappointment at this development.

The **Delegate of Sweden** echoed the concern that the ASC is no longer attractive to ANACAT persons, but there is a large amount of research being conducted on these topics that could be reviewed here.

The **Delegate of Finland** stated that this was a problem for other issues also, particularly for marine mammal science.

The **President** noted that the changes in the structure of the Committees have been in effect for only two years, and this may not be an adequate time frame to conduct an evaluation. The present issue is how ICES can continue to attract these types of expertise to the ASC. ICES did not intend that the changes in the structure would have these consequences, so steps must be taken to attract these scientists to the ASC. Theme Sessions should be devised to allow persons with expertise on these other topics to be able to obtain funding to attend the ASC.

The **Chair of the Consultative Committee** stated that earlier there were suggestions that so-called topic groups could be created to handle the areas that no longer have an identified 'home'. Although this suggestion was not accepted by the Committee in the first instance, it can be reconsidered.

The **Council** agreed that it would not be appropriate to return to the former structure. But in planning the 2000 ASC, ICES should try to accommodate these concerns. A means of responding to these concerns in a positive way should be sought. The suggestion of forming topic groups should also be considered. It was proposed that the new structure should also be explained in a more positive way, so that, for example, salmonid scientists come and interact with other scientists on issues rather than simply discussing ANACAT issues among themselves.

The **Chair of the Consultative Committee** reported that the Committee had tried a new procedure this year, reviewing draft Recommendations at its June meeting with the Recommendations that had been agreed at that time being distributed to Delegates one month before the ASC. For next year 2000 a form for the Recommendations will be developed and circulated in advance. This should assist in formulating Recommendations that contain all relevant information (e.g. resource requirements). He further stated that the Committee will develop a framework for reviewing activities in relation to the implementation of the Strategic Plan. Reports to this effect will be prepared for review next year, so that progress can be reviewed in relation to the Strategic Plan.

The **Delegate of Denmark** endorsed the Committee's approach and noted that it would be very useful to have a list of Working Group activities in relation to both the Strategic Plan as well as for a wider range of uses.

The question of whether it would be possible to draw up a research project to attract research vessels to come to Copenhagen during the 2002 ASC had been considered by the Committee. The **Chair of the Consultative Committee** reported that his Committee was not able to devise a means to attract these vessels to Copenhagen.

The **Delegate of Denmark** stated that it had originally been hoped that a worthwhile activity, such as an inter-calibration of seagoing sampling methods or other activity requiring vessels to collaborate at sea could be devised.

The **Delegate of Norway** suggested that an official invitation be issued to Member Countries to send their research vessels during the 2002 ASC.

Several Delegates expressed their interest in sending their research vessels.

Accordingly, it was suggested that Denmark, as organiser of this Centenary event, should pursue further whether nearby countries would be willing to send their vessels to Copenhagen. It was agreed that the matter would be left to Denmark as host of the 2002 ASC to pursue.

The **Chair of the Consultative Committee** reported that the Committee had discussed the conduct of the 2000 ASC, and proposed that key speakers should be invited on three topics to address issues of broad interest. The question of whether papers should be limited to the chosen Theme Sessions, or whether there should be 'open sessions' to allow papers to be covered on any topic of relevance to ICES was also discussed. Although several members of the Committee were against open sessions, the Committee ultimately decided that 30% of the time should be made available to such open sessions. This may require that some selection of papers will be necessary, based on their abstracts.

Open Lecture

The **Council** discussed the topic of the Open Lecture by Prof. Daniel Pauly (Canada) at the 2000 ASC. It was agreed that the title should accurately reflect the topic and the Delegate of Canada was requested to contact Prof. Pauly concerning the nature of his lecture.

The suggestion that invited lectures be held at the beginning of each day was then considered. It was noted that this places requirements on the venue to have a large lecture room available. The Delegate of Belgium stated that this would present no problem for the 2000 ASC. In discussing the topics proposed by CONC, it was noted that two of the topics covered oceanographic subjects, and it was felt that the third topic should reflect a different subject. The lecturers should also be instructed that they should scope their topics so that they are appealing and understandable to a wide audience. The travel costs of the speakers will not be paid for by ICES. Thus, the word 'invited' should be removed from lectures to reflect that ICES will not cover their travel.

The **Delegate of Norway** suggested that the conference fee to attend the ASC be used to pay the travel of the speakers.

The **Delegate of Canada** believed that a policy is needed concerning how the travel of 'invited' speakers will be handled.

It was agreed that the **Chair of the Consultative Committee** should follow up this issue with the Bureau.

Theme Sessions

The Theme Sessions proposed for the 2000 ASC were considered.

The **Delegate of Latvia** emphasised that the Theme Sessions should also be interesting and attractive to younger scientists, and that a survey should be organised to determine the interest of ASC participants in the sessions offered.

The **Delegate of the United Kingdom** believed that the Consultative Committee should critically review the submissions for the various Theme Sessions and eliminate sessions that did not have an adequate number of papers.

The **Delegate of Canada** was concerned that none of the sessions proposed for 2000 or 2001 would attract salmonid scientists. He proposed that some of these scientists should be contacted to propose topics, particularly for the 2001 ASC, that would attract this particular community.

The **President** proposed that one Theme Session be reserved for a topic on anadromous fish that should be developed as soon as possible for the 2000 ASC, in or-

der that the Council will be seen as actively responding to the above-mentioned concerns. The Chair of the Consultative Committee should consult with appropriate persons to develop a topic of this type.

The **Council** approved this proposal.

The **Delegate of Denmark** proposed that Theme Sessions V and X be merged.

The **Chair of the Consultative Committee** replied that, although there was some resistance to Theme Session X, it was ultimately accepted by the Committee as a follow-up to the Eleventh Dialogue Meeting. With regard to whether Theme Sessions V and X could be combined, this would be possible but it would result in a dilution of the scientific content of Theme Session V.

The **Delegate of the United Kingdom** stated that Theme Session X was envisaged as a technical session to attract persons with different backgrounds and viewpoints.

The **Delegate of Finland** suggested that some refocusing of the titles of these sessions might help in defining their purpose.

The **Delegate of Estonia** also found the titles of some of the Theme Sessions to be too vague and potentially overlapping. It was difficult to determine the scope of many of the sessions based only on their titles. He proposed that some Theme Sessions could be held over several years.

The **Delegate of the United States** requested that the Theme Sessions be spread out so that there is not as much overlap as noted this year.

The **Delegate of Canada** was concerned that the Open Sessions provided the possibility for papers on any topic of relevance to ICES, and he felt that the Consultative Committee will need to ensure that these sessions are planned so that they are appropriately useful and interesting.

The **Chair of the Consultative Committee** stated that the Call for Papers for the 2000 ASC will need to be carefully worded so that appropriate papers are proposed, and potential authors should be informed that they will be subject to a selection procedure.

The **Delegate of Norway** did not agree that there should be Open Sessions at the ASC. He suggested that only Theme Sessions should be held.

The **Delegate of Finland** requested that the list of Symposia be attached to the Report of the Consultative Committee.

This concluded the discussion of the Report of the Consultative Committee.

Recommendations by Committee

ACME

The Recommendations of ACME were reviewed.

A question was raised concerning whether WGECO was intended to handle the HELCOM request on the amounts and impact of fish offal and discards in the Baltic Sea, as this topic is being handled by several groups. It was agreed that this Term of Reference should remain with WGECO for its coming meeting.

It was also noted that the last Term of Reference for WGECO now overlaps with one for a new Working Group under the Marine Habitat Committee. Some questions were raised about whether a proper integration of this work was occurring across the relevant Working Groups.

The **Chair of the Consultative Committee** stated that the WGECO work is being conducted more from the perspective of fisheries aspects, while the WGEAMS will be reviewing an ecosystem approach from a more contaminant-oriented aspect. It was accepted that, given the complexity of the Ecosystem Approach, it could be expected that several groups will tackle this issue from different angles, but ultimately ICES will need to take a more integrated approach to ecosystem issues.

The **Delegate of Canada** believed that there is scope for approaching this issue from several aspects at the present time.

The **Delegate of the Netherlands** supported this statement, noting that a more integrated consideration should be given to the Ecosystem Approach at a later time. He urged the Consultative Committee to consider a more holistic approach to ecosystem issues at its meetings next year.

The **Delegate of Ireland** noted that in previous years, when there has been a genuine overlap in topics between two Working Groups, an attempt has been made to hold the meetings so that they are back-to-back and have a certain amount of their time to develop the issues in plenum. As these particular meetings are being held at very different times, it was proposed that the Chairs of the two Working Groups should attend the appropriate parts of each others meeting. It was suggested that if there are no national funds to support this, perhaps ICES should fund their attendance.

The **Delegate of the United Kingdom** noted that the June 2000 ACME Meeting would appear to be held at about 75% Council expense. He stated that ACME should come to grips with the issue of the amount of its work funded by Environmental Commissions.

The **President** responded that the Council had agreed to take the necessary steps to review the Advisory Process during the coming year.

The **Delegate of Canada** argued that the work of ACME covers approximately 30 Working Groups and that this work is extremely valuable to all Member Countries, who are also clients of ICES advice. This contribution is very important for Canada as a Member Country which is not a party to either HELCOM or OSPARCOM. Under the present ICES structure the work conducted by ACME cannot be done elsewhere in ICES.

With these comments and amendments, the Recommendations of ACME were adopted as C.Res.1999/2ACME01-08.

ACFM

The Recommendations of ACFM were reviewed.

The **Delegate of the Netherlands** stated that the Chair of WGEEL did not wish to chair the next meeting of that group because the Terms of Reference for the meeting will only cover North American eels.

The **Delegate of Canada** offered to host the meeting in St Andrews, N.B., and to find a Chair for that meeting.

The **Delegate of Ireland** stated that the dates of the WGNAS meeting could cause problems in the light of other salmon-related meetings and requested that the meeting be delayed by one week.

The **Council** agreed to this postponement, but requested that in the future such changes should be worked out in advance of the Recommendations being considered in the Council.

At the request of the **Delegate of Portugal**, a change was made to the Terms of Reference of the WGMHSA to separate the assessments of anchovy and sardine.

The **Delegate of Denmark** noted that ACFM should evaluate how the new procedures for producing the advice for NASCO and IBSFC actually performs.

The **President** emphasised that this was foreseen by ACFM for the October/November 2000 meeting, since it would at that time also be possible to include the reactions of the recipients of the advice.

The **Delegate of France** raised his concern about the need to have close coordination of the work addressing the estimation of discards, noting that there were two groups that would both deal with these issues.

The **Chair of the Consultative Committee** explained that the Baltic group deals with a specific request from HELCOM, while the group under the Resource Management Committee deals with the broader issues on a more generic basis.

The **Delegate of the United Kingdom** underlined that while welcoming the ACFM initiative to become more flexible with respect to the NASCO and IBSFC advice, a critical issue was the advice from the Octo-

ber/November ACFM Meeting. He noted that the EC would probably request that this advice becomes available by mid-October.

The **Fisheries Adviser** replied that ACFM was acutely aware of this requirement and was looking seriously into the matter. However, on the other hand, ACFM was also very much concerned with the quality issues, and was therefore reluctant to make drastic changes without proper evaluation. ACFM will discuss these issues with a view to making a proactive response and will report back to the Bureau.

With these amendments, the Recommendations of ACFM were adopted as C.Res.1999/2ACFM01-18.

Fisheries Technology Committee

The Recommendations of the Fisheries Technology Committee were reviewed and adopted without comment as C.Res.1999/2B01-2B05.

Oceanography Committee

The Recommendations of the Oceanography Committee were reviewed.

The **Delegate of the Netherlands** requested an amendment to the Recommendation concerning SGG00S stressing the need to avoid overlap with other relevant activities and the need to cooperate with EuroGOOS. The **Council** agreed to the proposed amendments.

Delegates noted the Recommendation that the ICES work on GLOBEC, which has so far been funded by only a few Member Countries, should now be integrated into the core work of ICES and that the General Secretary prepare a costed proposal for the continuation of this work as part of the core-funded work of the Secretariat.

In this context, the **President** also drew attention to the agreement in the Council that a group be established under the leadership of Dr A. Post, Germany, to carry out an appropriate review of the ICES/GLOBEC Office.

The **Delegate of Finland** commented that the tasks of the MCWG are very technical and he believed that chemical oceanography and biogeochemistry are missing from the work of ICES.

The **Delegate of Canada** did not share this concern, as the work of MCWG is divided into three sub-groups on chemical oceanography, organic contaminants, and trace metals. While this work may appear to be very technical, it responds to the needs of Member Countries and the Environment Commissions for developing monitoring techniques and furthering monitoring programmes. He had only heard very positive comments on the work of this group and felt that it fulfils an important role in the work of ICES.

The **Delegate of the United States** believed that the Oceanography Committee should consider whether the issues of chemical oceanography are being adequately covered within ICES. This should include aspects of the biochemistry of the oceans and its relationship with productivity, as well as the broader issues of chemical oceanographic cycling in the oceans.

It was generally felt that the MCWG did its work well, but that a review should be made of how to handle the broader issues of chemical oceanographic processes in the sea.

The **First Vice-President** agreed to take up this issue during the next year.

With these comments and amendments, the Recommendations of the Oceanography Committee were adopted as C.Res.1999/2C01-14.

Resource Management Committee

The Recommendations of the Resource Management Committee were reviewed.

The **President** referred to the Recommendation on Development of Fish Stock Assessment Courses and asked that other organisations other than DG XIV be approached for support, financially or otherwise. The **Council** approved this change to this Recommendation.

The **Delegate of Portugal** proposed to rename the Workshop on a "Synthesis of North Atlantic Surveys Pelagic Fish" to "Workshop of Surveys on Pelagic Fish in the Norwegian and Adjacent Sea" in order to avoid a misconception.

The **Council** approved this change.

With these comments and amendments, the Recommendations of the Resource Management Committee were adopted as C.Res.1999/2D01-2D07.

Marine Habitat Committee

The Recommendations of the Marine Habitat Committee were reviewed.

The **Delegate of Canada** questioned the absence of a group handling biodiversity in the package of Recommendations.

The **Environment Adviser** pointed out that at the 1998 ASC the Council established a Study Group on Marine Biodiversity, but nominations of members were only received from two Member Countries. There were also problems with finding a Chair for the Study Group. The person who ultimately accepted to serve as Chair stated that without greater support from Member Countries, the Study Group could not carry out any work. In addition, there are already numerous related initiatives under way in other organisations, and the role of ICES in this

work is not clear. Given these problems, the Marine Habitat Committee decided to organise a Theme Session on Biodiversity for the 2000 ASC to consider this topic and potential ICES contributions to issues related to biodiversity.

With these comments and amendments, the Recommendations of the Marine Habitat Committee were adopted as C.Res.1999/2E01-09.

Mariculture Committee

The Recommendations of the Mariculture Committee were reviewed and adopted without comment as C.Res.1999/2F01-2F04.

Living Resources Committee

The Recommendations of the Living Resources Committee were reviewed.

The **Delegate of Portugal** stated that the title of the Workshop on a Synthesis of North Atlantic Surveys on Pelagic Fish should be changed to reflect the actual geographical area to be covered.

The **Chair of the Consultative Committee** drew attention to the Recommendation on the ICES liaison with the Sloan Foundation.

The **Delegate of the United States** further explained the basis for the Recommendation after which Delegates accepted it.

The **Delegate of the Netherlands** considered that the affiliation of the groups dealing with surveys was generally unsystematic. Some groups refer to the Baltic Committee, some to the Resource Management Committee, some to the Living Resource Committee, and yet again some to ACFM.

The **Chair of the Consultative Committee** responded that the surveys had different emphases which made them more relevant to some Committees than others, that the Baltic Committee, being an area-based Committee, crossed the scope of other Committees, and finally that some surveys were very essential to the fisheries advice that it was found useful to have these under ACFM. He further noted that the Consultative Committee played a role in the coordination between the activities of the other Committees. Finally, he recalled the proposed multi-year implementation plans for the Strategic Plan and said that the issue would be discussed under this umbrella.

With these comments and amendments, the Recommendations of the Living Resources Committee were adopted as C.Res.1999/2G01-12.

Baltic Committee

The Recommendations of the Baltic Committee were reviewed.

Note was taken of a question concerning the review of the report of the new SGBEAB, and the response of the **Chair of the Consultative Committee** indicating that this Study Group will also report to the Consultative Committee. This will give the Chairs of all Committees the opportunity to decide whether to draw the attention of their Committees to this report.

The **Council** approved the Recommendations of the Baltic Committee, 2H01-06.

Agenda Item 21 ACFM AND ACME MATTERS

It was agreed that the Pool of Five Experts nominated by Member Countries would cover both ACFM and ACME, and that Delegates should submit the necessary nominations for the Pool to the General Secretary as soon as possible after the 1999 Annual Science Conference.

Agenda Item 22 ACTIONS FOLLOWING THE 11th DIALOGUE MEETING

The **Chair of CGADV** briefly reviewed Doc. C.M. 1999/Del:25, and pointed out that the response to the Partner Commissions included the Annexes to Doc. Del:25. Manuals and Handbooks were being prepared in the Secretariat and the Commissions should be informed about this. He emphasised that the Commissions *inter alia* wished to receive more timely advice from ICES in advance of their annual meetings. ACFM would be considering how one might meet this need already at its consultations at the current ASC. It was firmly recommended that steps should be taken to provide NASCO with its advice more quickly, as requested. The other example was the need to provide the Baltic cod review in early May, to allow the Baltic Commission to review their management for 2000. These examples could be brought forward in schedule to confirm that progress was being made in the right direction. He further underlined the need to arrange a forum in the future to inform Member Countries and the Partner Commissions as to a) how ICES was following up from the 11th Dialogue Meeting, and b) for comment and feedback to be provided by these stakeholders on these matters.

The **Delegate of the United Kingdom** stated that the delegation from his country had found the meeting to be particularly useful, both for exchange of information and to bring the managers into the dialogue. His Administration would be pleased to note the progress that was being made in responding to the need for follow-up to the Dialogue Meeting. He supported the view that it was necessary for the participants at the Dialogue Meeting to review in following up the outcome of the 11th Dialogue Meeting. A meeting for this purpose could be hosted in London in the early part of 2000. He also proposed a Theme Session in 2000 on "A Dialogue of Fisheries Scientists and Managers on the Development of Reference Points...." as had been discussed in the Consultative Committee.

After some further discussion, the **Council agreed** that:

- 1) A **Meeting to Discuss the Follow-Up to the 11th ICES Dialogue Meeting**, hosted by the United Kingdom, be convened for one day in London (England) in early February 2000, as a follow-up to the 11th ICES Dialogue Meeting to:
 - a) Report on actions taken and planned following the 11th ICES Dialogue Meeting held in Nantes (France) from 26-27 January 1999;
 - b) Initiate discussions on the Initial ICES Strategic Plan;
 - c) Initiate discussions on possible or proposed improvements to the Advisory Process;
 - d) Discuss the application of the Precautionary Approach and the Ecosystem Approach in fisheries management.
- 2) ICES Member Countries (a maximum of three managers and/or scientists), and partner fisheries Commissions will be invited to participate.
- 3) The date of the meeting should be immediately before or after the discussions with partner Commissions in connection with current Memoranda of Understanding/Agreements.
- 4) With the exception of ICES Officials, participation will be at national or Commission expense.

In conclusion the **President** expressed the thanks of the Council to the Chair of CGADV and the Secretariat for having produced a clear overview of the follow-up to the Dialogue Meeting as outlined in Doc. C.M. 1999/Del:25.

Agenda Item 23 PROPOSED ICES ENVIRONMENTAL DIALOGUE MEETING

The **President** briefly presented Doc. C.M. 1999/Del:26 that described the rationale for holding a proposed ICES Environmental (12th) Dialogue Meeting.

The **First Vice-President** emphasised that fisheries and other living resource issues had become increasingly closely interrelated with environmental matters. He further noted that the Bureau was of the opinion that the proposed Environmental Dialogue Meeting should take place before the 2000 ASC.

The **Delegate of the United States**, the **Delegate of Canada**, and the **Delegate of Denmark** firmly supported the initiative. Attention was also drawn to the similar proposals put forward by CGADV. The need for a core of scientific expertise from ICES in the planning process was emphasised.

The **Delegate of France** considered that the proposed Dialogue Meeting was timely. He underlined that care-

ful planning of the meeting was even more essential than in the case of the 11th Dialogue Meeting.

The **Delegate of the Netherlands** noted that the collaboration between fisheries and environmental Commissions should be further facilitated. He believed that ICES had an important role to play in this context.

The **Delegate of Spain** hoped that the proposed Dialogue Meeting would also be of importance in building further links between the fisheries and environmental institutions at the national level.

The **Delegate of Sweden** believed that active contacts should be made with the Committee of North Sea Senior Officials (CONSSO) who had been involved in the 1997 Intermediate Ministerial Meeting on the Integration of Fisheries and Environmental Issues. He believed that the theme of the proposed Dialogue Meeting would be of interest in the prior process leading to the Fifth North Sea Conference scheduled for 2002.

The **Delegate of Germany**, on behalf of the German Ministry of the Environment, invited the Council to hold the ICES Environmental Dialogue Meeting in Bonn (Germany) in early September 2000.

After some further discussion, the **Council agreed** that:

1. At the kind invitation of the Government of Germany, the 12th ICES Dialogue Meeting will be held in Bonn (Germany) in early September 2000 to address the matters outlined in Doc. C.M. 1999/Del:26;
2. A Steering Group for planning the meeting will be chaired by the First-Vice-President (Professor P. Mäkki), and will include a Member of the Bureau, the Chairs of the Advisory Committee on Fishery Management and the Advisory Committee on the Marine Environment, two representatives from ICES Member Countries (one of which should be from North America), and a representative from each of the Oslo and Paris Commissions, the Helsinki Commission, the European Community (DG XI), and the North Atlantic Salmon Conservation Organization and the North-East Atlantic Fisheries Commission. The General Secretary and the Professional Advisers will also be members of the Steering Group. With the exception of ICES Officials, participation will be at national or Commission expense.

After further consultation, Dr M. Reeve (USA) was nominated as the representative from a North-American Member Country, and F.M. Post (Netherlands) was nominated as the representative from an European Member Country. Dr Alfred Post (Germany) was nominated as the representative from the Bureau and Dr J. Piuze (Canada) was nominated as an additional representative to further enhance the environmental expertise of the Steering Group.

Agenda Item 24 ANY OTHER BUSINESS

The **Delegate of Portugal** requested that an up-to-date list of e-mail addresses of all Delegates be made available by ICES so that contact among Delegates could be facilitated.

The **General Secretary** agreed to provide this list to all Delegates after the conclusion of the ASC.

The **President** thanked Delegates for their work during the ASC. He also expressed his appreciation to the ICES Secretariat for its assistance and support throughout the meeting. In particular, he thanked Professor Chris Hopkins for his valuable contributions to ICES over many years, first as Chair of the Shellfish Committee, then as Chair of the Consultative Committee, and most recently as General Secretary. Best wishes for the future were extended to David de G. Griffith in his new role as General Secretary from 1 January 2000.

He expressed appreciation to the Swedish hosts for the superb manner in which the organisation of the meeting

had been handled, as well as for the excellent facilities and the very enjoyable social arrangements. He also expressed sincere thanks to Dr I. Olsson for the organisation of the meeting and the helpful manner in which he had worked. Noting that Dr Olsson would soon retire, he expressed very best wishes for the future in this capacity.

Dr Olsson acknowledged the great assistance in the preparation of the 1999 ASC provided by Members of the Swedish Planning Group. He also appreciated the close cooperation with the ICES Secretariat in this work. He emphasised the great personal enjoyment he had received from many years of work in ICES, and the excellent spirit of cooperation and collegiality that was evident throughout. He wished all success to the Council and ICES for the future.

There being no other business, the **President** thanked the interpreters for their excellent work, and adjourned the meeting at 13.30 hrs on 6 October.

Documents

Del:1	Final Accounts for Financial Year 1997/1998
Del:2	Preliminary Report on Administration
Del:3	Possible Change of ICES Financial and Operational Year to Run from 1 January to 31 December
Del:4	Estimated Accounts for Financial Year 1998/1999
Del:5	Budget for Financial Year 1999/2000
Del:6	Forecast Budget for Financial Year 2000/2001
Del:7	Elections and Appointments of Council Officials at the 1999 Annual Science Conference (87 th Statutory Meeting)
Del:8	Appointment of New General Secretary
Del:9	Elections/Appointments of New Chairs of ACFM and ACME
Del:10	Report on Accession Process of Lithuania to ICES Convention
Del:11	Swedish Proposal to Modify the Existing System for Calculating Member Countries' Contributions to ICES
Del:12	Application by BirdLife International for Observer Status
Del:13	Progress on Planning and Funding for the ICES Centenary
Del:14	Report of 19 March 1999 Meeting between ICES Secretariat, and Permanent Secretaries and Delegates from Sweden, Norway and Denmark Concerning ICES Centenary Arrangements
Del:15	Note Regarding Press Matters for ICES Centenaries
Del:16	Developing and Agreed Memoranda of Understanding
Del:17	Report of 25-26 February 1999 Meeting of Joint ICES/Commissions Working Group on Cooperative Procedures
Del:18	Arrangements for 2000 (88 th Statutory Meeting; Belgium), 2001 (89 th Statutory Meeting; Norway), and Subsequent Annual Science Conferences
Del:19	1999 Mid-Term Report by ICES Historian on Book Project and Budget Proposal for 1999/2000
Del:20/Gen:4	Report of 1999 Meeting of Bureau Working Group on Strategic Planning
Del:21	Report of 1999 Meeting of Coordinating Group on ICES Advice
Addendum to Del:21	Options for Changing the ICES Advisory Structure
Del:22	1999 Mid-Term Report on Status of ICES/GLOBEC Project Office
Del:23	Progress with GEF Baltic Sea Regional Project
Del:24	Possible Establishment of Conference Fee for ICES Annual Science Conference
Del:25	Actions Following 11 th Dialogue Meeting
A:5	Report of 1999 Mid-Term Meeting of Consultative Committee
Addendum 1	Memorandum of Understanding between ICES and HELCOM
Addendum 2	Memorandum of Understanding between ICES and NASCO

ADDENDUM 1

Memorandum of Understanding between The Helsinki Commission and The International Council for the Exploration of the Sea

RECOGNISING that the Helsinki Commission - Baltic Marine Environment Protection Commission ("HELCOM")

- a. has functions under the 1974 Convention on the Protection of the Marine Environment of the Baltic Sea Area, as well as the 1992 Convention, signed in Helsinki on 9 April 1992;
- b. is responsible for preventing and eliminating pollution in order to promote the ecological restoration of the Baltic Sea Area and the preservation of its ecological balance;
- c. seeks, when appropriate, the services of competent regional and other international organisations to collaborate in scientific and technological research as well as other relevant activities pertinent to the objectives of the Convention.

RECOGNISING that the International Council for the Exploration of the Sea ("ICES")

- a. exists to promote and encourage research and investigations for the study of the sea, in particular in relation to its living resources;
- b. draws up the necessary programmes and organises such research and investigations as may appear necessary and publishes and disseminates the results of this work;
- c. seeks to establish and maintain working arrangements with other international organisations having related objectives;
- d. provides scientific information and advice to Member Country governments and the regulatory commissions with which cooperative relationships have been established.

RECOGNISING that both HELCOM and ICES are intergovernmental organizations which ensure the observance of the normal standards of public bodies in their work;

HELCOM and ICES have therefore reached the following understanding:

Provisions of scientific information and advice

- 1. The work covered under this Memorandum of Understanding should in particular be related to marine environmental matters within HELCOM.
- 2. ICES will provide scientific information and advice, which is independent and free from political influence, to HELCOM according to this Memorandum of Understanding.
- 3. ICES and HELCOM will consult regularly on ways in which cooperation between them can be further improved and extended. Further improvement may, as appropriate, include common meetings of subsidiary bodies or the establishment of joint subsidiary bodies, which would report to both organizations.
- 4. ICES will provide HELCOM with an annual report, provided at appropriate times during the year, containing scientific information and advice according to the principles of this Memorandum of Understanding. Any other relevant reports published by ICES will be made available to HELCOM.

The scientific information and advice will be presented at the annual meetings of appropriate HELCOM subsidiary bodies by the Chairmen of ICES Advisory Committees or their designate(s).

Procedures to agree on the ICES Work Programme Conducted for HELCOM

5. In each year there will be consultations between the Secretariats of HELCOM and ICES, based on the items proposed by HELCOM on the scientific information and advice to be provided in the following calendar year. The Executive Secretary of HELCOM will forward the requests from HELCOM to ICES, after checking with ICES whether the work would fit in the given frame of the HELCOM budget. These requests will be transmitted formally to ICES on a timely basis. These consultations will be completed at least 12 weeks before the date of the ICES Annual Science Conference (Statutory Meeting).
6. An ICES Work Programme will clearly specify:
 - a. the work on scientific information, which HELCOM requests ICES to carry out;
 - b. the payment that HELCOM will make to ICES in respect of that work;If necessary, a long-term programme can be developed by HELCOM in order to give ICES an outlook to future activities within the framework of HELCOM.
7. The Heads of Delegation meeting of HELCOM will formally adopt the Work Programme by adopting the budgetary allocations. This will occur by no later than March for that year's Work Programme.

Finance

8. As part of the consultations referred to in section 5, the ICES Secretariat will provide the HELCOM Secretariat with details of the proposed charges for providing this information and advice for the following year. The total to be paid in the subsequent calendar year will be the aggregate of two components
 - a. an amount in respect of scientific information and advice to be provided; and
 - b. an amount in respect of overheads;these amounts are calculated in accordance with the provisions in **Annex 1**.
9. On the basis of these proposed calculated charges HELCOM will agree the final Work Programme and, after adoption of the budget by HELCOM, the sum shall be paid to ICES in respect of the work to be carried out by ICES for HELCOM. The payment for each calendar year shall be made to ICES in two equal instalments on 30 June and 31 December.

General administrative arrangements

10. The schedule describing the above mentioned procedures is shown in **Annex 2**.
11. HELCOM will be invited to be represented in an observer capacity at the ICES Annual Science Conference (Statutory Meeting).
12.
 - a. ICES will be invited to be represented in an observer capacity at the annual meetings of HELCOM, the meetings of the Heads of Delegation at which requests for scientific advice from ICES are determined, and appropriate HELCOM subsidiary bodies.
 - b. the ICES Observer to the Heads of Delegation meeting of HELCOM will have reasonable discretion to agree, on behalf of ICES, to technical amendments to the content of the Work Programme.
13. ICES will report annually to the HELCOM Secretariat on its activities. The report will itemise the projects and their costs to which HELCOM has contributed. ICES will also provide HELCOM with reports of its Advisory Committee(s) and other documents relevant to HELCOM's work prepared or published by ICES.

14. HELCOM will provide ICES with documents and reports circulated prior to and as a result of its Annual Meetings which are relevant to the work of ICES.

The Memorandum of Understanding

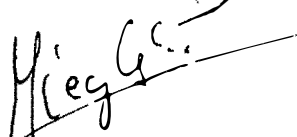
15. Either HELCOM or ICES may propose changes to this Memorandum of Understanding. Any such proposal will be made before the end of December. Any change will come into effect at the beginning of the calendar year after the change has been agreed by both ICES and HELCOM.
16. If any dispute should arise between HELCOM and ICES on the operation of this Memorandum of Understanding, both sides will make their best endeavour to resolve it, if necessary by the involvement of a mutually agreeable arbiter.
17. Either HELCOM or ICES may propose a withdrawal from this Memorandum of Understanding. Any such proposal will be made before the end of December, and will come into effect not earlier than 1 January after a full 12 calendar months have elapsed following the withdrawal having been decided by either ICES or HELCOM
18. Major changes in meeting schedules as indicated in Annex 2 should be notified to the other party as soon as possible. A new schedule should then be negotiated between the Secretariats of HELCOM and ICES.
19. This Memorandum of Understanding will enter into force following signature by both Parties.

Signed on behalf of the Helsinki Commission and the International Council for the Exploration of the Sea:

Date: 31 August 1999

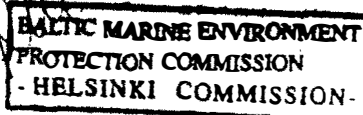


[Name]
President
International Council for
the Exploration of the Sea



[Name]
Executive Secretary
Helsinki Commission

 INTERNATIONAL COUNCIL
FOR THE EXPLORATION OF THE SEA
Palæsgade 2-4 - DK-1261 Copenhagen K





ANNEX 1

Costs

The following costs incurred by ICES specifically for the purposes of the ICES Work Programme as approved by HELCOM may be included in the charges to HELCOM:

1. costs incurred by ICES (i.e. travel and *per diem*) related to meetings of its Advisory Committees in proportion to the time of these meetings spent on the HELCOM advice;
2. Secretariat staff salaries, including superannuation (with an indication of the number and grades of staff to be involved in the work) associated with work for
 - a) the Advisory Committee Meetings in proportion to the time of these meetings spent on the HELCOM advice;
 - b) and other relevant Study/Working Group Meetings in proportion relevant to the time of these meetings spent on the HELCOM advice;
3. travelling and subsistence costs of the Secretariat and Chairmen of ICES Advisory Committees (or their designates) or of ICES Secretariat staff in attending meetings of HELCOM's subsidiary bodies to present the scientific advice;
4. the cost of any work where ICES proposes to employ a consultant or contractor;
5. other current expenditure;
6. Overheads
The overhead costs will be calculated by means of an overhead percentage which is applied to the direct salary costs of each different activity mentioned in the ICES Work Programme. Overheads are based on the documented annual costs (e.g. invoices and payments) of running ICES Headquarters so that the Secretariat staff may legitimately carry out their duties.

The overhead percentage is calculated as the ratio between the total overhead costs and the total direct salary costs. Included in the overhead costs are the following items:

- a. capital cost of computing and other capital equipment;
- b. central financial and personnel administration;
- c. computer system support and maintenance;
- d. a fair share of the printing costs;
- e. rent of premises;
- f. office expenses including:
 - i) electricity
 - ii) heating
 - iii) watchmen, safety and security
 - iv) cleaning costs
 - v) maintenance costs (e.g. photocopier)
 - vi) consumables
 - vii) postage
 - viii) telephone and fax
 - ix) office equipment
 - x) insurance
 - xi) general office maintenance (e.g. painting)
 - xii) staff education and training

ANNEX 2

SCHEDULE

YEAR 1 spring/early summer late summer late summer September/October	HELCOM elaborates draft requests for advice for Year 2 and HELCOM Executive Secretary forwards the draft requests to the General Secretary of ICES ICES provides proposed costs for HELCOM for Year 2 advice; and Consultation between ICES and HELCOM to agree that the sum to be budgeted fits in the budget frame of HELCOM for Year 2 ICES translates requests from HELCOM into Council Resolutions containing Terms of Reference
YEAR 2 February around March spring 30 June September/October 31 December December/January	Consultations between ICES and HELCOM, with ICES providing and HELCOM reviewing costing spreadsheets for ICES expenditures in handling Year 1 requests HELCOM Commission meeting adopts the request for advice for Year 2 and agrees on budget including payment for Year 2 ICES provides draft reports of joint ICES/HELCOM Steering Group meetings First instalment of annual payment by HELCOM to ICES for Year 2 Extracts of the advice by ICES for Year 2 requests Second instalment of annual payment by HELCOM to ICES for Year 2 ICES provides the full documentation of the response to HELCOM Work Programme in the appropriate Advisory Committee(s) report

ADDENDUM 2

**Memorandum of Understanding
between
The North Atlantic Salmon Conservation Organization
and
The International Council for the Exploration of the Sea**

RECOGNISING that the North Atlantic Salmon Conservation Organization ("NASCO")

- (a) desires to promote the acquisition, analysis and dissemination of scientific information pertaining to salmon stocks in the North Atlantic Ocean;
- (b) desires to promote the conservation, restoration, enhancement and rational management of salmon stocks in the North Atlantic Ocean through international cooperation, taking into account the best scientific evidence available;
- (d) seeks to establish working arrangements with the International Council for the Exploration of the Sea and other appropriate fisheries and scientific organizations with a view to obtaining the best available scientific evidence;

RECOGNISING that the International Council for the Exploration of the Sea ("ICES")

- (a) exists to promote and encourage research and investigations for the study of the sea, in particular in relation to its living resources;
- (b) draws up the necessary programmes and organises such research and investigations as may appear necessary and publishes and disseminates the results of this work;
- (c) provides scientific information and advice to member countries and the regulatory commissions with which cooperative relationships have been established;
- (d) seeks to establish and maintain working arrangements with other international organisations having related objectives.

NASCO AND ICES have therefore reached the following understanding:

Provision of Scientific Information and Advice

1. At its Annual Meeting NASCO may adopt a request for scientific information and advice which may be addressed to ICES for response prior to the next Annual Meeting of NASCO. This request will be transmitted formally to ICES on a timely basis.
2. In response to this request, scientific information and advice, which is independent and free from political influence, and has been peer-reviewed by the relevant ICES advisory procedure, will be provided to NASCO by ICES in accordance with this Memorandum of Understanding. This scientific information and advice will comprise annual recurring or "standard" advice according to the format contained in Annex 1, and "non-recurring" advice as requested by NASCO, such categorisation of the request to be mutually agreed.
3.
 - (a) ICES will make every effort to provide the official scientific information and advice in the report(s) of the relevant Advisory Committee(s) to NASCO as early as possible before the Annual Meeting of NASCO.
 - (b) NASCO and ICES undertake to urgently examine the possibility of introducing alternative procedures for processing and delivering the scientific advice to NASCO, with the objective of making it available at an earlier date than that which has been achievable under the present constraints.
 - (c) The information on which the advice is based, in the form of Study/Working Group Reports, will be made available prior to the full ICES review process with an annotation that the report has not been reviewed by ACFM. Any other relevant reports published by ICES will be made available to NASCO.

4. The scientific information and advice will be presented at the NASCO Annual Meeting by the Chairman of an ICES Advisory Committee or a designate and an ICES Professional Adviser
5. ICES and NASCO will consult on ways in which cooperation between them can be further improved and extended. Further improvements may include joint activities, e.g. seminars, symposia or other meetings.

Finance

6. NASCO accepts ICES policy of achieving 100% cost recovery from Member Countries and international client commissions which request ICES to provide information, advice and services.
7. Recognising the desirability for stability in the payments made to ICES, NASCO agrees:
 - (a) to pay - following the procedure in Annex 2 - a fixed rate as agreed upon with ICES for the "standard" advice (i.e. recurring needs) as referred to in Annex 1, with an annual increase in accordance with the rate of inflation in Denmark (Danish Ministry of Finance figures), using DKK 290,000 (at 1996/1997 prices) as the base, as detailed in the June 1998 and February 1999 Reports of the ICES/Commissions Working Group on Cooperative Procedures. The NASCO contribution to ICES shall be linearly increased from the present level to achieve a payment of 100 % of the fixed rate by the year 2001 payment. The components upon which the ICES costs are calculated are provided in Annex 3;
 - (b) to pay 100% of the costs for non-recurring advice on the basis of the costs agreed upon with ICES in accordance with Annexes 2 and 3. NASCO recognises that a delayed payment for non-recurrent advice which would involve major costs for ICES would not be acceptable to ICES.
8. When assessing the contributions to be paid by NASCO, due account shall be taken of contributions made by ICES Member Countries or other international Commissions of ICES with interests in the same stock and in the same geographical area.
9. ICES undertakes to elaborate, on an annual basis, costing-spreadsheets with details for providing standard and non-recurring advice to NASCO. The results will be reviewed jointly by ICES and NASCO during consultations as specified in Annex 2.

General Administrative Arrangements

10. NASCO will be invited to be represented in an observer capacity at the Annual Statutory Meeting (Annual Science Conference) of ICES. ICES will be invited to be represented in an observer capacity at the Annual Meetings of NASCO.
11. NASCO will provide ICES with documents and reports circulated prior to and as a result of its Annual Meetings which are relevant to the work of ICES. ICES will provide NASCO with documents and reports circulated prior to and as a result of its meetings which are relevant to the work of NASCO.
12. Either NASCO or ICES may propose changes to this Memorandum of Understanding. Any such proposal will be made before the end of May in any calendar year. Any change will come into effect at the beginning of the calendar year after the change has been agreed by both ICES and NASCO.
13. If any dispute should arise between NASCO and ICES on the operation of this Memorandum of Understanding, both sides will make their best endeavour to resolve it, if necessary by the involvement of a mutually agreeable arbiter.
14. Either NASCO or ICES may propose a withdrawal from this Memorandum of Understanding. Any such proposal will be made before the end of May in any calendar year, and will come into effect not earlier than 1 January after a full 12 calendar months have elapsed following notice of the intention to withdraw having been given by either ICES or NASCO.
15. This Memorandum of Understanding will enter into force following its signature by both Parties and will remain in force for a period of three calendar years from that date.

16. The Parties will meet well in advance of the expiry of this Memorandum of Understanding to carry out a full review of its terms and operation, and to agree any necessary amendments.

Signed on behalf of the North Atlantic Salmon Conservation Organization and the International Council for the Exploration of the Sea:

Date: June 23, 1999

J. J. Harrison

Name
President
International Council for the
Exploration of the Sea

Günar Lundén

Name
President
North Atlantic Salmon Conservation
Organization

ANNEX 1: Format of request to ICES from NASCO for recurring or “standard” advice

It is recognised that the content of the advice will be dependent on the request and on the availability of data and knowledge about biological and physical processes as well as economical and technical processes. It is understood that the following description of information which is of interest to managers defines a mutual intention to enhance the ICES contribution to fisheries management. It is understood that the advice should include, *inter alia*:

- 1) For the North Atlantic area:
 - an overview of salmon catches and landings (including unreported catches by stock complex and catch and release) and worldwide production of farmed and ranched Atlantic salmon;
 - an evaluation of non-catch fishing mortality for all salmon gear;
 - a report on significant developments which might assist NASCO with the management of salmon stocks;
 - a compilation of egg collections and juvenile releases;
 - a compilation of microtag, finclip and external tag releases by ICES Member Country;
 - other relevant questions related to specific aspects of salmon conservation and management
- 2) For each of NASCO's three regional Commission areas:
 - a description of events in the fisheries and of the status of stocks;
 - provision of age-specific stock conservation limits for all stocks based on best available information;
 - provision of catch options or alternative management advice with associated risk assessment relative to the stated management objective (presently exceeding stock conservation limits);
 - evaluation of the effects on stocks and fisheries of management measures;
 - identification of relevant data deficiencies and research requirements;
 - other relevant questions related to specific aspects of salmon conservation and management

It is understood that ICES should elaborate and make the advice as transparent and as understandable as possible, including explicit explanation of uncertainty associated with the advice.

Whereas the advice should be made available as documents it is also requested that the advice is made easily available in standard electronic format. This also includes the tabular data and/or graphs.

ANNEX 2: Schedule of key annual administrative procedures for NASCO and ICES

YEAR 1	
June	NASCO agrees request for advice for Year 2 and formally transmits request to ICES.
November	ICES provides proposed costs for NASCO for the Year 2 advice.
YEAR 2	
Early February	<ul style="list-style-type: none"> a) Consultations between ICES and NASCO to agree the sum due by NASCO in respect of the recurring and non-recurring advice for Year 2. NASCO undertakes to give its full agreement within 30 days of this consultation. b) Review of costing-spreadsheets for Year 1.
June	Payment by NASCO to ICES for Year 2 recurrent Advice
YEAR 3	
January	Payment by NASCO to ICES for Year 2 non-recurrent advice

ANNEX 3: Components upon which the ICES Costs are calculated.

It is the role of the Commissions to formulate policies and/or management actions for conservation of fisheries and the marine environment, and in order to do so they benefit from scientific advice from ICES. Therefore they accept financial responsibility for ICES' costs of providing this advice, including: (i) the costs of databases and analyses that are needed in order to prepare advice, but generally would not occur otherwise, and (ii) the preparation, quality assurance, and delivery of the advice.

On the basis of this recognition, the following costs incurred by ICES are approved for charges to NASCO:

1. costs incurred by ICES (i.e. travel and *per diem*) related to meetings of its Advisory Committees in proportion to the time of these meetings spent on the NASCO advice.
2. Secretariat staff salaries, including superannuation (with an indication of the number and grades of staff to be involved in the work), regarding preparation for, work during, and follow-up after:
 - a) the Advisory Committee Meetings,
 - b) and other recurring needs associated with Study/Working Group Meetings.
3. travelling and subsistence costs of a Chairman of an ICES' Advisory Committee (or a designate) and of an ICES Professional Adviser in attending NASCO's Annual Meeting to present the scientific advice.
4. costs, including postage and packing, of producing the documents required by the NASCO with respect to the information and advice.
5. database costs
6. computing costs.
7. the cost of any work where ICES proposes to employ a consultant or contractor.
8. other current expenditure.
9. Overheads:
10. The overhead costs will be calculated by means of an overhead percentage which is applied to the direct salary costs of each different activity mentioned in the ICES Work Programme. Overheads are based on the documented annual costs (e.g. invoices and payments) of running ICES Headquarters so that the Secretariat staff may legitimately carry out their duties. As these running-costs have to be applied to the hours in which the Secretariat staff work for ICES own work programme, it is deemed reasonable that an equitable share of the running-costs are paid for by 'clients' in respect of the requests for information, advice, and services that they direct to ICES.

The overhead percentage is calculated as the ratio between the total overhead costs and the total direct salary costs. Included in the overhead costs are the following items:

- a) capital cost of computing and other capital equipment;
- b) central financial and personnel administration;
- c) computer system support and maintenance
- d) a fair share of the printing costs;
- e) rent of premises;
- f) office expenses including:
 - electricity
 - heating
 - watchmen, safety and security
 - cleaning costs
 - maintenance costs (e.g. photocopier)
 - consumables
 - postage
 - telephone and fax
 - office equipment
 - insurance
 - general office maintenance (e.g. painting)
 - staff education and training

RESOLUTIONS ADOPTED AT THE 1999 ANNUAL SCIENCE CONFERENCE (87TH STATUTORY MEETING)

Explanatory Note

There has been a change in the layout/coding for the Council Resolutions arising from the 1999 Annual Science Conference compared to the previous years.

In the 1999 Council Resolutions the changes have occurred to *inter alia* achieve the following:

- a) Provide the ICES Community with Council Resolutions in an electronic form as early as possible in order to allow relevant persons to speedily prepare for their tasks. However, it should be emphasised that technical editing by the Secretariat of style and overall format is still on-going, and finalisation of several details (e.g. Chairs, venues, and dates) is needed;
- b) The Meeting (i.e. Category 2) Resolutions have been ordered chronologically under each Parent Committee to enable an easy overview of the timing of the meetings during the year, and a closer match with Doc. C.M.2000/Gen:6 (<http://www.ices.dk/reports/general/2000/2000gen6.htm>);
- c) As Symposia are also Meeting Resolutions, they have been included under the proposing Parent Committee rather than being kept separately;
- d) The new coding system is constructed as follows: the first digit refers to the Category of the Resolutions (i.e. Category 1 = Resolutions involving publications, Category 2 = Resolutions involving meetings of Committees, Groups and Workshops, Category 3 = Resolutions with Other Organisations, Category 4 = Other Resolutions requiring actions), the following letters identify the Parent Committee (A = Consultative, B = Fisheries Technology, C = Oceanography, D = Resource Management, E = Marine Habitat, F = Mariculture, G = Living Resources, H = Baltic, ACFM = Advisory Committee on Fishery Management, and ACME = Advisory Committee on the Marine Environment), and the final two digits indicate the chronological number of the particular Council Resolution relative to the specific Parent Committee.

The cost-coding for funding of activities is indicated as follows:

R = Recurrent; N = New Activity, C = Core Science Programme (funded by national contributions to ICES);
A = Advisory Function (funded by partner Commissions); M = Mixed; { } = Relative divisions of funding.

Implementation of NM and NA activities are dependent on funding agreements with partner Commissions.

RESOLUTIONS INVOLVING PUBLICATIONS

C.Res.1999/

1ACME01 The **Guidelines on Quality Assurance of Chemical Measurements in the Baltic Sea**, as reviewed by SGQAC and edited by Dr M. Krysell (Sweden), will be published in the *ICES Techniques in Marine Environmental Sciences* series. The estimated number of pages is 100.

NC

1C01 The **Report of the Workshop on Gadoid Stocks in the North Sea during the 1960s and 1970s, the Fourth Backward-Facing Workshop** [Doc. C.M.1999/C:15] edited by Dr M. Heath (UK), as reviewed and approved by the Chair of the Oceanography Committee, will be published in the *ICES Cooperative Research Report* series. The estimated number of pages is 50.

1C02 The document **A Standard Procedure for the Measurement of Chlorophyll *a* in Seawater Samples to be used in the ICES Community** by Dr F. Rey (Norway) and the document **Overview and Recommendations for the Determination of Chlorophyll *a* by Spectroscopic Methods** by Dr A. Aminot (France) as reviewed and approved by the Chairs of the Oceanography and the Marine Habitat Committees, will be published in the *ICES Techniques in Marine Environmental Sciences* series. The estimated number of pages is 20.

1E01 The document **Radioimmunoassay (RIA) and enzyme-linked immunosorbent assay (ELISA) techniques for the measurement of marine fish vitellogenins** by Dr J. Scott (UK)

and Dr K. Hylland (Norway), as reviewed and accepted by WGBEC, will be published in the *ICES Techniques in Marine Environmental Sciences* series. The estimated number of pages is 25.

NC

1E02 The report on the **Effects of Extraction of Marine Sediments on the Marine Ecosystem**, edited by Dr J. Side (UK), as reviewed and approved by the Chair of the Marine Habitat Committee, will be published in the *ICES Cooperative Research Report* series. The estimated number of pages is 85.

NC

RESOLUTIONS INVOLVING MEETINGS OF COMMITTEES, GROUPS AND WORKSHOPS CONSULTATIVE COMMITTEE (A)

C.Res.1999/

2A01 The **Consultative Committee [CONC]** (Chair: Dr R.M. Cook, UK) will meet at ICES Headquarters from 13–15 June 2000 at Council expense to:

- a) prepare a draft programme of sessions for the 2000 Annual Science Conference (Bruges, Belgium), taking into account the titles and abstracts of scientific papers/posters received in response to the January 2000 Call for Papers, for presentation in Open Sessions, Theme Sessions and the Mini-Symposium;

- b) review draft recommendations from the Science and Advisory Committees to be approved at the 2000 Annual Science Conference;

- c) review progress in the development of the draft ICES Five-Year Strategic Plan;

- d) review publication media for Council Meeting documents.

RC

ADVISORY COMMITTEE ON FISHERY MANAGEMENT (ACFM)

C.Res.1999/

2ACFM01 The **Advisory Committee on Fishery Management [ACFM]** (Chair: T. Jakobsen, Norway) will meet:

- A) in plenary at ICES Headquarters from 29 May–1 June 2000 and from 30 October–2 November 2000 at Council expense to:

- a) prepare the advice and information on fisheries, living resources and their exploitation and the interaction by fisheries and the ecosystem requested by the Fishery Commissions (NEAFC, IBSC and NASCO), by the EC, and by Member Countries of ICES, and 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);

- c) keep under review the form of advice and methods used in order to improve the quality of the advice for fishery management;

- d) establish and review working procedures for ACFM and propose Terms of Reference for ACFM, its subsidiary groups and other relevant Council groups;

- e) review reports of ICES groups as defined in Council Resolutions;

- f) provide advice and guidance to the Science Committees on future scientific needs and priorities related to the work of ACFM.

With the approval of the General Secretary, the Chair of ACFM may invite relevant experts to attend relevant parts of the meetings at Council expense.

- B) by correspondence in the period 25 April–5 May to:

- a) prepare advice on Atlantic Salmon for NASCO;
- b) prepare advice on Baltic Cod for IBSFC pertaining to a possible revision of the IBSFC Cod TAC for 2000.

The proposed procedure involves the following steps:

- a) WGNAS and WGBFAS produce their reports as usual.

Concerning the formulation of the draft advice for NASCO:

- b) the Secretariat will make the relevant sections of the report available on the ICES homepage as soon as possible after the meeting (1–2 days). Access to this report will be restricted to members of ACFM and the WG;
- c) the NASCO advice will be drafted at a 2-day meeting to be held in Dublin shortly before Easter (17–18 April) and will involve the ACFM Chair, one reviewer (J. Rice, Canada) and the Chair of WGNAS (N. O'Maoileidigh, Ireland). The meeting is open to other ACFM members at national expense. This group will draft the advice to be circulated to ACFM for comments and approval;
- d) ACFM members shall comment on the draft advice before the end of Wednesday 26 April. If there are any substantive comments to the first draft then there is time for a second round with ACFM. The ACFM Chair will, if required, conduct these consultations by telephone;
- e) the advice will be released on Monday 8 May;

Concerning the formulation of the draft advice for IBSFC:

- f) the Secretariat will make the assessment input data for the Baltic Cod available on the ICES homepage. The relevant sections of the BFASWG report will be made available as soon as possible after the meeting (1–2 days). Access to these data and report will be restricted to members of ACFM and the WG;
- g) the IBSFC advice on the catch forecast for 2000 will be drafted at a meeting in Copenhagen. The Group will consist of

ACFM Chair, WGBFAS Chair (T. Raid, Estonia) and 2 reviewers (W. Vanhee, Belgium and S. Reeves, UK). The meeting will be open to other ACFM members at national expense. The Group will meet for 2 days, 26–27 April, and draft the sections of the ACFM report. The draft will be circulated by e-mail to ACFM for comments and approval. In order to provide an updated catch forecast the entire assessment will be reviewed, and the cod assessments will therefore not be on the subgroup agenda at the full May ACFM meeting;

- h) ACFM members shall before the end of Wednesday 3 May comment on the draft advice;
 - i) the ACFM Chair will include these comments in the final advice, consult by telephone as required and will make the final draft available to ACFM Friday morning;
 - j) the advice will be released Monday 8 May.
- C) in Sub-Groups at ICES Headquarters from 25–27 May 2000 and 24–28 October 2000 to:
- a) review the reports of the Assessment Working Groups and, if necessary, update the assessments and projections;
 - b) review first drafts of the ACFM report produced by Assessment Working Groups;
 - c) propose Terms of Reference for the Assessment Working Groups.

An ACFM member will chair each Sub-Group, and participation will be open to the Chairs of the Assessment Working Groups whose reports are to be reviewed, ACFM members and alternates, and observers at ACFM. Attendance at Council expense will be limited to the Chair and *ex officio* members of ACFM, to the Chairs of the Assessment Working Groups, and to one national member or alternate at one Sub-Group in May 2000, and one Sub-Group in October 2000.

Sub-Group I will meet from 25–27 May 2000 to review the reports of the:

HAWG, WGBAST, WGBFAS (note that the Baltic cod assessments will have been reviewed as part of B) above).

Sub-Group II will meet from 25–27 May 2000 to review the reports of the:

NWWG, SGDEEP, WGNPBW.

Sub-Group III will meet from 25–28 October 2000 to review the reports of the:

WGNSSK, WGPAND, WGNSDS, WGHARP.

Sub-Group IV will meet from 25–28 October 2000 to review the reports of the:

WGMHSA, WGSSDS, AFWG.

D) for Consultations to be held at national expense on 25 September 2000 and at other times as required during the 2000 Annual Science Conference to:

- a) finalise Terms of Reference, dates and venues for meetings of groups reporting to ACFM in 2001;
- b) conduct other business related to the functioning of ACFM.

The Consultations will be open to Delegates, Chair of the Consultative Committee, ACFM members and their alternates, Chairs of groups reporting to ACFM or their designates, observers to ACFM and other experts at the invitation of the Chair of ACFM.

Dealing with the NASCO and the IBSFC request on cod catch projection for 2000

NASCO wants to have the ICES advice available at least 30 days before the annual meeting in the second week of June, i.e. the advice must be ready around 5 May in 2000. NASCO has on several occasions made ICES aware of the importance NASCO attaches to receiving the advice more timely than hitherto around 25 May.

IBSFC has asked ICES to revisit the cod yield projection for 2000 in the light of the catch data for 1999 and survey results in 1999 and in the first quarter of 2000. IBSFC wants this advice as early as possible, but not later than 10 May. In reply to a request from IBSFC in 1999 ICES answered that it is in principle possible to provide such updates.

The next deadlines for fisheries advice that ICES shall meet are advice to Iceland and to the Faroe Islands that shall be available by mid-June. IBSFC advice other than the cod revision is required before 1 July.

NWWG and WGNPBW meet in the period 25 April to 4 May, and these reports can only be

available properly vetted in the week 15–19 May. WGBFAS (10–19 April) and WGBAST (29 March to 7 April) meet before Easter. WGNAS meets before Easter 29 March to 8 April.

In order to meet the deadlines as required, the advice for NASCO and the IBSFC revision will need to be formulated around Easter, while advice on other issues can be dealt with in late May or early June. To have two meetings in the spring is outside the present budget and puts unreasonable burden on the scientists involved. The first meeting would be short and cost almost as much as a full meeting (travel costs are fixed costs in this context).

Serious consideration must be given to meeting the necessary quality standards that maintains the usual review of the working group reports. It is proposed to deal with the NASCO and IBSFC cod revision by a special procedure that does not involve a full ACFM meeting. With the WGNAS report fully dealt with and the Baltic cod stocks reviewed by an intersessional procedure the length of the ACFM subgroup meetings can be shortened by 1 day compared to 1999 and previous meetings. The dates would be as proposed, 25 May to 1 June. Savings made by this shortening of the ACFM meeting are used when formulating the NASCO and IBSFC advice.

The other advice (the rest of the Baltic fish stocks, herring, blue whiting, capelin, Iceland stocks, and Faroe Island stocks will be dealt with at a full meeting in late May–early June (25 May to 1 June).

The procedure is proposed as an interim measure, the experiences with this procedure shall be evaluated by ACFM in October–November 2000 when the response from the two Commissions involved can be taken into account.

ACFM members must plan to consider the issues of Atlantic salmon and Baltic cod TAC revisiting in the period 10 April–5 May.

RM {ICES 4%, NEAFC 35%, IBSFC 7%, NASCO 8%, EC DGXIV 46%}

2ACFM02 The Study Group on the Biology and Assessment of Deep-Sea Fisheries Resources [SGDEEP] (Chair: Dr J.D.M. Gordon, UK) will meet at ICES Headquarters from 4–10 February 2000 to:

- a) compile the available data on landings of deep-water species, including blue ling, ling, and tusk, by ICES Sub-area 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, sharks, 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) consider the possibilities of carrying out assessments for deep-sea resources and developing advice consistent with the precautionary approach.
- f) investigate what further information is needed to provide a basis for comprehensive management measures for appropriate stock units (which might include conventional catch, effort and gear restrictions) to conserve deep water species.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from NEAFC and EC XIV Fisheries.

SGDEEP will report to ACFM at its May 2000 meeting.

RA {NEAFC 80%, EC DGXIV 20%}

2ACFM03 The Study Group on Baltic Herring and Sprat Maturity [SGBHSM] (Chair: H. Müller, Germany) will meet at ICES Headquarters from 15–17 February 2000 (cancelled) to:

- a) compile the available data on Baltic herring and sprat maturity ogives by age and length on Sub-division basis;
- b) investigate the possible changes in maturity ogives during the recent decades.

The above Terms of Reference are set up to provide ACFM with the information required to

respond to requests for advice/information from NEAFC, IBSFC and EC DG XIV Fisheries.

SGBHSM will report to ACFM at its May 2000 meeting, WGBFAS and to the Baltic Committee at the Annual Science Conference in 2000.

NA {NEAFC 5%, IBSFC 80%, EC DGXIV 15%}

2ACFM04 The Herring Assessment Working Group for the Area South of 62°N [HAWG] (Chair: E.J. Simmonds, UK) will meet at ICES Headquarters from 14–23 March 2000 to:

- a) assess the status of and provide catch options (by fleet where possible) for 2001 for the North Sea autumn-spawning herring stock in Division IIIa, Sub-area IV, and Division VIIId (separately, if possible, for Divisions IVc and VIId), for the herring stocks in Division VIa and Sub-area VII, and the stock of spring-spawning herring in Division IIIa and Sub-divisions 22–24 (Western Baltic); in the case of North Sea autumn-spawning herring the forecasts 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 mill tonnes by spawning time in 2001;
- b) assess the status of and provide catch options for 2001 for the sprat stocks in Sub-area IV and Divisions IIIa and VIIId,e;
- c) identify major deficiencies in the assessments.

The above Terms of Reference are set up to provide ACFM with the information required for responding to requests for advice/information from NEAFC, IBSFC and DGXIV Fisheries.

HAWG will report to ACFM at its May 2000 Meeting.

RA {NEAFC 24%, IBSFC 6%, EC DGXIV 70%}

2ACFM05 A Study Group on Discard and By-Catch Information [SGDBI] (Chair: Dr J. Cotter, UK) will be established and will meet at ICES Headquarters from 20–22 March 2000 to:

- a) prepare an inventory of all projects on collection of discard and by-catch information in the ICES area, including documentation of the data sets, fleets and

fisheries covered, and site where the data are held, including contact individual;

- b) review pertinent information and provide guidance on protocols how to raise samples in the data sets to reflect discards and/or by-catches of the corresponding fleets or fisheries;
- c) consider the report of SGDIB and update information as required.

The above Terms of Reference are set up in order to improve the quality of the fish stock assessments on which the advice to the fisheries regulatory commissions is based.

The Study Group will report to ACFM before its May meeting 2000 and to the Resource Management Committee at the 2000 Annual Science Conference.

RA {ICES 4%, NEAFC 35%, IBSFC 15%, EC DGXIV 46 %}

2ACFM06 The Baltic Salmon and Trout Assessment Working Group [WGBAST] (Chair: T. Pakarinen, Finland) will meet in Gdynia, Poland from 29 March to 7 April 2000 to:

- a) describe the salmon fisheries in the Baltic in 1999;
- b) assess the status of the wild and reared stocks of Baltic salmon according to IBSFC management areas¹ and provide estimates of mortality caused by M74;
- c) review and evaluate the effectiveness of existing international and national management measures for 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;

¹ At present the IBSFC TAC management areas for salmon are:

- The Main Basin and the Gulf of Bothnia (Sub-divisions 22–31)
- The Gulf of Finland (Sub-division 32)

d) propose the necessary management measures and catches in number for Baltic salmon in 2001 for the Main Basin and the Gulf of Bothnia and for the Gulf of Finland that are consistent with IBSFC management objectives described in c);

e) identify major deficiencies in the assessments;

f) provide any new information on the state of sea trout stocks in the Baltic.

The above Terms of Reference are set up to provide ACFM with the information required for responding to requests for advice/information from IBSFC and HELCOM.

WGBAST will report to ACFM at its May 2000 meeting.

RA {IBSFC 90%, HELCOM 10%}

2ACFM07 The Working Group on North Atlantic Salmon [WGNAS] (Chair: Dr N. O'Maoileidigh, Ireland) will meet at ICES Headquarters from 3–13 April 2000 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 1999,
 - ii. describe and evaluate methods currently used for estimating unreported catch by country and advise on improvements to these methods where appropriate,
 - iii. advise on the data requirements and methods for the scientific evaluation of bird and marine mammal predation on Atlantic salmon,
 - iv. report on significant developments which might assist NASCO with the management of salmon stocks,
 - v. provide compilation of egg collections and juvenile releases and of tag releases, by country, in 1999,
 - vi. provide estimates of escapement from marine salmon farms by country and assess the reliability and comparability of estimates of salmon farm escapees in fisheries and stocks;

b) with respect to Atlantic salmon in the North-East Atlantic Commission area:

- i. describe the events of the 1999 fisheries and the status of the stocks,
- ii. evaluate the effects on stocks and homewater fisheries of significant management measures introduced since 1991,
- iii. further develop the age-specific stock conservation limits where possible based upon individual river stocks,
- iv. further develop methods to estimate the expected abundance of salmon in the Commission area,
- v. determine the most appropriate stock groupings for the provision of catch options or alternative management advice,
- vi. provide catch options or alternative management advice with an assessment of risks relative to the objective of exceeding stock conservation limits,
- vii. identify relevant data deficiencies, monitoring needs and research requirements;

c) with respect to Atlantic salmon in the North American Commission area:

- i. describe the events of the 1999 fisheries and the status of the stocks,
- ii. update the evaluation of the effects on US and Canadian stocks and fisheries of management measures implemented after 1991 in the Canadian commercial salmon fisheries, with special emphasis on the Newfoundland stocks,
- 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,
- v. identify relevant data deficiencies, monitoring needs and research requirements;

d) with respect to Atlantic salmon in the West Greenland Commission area:

- i. describe the events of the 1999 fisheries and the status of the stocks,
- ii. critically evaluate, and provide sensitivity analyses of, the effects on European and North American stocks of the Greenlandic quota management measures and compensation arrangements since 1993,
- iii. provide estimates of uncertainty and evaluate apparent recent changes in the proportion of continent of origin detected in the West Greenland fishery catches,
- iv. provide a detailed explanation and critical examination of any changes to the model used to provide catch advice and of the impacts of any changes to the model on the calculated quota,
- v. provide age-specific stock conservation limits for all stocks occurring in the Commission area based on best available information,
- vi. provide catch options or alternative management advice with an assessment of risks relative to the objective of exceeding stock conservation limits,
- vii. identify relevant data deficiencies, monitoring needs and research requirements.

The above Terms of Reference are set up to provide ACFM with the information required for responding to requests for advice/information from NASCO.

WGNAS will report to ACFM at its May 2000 meeting.

RA {NASCO 100 %}

2ACFM08 The Baltic Fisheries Assessment Working Group [WGBFAS] (Chair: Dr T. Raid, Estonia) will meet at ICES Headquarters from 10-19 April 2000 to:

- a) assess the status of cod, herring and sprat stocks in the Baltic by appropriate areas and stock components including the Gulf of Riga herring as a separate stock component, and taking into account the biological interaction between species. For herring, separate assessment of the Main Basin and Gulf of

Finland herring (Sub-divisions 25–29 and 32, excluding the Gulf of Riga herring) should be included. The assessments of cod stocks should take into account estimates of the discards;

- b) assess the status and provide catch options for herring, cod and sprat for year 2001, that are consistent with the precautionary reference points identified by ACFM and for cod adopted by IBSFC, according to IBSFC management areas. Catch option for the Main Basin (Sub-divisions 29–29S, excluding the Gulf of Riga) and Gulf of Riga herring should preferably be shown separately;
- c) assess the status and provide catch options for year 2001 for the cod stock in the Kattegat and sole stock in Division IIIa;
- d) provide any new information on the state of flatfish stocks in the Baltic and evaluate the appropriateness of present management measures in respect to the precautionary approach;
- e) evaluate the effect on yields and SSB of introducing minimum landing sizes for herring and sprat as well as area and seasonal restrictions;
- f) evaluate the effects on biological reference points of possible changes in maturity ogives of Baltic herring and sprat;
- g) update information on commercial fish species in the Baltic Sea covering the years 1994–1998 as a contribution to a chapter on 'Marine fish, migratory and fresh water species in the Baltic Sea area' for the HELCOM Fourth Periodic Assessment of the State of the Baltic Environment 1994–1998;
- h) for sprat separate estimates of precautionary reference points, including the effect of species interactions, i.e. Z_{lim} and Z_{pa} , should be provided;
- i) evaluate the potential improvement in the gear selectivity in the directed cod fisheries as concluded by the BACOMA project and estimate effects of changes in the exploitation pattern on the cod stocks and the fisheries;
- j) identify major deficiencies in the assessments.

The above Terms of Reference are set up to provide ACFM with the information required for responding to requests for advice/information from NEAFC, IBSFC, EC DGXIV Fisheries, and HELCOM[2000/3].

WGBFAS will report to ACFM at its May 2000 meeting.

RA {NEAFC 3%, IBSFC 77%, EC DGXIV 10%, HELCOM 10%}

2ACFM09 The **North-Western Working Group** [NWWG] (Chair: J. Boje, Denmark) will meet at ICES Headquarters from 26 April to 4 May 2000 to:

- a) assess the status of and provide catch options for 2001 for the stocks of oceanic redfish in Sub-areas V, XII and XIV, Greenland halibut in Sub-areas V and XIV; cod in Sub-area XIV, NAFO Sub-area 1, and Divisions Va and Vb; saithe in Divisions Va; and Vb and haddock in Divisions Va and Vb;
- b) for cod, haddock and saithe in Division Vb, where an effort control management system is in effect, estimate the probability profile of fishing mortalities which would be generated under the current effort control scheme and provide effort options which have a high probability (> 80%) that the realised fishing mortalities in 2001 which would correspond to the fishing mortality identified as being within safe biological limits;
- c) update survey and fishery information on the stocks of redfish in Sub-areas V, VI, XII and XIV; In particular, update information on the development of the pelagic fishery for redfish with respect of 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 Sub-areas V and XIV, and comment on the possible relationship between 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) evaluate the stock development and associated risks for the different stock components if managing these under a common TAC;

h) identify major deficiencies in the assessment.

The above Terms of Reference are set up to provide ACFM with the information required for responding to requests for advice/information from NEAFC.

NWWG will report to ACFM at its May 2000 meeting.

RA {NEAFC 100%}

2ACFM10 The **Northern Pelagic and Blue Whiting Fisheries Working Group** [WGNPBW] (Chair: Dr J. Carscadden, Canada) will meet at ICES Headquarters from 26 April to 4 May 2000 to:

a) assess the status of and provide catch options for 2001 for the Norwegian spring-spawning herring stock;

b) assess the status of and provide catch options for the 2000–2001 season for the Icelandic summer-spawning herring stocks;

c) assess the status of capelin in Sub-areas V and XIV and provide catch options for the summer/autumn 2000 and winter 2001 seasons;

d) assess the status of and provide catch options for capelin in Sub-areas I and II (excluding Division IIa west of 5°W) in 2001;

e) assess the status of and provide catch options for 2001 and 2002 for the blue whiting stock;

f) identify major deficiencies in the assessments.

The above Terms of Reference are set up to provide ACFM with the information required for responding to requests for advice/information from NEAFC and EC

DGXIV Fisheries. (Further items may be added on receipt of the requests for advice).

WGNPBW will report to ACFM at its May 2000 meeting.

RA {NEAFC 95%, EC DGXIV 5%}

2ACFM11 The **Working Group on the Assessment of Northern Shelf Demersal Stocks** [WGNSDS] (Chair: S. Reeves, UK) will meet at ICES Headquarters from 13–22 June 2000 to:

a) assess the status of and provide catch options for 2001 for the stocks of cod, haddock, whiting, anglerfish, and megrim in Sub-area VI, and cod, haddock, whiting, plaice, and sole in Division VIIa, taking into account technical interactions in mixed species fisheries;

b) assess the status of anglerfish stocks in Sub-area IV and Divisions IIIa and VIa and provide catch options for each management area. The assessment should be based on the combined areas and be compared with assessments done on the individual units;

c) assess the stock of haddock in Divisions VIIb-k and resolve ageing problems with this stock;

d) identify major deficiencies in the assessments.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from NEAFC and EC DGXIV Fisheries.

WGNSDS will report to ACFM at its October/November 2000 meeting.

RA {NEAFC 31%, EC DGXIV 69%}

2ACFM12 The **Arctic Fisheries Working Group** [AFWG] (Chair: Dr R. Bowering, Canada) will meet at ICES Headquarters from 22 August to 31 August 2000 to:

a) assess the status of and provide catch options for the year 2001 for the stocks of cod, haddock, saithe, Greenland halibut, and redfish in Sub-areas 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, fixing F at a level that maintains SSB

above 500,000 t (B_{pa}) and reducing the fishing mortality to $F = 0.46$;

- c) identify major deficiencies in the assessments.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from NEAFC and DGXIV Fisheries.

AFWG will report to ACFM at its October/November 2000 meeting.

RA {NEAFC 85%, EC DGXIV 15%}

2ACFM13 The **EIFAC/ICES Working Group on Eels** [WGEEL] (Chair: Dr L. Marshall, Canada) will meet in St. Andrews, NB, Canada from 28 August to 1 September in 2000 to:

- a) assess trends in recruitment and their causes, in fisheries and the effects on stock and yield of the American eel;
- b) investigate the impact of fisheries on American eel in selected systems, especially with regard to the consequences for spawner escapement;
- c) investigate the options for developing escapement targets for American eel for selected systems;
- d) define relevant units where these targets would apply;
- e) suggest type of management actions that may lead to the required escapement of American eel;
- f) advise on international coordination of research on American eel in the future.

Some of the above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice from the governments of Canada and USA.

WGEEL will report to ACFM at its October/November 2000 meeting.

RM {ICES 100%}

2ACFM14 The ***Pandalus* Assessment Working Group** [WGPAND] (Chair B. Sjöstrand, Sweden) will meet in Lysekil, Sweden from 4–7 September 2000 to:

- a) assess the status of the stocks of *Pandalus borealis* in the North Sea, Skagerrak and Kattegat and provide catch options for 2001;
- b) review progress in determining precautionary reference points;
- c) determine the predation mortality of *Pandalus* stocks;
- d) continue the work on determining the criteria for ageing.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from NEAFC and EC DGXIV Fisheries.

WGPAND will report to ACFM at its October/November 2000 meeting and to the Living Resources Committee at the 2000 Annual Science Conference.

RA {NEAFC 25%, EC DGXIV 75%}

2ACFM15 The **Working Group on the Assessment of Southern Shelf Demersal Stocks** [WGSSDS] (Chair: A. Biseau, France) will meet at ICES Headquarters from 4–13 September 2000 to:

- a) assess the status of and provide catch options for 2001 for stocks of cod, whiting, plaice, and sole in Divisions VIIe-k, sole in Sub-area VIII, hake in Sub-areas III, IV, VI, VII, VIII, and IX, anglerfish and megrim in Sub-areas VII, VIII, and IX, taking into account technical interactions in mixed species fisheries;
- b) identify major deficiencies in the assessments.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from NEAFC and EC DGXIV Fisheries.

WGSSDS will report to ACFM at its October/November 2000 meeting.

RA {NEAFC 25%, EC DGXIV 75%}

2ACFM16 The **Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy** [WGMHSA] (Chair: Dr D. Skagen, Norway) will meet at ICES Headquarters from 14–23 September 2000 to:

- a) assess the status of and provide catch options for 2001 for the stocks of mackerel

and horse mackerel (defining stocks as appropriate);

- b) assess the status of and provide catch options for 2001 for the sardine stock in Divisions VIIIc and IXa and separately for Divisions VIIIc and IXa;
- c) assess the status of and provide catch options for 2001 for the anchovy stocks in Sub-area VIII and Division IXa;
- d) review progress in determining precautionary reference points;
- e) for sardine update information on the stock identification, composition, distribution and migration in relation to climatic effects;
- f) identify major deficiencies in the assessments.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from NEAFC and EC DGXIV Fisheries.

WGMHSA will report to ACFM at its October/November 2000 meeting and to the Living Resources Committee at the 2000 Annual Science Conference.

RA {NEAFC 25%, EC DGXIV 75%}

2ACFM17 The Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak [WGNSSK] (Chair: F. van Beek, Netherlands) will meet at ICES Headquarters from 3–12 October 2000 to:

- a) assess the status of and provide catch options for 2001 for the following stocks:
 - 1) cod in Sub-area IV, Division IIIaN (Skagerrak), and Division VIIId,
 - 2) haddock in Sub-area IV and Division IIIa,
 - 3) whiting and plaice in Sub-area IV, Division IIIa, and Division VIIId,
 - 4) sole in Sub-area IV and Division VIIId,
 - 5) saithe in Sub-area IV, Sub-area VIa and Division IIIa.

The assessment should take into account the technical interactions among the stocks due to the mixed-species fisheries and the new management measures coming into force in 2000;

- b) assess the status of and provide catch forecasts for 2001 for Norway pout and sandeel stocks in Sub-area IV and Divisions

IIIa and VIa, and identify any needs for management measures (including TACs) required to safeguard the stocks;

- c) quantify the species and size composition of by-catches taken in the fisheries for Norway pout and sandeel in the North Sea and adjacent waters, and make this information available to WGECO;
- d) provide the data required to carry out multispecies assessments (quarterly catches and mean weights at age in the catch and stock for 1998 for all species in the multispecies model that are assessed by this Working Group);
- e) identify major deficiencies in the assessments.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from NEAFC and EC DGXIV Fisheries.

WGNSSK will report to ACFM at its October/November 2000 meeting.

RA {NEAFC 25%, EC DGXIV 75%}

2ACFM18 The Joint ICES/NAFO Working Group on Harp and Hooded Seals [WGHARP] (Chair: Prof. T. Haug, Norway) will meet at ICES Headquarters from 2–6 October 2000 to:

- a) complete the assessment of stock size and pup production of harp seals in the White Sea/Barents Sea and of hooded seals in the Greenland Sea;
- b) assess the sustainable yield at present stock sizes for the above two stocks and provide short- and medium-term catch projections for these stocks as well as for Greenland harp seals;
- c) identify B_{lim} , B_{msy} and other relevant biological reference points for Greenland harp seal, Greenland hooded seal, and the White Sea/Barents Sea harp seals;
- d) examine current biological reference points used for harp and hooded seals, and consider the appropriateness of these and other possible reference points (including B_{lim} and B_{msy}) for the stocks of Greenland and Sea harp and hooded seals and White Sea/Barents Sea harp seals;

- e) summarise new information on predation on commercially important fish stocks by marine mammals;
- f) agree on objectives and presented plans for the forthcoming Workshop on Population Modelling of Pinnipeds.

Items c) and d) in above Terms of Reference are set up to provide ACFM with the information

required to respond to requests for advice/information from the Joint Norwegian-Russian Commission.

WGHARP will report at the 2001 Annual Science Conference and to ACFM at its October/November 2000 meeting. Furthermore WGHARP will report to the NAFO Scientific Council at its meeting in May 2001.

RA and RC {ICES 100%}

ADVISORY COMMITTEE ON THE MARINE ENVIRONMENT (ACME)

2ACME01 The Advisory Committee on the Marine Environment [ACME] (Chair: Prof. H.R. Skjoldal, Norway) will meet:

- A) at ICES Headquarters from 26 January to 2 February 2000 at Council expense to:
 - i. conduct a scientific peer review of the OSPAR Quality Status Report (QSR) 2000, according to specifications contained in the 1999 ICES Work Programme from OSPAR,
 - ii. conduct a review of the report on the Status of Fisheries and Related Environment of Northern Seas, prepared at the request of the Nordic Council of Ministers,
 - iii. conduct a review of the IMPACT II report by H.J. Lindeboom and S.J. de Groot for DGXIV of the European Commission.

NA {OSPAR 50%, NCM 33%, EC DGXIV 17%}

- B) at ICES Headquarters from 5–10 June 2000 at Council expense to:
 - i. respond to requests for advice from the Commissions, other regulatory agencies, and Member Countries,
 - ii. conduct other relevant business.

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.

RM {ICES 75%, OSPAR 10%, HELCOM 15%}

- C) for Consultations to be held at national expense on 25 September 2000 and at other times as required during the 2000 Annual Science Conference to:

- i. prepare Terms of Reference, dates and venues for meetings of groups reporting to ACME in 2001,
- ii. conduct other business related to the functioning of ACME.

The Consultations will be open to appointed national experts, Chairs of groups reporting to ACME or their designates, and other experts at the invitation of the Chair of ACME.

NA

2ACME02 The Working Group on Ecosystem Effects of Fishing Activities [WGECO] (Chair: Dr J. Rice, Canada) will meet at ICES Headquarters from 22 November to 1 December 1999 to:

- a) commence a review of the framework in which ICES evaluates and advises on ecosystem effects of fishing. This review would include, *inter alia*, to:
 - i. review the principal models of ecosystem dynamics and develop specific predictions based on each of them for the ecosystem effects of fishing,
 - ii. provide a synthesis of the findings of recent studies on the direct effects of fishing on marine ecosystems and critically assess the possible indirect

influences of fishing on marine ecosystem function with a consideration of current levels of understanding of them,

- iii. formulate, based on i) and ii), suggestions of appropriate areas for the development of measures of the indirect effects of fishing on marine ecosystems;
- b) review information on ecosystem effects of fishing activities in the Baltic Sea, as contained in the 1997 ACME report, and update this material (by April 2000) as a contribution to a chapter on 'Marine fish migratory and freshwater species in the Baltic Sea area' for the HELCOM Fourth Periodic Assessment of the State of the Marine Environment of the Baltic Sea, 1994–1998 [HELCOM 2000/3];
- c) review past information provided by ICES on possible secondary effects caused by dumping fish remnants, in the context of its applicability to the Baltic Sea, and update as necessary (by April 2000) [HELCOM 2000/5];
- d) consider the report 'The effects of different types of fisheries on the North Sea and Irish Sea benthic ecosystems' (Lindeboom and de Groot, eds.) and suggest and justify possible management actions by which the effects of gears discussed in the report on benthic communities could be measurably reduced, without unduly reducing the possibilities of catching commercially important species; consider all possibilities, such as establishing closed areas for bottom gears, reducing the weight of bottom gears, etc. [Request from EC 15–09–98];
- e) begin consideration of the development of integrated management objectives as a basis for an ecosystem approach to management, integrating fisheries and environmental aspects.

WGECO will report to the ACFM intersessionally and to the ACME before its January 2000 meeting and to the Marine Habitat, Living Resources, and Resource Management Committees at the 2000 Annual Science Conference.

RM

ICES 25%, HELCOM 5%, EC DGXIV 70%

2ACME03 The ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea [SGQAB] (Chair: Dr G. Martin, Estonia) will meet at ICES Headquarters from 14–16 February 2000 to:

- a) review the outcome of the 1999 training course in macrozoobenthos taxonomy;
- b) review the outcome of the 1999 phytoplankton training course;
- c) review the new manual for chlorophyll *a* measurements produced by MCWG and WGPE;
- d) review the new manual for primary production measurements produced by F. Colijn and L. Edler;
- e) review the revised HELCOM Phytobenthos Monitoring Guidelines for the Baltic Sea;
- f) use the HELCOM Phytobenthos Monitoring Guidelines in the development of the new ICES Biological Data Reporting Format;
- g) review progress in the work of SGPHYT;
- h) outline criteria for quality control of biological data for the HELCOM Periodic Assessments;
- i) review and agree on final versions of the ICES Biological Data Reporting Format and data entry program.

SGQAB will report to the ACME before its June 2000 meeting and to the Baltic, Marine Habitat, and Oceanography Committees at the 2000 Annual Science Conference.

RA {HELCOM 100%}

2ACME04 The ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea [SGQAC] (Chair: Dr M. Krysell, Sweden) will meet in Berlin, Germany from 14–17 February 2000 to:

- a) finalise technical notes on PAH determinations in sea water and biota;
- b) finalise technical notes on the determination of organochlorine compounds in sea water and sediments;
- c) finalise the technical note on units and conversions;

- d) finalise the technical note on measurement uncertainty;
- e) finalise the revised technical notes on quality assurance related to sampling;
- f) finalise the technical note on the determination of co-factors;
- g) review the results of the Second ICES/HELCOM Workshop on Quality Assurance of Chemical Analytical Procedures for the Baltic Monitoring Programme.

SGQAC will report to the ACME before its June 2000 meeting and to the Baltic, Marine Habitat, and Oceanography Committees at the 2000 Annual Science Conference.

RA {HELCOM 100%}

2ACME05 The ICES/OSPAR Steering Group on Quality Assurance of Biological Measurements Related to Eutrophication Effects [SGQAE] (Chair: Dr H. Rees, UK) will meet at ICES Headquarters from 15–18 February 2000 to:

- a) produce a final draft of OSPAR/ICES QA guidelines for biological measures, for review by the relevant specialist groups;
- b) in joint session with SGQAB, review and agree on final versions of the ICES Biological Data Reporting Format and data entry program produced by the ICES Environmental Data Centre, and the latest draft of the OSPAR/ICES QA guidelines;
- c) consider QA in relation to survey objectives and design, with particular reference to the outcome of discussions in the relevant ICES Working Groups and in other fora;
- d) review progress in the application of JAMP guidelines and associated QA activities, especially the outcome of workshops/intercomparison exercises, by OSPAR Contracting Parties;
- e) further evaluate criteria for judging the acceptability of biological data in international monitoring programmes;
- f) compile a programme of planned biological workshops/intercalibration exercises/ring tests, etc., relevant to ICES/OSPAR activity, covering the years 2000 and 2001;

- g) review the outcome of activities of SGPHYT, and of other comparable efforts in compilation of species lists, with emphasis on QA aspects;
- h) discuss the scientific and QA merits for inclusion of additional parameters (especially zooplankton and primary production) in monitoring the effects of eutrophication, in consultation with the relevant working groups;
- i) review the outcome of an evaluation, by BEWG, of benthos standard operating procedures (SOPs) and make appropriate recommendations, including the possibility of extending the exercise to other biological measures;
- j) follow up results obtained within the BEQUALM project, with the aim of producing recommendations relevant to JAMP guidelines;
- k) review QA aspects of a standard method for chlorophyll *a* determination to be finalised by MCWG and WGPE.

SGQAE will report to the ACME before its June 2000 meeting and to the Marine Habitat and Oceanography Committees at the 2000 Annual Science Conference.

RA {OSPAR 100%}

2ACME06 A Study Group on Estimation of the Annual Amount of Discards and Fish Offal in the Baltic Sea [SGDIB] will be established (Chair: J. Dalskov, Denmark) and will meet in Riga, Latvia from 21–23 February 2000 to:

- a) estimate the magnitude of the annual disposal of fish remnants from sea-going fish-processing units in the Baltic Sea, preferably by ICES Rectangle, but at least by ICES Sub-division;
- b) estimate the annual amount of discards, with their appropriate length composition, by pelagic and demersal species, and by ICES rectangle, if possible, and for as many years as possible;
- c) collate information on the distribution and possible consumption of fish offal and discards by fish in the Baltic Sea, by species and by ICES Sub-Division.

SGDIB will make its report available to BEWG, SGDBI, and WGSE at their meetings in early

2000 for review, and report to the ACME before its meeting in June 2000.

NA {100% HELCOM}

2ACME07 **The Working Group on Introductions and Transfers of Marine Organisms [WGITMO]** (Chair: Prof. J. Carlton, USA) will meet in Tallinn, Estonia, from 27–29 March 2000 to:

- a) continue the assessment of ballast water research and management until the proposed reconvening of the expanded ICES/IOC/IMO Study Group on Ballast and Other Ship Vectors in 2001;
- b) continue discussion on risk assessment techniques;
- c) finalise arrangements for the Theme Session on 'Marine Biological Invasions: Retrospectives for the 20th Century, Prospectives for the 21st Century' to be convened at the ICES Annual Science Conference in Bruges, Belgium, in September 2000;
- d) finalise the 'Directory of Dispersal Vectors' as an *ICES Cooperative Research Report*, including a continued review of aquarium-related transportation of exotic species as well as transfer via aquaculture;
- e) continue work on a standardized format for collating data on non-native species, and the method and fate of introduction;
- f) report on the current status of fish, shellfish, algal, and other introductions in and between Member Countries, through:
 - i. submission of National Reports, to also include information on genetically modified organisms and the use of any biocontrol agents,
 - ii. continuing to review the status of selected current invasions and, in particular, the status of the invasion of the snail *Rapana* in the Atlantic USA and other ICES Member Countries,
 - iii. continuing coordination with the Baltic Marine Biologists (BMB) Working Group and the European Inland Fisheries Advisory Commission (EIFAC), and reviewing the outcomes and future

projects of the EC Concerted Action Plan on Ballast Water.

WGITMO will report to the ACME before its June 2000 meeting and to the Marine Habitat and Mariculture Committees at the 2000 Annual Science Conference.

RC

2ACME08 **The ICES/IOC/IMO Study Group on Ballast Water and Sediments [SGBWS]** will be renamed the **ICES/IOC/IMO Study Group on Ballast and Other Ship Vectors [SGBOSV]** (Chair: Prof. J. Carlton, USA) and will work by correspondence in 2000 to:

- a) catalogue all the different types of ship vectors, including ballast water and sediments;
- b) prepare for a meeting in 2001 to:
 - i. continue the global assessment and review of the status of ballast water biological and ecological research, through the participation of representatives from Member Countries and invited scientists from all major ballast water research groups in the world,
 - ii. continue the evaluation of the development of ballast water control technologies,
 - iii. continue the review of the relationship between ballast water movement and the invasion of exotic marine organisms, including updates on the latest ballast-mediated invasions globally, particularly relative to those species that are now invasive in other regions of the world and that are ballast-transportable—but have not yet arrived—in Member Countries.

SGBOSV will report to the ACME before its June 2000 meeting and to the Mariculture and Marine Habitat Committees at the 2000 Annual Science Conference.

The General Secretary will correspond with the Executive Secretaries of IOC and IMO to ensure their representation in the work of this Study Group.

RC

FISHERIES TECHNOLOGY COMMITTEE

C.Res.1999/

2B01 **The Study Group on Methods for Measuring the Selectivity of Static Gear** [SGMMG] (Chair: A. Carr, USA) will meet in IJmuiden, Netherlands from 8–9 April 2000 to review progress in the preparation of a Manual of Methods for Measuring the Selectivity of Static Gear.

SGMMG will report to the Fisheries Technology Committee at the 2000 Annual Science Conference

RC

2B02 **A Study Group on Mesh Measurements Methodology** [SGMESH] (Chair: R. Fonteyne, Belgium) will be established and will meet in IJmuiden, Netherlands from 8–9 April 2000 to:

- a) advise on improvements and further standardisation of current mesh measurement practices in view of the netting types now in use in ICES Member Countries;
- b) consider whether the current definition of mesh size is still appropriate for scientific and industrial purposes;
- c) compile an inventory of commercially available netting associated with the selectivity process, identifying the fisheries in which they are used;
- d) consider the need to define groups of netting types for which the same measurement conditions (e.g. tension) can be applied;
- e) propose the specification of a suitable mesh measurement methodology and the conditions under which mesh measurements for all fishing gears in ICES areas are made.

SGMESH will report to the Fisheries Technology Committee at the 2000 Annual Science Conference.

NC

2B03 **The Working Group on Fishing Technology and Fish Behaviour** [WGFTFB] (Chair: Dr A. Engås, Norway) will meet in IJmuiden, Netherlands from 10–14 April 2000 to:

- a) review and consider recent research into unaccounted mortality in commercial fisheries;
- b) review ongoing work for reducing unintended effects on the seabed and associated communities of fishing operations and gears, including ghost fishing.

WGFTFB will report to the Fisheries Technology Committee at the 2000 Annual Science Conference.

RC

2B04 **The Working Group on Fisheries Acoustics Science and Technology** [WGFAST] (Chair: Dr F. Gerlotto, France) will meet in IJmuiden, Netherlands from 10–14 April 2000 to:

- a) evaluate the impact of fish avoidance on fisheries acoustic data;
- b) consider the bottom classification methods using acoustic signal applied to survey design and data processing;
- c) review the progress and evolution of the standard data exchange format;
- d) review the proposal of standardisation of acoustical definitions, units and symbols;
- e) discuss and organise experiments with the objective to find and verify new Target Strength (TS) conversion formulas for Baltic herring and sprat.

WGFAST will report to the Fisheries Technology and Baltic Committees at the 2000 Annual Science Conference.

RC

2B05 **A Joint Session of the Working Group on Fishing Technology and Fishing Behaviour** [WGFTFB] and the **Working Group on Fisheries Acoustics Science and Technology** [WGFAST] (Chair: J. Massé, France) will meet in IJmuiden, Netherlands on 12 April 2000 to:

- a) present common interest studies between FAST and FTFB members;
- b) consider as a special topic, tools and studies about visualisation and measurement of behaviour;

- c) make recommendations for further studies on the effects of fish behaviour on direct assessment method.

WGFTFB/WGFAST will report to the Fisheries Technology Committee at the 2000 Annual Science Conference.

RC

OCEANOGRAPHY COMMITTEE (C)

C.Res.1999/

2C01 A Study Group on Incorporation of Process Information into Stock-Recruitment Models [SGPRISM] (Chair: Dr C. O'Brien, UK) will be established and will meet in Lowestoft, UK from 23–26 November 1999 to:

- a) determine the potential use of environmental information in increasing our knowledge (in terms of accuracy) of the underlying stock-recruitment relationship, as it is used in population assessments;
- b) determine how accurate knowledge of the impact of environmental variations on recruitment or survival can be used to constrain moderate term (5–10 year) projections of stock abundance, as they are currently applied in population assessments.

SGPRISM will report to the Oceanography and Resource Management Committees at the 2000 Annual Science Conference.

RC

2C02 The Steering Group on the Global Ocean Observing System [SGGOOS] will be renamed the **ICES/IOC Steering Group on GOOS [SGGOOS]** (Co-Chair: R. Sætre, Norway and IOC representative) and will meet in Southampton, UK from 3–5 May 2000 to:

- a) develop the ICES-GOOS Implementation Plan described in the report of WKGOS (C.M. 1999/C:14), including:
 - (i) development of co-operative arrangements to enhance mutual awareness with IOC and EuroGOOS,
 - (ii) develop an ICES-Ocean Observing System (I-OOS) based on the ICES Ocean Climate Summary and other relevant products and to find ways to produce and tailor products exploiting the results of the ICES Ocean Observing System,

(iii) desirability and possible ways to establish a coordinated and harmonised observation network and design a system for operational oceanography on an appropriate time scale for the North Sea (in co-operation with EuroGOOS),

(iv) develop and oversee the role of the North Sea IBTS quarterly surveys in the Initial Observing System of GOOS, and liaise with and report to GOOS bodies as appropriate;

b) advise and support the Secretariat on GOOS-related matters;

c) define and promote the role of ICES in GOOS, taking into account input from ICES Advisory and Science Committees;

d) identify a programme of workshops to facilitate the implementation of ICES-GOOS and to improve awareness of GOOS in ICES, including special sessions at the ICES Annual Science Conference;

e) identify those IOC-GOOS design panels and committees of relevance to ICES-GOOS with a view to proposing the appropriate ICES representatives at these meetings, with the approval of the ICES Council, and to prepare the briefs for these representatives.

ICES, noting IOC Assembly Resolution 1999/XX-9, will confirm to IOC its co-sponsorship of the Steering Group. ICES should also invite representatives of appropriate regional GOOS bodies, such as EuroGOOS, to participate.

SGGOOS will report to ACME at its May/June 2000 meeting and to all Science Committees at the 2000 Annual Science Conference.

NC

2C03 The Working Group on Recruitment Processes [WGRP] (Chair: Dr P. Pepin, Canada) will meet in Bergen, Norway from 8–10 March 2000 to:

- a) review multidisciplinary projects dealing with recruitment research, with attention to providing a synthesis of the projects and highlighting unresolved issues which deserve future consideration;
- b) synthesise on-going and past studies of the patterns of growth histories and birth date distributions of surviving individuals;
- c) synthesise knowledge concerning the influence of spawning stock characteristics on viable egg production and subsequent larval survival and recruitment with the goal of disaggregating the effects of spawning stock on recruitment from the effects of the environment;
- d) review knowledge of size-dependent mortality, focusing on the modelling and description of patterns of mortality as well as efforts to understanding the possible causes. Efforts should address how widely current knowledge can be applied in the estimation of Spawning Stock Abundance and in the understanding of recruitment variability;
- e) assess the possible importance of multispecies interactions (e.g., competition, predation) during the larval and juvenile stages of fish;
- f) prepare a report of "reference growth curves" for a wide range of species in the ICES area;
- g) review the development of new approaches, developments, 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 or the formation of year-class strength;
- h) consider a synthesis of the 1999 Theme Session "Cod and Haddock Recruitment Processes: Integrating Stock and Environmental Effects" to be prepared by the Sessions Conveners;
- i) review progress of SGPRISM;
- j) consider and, where feasible, develop data products and summaries that can be provided on a routine basis to the ICES community via the ICES website;
- k) examine the 1999 Oceanography Committee Working Group reports and the TORs for 2000 to identify where inter-group input could be provided or required with the view

to formulating key questions requiring inter-disciplinary dialogue during concurrent meetings of the Committee's Working Groups in 2002.

WGRP will report to the Oceanography Committee and the Living Resources Committee at the 2000 Annual Science Conference.

RC

2C04

The **Working Group on Seabird Ecology [WGSE]** (Chair: Dr M. Tasker, UK) will meet in Wilhelmshaven, Germany from 20-23 March 2000 to:

- a) review the sensitivity of seabird populations to changes in life history parameters;
- b) review the extent to which fisheries have altered the composition of seabird communities;
- c) continue to assess food consumption by seabirds in the ICES area;
- d) review the contents of the database on seabird diet composition;
- e) establish the means to develop awareness of the relevance of seabird ecology to ICES science and advice;
- f) collate information on the distribution and possible consumption of fish offal and discards by seabirds in the Baltic Sea, by species and ICES Sub-Division [HELCOM 1999/5: 2000/];
- g) consider, and where feasible, develop data products and summaries that can be provided on a routine basis to the ICES community via the ICES website;
- h) examine the 1999 Oceanography Committee Working Group reports and the Terms of Reference for 2000 to identify where inter-group input could be provided or required, with the view to formulating key questions requiring inter-disciplinary dialogue during concurrent meetings of the Committee's Working Groups in 2002.

WGSE will report to ACME before its June 2000 meeting and to the Oceanography and Marine Habitat Committees at the 2000 Annual Science Conference.

RC

2C05 The **Working Group on Shelf Seas Oceanography** [WGSSO] (Chair: Dr B. Sjöberg, Sweden) will meet in Barcelona, Spain, from 20–25 March 2000 to:

- a) complete the assessment of the relevance and the effectiveness of nutrient monitoring programmes, especially in relation to statistical aspects, such as statistical power, statistical significance and statistical independence;
- b) review current methods and principles for initialisation and validation of numerical models;
- c) finalise the compilation, and assess the value of, available time series from the Skagerrak;
- d) assess current knowledge on the importance of physics in relation to harmful algal blooms as well as possible implications of modelling input on pelagic biological monitoring programmes (with WGHABD);
- e) compare model parameterisations for growth rates, nutrient uptake rates, nutrient limitation, predation rates, re-mineralisation rates and the physics of the turbulent fluxes and stresses (with WGHABD);
- f) review current developments in operational oceanography, especially regional GOOS projects;
- g) elucidate physical transport processes influencing trace metal distributions in estuaries in collaboration with MCWG;
- h) review the use of chemical data in numerical modelling and the possible implications for future work in modelling and in field sampling programmes, including the preparation of a workshop or joint session with the MCWG in 2001;
- i) consider, and where feasible, develop data products and summaries that can be provided on a routine basis to the ICES community via the ICES website;
- j) examine the 1999 Oceanography Committee Working Group reports and the Terms of Reference for 2000 to identify where inter-group input could be provided or required with the view to formulating key questions requiring inter-disciplinary dialogue during concurrent meetings of the Committee's Working Groups in 2002.

WGSSO will report to ACME before its June 2000 meeting and to the Oceanography Committee at the 2000 Annual Science Conference.

RC

2C06 The **ICES/IOC Working Group on Harmful Algal Bloom Dynamics** [WGHABD] (Chair: Dr K. Kononen, Finland) will meet in Barcelona, Spain from 20–24 March 2000 to:

- a) collate and assess national reports, update the mapping of HABs and summarise the information in the harmful algae event database (HAEDAT) on a regional, temporal and species basis;
- b) prepare a retrospective and critical analysis of the work performed by the WGHABD in the course of its existence;
- c) examine the possible ways of analysing historical data and fossil records with the help of an invited specialist;
- d) examine information on the possible implication of benthic species in toxic events and report on induced problems on monitoring procedures;
- e) assess current knowledge on the importance of physics in relation to harmful algal blooms as well as possible implications of modelling input on pelagic biological monitoring programmes (with WGSSO);
- f) compare model parameterisations for growth rates, nutrient uptake rates, nutrient limitation, predation rates, remineralization rates and the physics of the turbulent fluxes and stresses (with WGSSO);
- g) review scenarios of toxic events developments;
- h) report and discuss new findings;
- i) consider the role of ICES in the new international programme GEOHAB;
- j) consider and, where feasible, develop data products and summaries that can be provided on a routine basis to the ICES community via the ICES website;
- k) examine the 1999 Oceanography Committee Working Group reports and the Terms of Reference for 2000 to identify where inter-group input could be provided or required,

with the view to formulating key questions requiring inter-disciplinary dialogue during concurrent meetings of the Committee's Working Groups in 2002.

WGHABD will report to ACME before its June 2000 meeting and to the Oceanography and Marine Habitat Committees at the 2000 Annual Science Conference.

RC

2C07 **The Working Group on Oceanic Hydrography [WGOH]** (Chair: Dr W. Turrell, UK) will meet in Sopot, Poland from 10–13 April 2000 to:

- a) update and review results from Standard Sections and Stations;
- b) consolidate inputs from Member Countries into the 'North Atlantic Climate Summary';
- c) review progress in national and international projects in the North Atlantic such as WOCE, VEINS, CLIVAR/ACSYS, TASC, ESOP2, Trans-Atlantic Section of Currents, and others;
- d) discuss the management of the Nuka Arctica ships-of-opportunity programme and of GOOS;
- e) update and review the surface and sub-surface drifting buoy initiatives;
- f) review North Atlantic climatologies and their availability and usage, and additional data sources for the ICES Annual Ocean Climate Summary;
- g) discuss the early results from the current Research Project on Radioactive Tracers in the Nordic Seas and Baltic Sea;
- h) review present status of the operational use of new oceanographic equipment;
- i) review progress in the planning of the Second Decadal Symposium (C.Res.1997/2.2);
- j) compile a list of oceanographic data sets in danger of being lost and consider means for their rescue;
- k) assess developments in GOOS of relevance to ICES in the wake of the I-GOOS IV and the Agreements meeting, taking into account the work of the Steering Group on GOOS;

- l) consider possible future directions for the Oceanography Committee and the Annual Science Conference with specific regard to the part physical oceanography must play in ICES;

- m) consider, and where feasible, develop data products and summaries that can be provided on a routine basis to the ICES community via the ICES website;

- n) examine the 1999 Oceanography Committee Working Group reports and the Terms of Reference for 2000 to identify where inter-group input could be provided or required with the view to formulating key questions requiring inter-disciplinary dialogue during concurrent meetings of the Committee's Working Groups in 2002.

WGOH will report to ACME before its June 2000 meeting and to the Oceanography and Marine Habitat Committees at the 2000 Annual Science Conference.

RC

2C08 **The Working Group on Marine Data Management [WGMDM]** (Chair: R. Gelfeld, USA) will meet in Hamburg, Germany from 10–13 April 2000 to:

- a) quantitatively assess the last five years data (1995–1999) sent to the ICES Oceanographic Data Centre by each Member Country, identify problems and suggest solutions;
- b) investigate how ICES Member Countries can contribute most effectively to the next phase of the IOC Global Oceanographic Data Archaeology and Rescue (GODAR) project;
- c) critically evaluate the guidelines for data management and exchange developed intersessionally for the following data types: moored current meter data, shipboard and moored ADCP, CTD, XBT/XCTD, sea level, surface underway measurements, nutrients, oxygen and chlorophyll;
- d) report on the comparison of the BODC (JGOFS/OMEX) parameter dictionary with other similar dictionaries in use in ICES Member Countries;
- e) formulate a model of how the Integrated Taxonomic Information System (ITIS) might be expanded internationally;

- f) examine commonly-used oceanographic data formats (e.g. NODC's P3, ICES, NetCDF, BUFR, MEDATLAS), together with the recently developed XML format, with a view to recommending a small number of formats to be used within the ICES community for data exchange;
- g) develop the MDM Web site to form a basis on which to build an Amero-European ICES-wide virtual data system;
- h) promote the value of oceanographic data management within the Oceanography Committee and its working groups;
- i) consider and, where feasible, develop data products and summaries that can be provided on a routine basis to the ICES community via the ICES website;
- j) examine the 1999 Oceanography Committee Working Group reports and Terms of Reference for 2000 to identify where inter-group input could be provided or required, with the view to formulating key questions requiring inter-disciplinary dialogue during concurrent meetings of the Committee's Working Groups in 2002.

WGMDM will report to the Oceanography Committee at the 2000 Annual Science Conference.

RC

2C09 The **Working Group on Zooplankton Ecology** [WGZE] (Chair: Dr L. Valdés, Spain) will meet in Hawaii, USA from 17–19 April 2000 to:

- a) review and compare the zooplankton ecology of the North Atlantic and the North Pacific;
- b) discuss and review the published ICES Zooplankton Methodology Manual with PICES colleagues in relation to methods standardisation between ocean basins;
- c) report on progress with publication of results from the Sea-Going Workshop on Intercomparison of Sampling Gear and Associated Data Products;
- d) consider the development of technology and methodology for zooplankton monitoring in both North Pacific and North Atlantic;
- e) continue to develop, with PICES colleagues, operational uses for monitoring activities

and environmental indices, in collaboration with fisheries and environmental assessment groups;

- f) review plans for a workshop on taxonomy of calanoid copepods;
- g) consider plans for the EU ENRICH proposal to further basin-wide synthesis of datasets collected by TASC, US GLOBEC, and Canadian GLOBEC, and how this activity can contribute to the Theme Session on Zooplankton - Cod Linkages at the 2000 ASC;
- h) prepare for a joint session with WGPE in 2001 on the development of improved understanding of phytoplankton-zooplankton interactions;
- i) consider and, where feasible, develop data products and summaries that can be provided on a routine basis to the ICES community via the ICES website;
- j) examine the 1999 Oceanography Committee Working Group reports and the Terms of Reference for 2000 to identify where inter-group input could be provided or required with the view to formulating key questions requiring inter-disciplinary dialogue during concurrent meetings of the Committee's Working Groups in 2002.

WGZE will report to ACME before its May/June 2000 meeting and to the Oceanography Committee at the 2000 Annual Science Conference.

RC

2C10 The **Working Group on Phytoplankton Ecology** [WGPE] (Chair: Dr D.K. Mills, UK) will from 4–8 April 2000 in Narragansett, Rhode Island, USA to:

- a) identify the facilities, resources and protocols required to conduct a mesocosm experiment on flagellate physiology and behaviour;
- b) prepare for a joint session with WGZE in 2001 on the development of improved understanding of phytoplankton-zooplankton interactions;
- c) assemble a list of long-term timeseries of plankton and associated environmental variables and to discuss the possible

development of an ICES-wide database on these parameters;

- d) develop proposals for a workshop on the role of anthropogenic forcing in planktonic ecosystem change to be held in 2001;
- e) develop criteria for inclusion of species in the phytoplankton checklist and to circulate it for comments;
- f) review the reports of SGQAB/SGQAE;
- g) consider and, where feasible, develop data products and summaries that can be provided on a routine basis to the ICES community via the ICES website;
- h) examine the 1999 Oceanography Committee Working Group reports and the Terms of Reference for 2000 to identify where inter-group input could be provided or required with the view to formulating key questions requiring inter-disciplinary dialogue during concurrent meetings of the Committee's Working Groups in 2002.

WGPE will report to ACME before its June 2000 meeting and to the Oceanography Committee at the 2000 Annual Science Conference.

RC

2C11 The **ICES/GLOBEC Working Group on Cod and Climate Change** [WGCCC](Chair: Dr K. Drinkwater, Canada) will meet in Dartmouth, Nova Scotia, Canada from 11–13 May 2000 to:

- a) review and evaluate work carried out to date on Cod and Climate Change by the workshops (Environmental Data in Stock Assessment, Decadal-Scale Ocean Climate Fluctuations, and Backward-Facing III and IV) and subsequent follow up activities;
- b) produce a short synthesis of the major findings from the programme and prepare a plan for a more complete synthesis of results;
- c) plan and prepare workshops to be held over the next two years on 'Applying Environmental Data in Stock Assessments' (possibly examining the transport of cod larvae between Iceland and West Greenland as a specific example) and on 'Long-Term Climate Change and Prediction';

d) consider and, where feasible, develop data products and summaries that can be provided on a routine basis to the ICES community via the ICES website;

e) examine the 1999 Oceanography Committee Working Group reports and the Terms of Reference for 2000 to identify where inter-group input could be provided or required with the view to formulating key questions requiring inter-disciplinary dialogue during concurrent meetings of the Committee's Working Groups in 2002.

WGCCC will report to the Oceanography and Living Marine Resource Committees at the 2000 ICES Annual Science Conference.

RC

2C12 A Workshop on **The Dynamics of Growth in Cod** [WKDGC] (Co-Chairs: N. Andersen, Denmark, G. Ottersen, Norway, and D. Swain, Canada) will be held in Dartmouth, Nova Scotia, Canada from 8–10 May 2000 to:

- a) develop models of growth in order to improve the quality of stock forecasting;
- b) describe major sources of uncertainty in the prediction of growth rates and advise on further studies to reduce this uncertainty;
- c) assess the contribution of growth rate variability to the observed variability in stock biomass and stock forecasts;
- d) recommend standard methods for comparing growth rates;
- e) develop specific case studies which will be relevant to the advice of ICES.

WKDGC will report to the Oceanography Committee at the 2000 Annual Science Conference, and to ACFM at its November 2000 meeting.

NC

The ICES/GLOBEC Coordinator will approach Assessment WG Chairs to develop Terms of Reference or (e).

2C13 The **Study Group on an ICES/IOC Checklist of Phytoplankton** [SGPHYT] (Chair: Dr L. Edler, Sweden) will work by correspondence in 2000 to:

- a) revise current lists of taxonomic groups of algae;
- b) set up new lists of taxonomic groups of algae;
- c) prepare a clearly formulated criteria for inclusion of a species.

SGPHYT will report to WGPE and to the Oceanography Committee at the 2000 Annual Science Conference.

RC

- 2C14 **The Steering Group for the ICES/GLOBEC North Atlantic Regional Office [SGNARO]**

(Co-Chairs: Dr M. Reeve, USA and Dr M. Sinclair, Canada) will work by correspondence in 2000 and meet as appropriate at the expense of the Regional Office to provide oversight and direction of the ICES/GLOBEC Regional Office.

The Group will comprise the General Secretary, the GLOBEC Coordinator, the Chair of the Oceanography Committee, and a representative from each of the fund-holder countries.

SGNARO will report to the Bureau at its 2000 Mid-Term Meeting and to the Bureau and the Oceanography Committee at the 2000 Annual Science Conference.

RC

RESOURCE MANAGEMENT COMMITTEE (D)

C.Res.1999/

- 2D01 **The Study Group on Market Sampling Methodology [SGMSM]** (Chair: Dr M.A. Pastoors, Netherlands) will meet in Aberdeen, UK from 24–26 January 2000 to:

- a) assess the current methods and levels of sampling of commercial catches for a number of demersal and pelagic stocks (cod, plaice and herring) in the North Sea and adjacent waters;
- b) evaluate the spatial and temporal variability in the available sampling data;
- c) advise on adequate levels of sampling commercial catches for the stocks considered;
- d) propose Terms of Reference for the future work of the Study Group to be considered by RMC. They should take into account the priorities outlined in the ICES strategic plan and in particular the priorities adopted by RMC.

SGMSM will report to ACFM at its May 2000 meeting and to the Resource Management Committee at the 2000 Annual Science Conference.

RC

- 2D02 **A Working Group on Fishery Systems [WGFS]** will be established (Co-Chairs: P. Degnbol, Denmark and Dr J. Sutinen, USA) and

will meet at ICES Headquarters from 13–16 June 2000 to:

- a) develop a framework and methodology for the analysis of fishery system performance;
- b) test and refine this framework and methods using designated case studies;
- c) develop a workplan that within 4 years will lead to published protocols for the analysis of fishery system performance;
- d) explore the applicability of frameworks such as the FAO 'Sustainable Development Reference System' and guidelines for fishery systems within the ICES region, considering its relevance to an ecosystem approach;
- e) propose Terms of Reference for interdisciplinary research which will advance ICES future capability in fishery systems analysis;
- f) propose Terms of Reference for the future work of the Working Group to be considered by the Resource Management Committee. The Terms of Reference should take into account the priorities outlined in the ICES strategic plan and in particular the priorities adopted by the Resource Management Committee.

WGFS will report to the Resource Management Committee at the 2000 Annual Science Conference.

NC

2D03 The **Planning Group on Surveys on Pelagic Fish in the Norwegian Sea** [PGSPFN] (Chair: Dr J.C. Holst, Norway) will meet in Torshavn, Faroes from 16–18 August 2000 to:

- a) consider the migration pattern of the Norwegian spring-spawning herring stock in 2000;
- b) consider major hydrographic and zooplanktonic developments since last year. Consider the significance of these developments to the herring stock;
- c) evaluate the survey transects carried out in 2000 and consider whether changes could be made to further optimise these with regard to the herring migration and the herring-environment interactions;
- d) plan and coordinate the national surveys on the pelagic resources and the environment in the Norwegian Sea in 2001;
- e) plan an internationally coordinated survey on Norwegian spring-spawning herring in June 2001;
- f) propose Terms of Reference for future work.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from NEAFC and EC DGXIV.

PGSPFN will report to the WGNPBW, to the Resource Management Committee at the 2000 Annual Science Conference, and to ACFM before its November 2000 meeting.

RA {NEAFC 75%, EC DGXIV 25%}

2D04 A Workshop on **Synthesis of Surveys on Pelagic Fish in Norwegian Sea and Adjacent Areas** [WKSSPF] (Chair: J.C. Holst, Norway) will be held in Bergen, Norway from 16–20 October 2000 to:

- a) evaluate the results of the surveys in the period 1995–2000;
- b) agree on a common database which includes the collected data on biological samples, hydrographic samples, hydroacoustic data, calibration data etc. For this an architecture (format) for an appropriate database has to be developed well before the start of the proposed workshop. The question of

location (host) and continuous maintenance of the database must be clarified, together with a regulation on the rights for access of the data;

- c) establish procedures for quality check of data;
- d) suggesting standardisation for the sampling procedures, adopt the existing where possible, establish conversion factors where not;
- e) evaluate the need for continuation of the surveys in the short and long term and define the minimum requirement for annual survey coverage;
- f) identify general scientific objectives where data from the coordinates surveys could be used and propose joint investigations based on the data;
- g) propose Terms of Reference for the future work of the Planning Group, taking into account the priorities outlined in the ICES Five-Year Strategic Plan and in particular the priorities adopted by RMC.

WKSSPF will report to the Resource Management Committee at the 2001 Annual Science Conference.

RA {NEAFC 75%, EC DGXIV 25%}

2D05 A Workshop on **International Analysis of Market Sampling and the Evaluation of Raising Procedures and Data-Storage (software)** [WKIMS] (Chair: M.A. Pastoors, Netherlands) will be held in Lowestoft from 28–30 November 2000 to:

- a) how well the total international sampling effort covers the total fishing activity;
- b) how different methods of combining national age compositions and weights at age affects the estimation of the international age compositions and weights at age;
- c) the uncertainty of age compositions and weights at age and the precision of estimated CVs and variances;
- d) how raising procedures can be formalised;
- e) suggest how data-storage of these market sampling data should be organised.

The Workshop will report to ACFM before its May 2001 meeting and to the Resource Management Committee at the 2001 Annual Science Conference.

NC

2D06 **The Study Group to Evaluate the Effects of Multispecies Interactions** [SGEEMI] (Chair: Dr M. Bravington, UK) will meet for 5 days in early December 2000 at a place to be decided to:

a) evaluate the effect of applying single-species reference points from a multispecies point of view, with particular reference to limit and precautionary reference points as presently advocated for the North Sea and Baltic fish stocks;

b) review progress made intersessionally with regard to support studies for aspects to be incorporated in multispecies models;

c) propose Terms of Reference for future work.

Some of the above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from NEAFC and EC DGXIV.

SGEEMI will report to the Resource Management and Living Resources Committees at the 2001 Annual Science Conference and communicate results to WGECO and to ACFM before its May 2001 meeting.

NM {ICES 20%, NEAFC 40%, EC DGXIV 40%}

2D07 **The International Bottom Trawl Survey Working Group** [IBTSWG] (Chair: A. Newton, UK) will work by correspondence in 2000 to:

a) plan for a meeting in Dublin in either March or April 2001;

b) plan for a joint IBTSG-WGFTFB group to make specifications for standard fishing gear for ICES co-ordinated bottom trawl surveys in the western and southern area;

c) plan establishing a western/southern survey database within ICES. Investigate possibilities of extending ICES data base to include western and southern division data;

d) produce a working manual to cover the western and southern division surveys;

e) evaluate comparative fishing trials between France, Ireland and Scotland in the western division;

f) promote further coordination in western and southern divisions;

g) for the North Sea third quarter survey, examine the effects of the vessel re-allocation and the possibility for a better overlap in the timing;

h) encourage further exchange of valid tow positions between all participating institutes;

i) review the exchange of IBTS data with regard to any possible corruption from the 'millennium bug';

j) evaluate the new abundance indices to be produced by ICES;

k) propose Terms of Reference for the future work of the Working Group to be considered by RMC. The TORs should take into account the priorities outlined in the ICES strategic plan and in particular the priorities adopted by RMC.

Some of the above Terms of Reference are set up to provide ACFM with the information required for responding to requests for advice/information from NEAFC and EC DGXIV.

IBTSWG will report to ACFM before its May 2000 meeting and to the Resource Management and Living Resources Committees at the 2000 Annual Science Conference.

RM {ICES 10%, NEAFC 22%, EC DGXIV 68%}

MARINE HABITAT COMMITTEE (E)

C.Res.1999/

2E01 The **Marine Chemistry Working Group** [MCWG] (Chair: Dr B. Pedersen, Denmark) will meet at ICES Headquarters from 28 February to 3 March 2000 to:

A. Chemical Oceanography Subgroup

- a) review progress on the application of high temperature techniques for the determination of total nitrogen in sea water;
- b) review information on experience in the use of automated *in situ* chemical oceanographic systems for the observation of chemical variables;
- c) review a comparison of spectrophotometric and volumetric alternatives for quantification in the Winkler method for the determination of dissolved oxygen in sea water and report on the outcome;
- d) review the use of chemical data in numerical modelling and the possible implications for future work in modelling and in field sampling programmes, including the preparation of a workshop or joint session with the WGSSO in 2001.

B. Organics Subgroup

- a) review the updated list of relevant certified reference materials for organic compounds for use in marine monitoring;
- b) critically evaluate the lists of priority contaminants prepared in relevant regional and international organizations;
- c) review new information on tris(4-chlorophenyl)methanol (TCPM) and tris(4-chlorophenyl)methane (TCPMe) in fish and in marine mammals from eastern Canada, including the results of the TCPM and TCPMe interlaboratory study, second phase;
- d) review information on volatile organic contaminants in biota;
- e) review new information on the analysis of PAH metabolites in bile and critically review the robustness of the methods;
- f) review new information on the use of membrane systems for sampling;

- g) review new information on the monitoring and analysis of toxaphene.

C. Trace Metals Subgroup

- a) critically evaluate the lists of priority contaminants prepared in relevant regional and international organisations;
- b) review, in conjunction with WGSSO, information on estuarine transport of trace metals and report on the outcome of the techniques available and the comparability of their results;
- c) review new information on the use of membrane systems for sampling;
- d) review new information on the use of contaminant concentrations in biological media as environmental indicators to detect trends, including supplementary work to the Icelandic cod study on the relationship between trace element concentrations in cod liver and various co-factors.

D. Plenum

- a) review and endorse the updated list of contaminants which can be monitored on a routine basis;
- b) review information on QA systems used in laboratories involved in marine monitoring and report the outcome;
- c) provide assistance for a proposed HELCOM workshop on background/reference values for concentrations of nutrients and chemical contaminants in the Baltic Sea area [HELCOM 2000/4];
- d) discuss matters referred to from the three subgroups, as necessary.

MCWG will report to the ACME before its June 2000 meeting and to the Marine Habitat and Oceanography Committees at the 2000 Annual Science Conference.

RM {95%ICES, 5%HELCOM}

2E02 The **Working Group on Marine Mammal Habitats** [WGMMHA] (Chair: Dr A. Bjørge, Norway) will meet in Helsinki, Finland from 28 February to 3 March 2000 to:

- a) review progress in studies of marine mammal habitat requirements, including spatial and temporal aspects of habitat use, with emphasis on topics of relevance for marine mammal exposure to contaminants;
- b) evaluate, in a joint session with WGMMPD, the populations of grey seals (*Halichoerus grypus*), harbour seals (*Phoca vitulina*), ringed seals (*Phoca hispida botnica*) and harbour porpoises (*Phocoena phocoena*) in the Baltic Sea, including distribution and migration, effects of contaminants, health status and reproductive capacity [HELCOM 2000/1];
- c) review progress in implementing the research programme on cause-effect relationships between contaminants and population-level effects in seals, and ensure quality control of the research and results in collaboration with other relevant ICES Working Groups, in particular, MCWG and WGBEC;
- d) review invited papers and other available documents on status, recent achievements, and new ideas for progress in techniques and methodology for life history studies, including defining specific projects and evaluating and exploring possibilities for their funding.

WGMMHA will report to the ACME before its June 2000 meeting and to the Marine Habitat Committee at the 2000 Annual Science Conference.

RM {75 % ICES, 25 % HELCOM}

2E03 **The Working Group on Marine Sediments in Relation to Pollution [WGMS]** (Chair: Dr M. Kersten, Germany) will meet at ICES Headquarters from 6–10 March 2000 to:

- a) review and revise Technical Annex 2 of the Sediment Guidelines on Normalization taking into account the results of the EC QUASH project;
- b) complete the report on normalization prepared intersessionally taking into account the results of the EC QUASH project;
- c) review existing information for estimating and validating contaminant fluxes and budgets for sediment-water systems, especially with respect to recent information on the equilibrium partitioning of pollutants between sediment and water;

- d) review the report on the results of the Baseline Study of Contaminants in Baltic Sea sediments prepared by the ICES/HELCOM Workshop on Baltic Sea Sediments in 1999;
- e) review recent information for the Northeast Atlantic area on the use of isotopes or other markers for the tracing of contaminant sources;
- f) review and revise, if appropriate, Technical Annexes on Tributyltin (TBT) and Trace Metal Analysis of the Sediment Guidelines;
- g) report on new information regarding relationships between contaminants in sediments and effects on the benthic organisms in the view of past and possible future joint meetings with WGBEC;
- h) review information and report on post-depositional processes that regulate the redistribution of contaminants (trace metals and organics).

WGMS will report to the ACME before its June 2000 meeting and to the Marine Habitat Committee at the 2000 Annual Science Conference.

RC

2E04 **The Working Group on Biological Effects of Contaminants [WGBEC]** (Chair: Dr P. Matthiessen, UK) will meet in Nantes, France from 27–31 March 2000 to:

- a) consider information on the effects of contaminants in seabirds and discuss this with experts in this field;
- b) hear presentations, in collaboration with WGPDMO, on the effects of contaminants on invertebrate histopathology, and consider whether there is sufficient knowledge on this subject to support a recommendation that invertebrate histopathology could be used for biological effects monitoring in the marine environment;
- c) consider a review on the influence of fluctuating salinity on the biomarker and bioassay responses of organisms to contaminants;
- d) discuss the biological assessment of dredged materials disposed of in the marine environment;

- e) discuss the use of *in situ* bioassays for evaluating the effects of contaminants in the marine environment;
- f) receive a report on the progress of biological effects publications in the *ICES TIMES* series, and on progress with electronic dissemination of these documents;
- g) review progress in the preparation of ICES reporting formats on biological effects data [OSPAR 2000/7];
- h) review new information on the outcome of the EU-MATT programme regarding the toxicity of toxaphene;
- i) prepare detailed plans for a Workshop to Evaluate the Utility of Artificial Intelligence Procedures in the Assessment of Pollution Effects in Flatfish, to be co-sponsored by ICES, together with the North Pacific Marine Science Organization (PICES) and the Society for Environmental Toxicology and Chemistry (SETAC) in Seattle, Washington, USA in March 2001;
- j) discuss and finalise detailed plans for an international Sea-Going Workshop on the Effects of Contaminants in Pelagic Ecosystems to be held for three weeks in spring 2001, to assess the ability of various methods to detect biological effects of contaminants in pelagic ecosystems; this Workshop is intended to be a joint exercise between ICES, national monitoring organisations, and other interested parties.

WGBEC will report to the ACME before its June 2000 meeting and to the Marine Habitat Committee at the 2000 Annual Science Conference.

RM {95 % ICES, 5 % OSPAR}

2E05 The Working Group on Statistical Aspects of Environmental Monitoring [WGSAM] (Chair: Dr S. Uhlig, Germany) will meet in Nantes, France from 27–31 March 2000 to:

- a) continue the development of trend detection methods in order to:
 - i. consider further development and assessment of robust smoother methods and the development of appropriate techniques for revealing outlying data values [OSPAR 2000/2.1],

- ii. consider further development of statistical methods for adjustment of input loads [OSPAR 2000/2.2],
- iii. develop provisions for the use of monthly data in the trend detection methods [OSPAR 2000/2.3];
- b) review and report on results of investigations concerning the characteristics of sampling and analytical variability of biomarkers and biological endpoints, the design of effective sampling schemes relative to specified objectives, and concerning the development of appropriate management tools for integrating and interpreting biological effects;
- c) continue to review statistical methods for assessing and designing monitoring programmes;
- d) fully exploit the Voluntary International Contaminant Monitoring in Temporal Trends (VIC) data on contaminants in biota, in order to improve sampling strategies for the analysis of both temporal and spatial trends;
- e) develop the work on spatial issues by requesting presentations of national monitoring programmes, and by using this material to make generalisations and specific recommendations, e.g., on the number of replicate samples of sediments or biota needed to characterise an area;
- f) continue the development of sampling allocation strategies, especially the development of dynamic sampling strategies;
- g) based on available data for a suite of biological, chemical, biomarker, and endpoint measurements, carry out the following tasks, to the extent possible:
 - i. explore, on a univariate basis, the minimum difference in level between two stations that can be detected with 90 % power following the JAMP guidelines, for each chemical, biomarker, and biological endpoint variable,
 - ii. investigate statistical methods for modelling the relationships between the biological, chemical, biomarker, and biological endpoint measurements,
 - iii. begin the consideration of ways of combining a suite of biological,

chemical, biomarker, and biological endpoint measurements into summary indices that may be suitable for management or statistical purposes.

WGSAM will report to the ACME before its June 2000 meeting and to the Marine Habitat Committee at the 2000 Annual Science Conference.

RM {70% ICES, 30% OSPAR}

2E06 **The Study Group on Marine Habitat Mapping [SGMHM]** (Chair: Dr E. Jagtman, Netherlands) will meet in The Hague, Netherlands from 10–13 April 2000 to:

- a) review recent developments in marine habitat classification, in particular, review in detail the outcome of the OSPAR/ICES/EEA Workshop on Habitat Classification and Biogeographic Regions (WKCLAS) and the Aquatic Restoration and Conservation (ARC) Workshop on Habitat Classification; this review should be passed to WGEXT;
- b) report on progress made in the joint OSPAR/ICES/EEA proposals on habitat mapping projects (habitat map of the North Sea or Wadden Sea, deep sea map, OSPAR area map to level 3 of the EUNIS classification system) made at WKCLAS, and discuss whether SGMHM can coordinate the proposed projects;
- c) work closely with WGEXT to comment on present-day mapping technologies in relation to the requirements of ICES;
- d) assess whether further development of (parts of) the standing classification is feasible, provided that there is enough expertise within SGMHM, and if so, take action to build further on this classification;
- e) assess whether and how BEWG should be involved in validating the biotopes already proposed;
- f) finalise details of a Theme Session at the 2000 Annual Science Conference on Classification and Mapping of Marine Habitats.

SGMHM will report to the ACME before its June 2000 meeting and to the Marine Habitat Committee at the 2000 Annual Science Conference.

NC

2E07 **The Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem [WGEXT]** (Chair: Dr J. Side, UK) will meet in Gdansk, Poland from 11–14 April 2000 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, and review scientific programmes and research projects relevant to the assessment of environmental effects of the extraction of marine sediments. This information should be collated and circulated in advance of the annual meeting (31 March 2000) and verified and discussed as appropriate at the meeting;
- b) commence work (taking into account relevant work under and requirements of OSPAR and HELCOM) on the updating of:
 - i) the ICES Code of Practice for the Commercial Extraction of Marine Sediments (including minerals and aggregates), produced in 1992,
 - ii) guidelines for the preparation of an Environmental Impact Assessment evaluating the effects of seabed aggregate extraction on the marine environment, including as appropriate guidelines on monitoring and standardised procedures, reviewed most recently in 1998 for inclusion in the forthcoming *ICES Cooperative Research Report*;
- c) undertake an assessment of the comparative resolution of both side-scan sonar and multi-beam bathymetric mapping systems under a variety of operational conditions including water depth, acquisition speed and system design; examine the requirements for calibration of such systems, and review the requirements for habitat classification of non-cohesive sediments in this respect; this review should be passed to SGMHM for comment;
- d) examine means of adequately identifying spawning grounds of critical fish species in relation to aggregate extraction activities, particularly herring;
- e) review conclusions drawn from the completion of biological monitoring of the

Øresund fixed link with a view to applying this knowledge to other large-scale extraction projects;

- f) review the biological and sedimentological effects of bed level alterations caused by dredging and update knowledge of plume effects, specifically with respect to recent scientific studies in the Netherlands and Germany and the recent literature review of the European Construction Industry Research and Information Association (CIRIA).

WGEXT will report to the ACME before its June 2000 meeting and to the Marine Habitat and Resource Management Committees at the 2000 Annual Science Conference.

RC

2E08 **The Benthos Ecology Working Group [BEWG]** (Chair: Dr K. Essink, Netherlands) will meet in Walpole, Maine, USA from 26-30 April 2000 to:

- a) report on progress in the North Sea Benthos Project;
- b) evaluate possible secondary effects on benthos in the Baltic Sea from the dumping of fish offal and fish discards, based on information provided by SGDIB [HELCOM 2000/5]; this will include:
 - i. a compilation of available information on benthos community structure and biomass by ICES Sub-area,
 - ii. estimates of total consumption rates, and likely fraction of offal/discards in total consumption, by benthos by ICES Sub-area,
 - iii. a compilation and mapping of the areas subject to permanent and/or temporary oxygen depletion in the entire Baltic Sea area;
- c) report on further developments in computer aids in benthic studies (taxonomic and operational), and discuss problems in the field of quality assurance of taxonomic expertise as related to benthic studies;
- d) further provide guidance to ACME on Quality Assurance procedures for benthic studies [OSPAR 2000/1.1] through:

- i. agreeing on a final draft of general guidelines for QA for biological monitoring,
- ii. finalising an extended review of standard operating procedures in use in ICES Member Countries,
- iii. further reviewing QA schemes for benthic studies;
- e) continue the preparation of guidelines for sampling and objective description of epibiota (of soft sediments and hard bottom substrates), including QA matters;
- f) continue an analysis of the impact of the North Atlantic Oscillations (NAO) and other climatic phenomena on long-term variations of benthic population parameters in different parts of the ICES area;
- g) discuss data banking and related QA matters, including data exchange, with the ICES Environmental Data Scientist; this should include final review and approval of the Biological Data Reporting Format and data entry program.

BEWG will report to the ACME before its June 2000 meeting and to the Marine Habitat Committee at the 2000 Annual Science Conference.

RM {70 % ICES, 20 % HELCOM, 10 % OSPAR}

2E09 **A Study Group on Ecosystem Assessment and Monitoring [SGEAM]** (Chair: L. Føyn, Norway) will be established and will meet from 8-12 May 2000 at ICES Headquarters to:

- a) reflect on the scientific framework for an ecosystem approach for the sustainable use and protection of the marine environment, including living marine resources (based on the reports of the North Sea Conference's Oslo and Scheveningen workshops, and an ICES discussion document on ecosystem management of the Baltic Sea);
- b) review the methodology and proposals for Ecological Quality Objectives for the North Sea;
- c) evaluate the use of results from monitoring programmes and their effectiveness to support integrated (ecosystem) assessments in the ICES area using *inter alia* the OSPAR regional and 2000 Quality Status Reports for the North Sea, and the HELCOM Third Periodic Assessment of the Baltic Sea;

- d) review existing regional monitoring programmes in order to:
 - i. identify management questions/objectives and environmental issues,
 - ii. identify ecological quality objectives,
 - iii. identify indicators,
 - iv. identify methods for integrating indicator results into a regional assessment,
- e) review existing regional and international monitoring programmes in order to:
 - i. synthesise management questions/objectives, ecological quality objectives, and environmental issues,

- ii. synthesise indicators for each management question/objective, and for each ecological quality objective,
- iii. identify best or most promising methods for integrating indicator results into regional assessments for the ICES area;

- f) outline a programme of work for the next five years.

SGEAM will report to the ACME before its June 2000 meeting and to the Marine Habitat Committee at the 2000 Annual Science Conference.

RC

MARICULTURE COMMITTEE (F)

2F01 The Working Group on Pathology and Diseases of Marine Organisms [WGPDMO] (Chair: Dr S. Møllgaard, Denmark) will meet in Bremen, Germany from 29 February to 4 March 2000 to:

- a) analyse national reports on new disease trends in wild and cultured fish, molluscs and crustaceans;
- b) update information on the diseases and parasites of Baltic fish, to be included in the HELCOM Fourth Periodic Assessment (this is being produced intersessionally for review at the 2000 meeting of WGPDMO, and for subsequent consideration by the ACME) [HELCOM 2000/3];
- c) review progress in data submissions to the ICES Data Banks and continue the statistical analysis of ICES fish disease data in relation to environmental and fisheries data intersessionally, in order to extend the analysis to enlarged areas and time windows, and to develop and optimise suitable models and statistical methods;
- d) maintain an overview of the spread of *Ichthyophonus* in herring stocks and the distribution and possible cause(s) of the M74 syndrome;
- e) investigate gill disease in *Crassostrea angulata* adults, the cause of summer mortalities of *C. gigas* spat, and clarify the report of *M. refringens* in *C. gigas* from Spain;

- f) collate and review available information on the distribution and effect of marine VHS-like virus on cultured and wild fish stocks;

- g) collate and review available information on the distribution, origin, host range and impact on salmon culture of Infectious Salmon Anaemia (ISA);

- h) review new information on the structure and diversity of nodavirus(es), the spread, diagnosis and epizootiology of the disease, and host immunity, to provide effective advice on possible control measures;

- i) initiate experimental work to determine whether the lack of *Bonamia ostreae* infections detected in field observations of *Ostrea edulis* from cold water climates reflects parasite acquisition with subsequent loss over prolonged low water temperatures, or suppression of infectivity of the parasite;

- j) develop a proposal for incorporation of parasitological studies into existing disease monitoring programmes. For this purpose, it was considered useful to compile and evaluate long-term data sets already existing in ICES Member Countries;

- k) review progress made within the Biological Effects Quality Assurance in Monitoring Programme (BEQUALM) work project titled 'Fish disease and liver pathology';

- l) provide a report with advice on new techniques in pathology and other methods for the detection of endocrine-disrupting chemicals in marine and estuarine organisms

and appropriate new target species representing the main ecological levels of the marine ecosystem;

- m) develop proposals for the inclusion of maps of the distribution of fish and shellfish diseases of concern for mariculture and temporal trends of wild fish diseases of concern for marine environmental monitoring programmes.

WGPDMO will report to the ACME before its June 2000 meeting and to the Mariculture and Marine Habitat Committees at the 2000 Annual Science Conference.

RM {90 % ICES, 10 % HELCOM}

2F02 **The Working Group on Environmental Interactions of Mariculture** [WGEIM] (Chair: Dr I. Davies, UK) will meet in Aberdeen, UK from 13–17 March 2000 to:

- a) collate information on mariculture production patterns from national reports;

- b) complete the preparation of a chapter on the effects of mariculture activities in the Baltic Sea for the HELCOM Fourth Periodic Assessment of the State of the Marine Environment of the Baltic Sea, 1994–1998 [HELCOM 2000/3];

- c) review information on technological changes in mariculture, including the utilisation of new species, with particular emphasis on consequences for production and the marine environment, in particular, to:

- i. discuss and assess progress made in the performance, environmental compatibility, and economic viability of modern recirculation technology, with an emphasis on saltwater systems,

- ii. compile information on the actual and potential environmental impact of halibut cultivation, including a comparison with the recognised impacts of salmon mariculture;

- d) review the ecological aspects of the report of the ICES/EU Symposium on Artificial Reefs held in summer 1999, in cooperation with the Marine Habitat Committee;

- e) review new research and monitoring programmes, including review of the proceedings of the 1999 ICES Symposium on Environmental Effects of Mariculture;

- f) review the current state-of-the-art in environmental consequences of the control of sea lice in salmon cultivation;

- g) review monitoring activities, in particular:

- i. developments in the capability to model, predict, and monitor the effects of mariculture on the seabed,

- ii. the availability, to scientific and regulatory communities, of mathematical models related to environmental interactions of mariculture;

- h) review issues of sustainability in mariculture, including interactions between mariculture and other users of resources in the coastal zone, in particular, to:

- i. collate contributions and prepare a report entitled, 'Towards Sustainability in Mariculture in the ICES Area', to be reviewed also by the Marine Habitat Committee,

- ii. review the current state-of-the-art of the application of Environmental Impact Assessments and Environmental Impact Statements to mariculture.

WGEIM will report to the ACME before its June 2000 meeting and to the Mariculture and Marine Habitat Committees at the 2000 Annual Science Conference.

RM {85 % ICES, 15 % HELCOM}

2F03 **The Working Group on the Application of Genetics in Fisheries and Mariculture** [WGAGFM] (Chair: Dr M. Møller Hansen, Denmark) will meet in Leuven, Belgium from 3–6 April 2000 to:

- a) continue the review of general population genetics topics in fisheries and mariculture, with emphasis on the utilisation of possibilities available through the combination of qualitative and quantitative genetics;

- b) review the relevant portion of the chapter on Baltic fish prepared for the HELCOM Fourth Periodic Assessment of the State of the Marine Environment of the Baltic Sea, 1994–1998 [HELCOM 2000/3];

- c) review principles for prioritisation of marine finfish and shellfish populations for conservation;

- d) review the status of Artificial Intelligence and Neural Networks as tools in population studies based on input related to stock identification methodology;
- e) compile an updated list of patents in molecular biology which potentially may interfere with population genetics research;
- f) review potential genetic implications of recent research on endocrine disruptors;
- g) review the possibility and feasibility of developing coordinated genetic databases for enhancing understanding of genetic diversity in fish species;
- h) review genetic implications of commercial fisheries on deep-water fish stocks;
- i) explore the question of trade-offs between genetic gain and loss of genetic variability in breeding programmes (how to minimise inbreeding in intense breeding);
- j) prepare updated protocols of fishery and mariculture genetics research in Member Countries, and identify scopes for enhanced international cooperation.

WGAGFM will report to the ACME before its June 2000 meeting and to the Mariculture Committee at the 2000 Annual Science Conference.

RM {95 % ICES, 5 % HELCOM}

2F04 The **Working Group on Marine Fish Culture** [WGMAFC] (Chair: Dr J. Castell, Canada) will meet in St. Andrews, New Brunswick, Canada from 5–7 June 2000 to:

- a) report on the current status of marine fish cultivation in Member Countries and on the factors that are likely to constrain further development of the industry;

- b) review technological developments in relation to fish production and their application to various species;
- c) report on the establishment of behavioural criteria which can be used to evaluate on-growing systems and operational procedures;
- d) assess the prospects for establishing predictive criteria of juvenile quality;
- e) report on the establishment of a nutrient database for larval feed compositions and establish standard protocols for nutrient analysis;
- f) review progress toward the identification of alternative protein and lipid sources for marine fish diets;
- g) prepare a Theme Session for the 2000 Annual Science Conference on 'New trends in fish feeding in aquaculture';
- h) encourage the use of an ICES standard weaning diet and standard enrichment emulsions as controls for research experiments and report on studies using them;
- i) review the animal products used in fishfeed formulations in ICES Member Countries, and possible contaminants (and their concentrations), contained in these fishfeeds.

WGMAFC will report to the Mariculture Committee at the 2000 Annual Science Conference.

RC

LIVING RESOURCES COMMITTEE (G)

2G01 The **Working Group on Mackerel and Horse Mackerel Egg Surveys** [WGMEGS] (Chair: Dr C. Hammer, Germany) will meet in Santander, Spain from 18–21 January 2000 to:

- a) coordinate the timing and planning of the 2001 Mackerel/Horse Mackerel Egg Surveys

in ICES Sub-areas VI to IX for estimating the spawning stock size;

- b) coordinate the planning of sampling for maturity of both mackerel and horse mackerel for analysis histologically;
- c) co-ordinate the planning of sampling for fecundity and atresia taking into account the

recommendations of the WGMHSA regarding the level of sampling;

- d) review all the mackerel fecundity and atresia data collected in the western area as part of the 1998 survey and report back to the WGMHSA on whether or not any changes should be made to the 1998 data set;
- e) review all information on maturity fecundity and atresia for both mackerel and horse mackerel, analysed since the last meeting of WGMEGS. (All relevant working documents presented to the 1999 WGMHSA should be made available to this WGMEGS);
- f) examine the reasons for the high variance in the estimate of mackerel egg production in the southern area in 1998 and decide on whether sampling strategy needs to be revised in this area;
- g) present horse mackerel fecundity and atresia estimates for the southern area from sampling in 1998. Review the egg production estimate and calculate a revised estimate of SSB for the southern horse mackerel in 1998;
- h) review the results of the 1999 North Sea Egg Survey;
- i) consider producing a manual detailing all the methods used in the current egg surveys from sample collection through to the final estimate of SSBs.

WGMEGS will report to the Living Resources and Resource Management Committees at the 2000 Annual Science Conference and to WGMHSA.

RA {NEAFC 25%, EC DGXIV 75%}

2G02 **The Planning Group for Herring Surveys** [PGHERS] (Co-Chairs: E. Torstensen, Norway and K.-J. Stæhr, Denmark) will meet in Bergen, Norway from 1-4 February 2000 to:

- a) coordinate the timing, area allocation and methodologies for acoustic and larval surveys for herring in the North Sea, Divisions VIa and IIIa and the Western Baltic;
- b) combine the survey data to provide estimates of abundance for the population within the area;

c) complete the revision of the existing manual of the North Sea Acoustic Survey (Doc. ICES C.M.1994/H:3);

d) conduct a workshop on echogram scrutiny.

PGHERS will report to HAWG and to the Resource Management and Living Resources Committees at the 2000 Annual Science Conference.

To improve communication, the Chair (or a representative) of PGHERS should participate in the meeting of HAWG.

RM {ICES 10%, NEAFC 20%, IBSFC 9%, EC DGXIV 61%}

2G03 **The Planning Group for Pelagic Acoustic Surveys in ICES Sub-Areas VIII and IX** [PGPAS] (Chair: V. Marques, Portugal) will meet in Lisbon, Portugal 2-4 February 2000 to:

- a) review and analyse the 1999 acoustic surveys;
- b) review the methodologies in order to improve the abundance estimation;
- c) plan the year 2000 acoustic surveys.

PGPAS will report to the WGMHSA and to the Living Resources and Resource Management Committees at the 2000 Annual Science Conference.

RM {ICES 10%, NEAFC 25%, EC DGXIV 65%}

2G04 **The Working Group on Cephalopod Fisheries and Life History** [WGCEPH] (Chair: Dr G. Pierce, UK) will meet at the University of Aberdeen, UK from 7-11 February 2000 to:

- a) update currently available landing statistics and information on fishing effort and discards; explore existing resource survey databases for specific information about sampled cephalopods in the ICES area;
- b) continue the compilation of methods and results available for stock identification and estimation of population size of fished cephalopods; review possible precautionary approaches to the management of these cephalopod resources;
- c) review the results of national and transnational projects collecting data on fished cephalopods, especially those projects

studying relationships between abundance and environmental conditions, factors affecting recruitment, migration and distribution patterns of juveniles and adults, and trophic interactions; to review research priorities in relation to data requirements for fishery assessment and management;

- d) continue development of a bibliographic database of cephalopod literature relevant to fisheries, including grey literature.

Terms of Reference a) and c) are set up to provide ACFM with the information required to respond to requests for advice/information from NEAFC and EC DGXIV.

WGCEPH will report to ACFM and ACME before their meetings in May/June 2000 and to the Living Resources Committee at the 2000 Annual Science Conference.

RM {ICES 30%, NEAFC 20%, EC DGXIV 50%}

2G05 The Working Group on Marine Mammal Population Dynamics and Trophic Interactions [WGMMPD] (Chair: Dr G.T. Waring, USA) will meet in Helsinki, Finland from 28 February to 3 March 2000 to:

- a) evaluate, in cooperation with WGMMHA, the populations of grey (*Halichoerus grypus*), harbour (*Phoca vitulina*) and ringed (*Phoca hispida bothnica*) seals and harbour porpoises (*Phocoena phocoena*) in the Baltic Sea, including the size of the populations, distribution, migration, reproductive capacity, effects of contamination, and health status, and additional mortality owing to interactions with commercial fisheries (by-catch, intentional killing);
- b) review invited papers and other information on techniques and methodology on seal abundance, particularly, grey seal and harbour seals, including census methodologies and techniques, population growth rates and trends, mortality and by-catches;
- c) review progress, and new techniques and methodology in marine mammal dietary studies, including sampling design, sample processing, reconstructive techniques, data biases, and consumption models.

The Chairs of WGMMPD and WGMMHA will work closely together to seek joint sessions to conduct a comprehensive review of the status of Baltic marine mammal populations. The Chair

of the WGMMPD will liaise with the Chair of WGMMHA to explore possibilities for convening the Working Groups at times and venue that facilitate optimal participation of the Groups.

WGMMPD will report to ACFM and ACME before their meetings in May/June 2000 and to the Living Resources and Marine Habitat Committees at the 2000 Annual Science Conference.

Members of the Working Group agreed that in addition to future meetings to address specific requests to ICES (e.g. HELCOM, OSPAR), the WGMMPD should meet biennially to review topics identified in the remit of the WGMMPD. During intervening years the WGMMPD will meet via correspondence. The WGMMPD strongly supports joint meetings with the WGMMHA, and further, recommends that activities of both Groups be accomplished within a five-day overlapping period.

RC

2G06 The Study Group on Life History of Nephrops [SGNEPH] (Chair: Dr N. Bailey, UK) will meet in Reykjavik, Iceland from 2–5 May 2000 to:

- a) comparison of trends in various assessment, fishery data and survey indices including the use of time series and other statistical techniques;
- b) review progress on the development of Nephrops specific assessment methodologies;
- c) attempt to define a likely stock and recruitment relationship for Nephrops;
- d) report on refinements in the use of independent methods and present spatial distribution data where available;
- e) develop logistical plans for cooperative work on Hematodinium;
- f) summarise available data on the fate of discards and by-catch from Nephrops fisheries;
- g) present new data on the biology of Nephrops and on parameter values.

Some of the above Terms of Reference are set up to provide ACFM with the information required to respond to requests for

advice/information from EC DGXIV and NEAFC.

SGNEPH will report to ACFM before its October 2000 meeting and to the Living Resources Committee at the 2000 Annual Science Conference.

RM {ICES 10%, EC DGXIV 68%, NEAFC 22%}

2G07 **A Workshop on the Estimation of Spawning Stock Biomass of Sardine [WKSBS]** (Chair: A. Lago de Lanzos, Spain) will be held at Vigo, Spain from 13–16 June 2000 to:

- a) present and evaluate egg production estimates made by traditional and GAM methods using data from the 1999 egg surveys in Portugal (Area IXa) and Spain (Areas VIIIc and IXa);
- b) present and evaluate the batch fecundity and spawning fraction estimates from the same surveys;
- c) discuss spawning stock biomass estimates for sardine made by the DEPM method;
- d) coordinate planning for sardine surveys in 2001.

The Workshop will report to WGMHSA and the to Living Resources Committee at the 2000 Annual Science Conference.

2G08 **A Workshop on Identification and Staging of Mackerel and Horse Mackerel Eggs [WKMHE]** (Chair S. Milligan, UK) will meet at Lowestoft, UK from 13–17 November 2000 to:

- a) address identification and staging problems encountered during the 1998 surveys.

The WKMHE will report to the Living Marine Resources Committee at the 2001 Annual Science Conference.

2G09 **The Study Group on Elasmobranch Fishes [SGEF]** (Chair: Dr P. Walker, Netherlands) will work by correspondence in 2000 to:

- a) report on the development and progress in the study and assessment of elasmobranch fisheries and stocks;
- b) initiate further studies towards assessment of elasmobranch fisheries and stocks.

SGEF will report to the Living Resources Committee at the 2000 Annual Science Conference and to ACFM before its October 2000 meeting.

RM {ICES 80%, EC DGXIV 20%}

2G10 **The Stock Identification Methods Working Group [SIMWG]** (Co-Chairs: Dr K.D. Friedland and Dr J. Waldman, USA) will work by correspondence in 2000 to:

- a) continue development of the 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 on progress to the Living Resources Committee at the 2000 Annual Science Conference.

RC

2G11 **The Working Group on Crangon Fisheries and Life History [WGCRAN]** (Chair: Prof. A. Temming, Germany) will work by correspondence in 2000 to:

- a) design a Y/R model capable of predicting the yield of the shrimp fishery under different management scenarios (e.g. varying level and seasonality of effort);
- b) identify the necessary steps in data preparation for the model input;
- c) coordinate and initiate research on *Crangon* biology, stock status, and shrimp fishery by-catches;
- d) plan for a meeting in 2001.

WGCRAN will report to ACFM at its May 2000 meeting, and to the Living Resources and the Fisheries Technology Committees at the 2000 Annual Science Conference.

RM {ICES 10%, EC DGXIV 90%}

2G12 **The Working Group on Beam Trawl Surveys [WGBEAM]** (Chair: Dr G. Piet, Netherlands) will work by correspondence in 2000 to:

- a) prepare a progress report summarising the results of the 1999 Beam Trawl Surveys;

- b) continue the work of developing an international database of beam trawl survey data;
- c) calculate population abundance indices by age-group for sole and plaice in the North Sea, Division VIIa and Divisions VIId-g;
- d) present summary results from other International Demersal Young Fish Surveys, including the pre-recruit indices for commercially important species.
- e) collate information describing epibenthic invertebrate by-catch during beam trawl surveys.

The above Terms of Reference are set up to provide ACFM with the information required to respond to requests for advice/information from NEAFC and EC DGXIV.

WGBEAM will report to the Living Resources and Marine Habitat Committees at the 2000 Annual Science Conference and to ACFM before its October 2000 meeting.

RA {NEAFC 25%, EC DGXIV 75%}

2G13 The Study Group on the Biology and Life History of Crabs [SGCRAB] (Chair: Dr R.

Dufour, Canada) will work by correspondence in 2000 to:

- a) plan to complete the compilation of information and data on the stock structure, recruitment, life history parameters, and the effect of environmental variation, on eastern Atlantic stocks of edible crab, spider crab, and velvet crab, and North American stocks of snow crab, blue crab and red crab;
- b) plan for a meeting in 2001 to assess the status of these stocks;
- c) develop proposals for co-operative studies on the pre-recruit ecology of crab;
- d) review the results of national programmes to monitor the effects of habitat disturbance on edible crab populations;
- e) assess the potential of "no harvest" marine protected areas for conserving crab population reproductive potential and in protecting important habitats used by crabs in their life cycles;

SGCRAB will report to the Living Resources and the Marine Habitat Committees at the 2000 Annual Science Conference.

RC

BALTIC COMMITTEE (H)

2H01 The Study Group on Baltic Cod Age Reading [SGBCAR] (Chair: Dr Y. Walther, Sweden) will be re-established and will meet in Karlskrona, Sweden from 27–31 March 2000 to:

- a) compile and evaluate the magnitudes of differences in age information used for the assessment of the Eastern Baltic Cod (Sub-division 32);
- b) examine the effect of age reading differences on the estimates of stock size and fishing mortality;
- c) evaluate the present age interpretations, taking the recent ongoing research into account;
- d) evaluate the procedure to correct the historical catch-at-age, mean-weight-at-age

and maturity-at-age for both commercial and research survey catches to common standards. If possible, revise the databases and carry out exploratory assessments using these data;

- e) revise and adopt the draft age-reading manual, taking the new information into account. If the manual can be finalised, recommend on the dissemination of the knowledge for the appropriate user groups, archival of the information, and possible publication in the *ICES Cooperative Research Report* series;
- f) review the report of the Workshop on Otolith Ageing of North Sea Whiting.

SGBCAR will report to the Baltic Committee at the 2000 Annual Science Conference.

NC

2H02 The Baltic International Fish Survey Working Group [WGBIFS] (Chair: E. Aro, Finland) will meet at ICES Headquarters from 3–7 April 2000 to:

- a) combine and analyse the results of the 1999 acoustic surveys [IBSFC];
- b) correct errors in and update the hydroacoustic database BAD1 for the years 1991 to 1999 [IBSFC];
- c) plan and decide on acoustic surveys and experiments to be conducted in 2000 and 2001 [part IBSFC].
- d) update, if necessary both the Baltic International Trawl Survey (BITS) and the Baltic International Acoustic Survey (BIAS) manuals [DGXIVcontract/IBSFC];
- e) continue the comparison and analysis of results from concurrent survey activities by the traditional and the new standard trawls;
- f) plan experiments to evaluate the biological sampling and TS conversion formulas presently applied in the Baltic during hydroacoustic surveys;
- g) continue to establish a new acoustic database BAD2;
- h) provide information on distribution of juvenile herring, sprat and undersized cod taken in small mesh fishery (including distribution maps) [IBSFC].

Some of the above Terms of Reference are set up to provide ACFM with information required to respond to requests for advice/information from the International Baltic Sea Fishery Commission and Science Committees.

WGBIFS will report to WGBFAS, and to the Baltic and Resource Management Committees at the 2000 Annual Science Conference.

RM (ICES: 40%, IBSFC: 60%)

2H03 A Study Group on the Scientific Basis for Ecosystem Advice in the Baltic [SGBEAB] will be established (Co-Chairs: Prof. T. Osborn, USA and M. Plikshs, Latvia) and will meet in Gdynia, Poland from 19–20 June 2000 to:

- a) prepare a recommendation for a workshop on "The Scientific Basis for Ecosystem Advice in the Baltic" to be held in 2001;

- b) review progress in the understanding of Baltic ecosystem structures and dynamics in relation to human impact and driving environmental forces, including a review of the present state of the art of ecosystem modelling and modelling of important system components;
- c) review the present ability of giving ecosystem oriented advice on various human activities affecting the Baltic systems and identify potential key areas for ecosystem advice to be requested from ICES in future;
- d) outline necessary actions to enhance the understanding and functioning of the Baltic systems as scientific basis for giving sound ecosystem oriented advice;
- e) outline necessary actions to establish modelling tools for conducting simulations on the impact of human activities and regulatory enforcements;
- f) consider the present and potential role of international organisations and ongoing major international programmes with respect to implementing a framework for ecosystem oriented advice.

SGBEAB will report to the Baltic and Consultative Committees at the 2000 Annual Science Conference.

NC

2H04 The Baltic Herring Age-Reading Study Group [BHARSG] (Chair: G. Kornilovs, Latvia) will meet in Tvärminne, Finland from 20–24 November 2000 to:

- a) analyse the results of two otolith exchanges that were carried out in 1999 and 2000;
- b) perform comparative age-reading of the samples which were treated during exchanges as well as the samples prepared for the meetings;
- c) complete the establishment of reference collection of otoliths;
- d) consider the necessity for, and to plan the future work of the BHARSG.
- e) assess the effect of age errors per the Workshop on Horse Mackerel Otoliths [WKHMO].

BHARSG will report to the Baltic Committee at the 2001 Annual Science Conference

RC

2H05 **A Study Group on Multispecies Predictions in the Baltic** [SGMPB] (Chair: E. Aro, Finland) will be established and will meet at ICES Headquarters from 11–15 December 2000 to:

- a) explore, in more detail, available and presently formulated medium- to long-term multispecies prediction methodology, including a thorough testing of the 4M software package in this respect;
- b) develop, apply and validate different types of multispecies prediction models with sufficient, but not over-emphasised complexity, considering environmental processes affecting prey selection and total food intake, growth, maturation and egg production as well as subsequent recruitment success;
- c) evaluate the stability and suitability of biological reference points considering multispecies interactions, environmental processes and their spatial heterogeneity;
- d) explore the feasibility of introducing statistically based spatial multispecies

frameworks in the Baltic, allowing modelling of migration rates in comparison to observations from tagging experiments.

SGMPB will report to the Baltic Committee at the 2001 Annual Science Conference.

NC

2H06 **A Study Group on Salmon Scale Reading Problems** [SGSSR] will be established (Chair: Dr E. Ikonen, Finland) and will work by correspondence in 2000 to:

- a) improve the accuracy of the scale-reading;
- b) promote the development of scale reading methodology in the Baltic Sea region;
- c) prepare an evaluation of the accuracy in scale reading;
- d) review the results from the Workshop on the Usefulness of Scale Growth Analyses and Other Measures of Condition in Salmon [WKUS].

SGSSR will report to WGBAST and to the Baltic Committee at the 2000 Annual Science Conference.

NC

RESOLUTIONS INVOLVING COOPERATION WITH OTHER ORGANISATIONS

3ACFM01 An Interagency meeting (CWP) will be held at ICES Headquarters from 10–16 February 2000. The organisations involved are FAO, NAFO, ICCAT, Eurostat and ICES. ICES membership should be the ACFM Chair or his designate (at Council expense), the Fisheries Adviser and the Fisheries Assessment Scientist. Two to three ACFM Members should be invited to participate at national expense to deal with the first two points of the Terms of Reference.

Terms of Reference for the meeting are

Precautionary Approach

- 1) Review the terminology and definitions of concepts in use by the different agencies;
- 2) Identify where concepts are identical and where these differ. Explore consequences of such differences in concepts to the reference

points used for providing scientific advice within the Precautionary Approach.

Common Fisheries Statistics Publication (CD-ROM)

- 3) Review progress on the publication of a joint CD-ROM presenting catch statistics for the North Atlantic.

RM {ICES 4%, NEAFC 35%, IBSFC 7%, NASCO 8%, EC DGXIV 46%}

3C01 ICES will co-sponsor the International Fisheries Symposium to be held on 4–6 December 2000 in Bergen, Norway on **Fish Stock Assessments and Predictions: Integrating Relevant Knowledge**. ICES will be represented on the Steering Committee and at the Symposium by Prof. J. Pope (Norway). ICES will assist with production and distribution of the flyer advertising the symposium, but will carry no other costs.

3G01 The General Secretary will write to CORE (Consortium for Oceanographic Research and Education) offering ICES co-sponsorship of the Census of Marine Life Workshop on the History of Marine Animal Populations, to be held in Odense, Denmark from 19–22 February 2000 (Conveners: P. Holm, Denmark and T.D. Smith, USA).

3G02 In the light of C.Res 1998/3:3, concerning ICES Liaison to the Sloan Foundation Census of Marine Life (formerly Census of Fishes) Project, and since the ICES work programme incorporates the ongoing census of marine life in the North Atlantic region, ICES recommends that the:

- a) Secretariat and relevant Working Groups and Study Groups should facilitate access by the Census of Marine Life programme to historical data on the distribution and

abundance of living marine resources in the ICES region;

- b) Science Committees should embrace the concept of the Census of Marine Life programme and assess the most effective means of contributing to its planning process by leading the implementation of the Census in the ICES Region;
- c) General Secretary should liaise with SCOR to ensure ICES participation in the Census of Marine Life proposal for a SCOR Working Group on "New Technologies for Observing Marine Life";
- d) General Secretary should establish a link with the planning office for the Census at CORE (Consortium for Oceanographic Research and Education, Washington DC, USA).

OTHER RESOLUTIONS REQUIRING ACTION

4ACFM01 The moratorium on the release of the ACFM report will be changed from the present 48 hours after midnight on the day of the closure of the ACFM meeting, to last until Monday midday in the week after the closure of the ACFM meeting.

4ACFM02 The General Secretary shall inform relevant laboratories around the Baltic Sea on the need to supply data on Baltic herring and sprat maturity to the SGBHSM Chair, H. Müller, Germany for further analysis by SGBHSM. These data submissions are required before 31 December 1999.

4D01 The Secretariat, in cooperation with identified experts should prepare a proposal to hold courses on "Fish Stock Assessment Techniques". The Secretariat should report to the Resource Management Committee at the 2000 Annual Science Conference to:

1. Propose a plan for a course to be implemented in the period June–August 2001;
2. Find lecturers and other resource persons to lead the course;
3. Contact EC DGXIV Fisheries and other organisations to clarify the possibilities for financial support to such an enterprise;

4. Investigate possibilities for collaboration with relevant organisations such as NATO (advanced studies) and NAFO;

5. Present a budget for the proposed course.

4E01 A research programme on cause-effect relationships between contaminants and individual effects (with a goal of identifying population-level effects) in harbour, grey, and ringed seals should be conducted according to the plans detailed in the 1999 report of the Working Group on Marine Mammal Habitats. This research programme will cover nine groups of compounds, focusing on the 'classical' organochlorine compounds (polychlorinated biphenyls (PCBs), dichlorodiphenyltrichloroethanes (DDTs), and chlordanes) owing to their toxic properties and wide distribution, but also including polybrominated flame retardants. Biological effects to be studied include biomarkers, effects on the immune system, reproduction and early development, and gross pathology. This programme will include both controlled experiments and studies on wild populations.

4E02 ICES Member Countries are encouraged to continue studies on the M74 Syndrome in Baltic salmonids and the Early Mortality Syndrome (EMS) in Great Lakes and Fingerlakes salmonids, in order to improve the knowledge on the causes of these syndromes. The following issues should be addressed, in particular:

- a) the dynamics of thiamine (vitamin B1) and thiaminase in affected salmonids and their forage fish;
- b) experimental approaches to test theories about the relative importance of thiamine, thiaminase and possible co-factors (e.g., contaminants, carotenoids) that contribute to M74 and EMS;
- c) large-scale ecological changes in the Baltic Sea, Great Lakes and Fingerlakes that could contribute to M74 and EMS (e.g., changes in abundance of Baltic cod, clupeids, the composition of zooplankton and phytoplankton).

4G01 ICES encourages sea trout scientists to gather and process available data on the stock identification, abundance, biology and population dynamics of sea trout in preparation for a proposed ICES Workshop on Sea Trout to be held in France in June or October 2001.

4G02 ICES will adopt the species groupings for elasmobranch fishes as described in the Report of the Study Group on Elasmobranch Fishes Doc. ICES CM 1999/G:11 (Section 6.2). The General Secretary will inform FAO.

REPORT OF FINANCE COMMITTEE

Chair: Dr A. Post

The Committee met on Thursday 30 September 1999 from 08.30 – 11.50 hrs.

All members were present except Professor Jan Thulin, who was unable to attend on medical grounds. The First Vice-President, representing the Bureau, the General Secretary, J. Andersen-Rosendal, and I. Lützhøft from the ICES Secretariat, and a Delegate of Canada also attended.

Agenda Item 1 APPROVAL OF AGENDA

The draft Agenda was adopted as presented.

Agenda Item 2 APPOINTMENT OF ONE MEMBER OF FINANCE COMMITTEE

The Chair proposed, and the Committee agreed, that Dr T. Linkowski (Poland) be nominated for the approval of the Council as member of the Committee to succeed Dr N. Riekstins (Latvia) for the three-year period starting on 1 November 1999.

J. Browne informed the Committee that he would have to relinquish his membership of the Committee as from 1 November 1999 for personal reasons.

After some discussion the Committee agreed to nominate G.J. van Balsfoort (Netherlands) for the approval of the Council as member of the Committee to succeed J. Browne.

Agenda Item 3 AUDITED ACCOUNTS FOR FINANCIAL YEAR 1997/1998

The General Secretary summarised the final Income and Expenditure Accounts and Balance Sheet for the Financial Year 1997/1998 (Doc. C.M. 1999/Del:1), and noted the working paper which showed the deviations by specific item compared with the Budget for that year. He drew attention to:

- 1) The Profit and Loss Account indicated a profit of DKK 516,850 for the year as a whole, which was allocated as DKK 189,982 to the Capital Reserve Fund and an Excess of Income for 1997/1998 of DKK 326,868;
- 2) The amount in the Capital Reserve Fund (DKK 2,282,496, including the interest for the year transferred to the Fund) as of 31 October 1998;
- 3) Under Income
 - a) The National Contributions and Other Contributions were close to the budgeted figures,
 - b) Miscellaneous Income was about DKK 347,000 less than budgeted;
- 4) Under Expenditure

- a) Salaries showed savings of about DKK 840,000;
- b) Office Expenses showed savings of about DKK 437,000;
- c) Periodic Assistance was overspent by about DKK 500,000;
- d) Travels and Meetings showing savings of about DKK 100,000.

Deviations from the budget occurred mainly from the need to handle the difficulties faced through the ill-health and eventual resignation of the Fisheries Adviser.

In the subsequent discussion in the Committee, it was noted *inter alia* that for next year's meeting a supplementary document should be prepared by the Secretariat explaining the Income and Expenses for each of the Ongoing Projects.

The Committee signed the Accounts and Balance Sheet and also signed for the receipt of the Long-Form Audit Report.

Agenda Item 4 ESTIMATED ACCOUNTS FOR FINANCIAL YEAR 1998/1999

The General Secretary reviewed the Estimated Accounts for the Financial Year 1998/1999 (Doc. C.M. 1999/Del:4). He pointed out that:

- 1) Under Income
 - a) All National Contributions had been paid in full;
 - b) Other Contributions were expected to be in general accord with the budget. However, HELCOM was involved in significant reorganisation and budgetary issues, but it was expected that it would be able to make its contribution in full to ICES before the end of the current fiscal year;
 - c) Sale of Publications provided little revenue. Budgeted income from this post had been significantly over-estimated previously for a number of years, and more accurate prognoses have been established for 1999/2000.
- 2) Under Expenditure
 - a) Salaries were in balance for Professional- and General Service-grades, but Periodic Assistance would probably be overspent to cover final payments for external contracts for 1997/1998 and was paid at the beginning of this fiscal year. Unbudgeted costs have been incurred on recruitment procedures for the new General Secretary position;
 - b) Office Expenses were in balance, but printing costs within this area would be exceeded due to the substantial number of internal publications (e.g. *ICES CRRs*) issued this year;
 - c) EDP Expenses were in balance;

- d) Expenses for Travel and Meetings would be less than budgeted. This was due *inter alia* to reduced costs for the 1999 ASC owing to substantial savings in travel through the co-sponsorship of airfares of some Secretariat staff and ICES Officials under this year's special arrangement;
 - e) Publications costs were less than budgeted, despite significant activities. The introduction of new production measures (e.g. printing 'on-demand', greater use of Information Technology) had significantly reduced costs. New ICES records would be set in the current year for the number of Internal Publications (e.g. *CRRs*; *Identification Leaflets*) produced.
- 3) It was expected that there would be a satisfactory balance between Income and Expenditure for the year as a whole, despite the 1998/1999 Budget being the most difficult in recent memory.

After some discussion, the Committee accepted the Estimated Accounts for 1998/1999 and recommended their approval by the Council.

Agenda Item 5 DRAFT BUDGET FOR FINANCIAL YEAR 1999/2000

The General Secretary summarised the draft Budget for the Financial Year 1999/2000 (Doc. C.M. 1999/Del:5) He drew attention to changes compared to the Forecast Budget as adopted by the Council at the 1998 ASC:

- 1) Income had been revised upwards to better reflect recent agreements with the Client Commissions according to WGOOP and Memoranda of Understanding;
- 2) Salaries had been adjusted upwards by about DKK 272,000 compared with the Forecast Budget to *inter alia* reflect establishment and repatriation costs of the incoming and outgoing General Secretaries, and the agreed upgrading of the IT Assistant from C4 to C6;
- 3) Publications had been increased slightly for *CRRs*;
- 4) Pensions have been increased reflecting a change by one P5 staff member from Personnel Services;
- 5) Excess of Expenditure over Income from 1996/1997 (DKK 94,979) had been carried over as an Expenditure according to ICES protocols;
- 6) "To Cover Extra Facilities and Work Needs" had been included to account for the DKK 189,350 generated Excess of Income over Expenditure.

In the subsequent discussion in the Committee, it was noted *inter alia* that the money connected with point 6 above should be transferred to the Capital Reserve Fund to replace, in part, the sum taken from the CRF for the Advisory Honoraria.

The Committee accepted the draft Budget for 1999/2000 and recommended its approval by the Council.

Agenda Item 6 DRAFT FORECAST BUDGET FOR FINANCIAL YEAR 2000/2001

The General Secretary noted that the Draft Forecast Budget for the Financial Year 2000/2001 had been produced at the January 1999 Bureau Meeting and issued in February 1999 as Doc. C.M. 1999/Del:6. He noted *inter alia* that:

- 1) The Income comprised of
 - a) National Contributions, which was increased by 5% relative to the 1999/2000 Draft Budget;
 - b) Commission Contributions, which showed a substantial increase relative to the 1999/2000 Draft Budget, to reflect progress towards 100% cost recovery according to Doc. C.M. 1998/Del:10.
- 2) The Expenditure items with respect to:
 - a) Salaries, with the increase covering both salary steps and inflation increases of current staff as well as the proposed new positions (P2 Database Manager, two separate half-time C4 posts for Office Management and Meeting Organisation and Documentation Group), elevation of the IT Assistant as agreed under Agenda Item 4 from C4 to C6, and Personnel Services reflective of these changes;
 - b) Office Expenses increased, to reflect realistic requirements;
 - c) ADP Expenses increased, reflecting the new workplaces;
 - d) Council Meeting Expenses showed no change compared with the previous year;
 - e) Travels, Meetings etc. showed no change as a whole compared with the previous year;
 - f) Publications increased slightly compared with the previous year;
 - g) Pensions increased, in accord with the Salary changes;
 - h) The new post 10 to Cover Extra Facilities and Work Needs, amounting to DKK 566,375. This could *inter alia* include 'Resources to match requirements of Working Groups and Committees meeting at ICES Headquarters', and 'Rebuilding the Capital Reserve Fund' according to guidelines approved at the 1997 ASC.

In the subsequent discussion in the Committee, it was noted *inter alia* that an increase of 5% for national contributions might be difficult to be accepted in the Member Countries. Therefore, the Committee proposed that the Forecast Budget for 2000/2001 be submitted to the Council for further consideration within the procedure of approval.

Agenda Item 7 APPOINTMENT OF AUDITORS FOR 1999/2000

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 8 MATTER REFERRED TO
SECRETARIAT BY FINANCE
COMMITTEE**

The Chair drew attention to Doc. C.M. 1999/Fi: Working Paper, and noted that this document had been prepared by the Secretariat in response to a request from the Finance Committee at its 1998 ASC Meeting. The Secretariat had been requested to 'prepare for the future, an Explanatory Note for new members of the Committee informing *inter alia* about the terminology that was specific to ICES in the various finance documents, the Rules of Procedure applying to the Committee, and agreed guidance provided by the Council regarding the Capital Reserve Fund (CRF).'

After some discussion, the Committee noted the usefulness of the document. Due to an oversight, information concerning the CRF had been inadvertently omitted, and the Committee proposed that this should be remedied by the Secretariat in time for the Committee's meeting at the 2000 ASC.

**Agenda Item 9 MATTERS REFERRED TO
COMMITTEE BY BUREAU OR
COUNCIL**

The Chair noted that Doc. C.M. 1999/Del:3 had been referred to the Committee and that its views on this issue would be reported to the Council.

Documents

Fi:1* Agenda for Finance Committee

After some discussion, the Committee noted that:

- The issue of covering necessary funds was related to a two-month period, i.e. November and December;
- Either the Forecast Budget for 2001/2002 would need to be extended to cover 14 months, i.e. 1 November 2001 to 31 December 2002, or that an additional two-month Budget should be established to cover from 1 November 2001 to 31 December 2001;
- Several models for covering the costs could be considered: 1) with a full increase by about 16% plus the inflation rate, 2) using a two-step increase with each step being about 8% plus the inflation rate, bridged by the Capital Reserve Fund and refunded to the CRF the year after, 3) multiple step increases over a longer time period accompanied by appropriate bridging and refunding using the CRF.

Agenda Item 10 ANY OTHER BUSINESS

There being no matters raised under this item, the Chair noted that this would be the last meeting in the Committee of Dr N. Riekstins and J. Browne. He expressed his gratitude and that of the Committee for the laudable manner in which they had served the Committee. He thanked all the Committee members and the ICES Secretariat for their support.

PROFIT AND LOSS ACCOUNT FOR THE PERIOD 1 NOVEMBER 1997 – 31 OCTOBER 1998

Note	Final Accounts 1997/1998 DKK
Income	
1 National Contributions	14,787,300
2 Other Contributions.....	4,344,063
Sale of Publications	114,124
3 Miscellaneous Income	752,536
Ongoing Projects	657,128
Observers Contributions	84,800
	20,739,951
Expenditure	
4 Salaries	12,935,991
5 Office Expenses	1,651,712
EDP Expenses	1,309,373
6 Travels and Meetings.....	2,635,786
Publications	133,660
Pensions.....	1,121,522
Incidentals for President and Chairmen.....	446,200
Extraordinary expenses write off of NAFO Maps and stock	16,740
Expenses for Ongoing Projects	657,128
	20,908,112
Operating Result	- 168,169
7 Interest Receivable.....	685,011
Interest Payable	0
Profit for the Year.....	516,850
Allocated as follows	
Interest transferred to Capital Reserve Fund.....	189,982
Excess of Income 1997/1998	326,868
	516,850

BALANCE SHEET AT 31 OCTOBER 1998

Note		DKK	DKK
	ASSETS		
	Current Assets		
	Stocks		54,420
	Debtors		
	Prepaid Creditors	151,105	
	Unpaid Contributions	351,231	
8	Other Debtors.....	694,591	
	Total Debtors		1,196,927
9	Investments		6,140,186
	Cash at bank and in hand		10,761,281
	TOTAL ASSETS		18,152,814

BALANCE SHEET AT 31 OCTOBER 1998

Note

LIABILITIES

10 Total Capital and Reserves	2,282,495
Prepaid Contributions	14,695,500
Prepaid Ongoing Projects	297,759
Young Scientist Fund	380,122
Hydrocarbon Measurement Exercise	10,907
11 Other creditors	97,910
Publications	388,120
Total creditors	15,870,319
TOTAL LIABILITIES	18,152,814



Christopher C. E. Hopkins
General Secretary



Jytte Andersen-Rosendal
Office Manager

AUDITORS' REPORT

We have audited the final accounts of the International Council for the Exploration of the Sea for 1997/1998.

Basis of opinion

Our audit was carried out in accordance with Rule 20(vii) adopted at the 82nd (1994) Statutory Meeting in Canada and included such auditing procedures as we considered necessary.

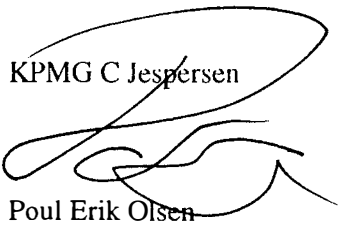
Our audit has not given rise to any qualifications.

Opinion

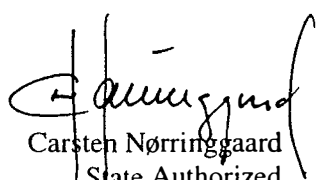
In our opinion, the final accounts of the International Council for the Exploration of the Sea as at 31 October 1998 present fairly assets and liabilities, the financial position and profit for the year.

Copenhagen, 25 February 1999

KPMG C Jespersen

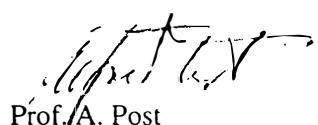


Poul Erik Olsen
State Authorized
Public Accountant

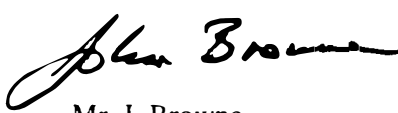


Carsten Nørringgaard
State Authorized
Public Accountant


Having scrutinized the Final Accounts and Balance Sheet, we recommend that the Bureau submits the document to the Council for approval.



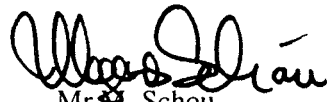
Prof. A. Post
Chairman



Mr. J. Browne
(Ireland)



Dr N. Riekstins
(Latvia)



Mr M. Schou
(Denmark)

Prof. Jan Thulin
(Sweden)

BUDGET FINANCIAL YEAR 1999/2000

INCOME

	Revised Budget 1998-1999	Approved Forecast Budget 1999-2000	Budget 1999-2000
	DKK	DKK	DKK
1. National Contributions			
Belgium	583,600	638,100	638,100
Canada	875,400	957,150	957,150
Denmark	875,400	957,150	957,150
Estonia	291,800	319,050	319,050
Finland	437,700	478,575	478,575
France	1,167,200	1,276,200	1,276,200
Germany	1,167,200	1,276,200	1,276,200
Iceland	875,400	957,150	957,150
Ireland	583,600	638,100	638,100
Latvia	291,800	319,050	319,050
Netherlands	875,400	957,150	957,150
Norway	1,167,200	1,276,200	1,276,200
Poland	875,400	957,150	957,150
Portugal	583,600	638,100	638,100
Russia	875,400	957,150	957,150
Spain	875,400	957,150	957,150
Sweden	875,400	957,150	957,150
United Kingdom	1,167,200	1,276,200	1,276,200
USA	875,400	957,150	957,150
Total	15,319,500	16,750,125	16,750,125
Interest	400,000	400,000	400,000
Sale of Publications	150,000	150,000	50,000
Other Contributions	4,467,627	4,666,800	5,402,710
Scientific Observers' Contributions	62,100	86,000	86,000
Transfer from Capital Reserve Fund	200,000	0	0
GRAND TOTAL	20,599,227	22,052,925	22,688,835

EXPENDITURE

	Revised Budget 1998-1999	Approved Forecast Budget 1999-2000	Budget 1999-2000
Incidentals for President and Chairmen.....	255,800	55,800	55,800
Salaries.....	13,079,110	14,317,000	14,589,620
Office Expenses.....	1,887,600	2,082,400	2,085,550
ADP Expenses.....	1,235,875	1,281,700	1,281,700
Expenses for ASC 2000, Belgium.....	675,000	710,000	710,000
Travels, Meetings,etc.....	2,306,000	2,180,021	2,180,000
Publications.....	324,000	464,025	468,900
Pensions.....	835,842	867,000	1,032,936
Excess of Expenditure over Income 1996/1997.....		94,979	94,979
To Cover Extra Facilities and Work Needs.....			189,350
GRAND TOTAL	20,599,227	22,052,925	22,688,835

REPORT OF PUBLICATIONS COMMITTEE

Chair: Professor P. R. Boyle

The Committee met on 1 October from 8.30 to 13.00. The meeting was attended by three members of the Committee in addition to Professor Evald Ojaveer on behalf of the Bureau, John Ramster, Dr Andrew Richford of Academic Press, and the ICES Senior Editor.

Agenda Item 1 INTRODUCTION

The Chair opened discussion by briefly reviewing the main conclusions and recommendations stemming from the 1998 meeting of the Committee. Participants had agreed that several serious delays in handling publications—mostly attributable to inadequate staff time and funding to meet commitments made by the Council—had led to what could be termed an internal publications crisis. In order to underline the Committee's views as strongly as possible the Chair had presented a personal summary of the meeting, rather than the customary Committee report, to the Delegates. They had expressed considerable interest and concern at the time; however, what had happened during the intervening year was not entirely clear, so it was hoped that the current meeting could provide further information.

Agenda Item 2 APPROVAL OF AGENDA

The Draft Agenda (Doc. ICES CM 1999/Pub:1) was presented and accepted. Since it was simpler than those of most recent years, there should be time for detailed discussion of two subjects in particular: Agenda Item 4, the *ICES Journal of Marine Science*, and Agenda Item 12, ICES Publications and Electronic Media.

Agenda Item 3 REVIEW OF ICES PUBLICATION ACTIVITIES IN 1998/1999

Doc. ICES CM 1999/Pub:2, a standard document providing an update on ICES serial publications since the previous Annual Science Conference, provided background information that would be elaborated upon in other reports as specific Agenda Items.

Pub:2 showed that notable progress had been made in processing much of the material which had long lain dormant and been the focus of special attention and concern during the 1998 meeting. Committee members were especially interested in knowing whether the increased production could be sustained for the foreseeable future, but reluctantly accepted for the time being that no assurances could be given since matters were in a state of flux; and this issue would subsequently be discussed in greater detail.

The section of Pub:2 on the *ICES Journal* referred to "Serious delays in the submission of the manuscripts" in connection with the proceedings of the ICES Symposium on "Recruitment Dynamics of Exploited Marine Populations:

Physical-Biological Interactions" held in Baltimore in 1977; it should be made clear that the authors were not responsible for these delays, which had occurred during the early editorial stages.

Agenda Item 4 ICES JOURNAL OF MARINE SCIENCE

Agenda Item 4.1 Editors' Report for 1998/1999

The Editor-in-Chief commented on how very useful it had been to join the other three Editors of the *ICES Journal* in Aberdeen for a two-day meeting in January, which was also attended wholly or in part by the Chair of the Publications Committee, Academic Press staff, and the ICES Senior Editor. Two of the Editors were relatively new to their tasks, and thus the meeting had provided a valuable opportunity to co-ordinate the work of all concerned on a common basis. Participants agreed that arrangements should be made for all the Editors to meet every second year at ICES Annual Science Conferences at ICES / Academic Press expense; this would not cost more than the present arrangements for editorial meetings.

Doc. ICES CM 1999/Pub:3 provided an overview of activity during the year 1998/1999 in addition to detailed information on the handling of symposium proceedings. In future versions of the report, statistics would be based on calendar years, which would make them easier to follow.

Continuing the upward trend of recent years, a record number of manuscripts had been submitted for publication in the regular mixed issues: 134, compared with 105 in 1997/1998. Given resource limitations the Editors had continued to work on honing selection criteria to ensure publication of the best material in the shortest time.

A standard volume of the *ICES Journal* each year consisted of four issues containing articles on a mix of topics and two issues containing proceedings stemming from ICES Symposia. However, the late submission of material for two symposium numbers meant that only one set of proceedings would be issued in 1998 and 1999 respectively rather than the customary two. In 1999 the only symposium number in the regular series would be "Confronting Uncertainty in the Evaluation and Implementation of Fisheries-Management Systems" (Cape Town, 1998), scheduled for publication as Vol. 56, no. 6. There would, however, be a second set of proceedings, "Brackish Water Ecosystems" (Helsinki, 1998), issued as a special supplement to Vol. 56, with a cover date of December 1999: the first in the series to be published on a full cost recovery basis on the grounds that it fell outside the previously agreed schedule for two sets of proceedings. All costs except those relating to the Secretariat's input would be covered by external funding secured by the Symposium Convener.

A standard number had replaced a proceedings number in both 1998 and 1999, thereby eliminating a backlog of papers. However, these immediate benefits were overshadowed by the other difficulties created by the disruption in the announced schedule. The sudden arrival of a great flood of papers from various symposia had strained capacity and was continuing to create editorial and production problems that would stretch over the coming year and beyond.

Arrangements had been made to accommodate one set of delayed proceedings in 2000, those stemming from the ICES Symposium on "Marine Benthos Dynamics: Environmental and Fisheries Impacts" (Crete, 1998). Unfortunately, however, there was still no resolution to the problem discussed already at last year's meeting: the continuing delay in delivery of papers from "Recruitment Dynamics of Exploited Marine Populations: Physical-Biological Interactions" (Baltimore, 1997), which was compounded by the lack of satisfactory contact with the Guest Editor. To date only about half the material projected (26 of 53 contributions) had reached the Editor-in-Chief, and the prospects for the remainder were uncertain. The situation was untenable for those authors whose work had been accepted and who could not understand why it had not yet appeared in print, as well as for those who had submitted material but still not been informed about its status. Both groups had expressed distress and irritation over this unsatisfactory state of affairs.

Following detailed discussion of the several issues involved, the Committee gave its complete support to the proposal made by the Editor-in-Chief: publish the papers in hand as soon as possible in one issue, and publish those that arrived later in a second issue. It was clear that splitting the proceedings into two separate parts was not an ideal solution, and this would generate its own problems; nonetheless, it was important—particularly for the sake of those authors whose contributions had already been cleared for publication and accordingly taken out of circulation—to put this material into production before its value deteriorated irredeemably through further postponement.

With respect to the contributions that had not yet been delivered to the Editor-in-Chief, the Committee supported the proposal that ICES, through the General Secretary, approach the Guest Editor to request that all outstanding material, including work submitted, referees' reports, and supporting correspondence, be delivered to the Editor-in-Chief by a set date, for consideration for the second proceedings issue. In the interim, the US Delegates would be consulted for their views on how matters could best be expedited. The Committee also agreed that the current "Guidelines for Guest Editors" should be expanded to make it clear that ICES Symposium material submitted for publication in the *ICES Journal* belonged to the Council. This would make it easier to request, if necessary, that material be turned over to ICES as its rightful property.

Throughout the examination of the various implications as well as the practicalities, financial and otherwise, involved in publishing the two separate proceedings issues, Committee members stressed the importance of continuing to focus on

offering the authors involved as much assistance as could possibly be mustered.

Agenda Item 4.2 Academic Press Publisher's Report for 1998/1999

Doc. ICES CM 1999/Pub:4 was presented by Dr Richford. Subscription figures in the report were tallied by different systems depending on whether they reflected statistics on paper or electronic versions of the *ICES Journal*, so they might require clarification, but the overall picture indicated that they were robust against, for example, recent price rises. It was expected that the December 1999 figure would be similar to that for the preceding year, with 335 institutional subscriptions.

The average publication time between the acceptance of material by Academic Press (AP) and its dispatch was down to about five months, and the six standard numbers published between October 1998 and August 1999 had met, or been issued soon after, their cover dates. The symposium proceedings that had missed their originally scheduled dates in 1998 and 1999 could be accommodated in 2000 by working with a page budget with a rolling average. For 2001 the matter could be revisited if it looked as though more pages would be needed.

The *ICES Journal* had been displayed at relevant science meetings as usual, and a glossy flyer for a mail shot was being planned. However, promotion continued to be focused on AP's online journals library, which enabled members of subscription consortia to access full-text versions of articles. Compared with 1997/1998, the average number of downloads of pdfs of *Journal* articles had increased during the preceding nine months from 3.45 to 4.12 per day, a satisfying result. The programme of electronic access licences introduced by AP had been successful; the prospects for further development lay in this area and would be pursued.

Academic Press continued to develop its capacity to accommodate electronic submission of material for publication, including administering a facility in Cambridge for handling ftp files. To this end ICES would eventually be assigned an e-mail address linked to AP's server.

The ICES / Academic Press joint account for 1998 continued the upward swing noted the preceding year. For 1997 the net profit for the year had been £20 979, and for 1998 it was £38 040. The cumulative loss built up since 1991 was thereby reduced to £31 526. If subscription figures remained steady the shortfall could be eradicated by the end of 1999, eventually generating a surplus. The Committee agreed that such a surplus ought to be retained by ICES if possible for publication purposes. For the first time, the joint account showed revenue derived from the site licence system serving subscription consortia. This amounted to £11 113 (10% of total revenues), another indication of the increasing role played by electronic distribution of the *ICES Journal*.

It was important to continue to concentrate on attracting the best possible material for publication in the journal, making

sure it retained its present size in the first instance and then increasing it as needed. From the publisher's standpoint it was gratifying to note that the overall picture for the *ICES Journal* in recent years had been extremely healthy.

**Agenda Item 5 ICES COOPERATIVE
RESEARCH REPORT SERIES**

The progress made in eliminating much of the substantial backlog of unprocessed CRRs that had built up in recent years was reported in Doc. ICES CM 1999/Pub:5 and noted with approval. Twelve numbers in this series had been issued since the last ASC, a record not seen since the late 1970s, and a striking improvement compared with the single number produced during the preceding period. The backlog of material had also been reduced by acting on the proposal endorsed by the Council in 1997: after conferring with prospective authors and editors, making defunct those numbers that had not been received in satisfactory condition by the Secretariat within three years of the Council Resolution for their publication.

Members of the Committee were pleased to note that the hindrances to publication described in the Editor's Report in 1998—including funding constraints that had sharply reduced the original budget allocation and a severe shortage of capacity in the Secretariat, owing to the setting of other priorities—had been overcome in 1998/1999, and that it had been possible to make more resources available than those foreseen a year earlier. At the same time, the Committee expressed its hope that staff resources and funding could be coordinated with publishing commitments made by the Council and put on a stable footing to ensure that the current evidence of progress could be maintained.

The following views were advanced: The ACFM and ACME Reports did not properly belong in the CRR series; perhaps they could be published in a new series dedicated to ICES advice. Respecting the ACME Report it was difficult for those outside the Secretariat to understand the delay in its appearance, since the material was thought to be essentially complete soon after the meeting had closed. Further, certain working group reports that had undergone the equivalent of peer review by members of those groups could be said to carry ICES authority; they deserved to be more widely known and circulated, but how to bring this about—and whether they should be issued as CRRs or in a different series altogether—would also require further consideration.

**Agenda Item 6 ICES IDENTIFICATION
LEAFLETS FOR PLANKTON**

Doc. ICES CM 1999/Pub:6 listed the five numbers published in July and commented on the unfortunate delay in their appearance. Work on the "Plankton Leaflets" had been repeatedly postponed on account of a shortage of staffing resources in the Secretariat, but it was hoped that different procedures could help to reduce production time. The Editor had received promises for several new leaflets and would like to hear from anyone who would be interested in contributing new material or to revise or replace obsolete numbers.

In the past the decision to publish these leaflets had lain to all extents and purposes exclusively with the Editor. However, it would be best if a working group could take these leaflets under its wing so that need and the commitment to publish could be coordinated with available resources.

**Agenda Item 7 ICES IDENTIFICATION
LEAFLETS FOR DISEASES
AND PARASITES OF FISH
AND SHELLFISH**

Doc. ICES CM 1999/Pub:7 was presented. Six numbers in the "Disease Leaflets" series had been published in September. Like the "Plankton Leaflets" their appearance had been long postponed for similar reasons. The Committee noted with approval the Editor's proposals for new leaflets and the updating of those that had become obsolete, as well as initiatives for improving the series in several ways, including production of a set of new guidelines tailored to authors of the series. The Working Group on Parasites and Diseases of Marine Organisms continued to oversee these leaflets and, given the Council's limited resources for publications, would be able to advise on setting priorities for the sheets proposed.

**Agenda Item 8 ICES TECHNIQUES IN MARINE
ENVIRONMENTAL SCIENCES**

Doc. ICES CM 1999/Pub:8 reported the publication the previous autumn of four numbers that had been long under way owing to resource problems in the Secretariat. Four others were scheduled for imminent publication; two approved by Council Resolution had recently been received; and another would be presented for Council approval at the current ASC. The appearance of four numbers represented a clear improvement compared with the situation described the year before, but it was regrettable that it had taken so long to publish them, and the same would be said of some of the others in the pipeline, which could be a bit dated even before they appeared in print. Numbers in this series were much in demand, but their impact depended greatly on timely publication. Some of the techniques described were integral to international monitoring programmes which could themselves be held up when publication was delayed. Noting that there was no sign that provision for increased staff resources had been made to prevent recurring delays, the Committee stressed the need to continue to look for ways to support and sustain prompt publication of the material in this series.

**Agenda Item 9 REPORT ON THE SECRETAR-
IAT'S RESPONSE TO PUBLICA-
TION MATTERS RAISED BY
THE COMMITTEE DURING
THE 1998 ASC**

Doc. ICES CM 1999/Pub:9, prepared by the General Secretary, reported that matters of concern raised by the Chair of the Publications Committee at the previous ASC had been considered by the Bureau during its January and June meetings. Reports presented at those meetings (respectively Bureau Docs. 1131 and 1154) were attached as Annexes 1 and 2. Pub:9 called attention to the significant improvements

made in clearing the backlog of material compared with the situation a year earlier. This had been achieved by according greater priority to publications-related work, involving, for example, the use of extra hours by staff on top of other tasks.

Professor Ojaveer commented on the Bureau's discussion of these matters: members had confirmed the importance of the publications as an essential part of the Council's core programme. The Bureau considered publishing to be one of the main functions of ICES and accepted that publications were "the face of ICES", deserving of support by adequate funding as well as the necessary staff resources, including the possibility of upgrading a vacant post to one for an Information Scientist as the Secretariat had proposed in January.

The Committee welcomed the Bureau's expression of interest and concern. Members were also pleased to note the greatly increased rate of publication compared with recent years. Of primary interest, however, was the question of whether the improvements could be sustained, lest the publications harbour once more in the former situation, with many numbers stalled by lack of resources and plans for handling them. In spite of the progress made over the past year there continued to be significant delays, of particular consequence for material on techniques, for example; such publications lost their validity if they were not rapidly processed.

The customary display of recent ICES publications with general information on ordering them had not been set up for the opening of the current ASC. These publications had been shipped to the conference centre but, along with a flyer advertising the *ICES Journal*, had not been unpacked and placed where they could be seen. An obvious opportunity for making the publications better known to a potentially interested public had thus been wasted, according to Committee members, who requested that their criticism be minuted.

It was not evident that staff would be able to deal in a satisfactory way with publications work over the long run in addition to their other responsibilities, which did not appear to have been reduced. Given the Bureau's apparent acknowledgement of the importance of the publications, the Committee would have liked to see a clear plan for handling the work, from Council Resolution through final production. Such a plan would require analysing the necessity for particular publications and matching Council commitments to resources. Bureau Doc. 1131 referred to a new project in the Secretariat Workplan for 1998/1999, DP2, "to *inter alia* better focus on Internal Publications", but there was no indication of how this was actually to be implemented, nor had a project leader been named to guide and direct the work.

Apart from the question of appointing an Information Scientist to lead Project DP2, perhaps the Council should establish a specific post for an editorial assistant to break the pattern of repeated delays that occurred when publications had to be handled in the margins of other work by staff whose primary tasks were determined by different priorities. If permanent posts could not be established, the Council should be able to engage professional assistance on a contract basis to try to avoid the worst and most prolonged publication delays.

While such measures as increasing the staffing facilities would undoubtedly provide great day-to-day relief in the Secretariat, it was suggested that the underlying problem was more basic: although Council entities voiced their support for the publications, the need had not been defined in a way that made it obvious that resources must be made available over a long time span. Unless the publications could be placed on a stable footing it was not unlikely that they would have to go on competing for staff time and funding in the Secretariat, to the extent they were viewed as expendable when other needs arose. At times they appeared to be seen mainly as a drain on resources and thus in need of curbing, rather than as a valuable asset to the Council both now and far into the future.

Agenda Item 9: Conclusions and recommendations

In line with its advice in 1998, the Committee considered it most important that the Council give immediate attention to: (1) carefully weighing the need for individual publications before approving them, (2) matching commitments to resources, (3) seeking professional advice and services from external sources to supplement staff resources.

Agenda Item 10 CENTENARY PUBLICATION PLANS

John Ramster, a member of the Bureau Working Group on the Planning of the ICES Centenary, brought the Committee up to date on publishing plans relating to the Centenary. Dr Helen Rozwadowski was continuing to work on the book she had been commissioned to write about the Council's history and which was scheduled for publication in 2002, the Centenary year. Plans were still in hand for reissuing "Study of the Sea", the anthology of articles from ICES publications edited by Edgar M. Thomasson, former ICES Librarian and Information Officer, with the addition of updated material.

The proceedings of the ICES Symposium on "100 Years of Science under ICES" (August 2000, Helsinki) would probably be published in the series *ICES Marine Science Symposia* in 2001. The Open Lecture by David de G. Griffith, "On the Evolution of ICES", and the four Centenary Lectures presented at the current ASC, might be included in the same volume, and the Convener and Guest Editor, Dr Emory D. Anderson, would be asked to consider the possibilities. Magister Jens Smed, former ICES Hydrographer, had written several informal articles on ICES historical themes, and suitable publishing outlets for them would also be investigated.

It was suggested that a special Centenary logo be developed and printed on the covers of the *ICES Journal* and other ICES publications in 2002.

Agenda Item 11 ROLE OF ICES PUBLICATIONS IN THE WORK OF THE COUNCIL

The discussion of this topic during the 1998 meeting of the Committee had been linked to Doc. ICES CM 1998/Del:15/Gen:4, the Report of the Bureau Working Group on Strategic Planning. The draft of the Strategic Plan, to be developed until it was presented in 2002 as the Centenary

Strategic Plan, would play a central part in the formulation of ICES' long-term goals and their realization. Del:15/Gen:4 had mentioned the role of ICES publications several times and had cited the ICES Convention and its reference to publishing as one of the fundamental purposes of the Council. Although members of the Committee had expressed their great interest in supporting the ideas and proposals put forth, it had not been possible during the preceding year to establish contact with the relevant parties to develop them. They would like, however, to restate their support for the ideas contained in the draft Strategic Plan and their continuing interest in helping to strengthen the publications so they could meet the expectations projected in the Plan.

Agenda Item 11: Conclusions and recommendations

The role of ICES publications in the work of the Council could not be seen to have changed in any appreciable way since the issue was reviewed in 1998, but members wished to draw attention once more to one of the principal aims of ICES as stated in Article 1 of its Convention:

“to publish or otherwise disseminate the results of research and investigations carried out under its auspices or to encourage the publication thereof”.

Agenda Item 12 ICES PUBLICATIONS AND ELECTRONIC MEDIA

The importance of exploiting the possibilities inherent in the World Wide Web as a medium of publication had been a principal theme of discussion throughout the 1998 meeting of the Committee. For the *ICES Journal*, abstracts of articles and, for members of subscription consortia, full-text versions, continued to be available from the AP Website. Several suggestions had been put forward concerning material that ought to be made available from the ICES Website, such as CM papers with unlimited distribution and specific publications. During the intervening year it had only been possible to act on these suggestions in a limited way, principally owing to a shortage of staff resources and lack of time to develop a policy on use of the Web. Although certain publications had been placed on the ICES Website during the year their status was tentative and exploratory in nature; readers could not download and copy the material. Participants expressed great regret that it had not been possible to

follow up on such an important priority and would again urge ICES to pursue the goal of using the Web, possibly with professional assistance, to make its publications better known and available to a wider public.

CM documents presented during ASCs lay outside the customary remit of the Publications Committee. However, as at other meetings in recent years, members expressed considerable interest in exploring the possibilities for improving their distribution. Since 1981 full collections of papers had been available on microfiche and chiefly distributed to libraries, but starting with the 1998 ASC they were to be issued in CD-ROM format instead. The Consultative Committee had solicited the views of the Publications Committee (Doc. ICES CM 1999/ A:5) on this development. The CD for 1998 was demonstrated by the Chair. Following detailed discussion, the Committee commended its several advantages, particularly the search capability for key words. It was unfortunate that for the immediate future complete years could not be available before ASCs, but the CDs were a great step forward and their convenience and utility indisputable.

Agenda Item 12: Conclusions and recommendations

The Committee urged once more that the Council find ways to support the use of electronic facilities for publication, investing if necessary in professional services. The appearance of CM papers in CD format constituted great progress in making them available and should be continued and enhanced.

Agenda Item 13 MATTERS REFERRED TO COMMITTEE BY BUREAU AND COUNCIL

No specific issues were referred to the Committee.

Agenda Item 14 ANY OTHER BUSINESS

The Chair would present a personal summary of the Committee's discussion to the Delegates as he had done in 1998, rather than the customary long report, as a more effective way of drawing their attention to matters of particular importance. There being no other business, the Chair thanked members for their participation, and the meeting was adjourned at 13.00.

Documents

Pub:1	Agenda for Publications Committee
Pub:2	Review of ICES Publication Activities in 1998/1999
Pub:3	<i>ICES Journal of Marine Science</i> : Editors' Report for 1998/1999
Pub:4	<i>ICES Journal of Marine Science</i> : Academic Press Publisher's Report for 1998/1999
Pub:5	<i>ICES Cooperative Research Report</i> series: Editor's Report for 1998/1999
Pub:6	<i>ICES Identification Leaflets for Plankton</i> : Editor's Report for 1998/1999
Pub:7	<i>ICES Identification Leaflets for Diseases and Parasites of Fish and Shellfish</i> : Editor's Report for 1998/1999
Pub:8	<i>ICES Techniques in Marine Environmental Sciences</i> : Editor's Report for 1998/1999
Pub:9	Report on the Secretariat's Response to Publication Matters Raised by the Committee during the 1998 ASC

REPORTS OF SCIENCE COMMITTEES AND THEME SESSIONS

Reports of Science Committees

The seven Science Committees hold their annual meetings during the Annual Science Conference/Statutory Meeting. The reports of the 1999 meetings are in the following section. Each ICES Member Country can nominate a maximum of two members to each Science Committee, but the Committee meetings are open meetings which may be attended by any participant at the ASC. Only the nationally nominated members may vote in, for example, elections for new chairs. An important function of each Science Committee is to oversee the work of the Working Groups and Study Groups which it parents. It is responsible for ensuring that draft resolutions prepared by Working Groups and Study Groups are consistent with the scientific remits of the Committee. The Draft Resolutions are then passed to the Consultative Committee, and after review by that Committee are considered by the Delegates. The Draft Resolutions that are endorsed by the Delegates become Council Resolutions.

Reports of Mini-Symposium and Theme Sessions

Theme Sessions have been designed to address topical issues of immediate relevance to ICES, and are considered essential to the enhancement of the interdisciplinary role of ICES.

At the 1999 Annual Science Conference the following Theme Sessions were held:

- Mini-Symposium on Plans for Major International Programmes in the North Atlantic Region over the Next Decade: Should ICES Be Involved?:
Co-Conveners: Dr M. Reeve (USA) and Prof. P. Liss (UK)
- Application of Acoustic Techniques to Bottom Trawl Surveys (J) *Co-Conveners: M J. Massé (France) and O. Godø (Norway)*
- Application of Coupled Bio-Physical Models in Studies of Zooplankton and Ichthyoplankton Advection and Dispersion (K) *Co-Conveners: Dr E. Svendsen (Norway), Dr F. Werner (USA) and Dr K.F. Drinkwater (Canada)*
- Nordic Seas Exchanges (L) *Co-Conveners: H. Loeng (Norway) and Prof. J. Meincke (Germany)*
- 4-D Sampling of the Oceans at Micro- to Mesoscales (M) *Co-Conveners: Dr J.H. Steele (USA), Dr G. Griffith (UK) and Dr O.A. Misund (Norway)*
- On Management and Mitigation for Harmful Algae (N) *Co-Conveners: H. Dahlin (Sweden), Dr L. Edler (Sweden) and H. Enevoldsen (IOC)*
- Global Change Aspects (O) *Co-Conveners: Dr R. Hendry (Canada) and Dr S. Jonsson (Iceland)*
- Sustainability Criteria (P) *Co-Conveners: Dr R. Stephenson (Canada) and Dr K. Stokes (UK)*
- The Language of Fisheries Science and Management (Q) *Co-Conveners: Dr E. Anderson (USA) and O. Hagström (EC-DG XIV)*
- The Relationship Between Fishing Capacity, Effort and Mortality (R) *Co-Conveners: E. Kirkegaard (Denmark), J.-J. Maguire (Canada) and M. Pastoors (Netherlands)*
- Evaluation of Complete Fisheries Systems: Economic, Social, and Ecological Analyses (S) *Co-Conveners: Dr G. Stefánsson (Iceland), Dr D. Lane (Canada) and Prof. J.G. Sutinen (USA)*
- The Bayesian Approach to Fisheries Analysis (T) *Co-Conveners: Dr R.J. Conser (USA) and M. Azevedo (Portugal)*
- The M-74 Syndrome and Similar Reproductive Disturbances in Marine Animals (U) *Co-Conveners: Dr B.-E. Bengtsson (Sweden), Dr D. Honeyfield (USA) and Dr S. Brown (Canada)*
- The North East Atlantic Environment – The Current Status (V) *Co-Conveners: Dr P.C. Reid (UK) and S. Carlberg (Sweden)*
- Health and Welfare of Cultivated Aquatic Animals (W) *Co-Conveners: Dr J.C. Holm (Norway) and Dr G. Claireaux (France)*
- Size-Based Processes in the Sea (X) (*Poster Session*)
Convener: Prof. J. Pope (UK)
- Cod and Haddock Recruitment Processes - Integrating Stock and Environmental Effects (Y) *Co-Conveners: Dr M. Heath (UK), Dr B. MacKenzie (Denmark) and Dr G. Marteinsdottir (Iceland)*
- Ecosystem Management - Can We Make it Operational? (Z) *Co-Conveners: Prof. J. Pope (UK) and Dr J. Rice (Canada)*
- Microprocessors and Things that Swim in the Ocean: Smart Tags in the Study of Marine Life (AA) *Co-Conveners: Dr K. Friedland (USA), Dr G. Arnold (UK), Dr G. Stenson (Canada) and Dr L. Karlsson (Sweden)*

Supplement 1: Reports of Science Committees

REPORT OF CONSULTATIVE COMMITTEE

Chair: Dr R.M. Cook

The Committee met during the following three sessions:

Tuesday 28 September	08.30 – 09.30 hrs
Monday 4 October	08.30 – 17.30 hrs
Tuesday 5 October	08.30 – 15.30 hrs

All members of the Committee, as well as the ICES Oceanographer and the ICES Environment and Fisheries Advisers, were present at each scheduled session. The ICES Administrative Secretary attended the first and last sessions. The nominated Chair of ACFM, T. Jacobson (Norway) attended the first session. The Chair-elect of the Mariculture Committee represented the current Chair of that Committee in the last two sessions.

Agenda Item 1 OPENING

The Chair welcomed the Committee and T. Jacobson at the start of the first session. He informed the Committee that the Meeting would focus on the Strategic Plan issues, and the handling of Recommendations.

Agenda Item 2 ADOPTION OF AGENDA AND TIMETABLE

The Chair submitted the draft Agenda. This was adopted. He noted that the first session would serve merely as a brief introduction to those Agenda Items connected with running the Scientific Sessions of the 1999 ASC.

Agenda Item 3 ARRANGEMENTS FOR ANNUAL SCIENCE CONFERENCE

Item 3.1 General Arrangements

The Committee noted the Meeting arrangements as indicated in the 1999 Handbook and the layout of the venue.

Item 3.2 Review of Programme Sessions

The Chair drew attention to the "Blue Card" which outlines the Theme Sessions, Business Sessions and rooms. There would be "a cash bar" for the Poster Session.

Item 3.3 Awards for Best Paper, Best Poster and Best Newcomer

It was agreed that an *ad hoc* group should be assembled to cover the various Theme Sessions in order to select papers for the awards. Each Science Committee would nominate a member to act on the *ad hoc* group under the leadership of John Ramster, an editor of the *ICES Journal*.

Item 3.4 Science Committee Sessions

The Chair drew the attention of the Committee to the draft initial Strategic Plan for ICES (Doc. C.M. 1999/Del: 20/ Gen:4). He requested that this be discussed in the Committees in order to provide feedback from members which might be included in future revisions of the plan. However, the present draft should serve as a basis for planning the next annual cycle of ICES science activities.

Agenda Item 4 ELECTION OF NEW COMMITTEE CHAIRS

Item 4.1 Mariculture Committee

The election of a new Chair of the Mariculture Committee took place at 13.00 hrs on 1 October. Dr A. Calabrese was elected to succeed Dr M. Héral, France.

Item 4.2 Vice-Chair of the Consultative Committee

Following discussion in the Bureau, it was agreed that the present Vice-Chair (S. Carlberg, Sweden) could continue as Vice-Chair for a further year although he was stepping down as Chair of ACME. The Rules of Procedure do not preclude this, and S. Carlberg agreed to continue in office as Vice-Chair of the Consultative Committee.

Item 4.3 ACFM and ACME

The Committee noted that T. Jacobsen (Norway) and Prof. H.-R. Skjoldal (Norway) were unanimously nominated to serve as Chairs of ACFM and ACME, respectively.

Agenda Item 5 CONDUCT OF 1999 ANNUAL SCIENCE CONFERENCE

5.3 Handling of Recommendations

The Chair noted that the Delegates had been sent a copy of draft Recommendations approved by the Consultative Committee at its mid-term meeting. The President had indicated he would try to elicit any comments on these from the Council at an early stage. The Chair also informed the Committee that the Bureau had agreed that any new Recommendations coming forward during the ASC should be drafted in the form given in Annex 4 of the Report of the June 1999 Mid-Term Meeting of the Consultative Committee. It was agreed that this procedure would be followed by the Committee. The Chair asked Committee members to ensure that the draft Recommendations agreed by the Consultative Committee, but not yet endorsed by their respective

Committees should be dealt with at an early stage in their Business Sessions.

Item 5.4 Review of the 1999 ASC

Committee members agreed that the Conference venue was very good. Attendance at the Committee Sessions had generally been satisfactory, and the sessions immediately preceding the Conference have proved successful though the number of Committee members attending was not high.

Most of the feedback on the Strategic Plan from the Committees was positive. Only a few minor amendments had been suggested and these were noted for future reference.

The quality of Theme Sessions was mixed. Some had been well attended while others were less so and the follow-up discussion was missing. Some concerns were expressed about the format of having only Theme Sessions without open papers. This probably explained the lower number of papers and posters at this year's ASC. The issue formed the subject of considerable debate in the selection of Theme Sessions for the 2000 ASC. Concern was expressed by the Chair of Living Resources about the loss of a "home" for some groups in the new Committee structure.

The changes in the format of the General Assembly were welcomed. It was felt that the duration of the Centenary Day Lecture Sessions was too long.

Agenda Item 6 MATTERS ARISING FROM THE 1999 ASC

Item 6.1 Future of Council Papers

It was noted that the Publications Committee had supported the idea of a CD-ROM for Council papers. The Committee felt that there would still be a need for some papers and reports to be available as hard copy. It was suggested that there should be a move towards a more paperless environment, although Working Group participants and Committee Chairs should still be entitled to receive reports on request.

The Committee decided to revisit the question of publication media for Council Meeting papers at its June 2000 Mid-Term Meeting.

Item 6.2 Future procedure for handling

Recommendations

It was felt that despite some problems, the procedure of considering draft Recommendations at the Mid-Term Meeting had been useful in expediting the work of the Committee and this process would be continued in 2000.

It was agreed that the Secretariat would provide a new form for draft Recommendations which included the supporting information set out in the 1999 Mid-Term Meeting report (Annex 4 in Doc. C.M. 1999/A:5).

Item 6.3 ICES Five-Year Strategic Plan

The Committee noted the timetable for the implementation of ICES Strategic Plan set out in Doc. C.M. 1999/Gen:4. The timetable was discussed and an outline format for a multi-year plan agreed. The Chair of the Living Resources Committee agreed to prepare a specimen implementation plan before the end of the year which would then be circulated to other Committee Chairs in the new year so that they could prepare plans in the same format. Further progress on these plans would be considered at the 2000 Mid-Term Meeting.

Item 6.4 Peer Review of Study/Working Group Reports

The Chair of the Oceanography Committee reported that his Committee had been very successful in eliciting quality reviews of Working Group reports. The Consultative Committee agreed that this was a significant advance in evaluating the work of such groups and urged all Committees to follow a similar procedure.

Agenda Item 7 2000 ANNUAL SCIENCE CONFERENCE (BRUGGE, BELGIUM): TOPICS, SPEAKERS, AND CONVENERS FOR OPEN LECTURE, MINI-SYMPOSIUM, AND THEME SESSIONS

Following a number of comments by participants at the 1999 ASC, the Committee discussed at length whether the format of only having Theme Sessions should be continued. It was finally agreed that some space should be made at the ASC for "open papers". However, not all the Committee Chairs agreed. It was decided to have 15 Theme Sessions and invite open papers in line with the Committee remits. This would allow all ICES scientists to submit papers in the event that no suitable theme was available. However, the number of such submissions which could be accepted might have to be restricted. A Draft programme, including a list of Theme Sessions proposed for the 2000 ASC is listed in **Table 1**.

Following a proposal from the Chair of the Baltic Committee, it was agreed that three Keynote Speakers would be invited to the Conference in addition to the Open Lecturer. It is proposed that one of these lectures will start the day's scientific session before the start of the Theme Sessions. **Table 1** includes details of the proposed speakers and preliminary titles.

Agenda Item 8 2001 ANNUAL SCIENCE CONFERENCE (OSLO, NORWAY): TOPICS, SPEAKERS, AND CONVENERS FOR THE OPEN LECTURE, MINI-SYMPOSIUM, AND THEME/JOINT SESSIONS

It was agreed that the format of having three to four Keynote Speakers should be continued in 2001. Members of the Committee will bring proposals for speakers to the next Mid-Term Meeting in 2000.

A provisional list of Theme Sessions for 2001 is given in **Table 2**.

Agenda Item 9 STATUS OF ICES SYMPOSIA

The Committee noted that a large number of symposia had been held in 1999 but that only one symposium was planned for 2000. In 2001 there would be one symposium with one additional co-sponsored event.

The following symposia are already approved for the years 2000-2002:

ICES Symposium on "100 Years of Science under ICES": Helsinki, Finland, 1-3 August 2000. Convener: Dr E. D. Anderson (USA).

ICES Symposium on "Capelin – What Are They Good For? Biology, Management and the Ecological Role of Capelin": Reykjavik, Iceland, Summer 2001: Co-Conveners: Dr H. Vilhjalmsón (Iceland) and Dr J. Carscadden (Canada).

ICES Symposium on "Hydrobiological Variability in the ICES Area, 1990-1999": Edinburgh, UK, 8-10 August 2001. Co-Conveners: Dr R. R. Dickson (UK) and Professor J. Meincke (Germany).

ICES Symposium on "Acoustics in Fisheries and Aquatic Ecology": Montpellier, France, 10-14 June 2002. Co-Conveners: Dr F. Gerlotto (France) and Dr J. Massé (France). Co-sponsors: Acoustical Society of America, UK Institute of Acoustics, Société française d'acoustique.

While no firm plans exist for beyond 2002, Committee members indicated that a number of suggestions had been made during the Conference, and it is expected that a number of proposals will be forthcoming.

The Committee agreed to a proposal for ICES to co-sponsor the International Fisheries Symposium to be held on 4-6 December 2000 in Bergen, Norway, on "Fish Stock Assessments and Predictions: Integrating Relevant Knowledge".

Agenda Item 10 DIALOGUE MEETINGS

The Committee noted the successful outcome of the 11th Dialogue Meeting between ICES, the Member Countries

and Clients. The Committee also noted that steps were being taken to organise a similar event with an environmental theme in 2000.

Agenda Item 11 MATTERS ARISING FROM THE PUBLICATIONS COMMITTEE

The Committee was informed of the Publications Committee concerns about the need to distinguish between scientific papers and reports in Council Meeting documents. After a short discussion, it was agreed that there may be a need to identify reports with a different coding system, but that more thought is needed on this topic.

Agenda Item 12 ADVISORY COMMITTEE MATTERS

The Chair of ACME noted that the Chair of the Working Group on Pathology and Diseases in Marine Organisms had indicated that material from his Working Group report was needed for other organisations before the ASC. The Chair of ACME proposed that in future the Mariculture Committee should review the report by e-mail, after which the report could be released.

Agenda Item 13 RECOMMENDATIONS BY ADVISORY AND SUBJECT AREA COMMITTEES

The Committee noted editorial changes to draft Recommendations agreed in June but which were still subject to review by their parent Committee. New Recommendations arising during the ASC were considered. **Table 3** lists the Working Groups, Study and Other Groups, and Workshops that were dissolved, established or renamed. **Table 4** lists the new Study/Working Group Chairs.

Agenda Item 14 MATTERS REFERRED TO THE COMMITTEE BY THE BUREAU

Following a request from the Bureau the Committee considered potential scientific projects which might coincide with the 2002 ASC so that the Member Countries' research vessels could assemble in Copenhagen (Denmark) as part of the Centenary celebrations. After some discussion, the Committee was unable to offer any proposals. It is suggested that Delegates are invited to examine their national cruise programmes to see if any modifications can be made to these to allow at least some vessels to visit Copenhagen.

**Agenda Item 15 TERMS OF REFERENCE FOR
THE MID-TERM MEETING
OF THE CONSULTATIVE
COMMITTEE IN 2000**

The Committee agreed to the terms of reference for the 2000 Mid-Term Meeting as given in the Council Resolutions.

Agenda Item 16 ANY OTHER BUSINESS

A memo received by the Delegates of Iceland was brought to the attention of the Committee. This drew attention to concerns that salmon biology may be getting insufficient attention within ICES. These concerns were reflected by others at the ASC and were echoed by the Chair of Living Resources Committee in relation to other subjects. The Committee shares some of these concerns and modifications have been made to the scope for paper

submissions at the 2000 ASC (see Section 7). However, the Committee could not support the idea of a Salmonid Management Committee since the concerns expressed in the note are already handled by ACFM and its relevant salmon Working Groups. Should such a Committee be appropriate, it would need to be considered by ICES bodies concerned with modifications to the ICES Advisory Structure.

The Chair of the Living Resources Committee noted that the present practice of holding Science Committee sessions in parallel militated against cross-Committee discussion. There were examples of several Study/Working Groups that were of interest to a number of Committees. After some discussion, it was agreed that the scheduling of Committee sessions at the ASC in 2000 would be carefully considered at the mid-term Meeting of the Consultative Committee in June 2000.

Table 1
Draft Programme
2000 ASC,
Brugge, Belgium

Open Lecture:

Fisheries and Conservation. A Programme for their Reconciliation by Prof. Dr D. Pauly (Canada).

Keynote Lectures:

1. **The “species-of-interest” approach in understanding Harmful Algal Blooms: Implications in modelling population growth of *Gymnodinium mikimotoi*** by Dr P. Gentien (France);
2. **How do extremes of climate variability affect biological production in estuarine systems?** by Dr A. E. Gargett (Canada);
3. **Turbulence in shallow tidal seas** by Dr S. Thorpe (UK).

Mini-Symposium:

Defining the Role of ICES in Supporting Biodiversity Conservation; Co-Conveners: Dr J. Rice (Canada) and Dr M. Tasker (UK).

Theme Sessions:

- J Efficiency, Selectivity and Impacts of Passive Fishing Gears;** Co-Conveners: A. Carr (USA) and G. Brothers (Canada)
- K Incorporation of External Factors in Marine Resource Surveys;** Co-Conveners: E. J. Simmonds (UK), Dr P. Petitgas (France), and Dr S. Walsh (Canada)
- L North Atlantic Processes;** Co Conveners: Dr W.R. Turrell (UK) and Dr T. Rossby (USA)
- M Environment – Plankton – Fish Linkages;** Co-Conveners: Dr K. Drinkwater, (Canada), P. Wiebe (USA), Prof. K. Tande (Norway), and Dr J. Runge (Canada)
- N Spatial and Temporal Patterns in Recruitment Processes;** Co-Conveners: Prof. E. Houde (USA), Dr P. Pepin (Canada), P. Munk (Denmark), and Prof. D. Schnack (Germany)
- O Sustainable Aquaculture Development;** Co-Conveners: Prof. H. Ackefors (Sweden) and Prof. H. Rosenthal (Germany)
- P New Trends in Fish Feeding in Aquaculture;** Co-Conveners: Dr J. Castell (Canada), C. Cahu (France), and S.J. Kaushik (France)
- Q Trophic Dynamics of Top Predators: Foraging Strategies and Requirements, and Consumption Models;** Co-Conveners: Prof. H. Gislason (Denmark), Dr K. T. Nilssen (Norway), and Dr M. Tasker (UK)
- R The Application of Experimental Laboratory Studies to Fisheries Science;** Co-Conveners: J. Schou Christiansen (Norway) and Prof. J. G. Pope (UK) (POSTER SESSION)
- S Temporal and Spatial Trends in the Distribution of Contaminants and their Biological Effects in the ICES Area;** Co-Conveners: Prof. Dr. R. Laane (Netherlands), Dr. P. Matthiessen (UK), and Dr T. Lang (Germany)
- T Classification and Mapping of Marine Habitats;** Co-Conveners: Dr D. de Jong (Netherlands), Dr J. Side (UK), and Dr R. Allee (USA)
- U Marine Biological Invasions: Retrospectives for the 20th Century – Prospectives for the 21st Century;** Co-Conveners: Prof. J. Carlton (USA) and Dr S.D. Utting (UK)
- V Medium-Term Forecasts in Decision-Making;** Co-Conveners: Dr K. Patterson (UK) and Dr P. Sandberg (Norway)
- W Cooperative Research with the Fishing Industry: Lessons Learned;** Co-Conveners: Dr G. Chouinard (Canada) and Dr M. Sissenwine (USA)
- X Fisheries Managers and Scientists on the Development of Reference Points and Management Systems for the Fisheries and Marine Ecosystem;** Co-Conveners: Dr J. Horwood (UK), Dr N. A. Nielsen (Denmark), Dr G. van Balsfoort (Netherlands), and Dr M. Sissenwine (USA)

Open Sessions:

In addition to contributions to Theme Sessions, a limited number of papers may be accepted which are of particular relevance to the Science Committees. These should be high quality original papers on new developments in marine science of interest to the ICES Community.

Table 2
Draft Programme
2001 ASC, Oslo (Norway)

Open Lecture:
(not yet determined)

Centenary Day:
Thursday afternoon

Mini-Symposium:

The Response of Cephalopod Populations and Fisheries to Changing Environment and Ecosystems; Co-Conveners: Dr U. Piatkowski (Germany), Prof. R. O'Dor (Canada), and T. Borges (Portugal).

Theme Sessions:

- J** **Changing Ocean Climate of the North Atlantic and Consequences for Gadoid Populations; Co-Conveners:** Dr F.E. Werner (USA) and Dr M. Heath (UK)
- K** **Population Dynamics, Exploitation, and Management of Shellfish; Co-Conveners:** Dr A. Smaal (Netherlands), Dr R.F. Addison (Canada), Dr E. Gonzalez-Gurriaran (Spain), and Dr R. Dufour (Canada)
- L** **Diversification of aquaculture production; Co-Conveners:** (proposed conveners to be contacted/awaiting confirmation)
- M** **Long-Term Effects of Culture Conditions on Juveniles; Co-Conveners:** (proposed conveners to be contacted/awaiting confirmation)
- N** **Sustainable Development and Conservation of Natural Resources of Coastal Zone (Theme or possible Mini-Symposium); Co-Conveners:** (proposed conveners to be contacted/awaiting confirmation)
- O** **Impact of Fish Behaviour on Living Resource Management; Co-Conveners:** Dr P. Fréon (France) and D. Skagen (Norway)
- P** **Case Studies in the Systems Analysis of Fisheries Management; Co-Conveners:** Prof. J.G. Sutinen (USA), Dr D.E. Lane (Canada), and Prof B. Rothschild (USA).

Table 3 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 1999 Annual Science Conference.

Type of Action	Name
Dissolved	<p>Working Groups Comprehensive Fishery Evaluation Working Group [WGCOMP] Working Group on Environmental Assessment and Monitoring Strategies [WGEAMS]</p> <p>Study Groups Future Requirements for Fishery Assessment Data and Software [SGFADS] Multi-Annual Assessment Procedures [SGMAP] Effects of Sandeel Fishing [SGESF] Division IIIa Herring [SG3AH] Management Performance of Fisheries Systems [SGMPFS] Marine Biodiversity [SGMB] Redfish Stocks [SGRS] Sea Trout [SGST] Baltic Acoustic Data (SGBAD) Multispecies Model Assessment in the Baltic (SGMMIB)</p> <p>Ad Hoc Groups ICES/GLOBEC North Atlantic Regional Coordination Group [RCG]</p>
Established/Re-established	<p>Working Groups Fisheries Systems [WGFS]</p> <p>Planning Groups Pelagic Acoustic Surveys in ICES Sub-Areas VIII and IX [PGPAS]</p> <p>Study Groups Discard and By-catch Information [SGDBI] Estimation of the Annual Amount of Discards and Fish Offal in the Baltic Sea [SGDIB] Mesh Measurement Methodology [SGMESH] Incorporation of Process Information into Stock-Recruitment Models [SGPRISM] Ecosystem Assessment and Monitoring [SGEAM] Multispecies Predictions in the Baltic [SGMPB] Salmon Scale-Reading Problems [SGSSR] Scientific Basis for Ecosystem Advice in the Baltic [SGBEAB] Baltic Cod Age-Reading [SGBCAR]</p> <p>Workshops Dynamics of Growth in Cod [WKDGC] Synthesis of Surveys on Pelagic Fish in the Norwegian Sea and Adjacent Areas [WKSSPF] The International Analysis of Market Sampling and the Evaluation of Raising Procedures and Data-Storage (software) [WKIMS] Estimation of Spawning Stock Biomass of Sardine [WKSBS] Identification and Staging of Mackerel and Horse Mackerel Eggs [WKMHMME]</p>
Renamed	<p>Steering Group Steering Group on the Global Ocean Observing System [SGGOOS], <i>renamed</i> ICES-IOC Steering Group on GOOS [SGGOOS]</p> <p>Study Group ICES/IOC/IMO Study Group on Ballast Water and Sediments [SGBWS], <i>renamed</i> ICES/IOC/IMO Study Group on Ballast and Other Ship Vectors [SGBOSV]</p>

Table 4 **New Study/Working Group Chairs**

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

Chairs	Group
Steering Group	
Dr G. Martin (Estonia)	ICES/HELCOM Quality Assurance of Biological Measurements in the Baltic Sea [SGQAB]
Working Groups	
Dr N.O'Maoileidigh (Ireland)	North Atlantic Salmon [WGNAS]
B. Sjöstrand (Sweden)	<i>Pandalus</i> Assessment [WGPAND]
Dr. K. Kononen (Finland)	ICES-IOC Working Group on Harmful Algal Bloom Dynamics [WGHABD]
Dr L. Valdés (Spain)	Zooplankton Ecology [WGZE]
Dr W. Turrell (UK)	Oceanic Hydrography [WGOH]
P. Degnbol (Denmark) and J. Sutinen (USA)	Fisheries Systems [WGFS]
Dr M. Møller Hansen (Denmark)	The Application of Genetics in Fisheries and Mariculture [WGAGFM]
Dr J. Castell (Canada)	Marine Fish Culture [WGMAFC]
Dr N. Hammer (Germany)	Mackerel and Horse Mackerel Egg Surveys [WGMEGS]
Dr G. Piet (Netherlands)	Beam Trawl Surveys [WGBEAM]
Planning Group	
V. Marques (Portugal)	Pelagic Acoustic Surveys in ICES Sub-Areas VIII and IX [PGPAS]
Study Groups	
Dr J. Cotter (UK)	Discard and By-catch Information [SGDBI]
J. Dalskov (Denmark)	Estimation of the Annual Amount of Discards and Fish Offal in the Baltic Sea [SGDIB]
R. Fonteyne (Belgium)	Mesh Measurement Methodology [SGMESH]
Dr L. Edler (Sweden)	ICES/IOC Checklist of Phytoplankton [SGPHYT]
Dr C. O'Brien (UK)	Incorporation of Process Information into Stock-Recruitment Models [SGPRISM]
M. Bravington (UK)	Evaluate the Effects of Multispecies Interactions [SGEEMI]
L. Føyn (Norway)	Ecosystem Assessment and Monitoring [SGEAM]
E. Aro (Finland)	Multispecies Predictions in the Baltic [SGMPB]
Dr E. Ikonen (Finland)	Salmon Scale-Reading Problems [SGSSR]
Prof. T. Osborn (USA) and M. Plikshs (Latvia)	Scientific Basis for Ecosystem Advice in the Baltic [SGBEAB]
Dr Y. Walther (Sweden)	Baltic Cod Age-Reading [SGBCAR]
Workshops	
Dr J.C. Holst (Norway)	Synthesis of Surveys on Pelagic Fish in the Norwegian Sea and Adjacent Areas [WKSSPF]
N. Andersen (Denmark), G. Ottersen (Norway), and D. Swain (Canada)	Workshop on the Dynamics of Growth in Cod [WKDGC]
M. Pastoors (Netherlands)	The International Analysis of Market Sampling and the Evaluation of Raising Procedures and Data-Storage (software) [WKIMS]
A. Lago de Lauzos (Spain)	Estimation of Spawning Stock Biomass of Sardine [WKSBS]
S. Milligan (UK)	Identification and Staging of Mackerel and Horse Mackerel Eggs [WKMHMME]

Documents

- A:1 Agenda for Consultative Committee
- A:2 Minutes from ACFM Meeting 26–29 October 1998
- A:3 Minutes from ACFM Meeting 17–20 May 1999
- A:4 Minutes from ACME Meeting 31 May to 5 June 1999
- A:5 Report of Mid-Term Meeting of the Consultative Committee and the ASC Programme Planning Group 8–11 June 1999
- A:6 Compendium of Draft Recommendations

FISHERIES TECHNOLOGY COMMITTEE (B)

Chair: Dr O. Misund (Norway)
Rapporteur: Dr D. Somerton (USA)

The Fisheries Technology Committee met on Tuesday 28 September 09:30 – 13:30, and on Friday 1 October 13:30 – 18:00. There were 12 Committee Members present during the first meeting, and about 30 Committee Members and other participants during the second meeting.

Administrative Matters and Committee Business

The Chair opened the meeting, welcomed the Committee Members to Stockholm, and acknowledged the ICES Centenary by reading The Stockholm Conference 1899 article in ICES Newsletter no. 34. The agenda for the meeting was presented and adopted.

Working/Study Group Reports

The report (B:1) of the Working Group on Fishing Technology and Fish Behaviour (WGFTFB) was presented by the WG Chair A. Engås. He reported that the meeting was conducted using a new format. For each of the agenda items a keynote speaker was chosen to introduce the subject. Discussion topics were chosen, and a subgroup of participants was then formed for each topic. After the discussion each subgroup leader presented a synopsis and any recommendations to the entire WG.

Topic 1, an evaluation of the effects of fish behaviour on assessment surveys, had two subgroups. The first examined various issues related to estimation of absolute abundance estimates from survey data, and the other examined how fish behaviour could influence fish detection or capture within various capture zones surrounding the vessel and fishing gear.

Topic 2 was a consideration of various methodologies to study physical impacts of fishing gear on benthos and bottom substrates and possible modifications to fishing gears to reduce these impacts. Recommendations of the Working Group were: 1) there is a need for broader access to information on gear impacts on benthos and bottom substrates because much of the relevant studies are unpublished. Perhaps a website focused on this subject would fulfill this need; 2) the FTFB should have a joint session with the WG examining the bottom effects of fishing (WGECO); and 3) the Fisheries Technology Committee should initiate a dialogue with the Resource Management Committee to take forward the work described in the recommendations of the Study Group on the Use of Selectivity and Effort Measurements in Stock Assessment (SGSEL). In addition, the WG Chair Engås answered several questions from Fisheries Technology Committee members about the recently constructed FTFB home page, reporting that it is operational but does

not yet include all of the functionality originally recommended by the WG to its developer.

The report (B:2) of the Working Group on Fisheries Acoustics Science and Technology (WGFAST) was presented by the WG Chair F. Gerlotto. Four topics were considered: 1) methods for target strength estimation; 2) impacts of fish avoidance on abundance estimation; 3) a format for exchanging acoustic data; and 4) report of the Study Group on Estimating Target Strength and other special topics. Besides the recommendations presented in the WG report, the WG Chair further recommended that a new SG or WG be formed to study the effects of fish behavior on acoustic assessment and net sampling. The reason given for this is that questions about the effects of fish behaviour are becoming increasingly more prevalent in both the FAST and FTFB working groups. Since there is a need for behavioral research in both working groups the problem could be examined by a larger combined audience by forming a new group, and the existing working groups could focus on more specialized subjects.

The WGFAST/WGFTFB joint session report (B:3) was presented by the Convenor J. Masse. Seven talks on fish behaviour were presented. Recommendations included: 1) the Fisheries Technology Committee should consider the subject "Visualization and measurement of behaviour" as a special topic for the next WGFTFB/WGFAST joint session, and the subject "Impact of fish behaviour on living resource management" as a theme session at the next Annual Science Conference; and 2) the Fisheries Technology Committee should consider the creation of a study group on the effects of fish behaviour on direct assessment methods.

The report (B:4) of the Study Group on the Selectivity of Static Gears was provided by O. Misund. The primary recommendation of the SG was that a new manual on this subject is now needed.

2000 WGFTFB/WGFAST Meeting

O. Misund reported that the scheduled year 2000 WGFTFB/WGFAST meetings conflict with Easter. It was agreed that the meetings should be moved from 17–21 April to 10–14 April. The WG meetings will occur in Harlem, Netherlands, while the Study Group meeting will be held 8–9 April in IJmuiden. Besides the change in date, it was proposed to have the Joint WGFTFB/WGFAST session on Wednesday 12 April rather than Friday 14 April to ensure good participation. After considerable discussion, the change in date was agreed upon. It was recommended that the 2001

WGFTFB/WGFAST meeting should be hosted by the Alaska Fisheries Science Center in Seattle, USA.

ICES Strategic Plan

O. Misund reviewed the scientific objectives in the strategic plan. Considerable discussion focused on one sub-topic of the plan: "Develop improved technical measures for fishery management", and a potentially more acceptable revision was recommended. Discussion also focused on the section of the plan: "ecosystem approach in ICES advice". O. Misund reviewed the recent studies of the effect of trawling on the Norwegian coral reefs and the resulting trawl closure, emphasizing the importance the EU is now placing on fishing gear impacts on the marine habitat.

Upcoming Symposia

The year 2000 Helsinki Symposium on the History of ICES will be held August 1–3. For each of 12 topical areas, a keynote speaker will review the historical contribution provided by ICES. The Fishing Technology Committee will submit two papers: one entitled "Acoustic applications in fisheries: the ICES contribution", and a second considering the contributions to fishing gear research.

A report describing the 5th ICES Symposium on Acoustics in Fisheries and Aquatic Ecology to be held in Montpellier, France, on 10–14 June 2002 was given by F. Gerlotto.

2000 ICES ASC Theme Sessions

Proposed Fisheries Technology Committee theme sessions for the next ICES ASC are: 1) Efficiency, Selectivity and Impact of Passive Fishing Gears to be convened by A. Carr and G. Brothers; 2) Evaluation of the Impact and Incorporation of External Factors in Marine Resource Surveys to be convened by E. J. Simmonds, P. Petitgas, and S. Walsh; and 3) Impact of Fish Behaviour on Living Resource Management to be convened by P. Freon and D. Skagen.

Reports

The final document from the Study Group considering *in situ* measurements of target strength has been printed as an ICES Cooperative Research Report (No. 235). A brief synopsis of the document and further research in the field was given by Dave Demer.

The report from the Study Group on Echo Trace Classification is nearing completion. The final meeting of the group occurred at the 1999 WGFTFB/WGFAST

meeting in St. Johns. The report will be submitted to ICES in October 1999. A brief review of its contents was provided by the SG Chair, D. Reid.

Census of Marine Life (CoML)

A synopsis of a Sloan Foundation program "Census of Marine Life" (CoML) was provided by its steering committee member Olav Rune Godø. After its initiation in 1997, the foundation supported several workshops and appointed a steering committee in 1999. The program has a long time frame (10 years) with the objective "to assess and explain the global distribution and abundance of marine life". The foundation intends to conduct the world census by partnering with various resource management agencies and by funding research through a grant program. Proposals for grants will be accepted by the US-NOPP (National Oceanographic Partnership Program) beginning this year. Workshop reports and information on grants are available on the foundation's home page (<http://core.cast.msstate.edu/censhome.html>).

Recommendations

The recommendations from the Fishery Technology Committee, presented to the midterm meeting of the Consultative Committee, were reviewed and adopted with the changes of dates referred to in the 2000 WGFTFB/WGFAST meeting chapter.

Two recommendations concerning the Census of Marine Life were put forward and adopted. These were later merged with recommendations from the Living Resources Committee concerning the same program.

Announcements

A. Engås reported that representatives of WGFTFB will meet with the WGECO (Chair Dr Jake Rice) to determine if a joint WGFTFB/WGECO meeting would be a productive start for research leading to the development of towed fishing gears that are less destructive to bottom habitat than current gears.

WGFAST Chair F. Gerlotto will continue as Chair until the next WG meeting. Yvan Simard, Canada will then assume the position of Chair.

A Topic Group will be formed and chaired by J. Masse under the WGFTFB/WGFAST Joint Session for the purpose of examining the influence of fish behavior on stock assessment and to consider the establishment of a study or working group on this subject. The Topic Group will provide a report at the next joint WGFTFB/WGFAST meeting.

Documents

- B:1 Working Group on Fishing Technology and Fish Behaviour (WGFTFB)
- B:2 Working Group on Fisheries Acoustic Science and Technology (WGFAST)
- B:3 Joint Session of Working Group on Fishing Technology and Fish Behaviour and Working Group on Fisheries Acoustic Science and Technology (WGFTFB and WGFAST)
- B:4 Study Group on Methods for Measuring the Selectivity of Static Gear (SGMMG)

Reference Papers:

G:2, H:7

OCEANOGRAPHY COMMITTEE (C)

Chair: H. Loeng (Norway)
Rapporteur: R. D. Gelfeld (USA)

The Oceanography Committee met on Tuesday, September 28 (14:00–18:00) and on Friday, October 1 (13:30–18:00). Fourteen Committee members representing eleven Member Countries attended the two meetings. In addition, approximately twenty non-Committee members participated.

The Committee Chair welcomed the participants. The Chair's proposal for rapporteur and agenda was adopted.

The Chair reported on a meeting of the Working Group Chairs held earlier in the day. This was the first time such a meeting was held, and the participants agreed that it was very successful. Results of the discussion included:

- the Working Group Chairs want to co-operate more;
- there is a lack of communication between the Working Groups. More intersessional communication is needed. Therefore a new Term of Reference should be added to each Working Group to review other Working Groups reports;
- it was agreed to have a new meeting between the Committee Chair and the Working Group Chairs next year in order to continue to develop the content of this specific meeting for future years.

Report from Consultative Committee and ACME matters

The Chair referred the following issues from discussions at the Mid-Term Meeting of the Consultative Committee:

- The Consultative Committee has proposed a new format for the General Assembly. The Consultative Committee has also suggested changes to the future structure of the ASC, including the separation of the Statutory Meeting from the Annual Science Conference
- The Consultative Committee has requested a revised procedure for handling recommendations, in order to ensure a more detailed setting of priorities. Future recommendations will be drafted using a checklist. This new procedure will require that Committee and Working Group Chairs be more involved in providing detailed justifications for recommendations, and explain their relevance in relation to the Strategic Plan.
- The Consultative Committee had prepared a series of questions on which Committees should base their review of Working Committee reports. These questions were briefly discussed.

- The Committee was informed that the debate on a new advisory structure for ICES was ongoing. Various proposals had so far been put forward by CGADV, including:

1 advisory structure and 4 advisory committees;
1 advisory structure and 4 regional committees;
1 advisory committee.

The Committee Chair informed the Committee that he was in favour of keeping the existing structure with two advisory committees, and he felt it was important to keep a separate advisory committee giving special attention to environmental matters.

From the ACME Consultations, the Chair reported briefly on discussions on the timing of Working Group meetings and their final report. Reports that include material for ACME must be prepared at the earliest date and sent to ICES. ACME will advise the Working Groups on specific tasks.

ICES Five-Year Strategic Plan

The Chair reminded the Committee of the process that led to the development of the ICES Scientific Objectives. He drew attention to the overall objectives, and to the specific objectives relevant for the Committee. After a short discussion, an ad hoc Group consisting of all present Working Group Chairs, was given the task to develop a document describing briefly activities relevant to the Strategic Plan.

The Group reported their conclusions to the Committee during Friday's session. They considered that it was very important to increase the intersessional interactions between the Working Groups through exchange of agendas and reports as they became available.

A decision was made to add the following two mutual Terms of Reference to each Working Group:

- To consider, and where feasible, develop data products and summaries that can be provided on a routine and on-going basis to the ICES community via the Oceanography website;
- Examine 1999 Working Group reports to identify where inter-group input could be provided/required with the view to formulating key questions requiring interdisciplinary dialogue during concurrent meetings of all the Oceanography Committee Working Groups to be held in 2002.

The Group also noted the following ongoing or new activities to be relevant for fulfilling the ICES Strategic Plan, and helping the Committee to fulfil its obligations:

- WGZE plans to hold a joint meeting with its PICES counterpart;
- WGZE plans to hold a joint meeting with WGPE in 2001;
- WGMDM will open dialogue with WGPE, WGHABD, WGZE, WGRP, and WGCCC to develop a workshop on the formation of a database of metadata information concerning the availability of biological oceanographic data in 2000 or 2002;
- The Working Groups will identify the types of time series data that would be useful in the interpretation of monitoring activities and refer to the appropriate Working Groups;
- WGRP will report to both the Oceanography and Living Resources Committees in 2000;
- SG-GOOS will consider taking up the observational part of the Working Group on Environmental Monitoring (Habitat Committee). It will develop a clear statement of how GOOS can serve the biological community of ICES. It will present its report to all standing committees of ICES in 2000;
- WGMDM and WGOH will coordinate activities related to data archaeology in 2000;
- WGSSEO and WGHABD plan to have a joint meeting in 2000;
- The Chair of the Committee will coordinate an inter-session review of the objectives and purpose of all Working Groups with the goal of addressing the needs, benefits, and disadvantages of merging current Working Groups or forming new ones;
- WGRP and WGCCC will coordinate the development of a Workshop on the Application of Environmental and Process Information to the Assessment of Populations in 2001;
- WGPE will participate in the EUROGOOS /ICES Workshop on Bio-Ecological Observations in Operational Oceanography from 6-8 April 2000 in the Hague (Netherlands) [ICES has now agreed to be a co-organiser of this Workshop].

The Chair and the Committee applauded the positive work of this group.

Working Group Reports

The Chair introduced the procedure for presenting the Working Group reports which has been put in place at the 1998 meeting of the Committee. All Working Group reports (except the WGMDM) had been reviewed by one or more of the Committee members intersessionally, and the Committee Chair had compiled all the reviews into one document which was distributed at the meeting. The reviewer(s) first gave their opinion on the report, and the Working Group Chair was then asked to respond before having a general discussion on the report. The following sections briefly reflect some of the comments from both the reviewers, Working Group Chairs, and the

Committee, while some principal discussions are reflected at the end.

Report on Working Group on Shelf Sea Oceanography (WGSSEO)

- The reviewer mentioned positively the many contributions from the participants on national activities. It was felt, however, that too much time was spent on National Reports compared to the rest of the items. This section also included several references, which were not listed in the report.
- The Oceanography Committee Chair asked that the Working Group finalise a number of its current Terms of Reference at its next meeting, and put fresh ideas to the Committee next year. (This comment applies to several Working Groups).
- There are too many Terms of Reference. The Working Group in the future needs to prioritise and to identify Working Group members who will perform the individual Terms of Reference.
- There was a discussion on changing some of the Terms of Reference during the first meeting, and some slight changes were presented during the second meeting of the Committee. After some discussions, the Terms of Reference were adopted.

Report on Working Group on Phytoplankton Ecology (WGPE)

- The reviewer noted that the report of the PAM (pulse amplitude modulated) techniques might be of value for the community outside of ICES and worth publishing.
- The Oceanography Committee Chair reiterated the careful examination of the limitations of the mesocosm approach.
- The Committee pointed out the need to have intersessional work to agree on the dates of the joint meeting to be held with the Working Group on Zooplankton Ecology in 2001.
- The Committee pointed out the importance of the proposal of a workshop on the role of anthropogenic forcing in planktonic ecosystem change. However, the Working Group needs to name the conveners and prepare a more detailed plan for the workshop.
- The Terms of Reference were adopted.

The Study Group on an ICES/IOC Checklist of Phytoplankton (SGPHYT)

- This Study Group did not meet in 1999 and will work by correspondence in 2000. The Terms of Reference were adopted.

Report on Working Group on Harmful Algal Bloom Dynamics (WGHABD)

- The reviewer suggested better dissemination of the decadal maps of toxins in the ICES area. The Oceanographer pointed out that these maps are

available on the ICES and IOC websites. In a related matter the Oceanographer was concerned about the lack of links in ICES Member Countries.

- The reviewer encouraged increased links to the Working Group on Shelf Sea Oceanography. (A back-to-back meeting is planned for 2000).
- The Working Group meeting had very good attendance.
- As the reports of the Working Group tend to be very long, it has been decided that future reports would include an executive summary.
- The Chair pointed out that other Working Groups should consider a term of reference on preparing a retrospective and critical analysis of the work performed by the group.
- The Terms of Reference were adopted.

Report on Working Group on Marine Data Management (WGMDM)

- The Committee felt that in-situ data was being sufficiently covered. It suggested that real-time data management (including biological data) should be addressed.
- There was high attendance for this Working Group. The Oceanography Committee Chair encouraged new Terms of Reference. Multi-disciplinary datasets such as GLOBEC, etc. were cited as examples.
- It was noted that the Working Group mainly focused their work on physical oceanography and nutrients. The Working Group was encouraged to look into other data types relevant to the Committee. This would require the participation of a broader range of experts.
- The Terms of Reference were adopted.

Report on Working Group on Oceanic Hydrography (WGOH)

- The reviewer felt that attendance at the last meeting was a problem for the Working Group, and the Working Group Chair did agree.
- The Committee would like comments from the ICES community on the North Atlantic Climate Summary. This is available on the ICES website. A more general discussion revealed that also other Working Groups should follow the example of WGOH and look for relevant data that could be published on the web.
- The Committee briefly discussed the Second Decadal Symposium to be held in August 2001 in Edinburgh, UK. The Working Group is responsible for reviewing the progress of the Symposium.
- The Terms of Reference were adopted.

Report on Working Group on Seabird Ecology (WGSE)

- The report was positively received. It was noted that participation was very poor. In order to improve the number of participants the Working Group will hold

next year's meeting at a new venues, and will hold their meeting back-to-back with a seabird symposium.

- The Working Group produced a well-written *Cooperative Research Report* based on its reports from 1997-1998. The Chair commended the Working Group and proposed this as a model to other Working Groups.
- Most members of this Working Group are not from traditional ICES institutes. It was suggested that future meetings be held where seabird people are present. This should result in a closer interaction between the seabird research community and ICES.
- The Terms of Reference were adopted.

Report on Working Group on Zooplankton Ecology (WGZE)

- The reviewers would like to see an identification of responsibility for each Term of Reference.
- Linkages with external and internal organisations are good.
- The Committee noted with satisfaction that the Zooplankton Methodology Manual now is in press, and the outgoing Working Group Chair got applause for finalising the manual
- The Workshop on "Taxonomy of Calanoid Copepods" to be held in Germany in May 2000 was noted.
- It was suggested that a new Term of Reference be added to plan a joint meeting with the Working Group on Phytoplankton Ecology in 2001.
- The Terms of Reference were adopted.

Report on Working Group on Recruitment Processes (WGRP)

- The quality and clarity of the report was considered to be good and informative.
- The reviewer felt that the Terms of Reference for 2000 appear too ambitious and may result in less complete consideration of each topic. The Working Group Chair partly agreed, but was optimistic in order to work them out.
- The Terms of Reference were adopted.

Report on the Steering Group for the ICES/GLOBEC North Atlantic Regional Office (SGNARO)

- The funding for the group has been extended for a further two years. Discussions were held about the possibility of evolving the ICES GLOBEC Regional Office as part of the Secretariat core function.
- The Terms of Reference were adopted.

Report on Working Group on Cod and Climate Change (WGCCC)

- The Working Group worked by correspondence in 1999.

- All Terms of Reference were well addressed and of a high degree of importance. The report was well written and reflects a high level of activity throughout the year.
- The establishment of a discussion/bulletin board helped facilitate the exchange of data and ideas.
- The Workshop on the Dynamics of Growth in Cod (WKDGC) to be held in Dartmouth, Nova Scotia, Canada on May 8-10, 2000 was discussed. The Committee proposed developing an electronic form for the preparation of a workshop.
- The Terms of Reference were adopted.

Report on Backwards-Facing Workshop (WK6070)

- This was the fourth Backwards-Facing Workshop and was, like the previous ones, very successful.
- The report is clear and a good number of tables are important.
- The databases presented are impressively large and have high science quality.
- The conclusions are realistic and well supported. They make clear the large number of questions on ecosystem functioning.
- The Chair would like to get a report from the workshop published, and it was agreed to publish it in *ICES Cooperative Research Report* series.

Report on Steering Group on Global Ocean Observing System (SGGOOS)

- The Steering Group has advanced the planning process for GOOS within ICES, but the work is not yet completed.
- The report really deals with a policy issue and therefore is not a science issue. There is no analysis of whether these present programs adequately describe the oceanic variability to serve fisheries management and climate communities that require this information.
- GOOS planning is proceeding within the IOC at the same time as it is being discussed in ICES. Linkages with EuroGOOS is also progressing. The next meeting will therefore be at EuroGOOS headquarters in February 2000.
- The North Sea IBTS quarterly surveys in the Initial Observing System of GOOS has formal approval.
- The Committee felt it important that the re-established Steering Group acquired members that were very active in GOOS-related work, so the Group was able to act as an coordinator for ICES.
- The Terms of Reference were adopted.

A general comment was that there was a lack of special expertise in some Working Groups. It was pointed out that the Delegates should be encouraged to give the necessary financial support for the special expertise that is needed. Further, it was agreed to review the list of members for each Working Group in order to remove members that are no longer active within the field. It was suggested that a list of Working Group members be

reviewed by the Oceanography Committee to present to the Delegates for final consideration. Working Group member's skills and expertise need to be current.

At the end the Committee discussed the new way of handling working group reports. They felt this really was an improvement, and that 20 minutes per report was suitable time. The Chair was encouraged to distribute the compiled set of reviews to all Working Group Chairs and Committee members. It was also agreed to improve the procedure further at the next ASC.

Election of New Working Group Chairmen

The Committee elected the following Working Group Chairs:

WGABD	K. Kononen (Finland)
SGPHYT	L. Edler (Sweden)
SGGOOS	R. Saetre (Norway)
WGOH	B. Turrell (UK)
WGZE	L. Valdes (Spain)
SGPRISM	C. O'Brien (UK)

Theme Sessions for ASC in 2000 and 2001

The Chair reviewed the Theme Session and Mini-Symposia for 2000. There are 24 proposals which include the following four Theme Sessions from the Oceanography Committee:

- Environmental Effects on Plankton Communities
- Spatial and Temporal Patterns in Recruitment Processes
- North Atlantic Processes
- Fish-Zooplankton Linkages

It was agreed that all this should be given priority in 2000. For 2001 the following theme are suggested:

- Atlantic Oceanographic Processes
- Changing Ocean Climate of the North Atlantic and Consequences for Gadoid Populations

Any Other Business

The ICES/GLOBEC Coordinator recommended that ICES co-sponsor the International Fisheries Symposium to be held on 4-6 December 2000 in Bergen, Norway on Fish Stock Assessments and Predictions: Integrating Relevant Knowledge. The only costs to ICES would be in the printing and distributing the flyer advertising the Symposium. The recommendation was adopted by the Committee.

The Chair thanked all participants for their participation both at the meeting, and intersessionally. He expressed satisfaction with the procedure for reviewing Working Group reports.

Documents

C:1	ICES/GLOBEC North Atlantic Regional Coordination Group (RCG)
C:2 Ref. G	Working Group on Recruitment Processes (WGRP)
C:3 Ref. ACME	Working Group on Phytoplankton Ecology (WGPE)
C:4 Ref. ACME	ICES/IOC Working Group on Harmful Algal Bloom Dynamics (WGHABD)
C:5 Ref. ACME, E	Working Group on Seabird Ecology (WGSE)
C:6 Ref. ACME	Working Group on Zooplankton Ecology (WGZE)
C:7 Ref. ACME	Working Group on Marine Data Management (WGMDM)
C:8 Ref. ACME	Working Group on Oceanic Hydrography (WGOH)
C:9 Ref. ACME	Working Group on Shelf Seas Oceanography (WGSSO)
C:10	ICES/GLOBEC Working Group on Cod and Climate Change (WGCCC)
C:11	Steering Group on the Global Ocean Observing System (SGGOOS)
C:12	Steering Group for the ICES/GLOBEC North Atlantic Regional Office (SGNARO)
C:14 Ref. ACFM, ACME	Workshop on GOOS (WKGOOS)
C:15 Ref. ACFM, D, G	Workshop on Gadoid Stocks in the North Sea during the 1960s and 1970s, the Fourth ICES/GLOBEC Backward-Facing Workshop (WK6070)

REFERENCE PAPERS: E:1, E:2, ACME:3, ACME:4, ACME:5, ACME:6

RESOURCE MANAGEMENT COMMITTEE (D)

Chair: R.L. Stephenson (Canada)
Rapporteur: E. Kirkegaard (Denmark)

The Resource Management Committee met during two sessions at the Annual Science Conference. The first session was held Tuesday 28 September at 9.30–13.30 (36 attendance). The second Session Friday 1 October 13.30–18.00 (44 attendance).

The Chair opened the meeting and welcomed the participants. The Chair presented a short report of the Committee activities, focusing on the Committees function as 1) Parent Committee for a number of WGs and SGs, 2) Supporter of Symposia and Theme Sessions, 3) Member of Consultative Committee, and 4) Member of ACFM.

Although the list of activities under the Committee is long, the Chair pointed out that the Committee had not been as active as intended on intersessional activities since the last ASC. The Chair invited comments on improving the function of the Committee, and initiated a discussion on whether the Committee was achieving what was anticipated at the outset – drawing attention to the mandate of the Committee, the Report of the Second Meeting of the Bureau Working Group on Strategic Planning: A Draft of an Initial Plan for ICES (ICES CM 1999/Del:20/Gen:4) and the priorities identified by the Resource Management Committee in 1998.

The discussion focused on four issues:

- The Resource Management Committee as coordinator and initiator of research. In recent years, in Europe, the research activities within the remits of the Committee have been, to a large extent, coordinated and carried out in international projects funded by the European Commission (EC). Most of these projects take place outside ICES. The Committee recognises the importance of EC as initiator and coordinator of research activities and especially welcomes the support to interdisciplinary research. There is, however, a risk that important results obtained in EC funded projects are not presented and utilised in ICES. It was agreed that an important role of the Committee is to maintain contact to the EC-funded activities and to act as communicator between Europe and North America. It was also suggested that the Committee could and should act as proponent and coordinator of EC-funded projects on relevant topics.
- Review of reports. The Committee found that too little time was allocated to the presentation of reports of Working and Study Groups and the Chair was asked to consider how the presentation of these reports could be strengthened in the future. It was suggested that reviews of items of relevance to the Committee (Working/Study Group reports,

Workshops, Symposia etc) could be prepared by Committee members or designated participants, and circulated to the Committee members in advance of meetings. These reviews might be posted on a Resource Management Committee web page.

- The scope of the Committee. At its meeting in 1998 the Committee identified five priority areas: 1. Improve the scientific basis for the Precautionary Approach. 2. Define and develop the scientific basis for an "ecosystem approach to management" to the point that it becomes operational. 3. Establish and maintain links and dialogues with scientists in other disciplines, fishery management agencies and other interested parties. 4. Establish a framework for evaluation of management regimes and alternative management strategies. 5. Promote the development of methods for resource evaluations and forecasts.

The Committee discussed these areas of priority in the light of the Draft Strategic Plan (Gen:4) and it was agreed that the five areas all are within the Strategic Plan and still represent the overall priority of the Committee. It was, however, also agreed that further work has to be done to produce a workplan for the Committee based on the Strategic Plan and the listed priorities.

- Activities of the Committee between sessions. It was discussed if and how the Resource Management Committee should work intersessionally. It was recognised that it may be difficult to get the Committee to work as a full Committee (activating all members) between sessions. It was, however, agreed that work on strategic matters like a five-year work plan should be carried out intersessionally and it was decided that the Chair should form a small group of the Committee members to work on implementing the Strategic Plan and prepare a workplan for the Committee.

Reports of Working Groups which report directly to the Resource Management Committee

D:1 Comprehensive Fishery Evaluation Working Group (WGCOMP), presented by Martin Pastoors. Concern was expressed that the work within the Group in the past has been too fragmental and that a more focused approach with, perhaps, fewer cases was needed. In considering the priority areas of the Committee (under the Strategic Plan) and the needs of the advisory process, it was suggested that there be a major revision to Working/Study Group structure, separating:

- Quality assurance of assessment methods

- Evaluation of entire fisheries systems
- Multispecies and broader biological aspects of assessment, and
- Thorough review of ongoing assessments.

It was agreed that the Committee establish a new set up of Working Groups and Workshops covering assessment methods and techniques, links between fisheries biology and social science and fishery system evaluation (see Recommendations).

D:2 International Bottom Trawl Survey Working Group (IBTSWG), presented by Henk Heessen. The WG has in recent years focused its work on further developing and coordinating the surveys in southern and western areas. A suggestion on organising a symposium or workshop on research vessel surveys was put forward.

D:3 Planning Group on Surveys on Pelagic Fish in the Norwegian Sea (PGSPFN), presented by Cornelius Hammer.

D:4 Study Group on Evaluating the Effects of Multispecies Interactions (SGEEMI), presented by Kevin Stokes.

D:5 Study Group on Management Performance of Fisheries Systems (SGMPFS) presented by Daniel Lane. The Chair noted the link between the Study Group and the Comprehensive Fishery Evaluation Working Group.

D:6 Workshop on Evaluation of the Plaice Box (WKEPB), presented by Martin Pastoors. The Workshop was not able to conclude whether or not the Plaice Box had had the anticipated effect on the plaice stock and the fishery. The report raises the question of how to evaluate technical measures in general and marine protected areas (MPA) in special. It was agreed to propose a Workshop/Study Group on the definition of performance criteria for evaluation of technical measures such as MPA's (see Recommendations).

Reports of Symposia supported by the Resource Management Committee

ICES Symposium on "Confronting Uncertainty in the Evaluation and Implementation of Fisheries-Management Systems": Cape Town, South Africa, 16–19 November 1998. Kevin Stokes presented the report.

ICES/SCOR Symposium on "Ecosystem Effects of Fishing": Montpellier, France, 16–19 March 1999. Michael Sinclair presented the report. The Committee discussed the next steps to be taken by ICES with respect to ecosystem effects of fishing. It was underlined that no new management tools are available in relation to ecosystem management and that there is a need to develop the scientific basis for such management tools. The Committee's attention was drawn to the Working Group on Ecosystem Assessment and Monitoring Strategies proposed by Marine Habitat Committee, and to the initiative arising from ACFM and ACME on 'Developing ICES Ecosystem Advice'. The Committee supported the development of cross-committee initiatives in this area.

Recommendations

Recommendations were put forward on the following topics:

- International Bottom Trawl Survey Working Group
- Planning Group on Surveys on Pelagic Fish in the Norwegian Sea
- Planning Group of Surveys on Pelagic Fish in the North Atlantic Synthesis Workshop
- Study Group to Evaluate the Effect of Multispecies Interactions
- Study Group on Market Sampling Methodology
- The Fishery System Evaluation Working Group (replacing the Study Group on Management Performance of Fisheries Systems and the Comprehensive Fishery Evaluation Working Group)
- Methods Working Group
- Study Group on Merging Economic, Technical and Biological Information
- Courses in Fish Stock Assessment.

The Committee suggested the following Theme Sessions:

- Case Studies in Systems Evaluation
- Medium Term Forecasts and Decision-Makers
- Cooperative Research with the Fishing Industry
- The Language of Fisheries Science and Management: Progress in Implementing the Precautionary Approach

Documents

D:1 Ref. ACFM	Comprehensive Fishery Evaluation Working Group (WGCOMP)
D:2 Ref. ACFM, G	International Bottom Trawl Survey Working Group (IBTSWG)
D:3	Planning Group on Surveys on Pelagic Fish in the Norwegian Sea (PGSPFN)

Ref. ACFM

D:4 Study Group to Evaluate the Effects of Multispecies Interactions (SGEEMI)

Ref. ACFM, G

D:5 Study Group on the Management Performance of Fisheries Systems (SGMPFS)

D:6 Workshop on the Evaluation of the Plaice Box (WKEPB)

D:7 International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1996:
Ref. G, recoded
as D:2
Quarter 2, 3 and 4

Addendum 1

D:8 International Bottom Trawl Survey in the North Sea, Skagerrak and Kattegat in 1998:
Ref. G, recoded
as D:2
Quarter 1

Addendum 2

Reference papers: C:15, G:5, G:7, G:8, H:1, H:3, ACFM:23

MARINE HABITAT COMMITTEE (E)

Chair: Dr A. Jarre (Denmark)
Rapporteur: Dr E. Jagtman (Netherlands)

The Marine Habitat Committee met on Tuesday 28 September from 9.30 to 18.00 hrs, and on Friday 1 October from 13.30 to 18.00 hrs. 28 participants from 18 ICES Member Countries were present, the vast majority attending both sessions. The group included sixteen members of the Marine Habitat Committee and five Chairs of Working/Study Groups reporting to the Marine Habitat Committee. In addition, Prof. A. Eleftheriou (Greece) joined the discussions as an ICES observer. The Committee Chair welcomed the participants. The Chair's proposal for agenda and rapporteur were adopted.

It was acknowledged that the Committee had worked by correspondence since its last meeting, and preparatory documents for this meeting had been distributed by e-mail, including the ICES Scientific Objectives and a draft compilation of scientific progress in the remit of the Committee. The support by the ICES Secretariat in establishing the Committee's website was gratefully appreciated, particularly in making Working and Study Group reports available in electronic form before the Annual Science Conference.

ICES Strategic Planning

The Chair summarised document CM 1999/Del:20/Gen:4, and pointed out that all of the scientific objectives that the Marine Habitat Committee had elaborated during 1998 had been included in this overall set. The Working/Study Groups had been requested to comment on these scientific objectives, to formulate tactics in order to achieve the objectives, and to suggest activities to fulfil the objectives. The Chair expressed the gratitude of the Committee for the Working/Study Groups' input to the ICES Strategic Plan.

The feedback from the Working/Study Groups had generally been very positive. It became evident that most of the Working/Study Groups actively contribute to several objectives, and that most remits of the Marine Habitat Committee are or can be covered through the existing Working/Study Groups. However, it was also pointed out that it is desirable and necessary for ICES to further support ongoing activities in relation to coastal zone issues, and that these activities needed to be highlighted in a better way.

The Marine Habitat Committee noted that the Study Group on Marine Biodiversity, established at the Annual Science Conference in 1998, had not been supported well from Member Countries. Moreover, there appeared to have been miscommunication from national nominations to the ICES Secretariat to the Study Group Chair. Dr Carlo Heip (Netherlands) introduced the work of the European Science Foundation in biodiversity research, and emphasised the desirability of ICES involvement.

The Committee discussed the future of ICES in studying and conserving biodiversity at the genetic, species, and habitat/ecosystem levels, and concluded that a well-focused theme session in 2000 would be the most appropriate way forward.

It was further highlighted during the discussion in the Committee that good work had been going on for a long time especially in the field of monitoring methodology, e.g., of contaminants and their effects, as well as of specific components of ecosystems as, e.g., benthos. Scientific progress of the Working/Study Groups in this field is at present communicated to the scientific community outside ICES largely through the ACME report and is well received by, e.g., environmental commissions, but further means of publicising and communicating this good work should be encouraged.

Further detailed planning, e.g., estimating the cost of suggested activities, was felt impossible by most of the Working/Study Groups in the absence of better guidance.

Scientific Progress Report of the Marine Habitat Committee

As the Science Committees are charged (CM 1997/Gen:4) with, *inter alia*, communicating scientific information effectively into the advisory process and to other committees, as well as to the wider scientific community, considerable discussion was allocated to how this could be achieved. Information on scientific progress is, at present, available through the reports of the Working/Study Groups, and the draft review by ACME on sections of these reports. Moreover, reports of theme sessions at the ICES ASC, and workshops, symposia, etc., co-sponsored by ICES are made available in the course of the year.

It was generally felt that, at present, the meetings of the Science Committees are not long enough to carry out extensive review work directly at the meeting. Intersessional work is necessary, and has been starting off well in the Marine Habitat Committee, but membership in Science Committees is usually in addition to the scientists' normal duties, which consequently limits the possible input. Moreover, it was pointed out that the experts on a particular topic are usually present in the Working/Study Groups, and that consequently the scientific progress reported from the Working/Study Groups had already passed a first round of peer review (that of a particular study of an individual or a small group by the Working/Study Group plenary).

The Committee agreed that the progress report will consist of:

1. an introductory guide, as short as at all possible, to introduce the work carried out during the previous term and guide readers to the sources of detailed information;
2. a document with 'research highlights', focusing on topics where substantial progress has been achieved, and which is laid out in an attractive way.

Both documents will be placed on the web, in the report section of the Marine Habitat Committee.

In order to achieve this:

1. all Working/Study Groups will be asked by the Committee Chair to include an executive summary into their report, not exceeding 1.5 pages in length;
2. a reviewer was identified for each of the Working/Study Groups reporting to the Marine Habitat Committee, to prepare a review of the group's work, and ensure that the executive summary is complete, accurate, and informative;
3. the reviewer will communicate the review to the Marine Habitat Committee before the Annual Science Conference, along with suggestions for research highlights;
4. the Marine Habitat Committee will work from the reviewed summaries and suggested highlights to compile the introductory guide and research highlights document.

For this year, a draft summary document of about 20 pages in length was prepared by subgroups during the Committee meeting, which summarises the work in the remits of the Marine Habitat Committee according to the ICES Scientific Objectives. This report will be placed on the web, in the report section of the Marine Habitat Committee, following final review by the Committee to be carried out by correspondence.

Scientific Progress during the 1999 ASC

The M74 syndrome and similar reproductive disturbances

Dr Thomas Lang reported from the Theme Session on the M74 Syndrome and Similar Reproductive Disturbances in Marine Animals, co-convened by Dr Bengt-Erik Bengtsson, Dr Dale Honeyfield, and Dr Scott Brown. The major result of the Theme Session was that there now is clear evidence that the syndrome is caused by thiamine (vitamin B₁) deficiency, but other unidentified factors might play a role as well. Blue-green algae or general ecosystem changes (disappearance of crustaceans) are among the suspects.

A recommendation was adopted by the Committee to encourage further (experimental) work in order to improve knowledge on the causes of the syndrome, as

two large international research projects had terminated and national commitment was necessary to ensure that research could continue.

The current status of the North-East Atlantic environment

Dr Peter Matthiessen reported on the Theme Session on the North East Atlantic Environment – The Current Status (covering OSPAR Regional Quality Status Reports). The overall assessment of the OSPAR Convention Area (Northeast Atlantic) is about to be completed. The scientific depth of the regional assessments varied considerably between regions, but multifactorial analyses were among the important achievements. While the effects of fishing were listed among the major problems in almost all of the regions, the effects of climate change, contaminants, introduction of non-indigenous species, and additional habitat loss due to aggregate extraction or large-scale building activities were ranked of similar importance.

Discussions in the Marine Habitat Committee covered the interesting methodology of multifactorial assessments, but also the role of ICES in future assessments. It was pointed out that financial constraints had been the reason for the seemingly small involvement of ICES other than data handling and review, and that a better scientific quality of the regional Quality Status Reports could have been achieved by a more active involvement of ICES Working Groups in the drafting of various sections.

Ecosystem Management: Can we make it operational?

As this Theme Session only took place during the final day of the ASC, after the Science Committee meetings, Dr Jake Rice, as a Co-Convenor, agreed to report back the results of the Theme Session to the Committee by correspondence.

Work Plan for 2000

Study Group on Marine Habitat Mapping (SGMHM)

Dr Eric Jagtman, Chair of SGMHM, introduced the work of this new Study Group and the recent OSPAR/EEA/ICES Workshop on Marine Habitat Classification, and explained the work programme (terms of reference) for 2000. The work plan and the suggestion of the Chairs of SGMHM and WGEXT to efficiently cross-communicate their reviews of habitat classification and new mapping technology, respectively, were accepted by the Committee. It was further suggested to discuss a link of the mapping activities to the work of BEWG.

The national Delegates to ICES are requested to support the work of marine habitat classification and mapping by nominating members to the SGMHM.

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

Dr Jon Side, Chair of WGEXT, reported on the work of WGEXT and the work programme (terms of reference) for 2000, which were accepted. The Committee welcomed especially the initiatives of WGEXT to scrutinise effects of aggregate extraction on non-target fish in the coastal zone, and effects of aggregate extraction on herring spawning grounds. The need for cross-communication with SGMHM was re-emphasised.

The Committee accepted the recommendation that the report 'Effects of Extraction of Marine Sediments on the Marine Ecosystem', prepared by WGEXT, should be published in the *ICES Cooperative Research Report* series.

Benthos Ecology Working Group (BEWG)

Dr Karel Essink, Chair of BEWG, reported on the Working Group's progress and the work programme (terms of reference) for 2000. It was decided that new methodology for studying marine benthos would continue to be monitored by the group, but would only be explicitly included in the work programme every third year. The necessary work for answering the HELCOM request on the possible secondary effects of the dumping of fish offal and discards into the Baltic Sea was explained and detailed. The biological data entry format for the ICES database should be finally reviewed and accepted. It was pointed out that the participation of the ICES Environmental Data Scientist was crucial in this matter. BEWG was encouraged to proceed with a research proposal to the EU on assessing the changes in macrobenthos in the North Sea since the 1986 North Sea Benthos Survey. Based on the experience from past meetings that a meeting venue in the Baltic area would not secure the participation of scientists from Baltic countries, the Committee supported the suggestion of the Working Group to meet in the USA.

A discussion on the relation between benthos community structure and bottom trawl activities, including the effects of the 'plaice box', was considered to be desirable. The Chairs of BEWG, WGEKO and WGFTFB were asked to explore during 2000 the possibility of a joint meeting of their Working Groups, or alternative joint action.

Working Group on Marine Mammal Habitats (WGMMHA)

Mark Tasker, a member of WGMMHA, explained the recommendation for a research proposal of WGMMHA on the effects of contaminants on seals, and the terms of reference for WGMMHA for 2000, which were accepted. After a brief discussion and a slight amendment, the Committee gave full support to a recommendation concerning national support of the proposed research programme.

Marine Chemistry Working Group (MCWG)

The original terms of reference had been restructured by the Chairs of the Marine Habitat Committee and the Marine Chemistry Working Group in the margins of the ACME Consultations Meeting at the 1999 ASC, for which Dr Britta Pedersen (Chair of MCWG) was present. The terms of reference were accepted by the Marine Habitat Committee. It was commented that future work on the chemical oceanography of estuaries may be desirable; thoughts along these lines would evolve during the next year.

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

The group is experiencing problems following poor attendance in recent years. Its work is considered important by ACME and members of the Marine Habitat Committee. A merging with MCWG appears difficult. In order to stimulate attendance at the next Working Group meeting that will also include the election of a new Chair, the Marine Habitat Committee decided that the venue of the Working Group meeting should be changed to Copenhagen, and that the Working Group meeting should immediately follow that of the Marine Chemistry Working Group. An adjustment of the terms of reference was considered desirable, but not feasible at this Committee meeting.

Working Group on Biological Effects of Contaminants (WGBEC)

Dr Peter Matthiessen, Chair of WGBEC, introduced the suggested work programme (terms of reference) for 2000. A work item of MCWG on the toxicity of toxaphene was also referred to WGBEC. Moreover, the group was encouraged to proceed with the preparation of two workshops for 2001.

Working Group on Statistical Aspects of Environmental Monitoring (WGSAM)

In addition to the original work programme for 2000 discussed with the Working Group Chair in the margins of the ACME meeting in June 1999, which was adopted by the Marine Habitat Committee, the

Working Group was asked to proceed with studies in preparation for another joint meeting with WGBEC, which is dependent on the availability of data, and will probably be proposed for 2001. The Marine Habitat Committee noted that these joint meetings had been received very well by members of both Working Groups, and that good progress had been achieved in the multivariate analysis of biological effects data.

Working Group on Environmental Assessment and Monitoring Strategies (WGEAMS)

The Marine Habitat Committee noted that WGEAMS had done good work previously, but has during the past few years suffered from extremely low attendance. In view of the fact that only two members had been present

at the last Working Group meeting, and the Working Group therefore apparently lacks continued support of ICES Member Countries, a small group consisting of Stig Carlberg (Chair of ACME), Dr Astrid Jarre (Chair of MHC), Dr Hein-Rune Skjoldal (incoming Chair of ACME), and Dr Janet Pawlak (ICES Environment Adviser) had drafted a revised work programme for 2000 following the ACME meeting in June, which was subsequently accepted by the Chair of WGEAMS, Dr Lars Føyn (Norway), and supported by ACME at its Consultations Meeting. ACME had further suggested to change the name of the Working Group, as purely environmental work had become associated with WGEAMS, and the new work programme focused on integrated environmental-fisheries assessment strategies. The 'Working Group on Ecosystem Assessment and Management' was mentioned as a potential new name.

Discussions in the Marine Habitat Committee extended over both sessions. It was generally agreed that the suggested work on integrated environmental-fisheries ('ecosystem') assessment, including ecosystem quality objectives, reference values, and monitoring strategies, was important work to be carried out.

Potential overlap with the work of WGECO was pointed out by that Working Group's Chair, Dr Jake Rice, but it was also pointed out by other members that this important issue should be tackled from different sides. The Marine Habitat Committee could not reach agreement as to which forum these tasks would best be directed to. Consequently, the Chair would take the matter forward to the Consultative Committee for further cross-committee discussion and decision.

Working Group on the Ecosystem Effects of Fishing Activities (WGECO)

The work programme of WGECO was noted both with respect to the ongoing discussion on ecosystem indices and the possible overlap of work between WGECO and WGEAMS, as well as past and possible future work on biodiversity indicators. In view of the fact that there is insufficient time for any further preparatory work for the already busy WGECO meeting in November 1999, possible new tasks for WGECO could only be introduced at the upcoming meeting and discussed further by correspondence during 2000. A revision of WGECO's work programme on biodiversity would depend on the outcome of the suggested theme session.

Election of Chairs

The Marine Habitat Committee accepted the recommendations from the respective working groups, as follows:

- 1) Dr Karel Essink (Netherlands) will chair the Benthos Ecology Working Group for a second three-year term;

- 2) Dr Britta Pedersen will chair the meeting of the Marine Chemistry Working Group in 2000, at which a new Chair will be nominated;
- 3) Dr Michael Kerstan will chair the meeting of the Working Group on Marine Sediments in Relation to Pollution in 2000, at which a new Chair will be nominated.

Cross-Committee Matters

Ecological Quality Indicators

Dr Eugene Andruliewicz informed the Marine Habitat Committee about recent developments regarding Ecosystem Quality Objectives (EcoQOs). Several discussion documents were listed supporting the discussion. The conceptual work appears more advanced in the North Sea, but developments will catch up for the Baltic Sea. The general view was that EcoQOs should be developed, with the possible help of all Working Groups, within ICES. Major issues appeared to be the definition of background levels, as well as the development of a contradiction-free set of Ecosystem Quality Objectives.

Developing ICES Ecosystem Advice—Test Case Baltic Sea

The Chair introduced a discussion document on the development of ICES advice on ecosystem management, using the Baltic Sea as a test case. The initiative was to be regarded as 'product development', i.e., for scientists to define what ICES as an organisation would like to offer as ecosystem advice to potential clients. The document that arose from the spring meetings of ACFM and ACME in 1999 had been discussed during the mid-term meeting of the Consultative Committee, and Committee Chairs had been asked to discuss further action in their Committees.

In the subsequent discussion, it was pointed out that the list of issues of importance was far from complete, e.g., it lacked the influence of eutrophication on fisheries, and the impact of fisheries on habitat change. The list of methods was likewise severely deficient. It was further pointed out that a good dialogue with potential clients needed to be assured from the very start of this process, e.g., through dialogue meetings. Scientists need to clarify with potential clients which (parts of) questions can be answered. In a field of science which is presently developing rapidly, several possible answers might have to be accepted.

The Marine Habitat Committee supported the initiative on using the Baltic Sea as a test case for developing ecosystem advice, but would give the lead in this exercise to the Consultative or the Baltic Committees.

Theme Sessions

The Committee adopted a revised suggestion for a Theme Session on 'Temporal and Spatial Effects in the Distribution of Contaminants and their Biological Effects

in the ICES Area', to be convened by Prof. R. Laane (Netherlands), Dr P. Matthiessen (UK), and Dr T. Lang (Germany) in 2000.

The Committee adopted a slightly revised suggestion for a Theme Session on 'Classification and Mapping of Marine Habitats', to be convened by Dr Dick de Jong (Netherlands), Dr Jon Side (UK), and Dr Rebecca Allee (USA) in 2000.

The Committee reviewed and adopted a revised suggestion for a Theme Session on 'Defining the Role of ICES in Supporting Marine Biodiversity Conservation', to be convened by Mark Tasker (UK) and Dr Jake Rice (Canada) in 2000. Possible co-convenership from the

Resource Management or Living Resources Committees would be appreciated.

Discussions with the Mariculture Committee on a joint Theme Session on the sustainable use and conservation of natural resources in coastal zones of the ICES area at the ASC in 2001 were encouraged.

Any Other Business

No items were listed or requested.

The Chair thanked all participants for their contribution to the Committee's work during the past year and their discussion input and work during the Committee's meeting.

Documents

E:1 Ref. ACME, C	Benthos Ecology Working Group (BEWG)
E:2 Ref. ACME, C	Marine Chemistry Working Group (MCWG)
E:3 Ref. ACME	Working Group on Biological Effects of Contaminants (WGBEC)
E:4 Ref. ACME	Working Group on Environmental Assessment and Monitoring Strategies (WGEAMS)
E:5 Ref. ACME	Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem (WGEXT)
E:6 Ref. ACME	Working Group on Marine Mammal Habitats (WGMMHA)
E:7 Ref. ACME	Working Group on Marine Sediments in Relation to Pollution (WGMS)
E:8 Ref. ACME	Working Group on Statistical Aspects of Environmental Monitoring (WGSAM)
E:9 Ref. ACME	Joint Meeting of the Working Group on Biological Effects of Contaminants and the Working Group on Statistical Aspects of Environmental Monitoring (JBSEAM)
E:10	Study Group on Marine Habitat Mapping (SGMHM) (progress report)
E:11	Study Group on Marine Biodiversity (SGMB) (progress report)

REFERENCE PAPERS: C:5, F:2, F:4, G:3, G:6, G:12, ACME:1, ACME:2, ACME:3, ACME:4, ACME:5, ACME:7, ACME:8

MARICULTURE COMMITTEE (F)

Chair: Dr M. Héral (France)
Rapporteur: Dr A. Calabrese (USA)

The Mariculture Committee met on Tuesday 28 September from 14.00 to 18.00 hrs, and on Friday 1 October from 13.30 to 18.00 hrs. The Chair, Maurice Héral, proposed Anthony Calabrese as Rapporteur, and this was accepted.

M. Héral reviewed the agenda for the two separate meetings of the Mariculture Committee and indicated that election of a new Chair of the Committee would take place on Friday 1 October. He briefly reviewed the role of the Committee Chair, indicating that the Chair is also a member of the Consultative Committee, and an ex-officio member of ACME. In this role the Chair is involved in various phases of the Annual Science Conference, working with Theme Sessions and other Committees. The Chair also interacts with other organisations in order not to compete with various other meetings.

The Chair then introduced the topic of the ICES Strategic Plan and gave a general overview of the objectives. The participants were asked to review the plan for the next meeting, since they had not seen it before this time. The issue of concern was to determine whether mariculture was covered sufficiently in the plan.

Discussion of the recent Symposium and the Working Group reports then took place.

M. Héral was Co-Convener with David Wildish (Canada) of the recently held Symposium on the Environmental Effects of Mariculture, held in St. Andrews, New Brunswick, Canada. He indicated that over 100 people had attended, with 40 papers and 20 posters being presented. The theme areas were on: 1) disease, 2) harmful algal blooms, 3) monitoring and monitoring impact, 4) modelling and carrying capacity, and 5) genetic interactions.

Participants from fourteen countries attended. The papers from the Session on Modelling and Carrying Capacity will be published in the *Canadian Journal of Aquatic Sciences*, while the remaining papers will be published by ICES in the *ICES Journal of Marine Science*.

Working Group Issues

The various Working Group reports were then presented.

1. Working Group on Pathology and Diseases of Marine Organisms (WGPDMO): A report was given by Stig Møllgaard, Chair of WGPDMO, on the activities of the WG. All recommendations were approved by the Committee. The work of the group has been improved by working through e-mail. All

relevant information was available prior to the WGPDMO meeting. It was then suggested that all WGs reporting to the Mariculture Committee use this method of information dissemination.

The next meeting of WGPDMO will take place at the University of Bremen, Germany, 29 February to 4 March 2000, according to the terms of reference approved by the Committee.

The WGPDMO Chair then asked that decisions on the release of important working documents, mainly concerning new diseases, be made as quickly as possible, mainly for use by IEO (International Epizootic Organisation) and for the EU Veterinary Board. The Mariculture Committee proposed a peer review system to ask the WGPDMO Chair to send the report by e-mail to the Chair and members of the Mariculture Committee. It was suggested that three weeks be given to the Committee to review and approve or modify the WGPDMO report. The WGPDMO report will then be made available on the ICES website.

2. Working Group on the Application of Genetics in Fisheries and Mariculture (WGAGFM): A report was given by Jarle Mork, Chair of WGAGFM, on the activities of the group.

A new Chair of WGAGFM was appointed: Dr Michael Møller Hansen of Denmark. The next meeting of the WGAGFM will take place at the Catholic University, Leuven, Belgium on 3–6 April 2000, with terms of reference approved by the Committee.

3. Working Group on Environmental Interactions of Mariculture (WGEIM): This report was presented by M. Héral, as the Chair of WGEIM was not present. Dr Ian Davies was appointed last year as the new Chair of this WG, which will next meet in Aberdeen, Scotland from 6–10 March 2000.

It was adopted that the work under terms of reference c) iii and e) i must be reviewed by the Marine Habitat Committee. Item c) v was withdrawn as it was a duplication with c) i. With these amendments, the terms of reference for the meeting were adopted.

A concern was expressed regarding the idea that some WG reports might contain ideas contrary to those expressed by other WGs. In this case, it was suggested that perhaps the report of the Working Group on Environmental Interactions of Mariculture

might be reviewed by the Marine Habitat Committee.

4. Working Group on Marine Fish Culture (WGMAFC). There was no meeting this year, but a progress report was prepared. Dr John Castell (Canada) has been appointed as the new Chair. The next meeting will take place from 5–7 June 2000 in St. Andrews, New Brunswick, Canada.

The terms of reference for the 2000 meeting of this WG were modified by the Committee with the approval of the Chair of the WG. Item g) was modified to read 'Prepare a Theme Session for the 2000 ASC on New Trends in Fish Feeding in Aquaculture'. Item h) was added as 'Encourage the use of an ICES standard weaning diet and standard enrichment emulsions as controls for research experiments and report on studies using them', Item i) was added as 'Review the animal products used in fish feed formulations in ICES Member Countries, and possible contaminants (and their concentrations) contained in these fish feeds'.

Some discussion took place on the apparent collection of similar data by different Working Groups under the Mariculture Committee. The concern was that these different groups may be contacting different individuals in ICES Member Countries for similar information, with the result that the final product of the same type of information could be reported differently by the various WGs. This might reflect badly on ICES.

5. Working Group on Introductions and Transfers of Marine Organisms (WGITMO): This WG does not report directly to the Mariculture Committee, but reports to ACME. However, its report is referred to the Mariculture Committee. The report was presented by M. Héral. James Carlton, Chair of WGITMO, was not present. He was reappointed as Chair following WGITMO recommendations. The next meeting will take place from 27–29 March 2000 in Tallinn, Estonia.

The Committee will prepare an Action Plan to reach the objectives, as requested by the Consultative Committee.

Future Theme Sessions

Proposals for Theme Sessions for the ASC 2000 were presented, discussed, and justifications adopted. Two Theme Sessions were agreed:

1. New Trends in Fish Feeding in Aquaculture. Potential Co-Conveners: J. Castell (Canada), C. Caher (France), and S.J. Kaushik (France).

2. Sustainable Aquaculture Development. Potential Co-Conveners: H. Ackefors (Sweden) and H. Rosenthal (Germany).

For ASC 2001, three Theme Sessions were proposed:

1. Diversification of Aquaculture Production. Potential Co-Conveners will be contacted during the intersessional period.
2. Long-Term Effects of Culture Conditions on Juveniles.
3. Sustainable Development of Natural Resources in the Coastal Zone. Co-sponsored with the Marine Habitat Committee and possibly the Baltic and the Living Resources Committees. Potential Co-Conveners: J. Støttrup (Denmark). This could be treated as a Mini-Symposium.

A proposal was submitted for an ICES Workshop on 'Welfare in Farmed Aquatic Species' to be hosted by IFREMER and held in Nantes, France in June 2001. The Workshop was proposed by Guy Claireaux (CREMA, France) and Jens Chr. Holm (IMR, Norway), Co-Conveners of Theme Session W on the Health Welfare of Cultivated Aquatic Animals at the 1999 ASC.

Speakers for the Opening Session of ASC 2000 were recommended in the following order:

- 1) Dr Ann Gargett
- 2) Dr Patrick Gentien
- 3) Prof. Steve Thorpe

The Mariculture Committee agreed with the main goals and objectives of the ICES Strategic Plan. The objectives were discussed for achieving the goals. The different objectives were viewed and it was felt that mariculture objectives were covered in sufficient detail.

Regarding the ASC format, the Theme Sessions on mariculture must be broad enough to attract a wide variety of scientific disciplines, including fisheries, mariculture and environmental interests. Some members expressed concerns about not having a particular niche in the ASC format. The Committee recommended that the choice of Theme Sessions change each year to attract different audiences to include the different scientific disciplines.

Election of a New Chair

Dr A. Calabrese (USA) was elected the new Chair of the Mariculture Committee.

Documents

F:1 Working Group on the Application of Genetics in Fisheries and Mariculture (WGAGFM)

F:2 Working Group on Environmental Interactions of Mariculture (WGEIM)

Ref. ACME, E

F:3 Working Group on Marine Fish Culture (WGMAFC) (postponed) (progress report)

F:4 Working Group on Pathology and Diseases of Marine Organisms (WGPDMO)

Ref. ACFM,
ACME, E

REFERENCE PAPERS: ACME:1

LIVING RESOURCES COMMITTEE (G)

Chair: Dr R. C. A. Bannister (UK)
Rapporteur: Dr H. Heessen (Netherlands)

The Committee met for Business Sessions on Tuesday 28 September 1999 (14.00–18.00 hrs), and Friday 1 October 1999 (13.30–17.45 hrs). Attendance averaged 30.

The Chair welcomed participants, and Dr H. Heessen (Netherlands) was appointed rapporteur. The agenda was adopted without amendment. A roll call showed that Committee Members numbered 17 out of a possible total of 38.

Committee Business

The Chair explained that the main purpose of the Business Sessions was to:

- approve the Reports of the Working, Study, Planning Groups and Workshops held during the year;
- review and approve their recommendations, and any additional ones proposed by the Committee;
- propose Theme and other sessions for the next Annual Science Conferences;
- adopt the ICES Strategic Plan and Objectives, and approve the Committee objectives and tasks worked out at the 1998 ASC.

The Chair also outlined that the duties of a Committee member were to promote and organise the participation of Member Country scientists in the activities of the Living Resources Committee, and of ICES.

The Work Plan

The Committee accepted the final version of the ICES Objectives as agreed by the Consultative Committee in June 1999, and presented in CM 1999/Del:20/Gen:4. The Chair pointed out that the principal role of the Committee was contained in ICES Objective 1d, but illustrated that there were numerous cross-links with many of the other Objectives. He illustrated a range of relevant work areas and taxonomic groups implicit in the remit of the Committee, and circulated an amended version of the Objectives, Tasks and Activities proposed at the 1998 ASC (Lisbon), with appropriate insertion of the Working, Study and Planning Groups currently belonging to the Committee. For the official record, this information is appended to this report. It was agreed to discuss priority activities and their timetable inter-sessionally.

Scientific participation in the Committee

The Chair outlined the problem of maintaining adequate scientific participation across the various discipline and species groups embraced by the term 'living marine resources'. As in 1998, only half the Committee Members, and few Working Group/Study Group Chairs were present; the scientific interest groups were very unevenly represented; and few scientists who were not members attended. This was expected for the first session before the main meeting, but not for the second session during the scientific part of the ASC when, paradoxically, attendance was least. Before the ASC the Chair had asked Committee Members to identify other scientific colleagues active in the Committee's work area, and he indicated his wish to maintain and extend this list, in support of any needed inter-sessional activity. He also pointed out the scientific names connected with various live issues, such as Dr Friedland (USA) on stock identification, tagging, and salmon topics; Dr Heessen (Netherlands) on surveys and demersal fish studies; Dr Pepin (Canada) and Dr Houde (USA) on recruitment processes; Dr Rice (Canada), Prof. Gislason (Denmark) and Prof. Pope (Norway) on various ecosystem topics; Dr Waring and Dr Haug (Norway) on mammal topics; the various Planning, Study, and Working Group Chairs for surveys, species studies, and otolith exchanges; and his own interest in shellfish and in the comparative population biology and demography of living marine resources. It was agreed that these represent focal points for initiating or coordinating future scientific activity within the Committee, and that other scientists would emerge in this way as the subject matter of the Committee evolved. It was agreed that although it would not be appropriate to identify formal topic or research groups under such individuals, there was scope for contact or posting information in these individual work areas using a Living Marine Resources Committee component of the ICES Website.

Reports

This year the Committee devoted a total of four hours to presenting and reviewing the various Working Group, Study Group and Workshop reports.

Species Reports

G:2 (WGCRAN) The Working Group met very close to the ASC, and a verbal report by the Chair showed good progress on standardisation of CPUE indices; modelling the sensitivity of length-based analysis to measuring changes in mortality for assumptions about growth; and plans to develop a Y/R model for shrimp. A reviewer for the report was identified. Report G:3 (WGMPD), and an independent review by Dr Haug (Norway), were

presented and accepted. G:4 (WGCEPH), describing progress on many EU projects, was presented and accepted. G:9 (SGRS) was taken by title, but it was noted that the Study Group would need to meet again in 2001. G:10 (SGSTR) was discussed and accepted. G:11 (SGEF) was presented, an independent review discussed, and the report accepted. Dr Heessen summarised the new EU project DELAS (Development of Elasmobranch Assessment). It was also noted that extensive work on elasmobranchs in the NW Atlantic was not represented at the Study Group meeting, which to date has only European members, and it was agreed that there should be inter-sessional communication to remedy this. Resolution of species coding problems were discussed and recommended. G:13 (SGNEPH) was presented, discussed by the Chair as independent reviewer, and accepted. Working papers described stock-recruit modelling, fishery-independent stock estimation by burrow counting and by the plankton method, and new growth data, the latter somewhat problematic. By agreement with the Chair, there was no report for G:12 (SGCRAB) since the group does not meet until 2000.

Survey reports

G:5 (WGMEGS), and an independent review, were presented, discussed, and accepted. The 1998 surveys and resulting stock estimates were affected by difficulties arising from the time-space coverage of the survey, and an unexplained decrease in mackerel fecundity, previously stable. Scope for a Bayesian approach to estimating peak spawning was suggested. Egg identification and staging problems were identified and need resolving by a workshop. G:6 (WGBEAM) was non-controversial and was accepted by title. G:7 (PGHERS) was presented, discussed, and accepted. Herring larval indices have been recalculated, and the effect of a reduction in ship effort in the survey assessed, showing that there has been no statistical deterioration in the abundance estimate. Complete coverage is recommended every three years. G:8 (PGPAS) was non-controversial and accepted by title.

Techniques reports

G:1 (SIMWG) was presented and accepted. The Committee accepted that this group should continue. G:15 (WKUS) was presented, and accepted. A major inventory of scale data was made, and will be followed up. G:14 (WKOAW) was presented and accepted. Worthy efforts were made to standardise ageing between readers, taking into account new work on microstructure. Further activity will take place inter-sessionally to prepare for a possible future meeting in 2001. G:16 (WKHMO) was presented, discussed and accepted. The presenter complemented the host institute (Lowestoft) for the organisation and facilities. The trend of reading-error with age was measured, and a simulation study used to identify the likely effects on estimates of recruitment and spawning biomass for different assumptions about recruitment variability. Errors on SSB

were in the range 1-7% and should not affect the assessment.

Other reports

The Chair identified several important reports referred to the Committee, including C:2 (Recruitment Processes), C:12 (GLOBEC Steering Groups), C:15 (Backward Facing Workshop on Gadoid Stocks in North Sea), ACFM:21 (Deep Sea Fishes), ACFM:25 (Standard Assessment Tools), and D:4 (Future of Multispecies Work).

Reviewing

Several but not all reports had been reviewed independently prior to the ASC. It was agreed that each Committee member should assist in this process in the future and that the Chair would organise this earlier in the working year. The reviewer should be given instructions. It was agreed that for reviews with only moderate comments it would be sufficient to pass these to the Chair for future reference. Where serious scientific problems were identified the review should preferably be included in the report, and in extreme cases the report could be rejected and the PG, WG, or SG asked to reconsider the issues.

Recommendations

The Committee reviewed the Recommendations proposed by the various Working Groups and Study Groups. Several had already been nominally accepted by CONC in June 1999. All were accepted (WGMPDP, WGCEPH, WGMEGS (new Chair), PGPAS (new Chair), PGHERS, SGEF, SIMWG, WGCAN, WGBEAM (new Chair), SGCRA, SGNEPH (new Chair in 2000), SGSTR (subject to clarification of ToR).

New proposals were accepted for a Workshop on the Estimation of SSB of Sardine (WKSBS), a Workshop on Identification and Staging of Mackerel and Horse Mackerel Eggs (WKMHEMME), and for a Planning Group on the History of Marine Animal Populations (PGH-MAP). The new proposals were accompanied by resources assessments as decided by CONC in June 1999.

A recommendation supporting the development of ICES participation in the Census of Marine Life Programme was discussed at length. It was opposed by a small number of members who felt the programme lacked focus, and did not make clear how such a programme would be tasked and funded. It was supported by members who felt that ICES could contribute substantial data, organisation, planning, and technical skills to a North Atlantic component of a global Census of Marine Life Programme, and that this fulfilled ICES Objective 5. It was agreed to take the recommendation forward on the basis of qualified support, for further discussion at CONC.

Survey Working and Study Groups

It was pointed out that several survey Working Groups and Study Groups reported to LRC, and others to RMC. It was felt that this was illogical since surveys were part of LRC Objective 1, and that the issue should be discussed at CONC.

Theme Session proposals for 2000

Life History Studies in Living Marine Organisms: Population Processes and Methodological Developments (Conveners: Lockyer (Denmark), Kjesbu (Norway), Redant (Belgium), Addison (UK))

Evaluation of the Impact and Incorporation of External Factors in Marine Resource Surveys (Conveners: Simmonds (UK), Petitgas (France), and Walsh (Canada))

Spatial and Temporal Patterns in Recruitment Processes (Conveners: Houde (USA), Pepin (Canada), Munk (Denmark), and Schnack (Germany))

Trophic Dynamics of Top Predators: Foraging Strategies and Requirements, and Consumption Models (Conveners: Gislason (Denmark), Nilssen (Norway), and Tasker (UK))

The Application of Experimental Laboratory Study to Fisheries Science (Convener: J. Schou Christiansen (Denmark), Pope (Norway))

Firm proposals for 2001

Population Dynamics, Exploitation and Management of Shellfish (Conveners: Smaal, (Netherlands), Bell (UK), Gonzalez-Gurriaran, (Spain) and Dufour (Canada))

Firm proposal for Mini-Symposium, 2001

The Response of Cephalopod Populations and Fisheries to Changing Environments and Ecosystems (Conveners: Borges (Portugal), O'Dor (USA), Piatkowski (Germany), and Pierce (UK))

Other business

The Committee was informed about the CD Rom created for the 1998 ASC meeting papers. It recommended that future Roms should include the "green" report of the ASC. Several members queried whether the electronic circulation of papers before the meeting would work as busy people would not have time to read them, and there would be no chance to use a PC during a Conference session.

Closure

After recording thanks to the members and the rapporteur the Living Resources Committee sessions closed on Friday 1 October 1999, at 17.45 hours.

Documents

G:1	Stock Identification Methods Working Group (SIMWG)
G:2 Ref. ACFM, B	Working Group on <i>Crangon</i> Fisheries and Life History (WGCRAN)
G:3 Ref. ACFM, ACME, E	Working Group on Marine Mammal Population Dynamics and Trophic Interactions (WGMPDP)
G:4	Working Group on Cephalopod Fisheries and Life History (WGCEPH)
G:5 Ref. D	Working Group on Mackerel and Horse Mackerel Egg Surveys (WGMEGS)
G:6 Ref. ACFM, E	Working Group on Beam Trawl Surveys (WGBEAM)
G:7 Ref. D	Planning Group for Herring Surveys (PGHERS)
G:8 Ref. D	Planning Group for Pelagic Acoustics Surveys in ICES Sub-Areas VIII and IX (PGPAS)
G:9	Study Group on Redfish Stocks (SGRS)
G:10	Study Group on Sea Trout (SGSTR)
G:11 Ref. ACFM	Study Group on Elasmobranch Fishes (SGEF)

- G:12 Study Group on the Biology and Life History of Crabs (SGCRAB)
Ref. E
- G:13 Study Group on Life History of *Nephrops* (SGNEPH)
Ref. ACFM
- G:14 Workshop on Otolith-Ageing of North Sea Whiting (WKOAW)
- G:15 Workshop on the Usefulness of Scale Growth Analyses and Other Measures of Condition in Salmon (WKUS)
- G:16 Horse Mackerel Otolith Workshop (WKHMO)

REFERENCE PAPERS: C:2, C:15, D:2, D:4, ACFM:2, ACFM:5, ACFM:10

BALTIC COMMITTEE (H)

Chair: Prof. T. Osborn (USA)

Rapporteur: E. Aro (Finland)

Committee Sessions

The Baltic Committee held Sessions on Tuesday 28 September and Friday 1 October.

Opening

The Chair opened the meeting on 28 September 1999 at 09:30 and welcomed all 18 participants

Appointment of Rapporteur

E. Aro was appointed as Rapporteur.

Adoption of agenda

Agenda was adopted.

Practical arrangements

The Chair informed the Committee about some practical arrangements for the ASC.

Reports of Working Groups, Study Groups and Workshops including Recommendations

Baltic International Fish Survey Working Group [WGBIFS] (Doc H:1) and Study Group on Baltic Acoustic Data [SGBAD](Doc H:3).

The Chair of WGBIFS informed the Committee that the Working Group had held its meeting in early August 1999 in Tallinn, Estonia. The meeting was well attended (32 participants) and all terms of reference were covered. The meeting was a combination of an ICES Working Group meeting and meeting of EU-funded Study Projects. The following Study Projects had their short co-ordination meetings in Tallinn.

- ISDBITS-project: "Improvement of stock assessment and data collection by calibration, standardisation, and design improvement of the Baltic international bottom trawl surveys for fishery resource assessment", co-ordinated by J. Rasmus Nielsen (Hirtshals, Denmark)
- BITS-project: "Baltic International Trawl Survey Database", co-ordinated by Y. Walther (Karlskrona, Sweden).
- BALTDAT-project: "Surveying the pelagic fish resources and establish an acoustic database in the Baltic Sea", co-ordinated by F. Arrhenius (Lysekil, Sweden).

During the WGBIFS meeting it was noted that both parties, ICES and EU, were benefiting very much from co-ordination and sharing of duties and tasks. It was recommended that this be continued.

The Working Group also discussed the future organisation, timing, and tasks of the WGBIFS. There has been a clear overlap between the WGBIFS and SGBAD terms of reference, and WGBIFS has already absorbed some of the SGBAD activities. Thus SGBAD recommended that it be dissolved and its tasks moved to WGBIFS. WGBIFS discussed this possibility and endorsed the recommendation of SGBAD. WGBIFS also proposed terms of reference for their next meeting to be held in April 2000. It was agreed to include an IBSFC request to provide information on distribution of juvenile herring, sprat, and undersized cod taken in small mesh fishery (including distribution maps).

SGBAD had their meeting preceding the Baltic Fisheries Assessment [WGBFAS] meeting at ICES Headquarters, Copenhagen, Denmark

The status of the SGBAD was discussed. Originally it was set up to combine and analyse acoustic survey data for the WGBFAS develop further hydro-acoustic database, and plan and decide on acoustic surveys and experiments to be conducted in the future. The results and analysis provided by SGBAD were used by WGBFAS immediately after its meeting.

In recent years a number of new scientific projects and study projects have been initiated in the Baltic and neighbouring areas (BALTDAT and HERSUR for example) and these projects are tackling the same kind of issues as SGBAD.

In this situation, members of SGBAD felt that at the moment there is no need for this Study Group, and that its terms of reference be absorbed by WGBIFS. The Committee agreed that SGBAD be dissolved and that its tasks be moved to WGBIFS. WGBIFS will meet this year at the beginning of August, and SGBAD recommends that WGBIFS five day meeting in 2000 should be scheduled for the first week in April.

Baltic Herring Age Reading Study Group (Doc H:2)

The Committee was informed about the co-ordination and work that has now been completed by this Study Group. They have started a new exchange programme of otoliths in 1998, and they expect to finalise this by the end of 1999. They will report their results to WGBFAS in April 2000, and they propose to have a meeting in the autumn 2000 in Tvärminne, Finland. The Committee

agreed to their terms of reference for the meeting, subject to further elaboration.

Study Group on Baltic Cod Age Reading (Doc H:4)

The Co-Chair of the Study Group informed the Committee about their results from the meeting held in Charlottenlund, Denmark in November 1998. Terms of Reference included the summarising of the results of the otolith exchange programme and they established a digitised video image otolith collection and prepared a manual providing guidelines for cod age reading procedures and the interpretation of otoliths.

The Study Group recommended that cod otolith readers should meet every 6 years to reduce the variability in cod age readings and interpretation.

The Committee discussed this issue and considered that there should be a more precise plan and aim for such a meeting and that a Study Group should work at least 2-3 years on a more regular basis. The Committee decided to return to this issue at its Friday meeting to have a new recommendation for the Council to decide future work.

Study Group on Multispecies Model Implementation in the Baltic (Doc H:5)

The Chair of the Study Group informed the Committee about the state of art and results of the Study Group. An executive summary and a proposal for future work were tabled. The Committee was also informed about the completed and uncompleted work of the Study Group and how they see possible new tasks for future multispecies activities in the Baltic.

A proposal to establish a Study Group on Multispecies Predictions in the Baltic was considered. This, and the proposed terms of reference, were accepted by the Committee. E. Aro was elected Chair. It was also agreed that this Group should hold two meetings after which an evaluation of its usefulness should be performed.

Second Scale Reading Workshop on Baltic Salmon (Doc H:6)

The Chair of the Second Scale Reading Workshop on Baltic Salmon informed the Committee about the results of the Workshop which was held November 1998 in Helsinki, Finland. The Workshop focused on the comparison of scale structure of wild salmon originating from different parts of the Baltic and also reared salmon originating from different parts and different rearing practices in the Baltic region. The Committee supported the Workshop's proposal to establish a Study Group on Salmon Scale Reading Problems (Chair: E. Ikonen, Finland) and that it work by correspondence in 2000).

Workshop on Baltic Trawl Experiments (Doc H:7)

The results of the Workshop on Baltic Trawl Experiments, convened in Rostock, Germany in January 1999 was described by its Co-Chair. The Workshop completed its work and covered its terms of reference. It was agreed that there was no need for another Workshop as activities of this nature are undertaken by the EU-ISDBITS project. It is understood that this Project will report and co-operate with WGBIFS. The year 2000 surveys will be planned in December 1999 in ISDBITS-project meeting in Lysekil, Sweden.

Workshop on Target Strength Estimation.

The Committee discussed the need to organise a Workshop on Target Strength Estimation. It was pointed out that in the application of acoustic fish abundance estimation, the target strength of the fish is one of the key parameters for the conversion of integrated acoustic energy to relative or absolute fish abundance. The actual target strength constants applied since 1983 for the Baltic Sea acoustic surveys are in reality estimates obtained for North Sea herring, sprat and cod.

It was agreed that it was necessary to discuss in more detail and organise experiments with the objective to find and verify new Target Strength (TS) conversion formulas for the target species. Thus the Committee endorsed the proposal to organise a Workshop on Target Strength Estimation (Chair: Dr. F. Arrhenius, Sweden) and the workshop should take place in Lysekil, Sweden from 17-21 January 2000. *[The Consultative Committee later decided that the questions raised in this recommendation are central to obtaining reliable acoustic survey estimates, but it argued that the problems are of a general nature, and not only connected to the Baltic herring stocks. It was therefore decided to incorporate the above recommendation as a term of reference into the tasks set for the next meeting of the Working Group on Fisheries Acoustics Science and Technology (WGFAST) and extend the WGFAST meeting accordingly by 1 day. This issue can then be addressed more generally by a larger group of experts representing the world community in fisheries acoustics].*

Proposal for Theme Sessions and Mini-Symposia for 2000 and 2001

The Chair drew attention to possibilities to propose themes for ASC in 2000 and 2001. Members were asked to consider this issue during the ASC. During the Friday meeting, it was agreed to promote a Mini-Symposium on the "Status of the Baltic Marine Ecosystem". The Committee also supported a proposal from other Committees on the theme of "Coastal Management".

Baltic GEF update

The Chair gave a short update on the GEF Baltic Large

Marine Ecosystem Project. Some of the funds available have been transferred to recipient countries. The Committee was informed that there is a plan to set up two Workshops in early 2000 addressing the environmental status of the Baltic and sensitivity indicators for the Baltic ecosystem.

Final Endorsement of Recommendations/Draft Resolutions

The Committee endorsed recommendations concerning following SG/WG/Workshops and issues:

1. Study Group on Multispecies Predictions in the Baltic
2. Study Group on Salmon Scale Reading Problems
3. Baltic Herring Age-Reading Study Group
4. Baltic International Fish Survey Working Group
5. Workshop on Target Strength Estimation
6. Study Group on Baltic Cod Age Reading
7. Study Group on the Scientific Basis for Ecosystem Advice in the Baltic
8. The Committee also endorsed the recommendation that ICES will co-sponsor the International Fisheries Symposium to be held in Bergen, Norway from 2-4 December 2000 on Fish Stock Assessment and Predictions: Integrating Relevant Knowledge.
9. Include a short environmental status report into the Report of the Baltic Fisheries Assessment Working Group Report describing major variables.
10. Present two short, informal overviews of the environment and fisheries trends at ASC in Baltic Committee meetings
11. ICES should have a short session and a forum where environmental status of the Baltic and other ICES areas are presented to the entire ICES scientific community
12. Support the suggestion by other Committees that a theme session on "Coastal Management" should be organised.
13. A Mini-Symposium should be organised in 2001 on "Status of the Baltic Marine Ecosystem" using as a background information the recently completed environmental assessment for the years 1994-1998 prepared by HELCOM.
14. Support the establishment of a Study Group/Working Group on Collecting and Reporting Discarding Data under the umbrella of ACFM assuming that this new group will also consider Baltic Sea discarding problems and that their meeting will be early in 2000 to support WGBFAS and the new SGMPB.

Matters from Consultative Committee and Advisory Committees

Amended Procedures for Recommendations/Draft Resolutions

As indicated in the Chair's letter to the Committee members on the 3rd August 1999, there is a new working protocol from Consultative Committee indicating new timing and handling process for incoming recommendations. The new way of handling recommendations is included in the mid-term report of Consultative Committee and also Chair's letter to the Committee.

ICES Five-Year Strategic Plan

The Chair drew attention to the new version of the ICES Strategic Plan.

It was noted that current Five-year Strategic Plan includes the issues discussed and agreed last year by the Baltic Committee.

Discussion on Ecosystem Advice

The Chair informed the Committee about the Theme Session on "Ecosystem Management" and recommended that Committee members should participate in this theme session. After a long discussion about ecosystem advice and ecosystem management Baltic Committee decided to propose establishment of a new Study Group on the Scientific Basis for Ecosystem Advice in the Baltic.

Committee Matters

Future Work Programme of Committee in relation to Committee remit and Five-Year-Strategic-Plan

The Chair addressed the plan and recommended that Committee members review last year's Committee report.

The following summarises the main objectives and activities relevant to the Baltic Committee:

1. Oceanography and Ecology

Objective: The development of a quantitative framework to assess and predict the variability of the living resources of the Baltic Sea ecosystem.

Activity: Promote coupled physical/biological modelling in the Baltic for management and sustainability of the living resources by co-ordinating relevant activities.

2. Fisheries and Fish Ecology

Objectives: The development of a framework to assess multispecies aspects of Baltic fish stocks, their maturation processes, recruitment variability, changes in the growth rate and its dependence on environmental factors.

Activity: Promote research on coupled physical/biological modelling of maturation

processes in connection with recruitment variability and their dependence on environmental variation.

Continue research on medium- and long-term changes of the population structure of Baltic cod, herring, and sprat stocks and co-ordinate relevant activities.

Continue the development of implementation of multispecies approaches for stock assessment of the derivation of biological reference points.

Continue research and analysis on fishing fleet structure, cpue, and fleet behaviour in the Baltic for sustainable management of fish resources.

4. Cross Cutting Goals

Objective: Participation in international research programmes and co-ordination of studies on the inter-relationships of living marine resources in the Baltic Sea ecosystem.

Activity: Promote co-operation between international organisations (ICES, IBSFC, HELCOM) with complementary responsibilities for environmental management in the Baltic Sea area.

Documents

H:1 Ref. D	Baltic International Fish Survey Working Group (WGBIFS)
H:2	Baltic Herring Age-Reading Study Group (BHARSG)
H:3 Ref. D	Study Group on Baltic Acoustic Data (SGBAD)
H:4	Study Group on Baltic Cod Age Reading (SGBCAR)
H:5 Ref. ACFM	Study Group on Multispecies Model Implementation in the Baltic (SGMMIB)
H:6	Second Scale-Reading Workshop on Baltic Salmon (SSRWBS)
H:7 Ref. B	Workshop on Baltic Trawl Experiments (WKBTE)

REFERENCE PAPERS: ACFM:22, ACME:3, ACME:4, ACME:5, ACME:8

Participation in planning and implementation process of the Baltic Sea Regional Project within the ICES Baltic Sea Large Marine Ecosystems project.

Arrangements for vetting of 2000 Working/Study Group/Workshop Reports

The present practice of vetting Working/Study Group/Workshop Reports is far from optimal. In practice the peer reviewing does exist and thus there is no real quality control on the products. The Committee decided to put more emphasis on vetting the reports at its next meeting and assign reviewers for each of the reports in advance.

Any Other Business

The Committee was informed about the ASLO 2000 Aquatic Sciences Meeting in Copenhagen from 5–9 June 2000. The Meeting includes a Workshop on “Aquatic Sciences: Research Across Boundaries – Application oriented Marine Science and the role of ICES” and it has a special topic addressing recent work on ecology and fisheries of the Baltic. These activities provide a good example of sophisticated interdisciplinary research with applied objectives

10. Close of meeting

The Chair closed the meeting at 17.20. hrs

Supplement 2: Reports of Mini-Symposium and Theme Sessions

MINI-SYMPOSIUM ON PLANS FOR MAJOR INTERNATIONAL PROGRAMMES IN THE NORTH ATLANTIC REGION OVER THE NEXT DECADE: SHOULD ICES BE INVOLVED?

Co-Conveners: Dr M. Reeve (USA) and Prof. P. Liss(UK)

Rapporteur: Dr K. Brander (ICES)

The Mini-Symposium began with a short presentation on GEOHAB - Global Ecology and Oceanography of Harmful Algal Blooms (Doc. Mini:04). This is a new international programme endorsed by IOC and SCOR at the end of 1998. The aim of GEOHAB is to support international cooperative research on harmful algal blooms. The presentation raised the question whether ICES should also be a sponsor of the programme. ICES has already contributed a great deal in this field, particularly through the Working Group on Harmful Algal Blooms.

GEOHAB will be concerned with operational monitoring and with providing deliverables for users. It will develop links with related ongoing programmes and in particular with GLOBEC and LOICZ. Examples of the kinds of information which GEOHAB intends to produce are decadal maps of toxic events and advice on methodologies for predicting the occurrence, distributions, toxicity and environmental effects of HABs.

Doc. Mini:01 explained that ICES and GOOS are members of the same family and can complement and support each other in several ways. GOOS is preparing a permanent framework of observations, modelling, and analysis of ocean variables. Some of these will come from ICES, but ICES may also wish to make use of products that it does not currently collect. ICES has already committed itself to providing trawl survey information from the North Sea and the main ICES inputs are likely to be to the Living Marine Resources (LMR) and the Health of the Oceans modules of GOOS. The Climate and Coastal modules may also be relevant to ICES. There are close links with GLOBEC. GOOS is being implemented to support Agenda 21 and the conventions arising from the Rio Declaration, which all ICES Member Countries have signed up to.

The Chair of the LMR panel of GOOS (Warren Wooster) explained that the LMR module was developing ideas on how to monitor the marine ecosystem. There is a problem, in that many countries are sensitive about providing information about fish and fisheries, but are much less so about other components of marine life. It is evident that fish should not be left out of marine monitoring, but suggestions about how best to do this would be welcome.

In the discussion, it was asked why existing global and large-scale programmes have not been more active in trying to influence the way in which GOOS is designed. It was suggested that one reason might be the fear that science base money will be transferred to monitoring instead. The users and beneficiaries of marine

monitoring need to be identified and asked to contribute. It was considered that both external (fisheries and environmental managers) and internal ICES customers will benefit from operational oceanography. It was also considered that there was a danger of overlap and redundancy over some of these issues. For example, GOOS-LMR and FAO would shortly be holding rather similar meetings at the same time. It was questioned how it would be possible to extend Global Ocean Observing to the rest of the world and what part ICES might play in this.

Doc. Mini:02 introduced CLIVAR. CLIVAR is a component of the World Climate Research Programme - the aim is to understand and predict variability of the global climate system. As with virtually all global programmes, there are no central funds for CLIVAR and the programme will be implemented by bringing together existing and planned programmes. Within the North Atlantic region the principal research area of greatest interest to ICES is probably the decadal to longer-term climate variability and predictability associated with the North Atlantic Oscillation. The ICES scientific community could contribute time series on biotic and abiotic ocean parameters and could gain access to results from ocean climate modelling.

These aspects are particularly relevant to the ICES/GLOBEC programme (which held a workshop on Decadal Scale Predictability of the North Atlantic in 1997), and a considerable amount of climate information is already available on the ICES web site.

It was explained in Doc. Mini:03 that PICES is in some ways modelled on ICES, but differs in having only six member states and no advisory responsibilities. The development and implementation of its programmes depends heavily on the involvement of individual scientists. Investigations of climate variability and regime shifts led to the initiation in 1994 of the PICES/GLOBEC Carrying Capacity and Climate Change programme, which, like the ICES/GLOBEC Cod and Climate Change programme is a regional component of the International GLOBEC Implementation Plan. The association with GLOBEC advances the PICES agenda, as does the developing link with GOOS.

Doc. Mini:05 introduced the proposal for SOLAS: Surface Ocean - Lower Atmosphere Study, which is sponsored by IGBP and SCOR. Its goal is to address key interactions of the marine biogeochemical system, the atmosphere, and the climate. Large-scale manipulation experiments (like the recent iron enrichment experiments) will be an important component. SOLAS will build on the work of other programmes such as

IGAC, JGOFS and WOCE and will be closely linked with CLIVAR and GLOBEC. It will bring together atmospheric and marine researchers, biogeochemists and physicists and will need to overcome barriers to interdisciplinarity which are imposed by funding structures and other constraints. The limits of the study are roughly the thermocline depth in the oceans and the lower 1kilometre of the atmosphere.

Doc. Mini:06 drew attention to the GLOBEC mission which is "to understand the structure and functioning of global ocean ecosystems and their response to physical forcing". The document identified three ways in which new programmes such as GLOBEC differ from old ones and are not just extensions of them:

- The time-scales of change being considered are different (longer), and we are moving from describing existing regimes to predicting the consequences of different climate change scenarios.
- Different processes are being studied and we are moving from developing understanding of internal dynamics to the inclusion of atmosphere/ocean interactions.
- Societal issues underlie the rationale for new programmes, and we are moving from the study of processes to the solution of problems.

GLOBEC is principally concerned with response of the marine ecosystem to physical forcing and hence with "bottom-up" processes, but ICES also has a major research effort on "top-down" processes, particularly due to the effects of fishing. The two are complementary. The presentation concluded with a brief explanation of regime shifts, which are well defined in the North Pacific, but not so clear in the North Atlantic. The consequences of such shifts for fisheries management can be overwhelming, but the means of incorporating them in management strategies are not worked out yet.

GIWA is a four-year GEF-funded project being run from the University of Kalmar, and the project has to do with transboundary issues in the sea, freshwater, and groundwater.

In the final discussion some of the issues which the speakers had raised considering the role which ICES can play in relation to major international programmes were listed. From an organisational and financial point of view the benefits of internationally coordinated programmes are fairly clear. They can add value to component national programmes and can eliminate duplication of common or shared tasks. For example, the ICES/GLOBEC Newsletters and the web site encourage rapid exchange of ideas, information, data and timetables of events. Electronic Bulletin Boards and linked data inventories and databases are being used increasingly as part of the preparation for workshops.

ICES itself performs a useful function as a regional "hub" for the somewhat bewildering acronymic array of international programmes and helps to keep its members informed about those which may be relevant to them. This session is itself an example of how this can be achieved, and ICES also has joint groups with several programmes, such as GOOS and GEOHAB.

At a scientific level ICES benefits from links with international programmes in many ways. For example the kinds of comparisons between ecosystems advocated in Doc. Mini:06 are an explicit part of the GLOBEC Implementation Plan, which provides a global framework and rationale for carrying them out. Conversely, ICES can contribute a great deal to international programmes, particularly because of its role as an application-oriented organisation, with long experience of applying science to management issues. International programmes can help ICES to achieve its goals, as outlined in the draft Strategic Plan. They can help to widen the scope of marine science within ICES and the participation in all ICES activities.

Documents presented

Mini:01	H. Dahlin	GOOS – The Global Ocean Observing System: How ICES might participate as well as benefit as a customer of GOOS products
Mini:02	J. Meincke	CLIVAR – The climate variability and predictability study and its implications for understanding fish stock variability
Mini:03	W.S. Wooster	PICES – Major international programs in an ICES analog
Mini:06	J. Steele	GLOBEC and regime shifts – the environmental context on marine fisheries

THEME SESSION ON THE APPLICATION OF ACOUSTIC TECHNIQUES TO BOTTOM TRAWL SURVEYS (J)

Co-Conveners: J. Massé (France) and O.R. Godø (Norway)
Rapporteur: Dr P.G. Fernandes (UK)

Introduction

Acoustic methods now allow for the measurement of fish biomass very close to the bottom. In addition, survey methods and statistical tools have been developed which could aid in the analysis of bottom trawl survey data. The latter suffers from many biases, the most important being the relationship between the catch and the actual population density, which is assumed constant but varies with fish vertical distribution and behaviour. Acoustic techniques have the potential to evaluate how well the catch from bottom trawls represents the actual fish population density. Avoidance, escapement and the pattern of vertical and horizontal distribution could be described by acoustic methods and the biases evaluated. Some populations with suitable characteristics are already being assessed by combined methods. Further research is needed to devise methods to link the two techniques in a wider range of conditions. This Theme Session provided an opportunity to present recent work and helped to develop active links between acoustic experts and those involved in demersal surveys.

Scientific contributions

Doc. J:02 compared acoustic and trawl measurements for fish west of Scotland and found no relationship between estimates from the two methods. The discussion drew attention to some problems regarding the nature of the survey. The distribution of fish was particularly variable and the scrutiny of echograms was difficult due to the multi-specific nature of the aggregations. In this respect the results may not be generally applicable.

Doc. J:04 presented TS (Target Strength) measurements of horse mackerel as compared to catch information. Following the presentation, a number of suggestions were made as issues for further research. These included taking into account the reproductive state, tilt angle (using target tracking), the use of mean TS, and the deployment of a pelagic (in addition to the demersal) trawl.

Doc. J:05 described a time series analysis of bottom trawl and acoustic indices which were compared to draw attention to the additional signal of stock development of cod. A suggestion to examine size class in addition to age was made in the ensuing discussion.

Doc. J:06 presented a statistical model to compensate for diurnal variation of survey results. After the presentation, some concerns about the observed reduction of precision in the estimates after compensation for the diurnal effect were noted.

Doc. J:07 demonstrated improved use of survey results compared to that used in the present analytical

assessment by the ICES assessment WG. In the discussion clarifications were made to where and when acoustic and bottom trawl surveys were applied in the analysis.

Doc. J:08 used an upward looking transducer to quantify the amount of fish unavailable to the bottom trawl. The presentation generated much discussion. It was noted that the beam shape would influence the detection probability in the two different sampled areas. The suggestion of varying the distance between the towed vehicle and the ship was made, as well as looking for differences in behaviour with and without the vehicle. Target tracking might confirm the presence of horizontal movements.

Doc. J:09 described equipment and methods for estimating availability of fish to bottom trawl and acoustic methods (as used in Doc. J:08). The low values of SA in one experiment were remarked upon; this was explained by the low numbers of fish encountered.

Doc. J:10 described experiments using a free floating buoy for observing fish behaviour. Following the presentation, the influence of water currents was raised; removal of this effect was considered not to be critical. The vessel data on the same frequency were not available as the transducer was turned off during the experiments to avoid interference with the buoy; it was suggested that this might provide interesting supplementary data.

Doc. J:11 presented a procedure for combining bottom trawl and acoustic survey data from the Canadian Atlantic coast. This was nominated the best paper/presentation by ICES in 1999.

Doc. J:12 compared acoustic measurements and bottom trawl catches according to species and aggregation patterns.

Doc. J:13 described a scanning sonar to map fish distribution in the opening of a bottom trawl. In the discussion, the positioning of the echosounder at the mouth of the net was questioned, as it may insonify an area where fish are maintaining their position as they try to move out of the net.

Doc. J:15 compared *in-situ* TS measurements and catch for Baltic cod stocks.

General discussion

The group discussed the apparent slow pace of progress in the field of fish behaviour within current

ICES fora, and that although measurement techniques had improved, solutions to problems which have existed for many years had not been found. There was broad agreement that general models of behaviour should be formulated to improve survey methodology. Small-scale behavioural studies should take place in conjunction with standard research surveys to supply data to validate these models. With a greater understanding, it was felt that behavioural aspects, far from being a hindrance to survey techniques, could actually be used to an advantage (e.g. by knowing more precisely when and where a particular fish stock might be most available to a particular research survey). In the meantime, it was felt that the bias and/or variability due to behavioural factors could be compensated for, as suggested in a number of contributions and by further contributions from the audience. These could be classed into those techniques that relied on *in-situ* measurements that provide additional data and those which relied on post-analysis (mainly statistical) techniques. It may be useful to embark on a review of methods available.

The strategy of combining acoustic information into trawl surveys and vice versa, was seen as a particularly

successful way of providing additional data which allows for a solution to many of the problems associated with surveys where only one of the two techniques is employed. These problems were in many cases, related to fish behaviour and particularly to vertical distributions. Although, it was evident from the breadth of presentations given that there is rarely a general case, and rarely a common problem, the need for a general method for combining data was recognised. The example of the Canadian cod survey (Doc. J:03) was seen as a particularly effective approach and provides evidence for the excellent progress made in the broader application of acoustic techniques. This progress can be attributed to a number of factors but especially the massive improvements in research vessel technology and the use of advanced sonar devices.

Finally, the assessment procedure that utilises the survey data was considered. It was noted that improvements to survey indices are not always welcomed by assessment modellers. It might therefore be prudent to include representatives of that community in further discussions.

Documents presented

J:02	D.G. Reid, P.J. Copland, and I. Garioch	An examination of the use of acoustically derived biomass estimates and substrate data to improve the quality of bottom trawl survey estimates and distribution maps
J:03	M. Castonguay, Y. Simand, and I.H. McQuinn	Development of an acoustic survey for assessing cod abundance in the northern Gulf of St. Lawrence
J:04	B.E. Axelsen	<i>In situ</i> TS of cape horse mackerel (<i>Trachurus capensis</i>)
J:05	O.R. Godø and E. Ona	Changes in acoustic abundance – a signal indicator for stock dynamics of cod (<i>Gadus morhua</i>)
J:06	V. Hjellvik and O.R. Godø, and D. Tjøstheim	Modelling diurnal variation in bottom trawl catches and potential application in surveys
J:07	K. Korsbrekke, S. Mehl, O. Nakken, and M. Pennington	Acoustic and bottom trawl surveys: How much information do they provide for assessing the northeast Arctic cod stock?
J:08	K. Michalsen, A. Aglen, D. Somerton, I. Svellingen, and J.T. Øvredal	Quantifying the amount of fish unavailable to bottom trawl by use of an upward-looking transducer
J:09	J.T. Øvredal and I. Huse	Observation of fish behaviour, density and distribution around a surveying vessel by means of a deployable echo sounder system
J:10	O.R. Godø, D. Somerton, and A. Totland	Fish behaviour during sampling as observed from free floating buoys – application for bottom trawl survey assessment
J:11	I. McQuinn, Y. Simard, T.W.F. Stroud, J.-L. Beaulieu, B. McCallum and S. Walsh	An adaptive integrated acoustic-trawl survey on Atlantic cod
J:12	S. Cachera, J. Massé, and Y. Vérin	How the use of acoustics during bottom trawl surveys may provide more accurate abundance indices: an application for IBTS surveys carried out in the southern North Sea
J:13	E. Ona	Determining the entrance position of fish in trawls
J:15	V.M. Vorobyov, S.M. Kasatkina, and V.A. Severin	Experimental practice of cod biomass assessment in ICES Sub-division 26 of the Baltic Sea based on trawling acoustic surveys in 1997 and 1998

THEME SESSION ON THE APPLICATION OF COUPLED BIO-PHYSICAL MODELS IN STUDIES OF ZOOPLANKTON AND ICTHYOPLANKTON ADVECTION AND DISPERSION (K)

Co-Conveners: Dr K. Drinkwater (Canada), Dr C. Werner (USA), and Dr E. Svendsen (Norway)

Rapporteurs: Dr L. Incze (USA), Dr G. Lough (USA), and Dr A. Sell (USA)

Coupled bio-physical models are being developed and applied in studies of zooplankton and ichthyoplankton dynamics at a variety of scales and locations. While this topic has received attention at some recent ICES Annual Science Conferences, observational and modelling methods are evolving rapidly. Therefore, it was felt that it would be timely to hold a Theme Session to compare and evaluate experience and results in this field. Contributors were encouraged to take a broad view of models, their appropriateness to particular types of applications and their performance. Dr John Shepherd (UK) kindly agreed to sum up the session and to comment on progress being made.

Summary

The talks presented a variety of models that fell into the following categories of application:

1. Develop a fundamental statistical understanding of interactions at the level of individuals in order to understand variable fates and conditions within populations (Doc. K:06). A statistical distribution of plankton and its aggregation in terms of spherical geometry enables prediction of the volume fraction occupied by plankton and the length scales associated with aggregations. This led to a model of the search capability of fish larvae and the interaction with their prey and predator fields.
2. Examination of the various methods by which zooplankton dynamics can be coupled with circulation fields (Doc. K:01). Zooplankton models ranging from biomass approaches to complex formulations that connect individual growth within stages were discussed. A box model that includes several stages of zooplankton as well as feedback to nutrients, phytoplankton and detritus was proposed.
3. Test the effects of advection and dispersion to explain observed patterns in recruitment as a function of variability in spawning locations, spawning depths and physical forcing, including fluctuations in wind and sea level. Examples included the northeast Arctic Greenland halibut off northern Norway (Doc. K:03) and haddock on Browns Bank off eastern Canada (Docs. K:05 and K:10).
4. Investigate implied trophic interactions resulting from observed spatial and temporal distributions of biology and physics (Doc. K:07). The response of cod on Georges Bank off the northeastern United States to wind-induced turbulence levels was examined, and a 1-D model of its effect on feeding was presented.
5. Use data-assimilation and forecasting techniques in circulation models implemented at sea to help design and interpret oceanographic field work in both surveys and process-oriented experiments (Docs. K:08 and K:09). These circulation models were implemented in the spring of 1999 to help guide field investigations on Georges Bank, including studies of the distribution and dynamics of cod, haddock and their prey (*Calanus* and *Pseudocalanus*).

In addition, there was a poster that discussed three different mesoscale hydrological features associated with important fisheries production. These included the salt wedge in the Rio de la Plata which is the main spawning grounds for Brazilian menhaden, tidal fronts off the Valdes Peninsula where the Patagonian anchovy spawn, and the strong advective regime and fronts off Tierra del Fuego where the Fuegian sprat spawn. Required modelling efforts were identified.

Comments and discussion emphasized the following:

- Large strides have been made in the implementation of forecast circulation models to guide at-sea experiments.
- Models using data assimilation in hindcast mode are increasingly powerful tools for retrospective studies.
- Many of the goals the scientific community set out a decade ago have been achieved in regards to the modelling of transport and turbulent processes.
- Models of zooplankton and ichthyoplankton have tended to focus on either local or large-scale processes; processes at mesoscales remain under-explored.
- The majority of models presented during the Theme Session featured the use of Lagrangian particle tracking capabilities. This is a narrow representation of the full scope of present-day modelling efforts and capabilities.
- There was reasonable consensus that areas in need of additional development in order to sustain the rapid growth in model development include:
 - Observations on the basic behaviour and properties of individual plankton and fish larvae by species and their interactions
 - Mechanistic links to nutrients and primary production, and incorporation of specific predation processes.

Documents presented

K:01	W. Fennel	On the integration of zooplankton dynamics into circulation models
K:03	B. Ådlandsvik, A.C. Gundersen, K.H. Nedreaas, A. Stene, and O.T. Albert	Modelling the advection and diffusion of eggs and larvae of northeast Arctic Greenland halibut
K:05	N.L. Shackell, K.T. Frank, Brian Petrie, D. Brickman, and J. Shore	Dispersal of early life stage haddock (<i>Melanogrammus aeglefinus</i>) as inferred from the spatial distribution and variability in length-at-age of juveniles
K:06	B.J. Rothschild	Initial conditions for dynamical productivity models
K:07	L.S. Incze, F.E. Werner, N. Wolff, and F. Dye	Direct and indirect effects of wind-induced turbulence on larval cod feeding: results of a 1-D model for Georges Bank
K:10	D. Brickman, K.T. Frank, and N.L. Shackell	Early life stage modelling of Browns bank haddock (<i>Melanogrammus aeglefinus</i>)
K:12 Poster	E.M. Acha, M. Pájaro, and R.P. Sánchez	The reproductive response of clupeoid fishes to different physical scenarios. Three study cases in the Southwest Atlantic

THEME SESSION ON NORDIC SEA EXCHANGES (L)

Co-Conveners: Prof. J. Meincke (Germany) and H. Loeng (Norway)
Rapporteur: Dr H.M. van Aken (The Netherlands)

Twenty-six papers and two posters were presented. Measurements with ADCPs and current meters of all major exchanges with neighbouring basins were described. In all cases currents were mainly barotropic with a large variability on characteristic time scales of days to months. The large barotropic component meant that the classic geostrophic method for the estimate of the exchanges could not be used. However, experiments using box inverse models to determine the barotropic component give promising results. The import of sea ice can be measured now, although the complete fresh water budget of the Nordic Seas cannot yet be determined. By means of correlation methods the advection velocity of climatic anomalies in the Nordic Seas has been studied. Current measurements seem to suggest that the Iceland Sea is the source of the Denmark Strait Overflow Water. A complete description of the meridionally varying water mass structure of the East Greenland Current between Fram Strait and the Irminger Sea permits the interpretation that the overflow is formed by mixing of the three water types already present in Fram Strait.

The relation between variations in atmospheric forcing (e.g., expressed as the NAO-index) and the water mass variability has been studied. It appears that the near surface water mass distribution shifts zonally with changes in the NAO-index, although the mass transport and heat transport in the Nordic Sea gyre barely changes. The zonal shift may have effects on the sea surface salinity, which affects deep convection in the Greenland Sea. The observed warming of the deep water in the Greenland Sea, due to lack of deep convection in the 1990s, cannot be explained by either diapycnic or isopycnic mixing. Vertical downward advection of the existing temperature gradient by 150 m/year can explain

the observed heating quite well. This requires a flushing of the deepest layers towards the shallower neighbouring basins, but the dynamics of this are not yet understood.

Several papers on model research show that, at present, high-resolution models are capable of simulating small-scale features like eddies, fronts and overflow across sills. The simulated variability in response to variations in atmospheric forcing reveal shifts in frontal positions as well as long-lasting anomalies, propagated by ocean currents. The ice export through Fram Strait from 1958 to 1997 was simulated satisfactorily. Extremes in ice export were either related to extreme current velocities or to extreme ice thickness. In the latter case, as happened at the beginning of the 'Great Salinity Anomaly' event in 1966, there is no direct relation with atmospheric forcing. Experiments with varying boundary conditions for the runoff of the Arctic rivers show an extreme sensitivity to this fresh water source. Reduction of this input will lead to high surface salinities, increased convection and overflow, and an enhanced global thermohaline circulation.

A correlation between the growth rate of herring larvae near the Orkneys and the NAO-index was reported. During positive NAO years the inflow of Atlantic water increases, supplying favourable growth conditions. Positive NAO years also appeared favourable for the cod growth and recruitment, north of Iceland. In those years an increased inflow of North Atlantic Water occurs via the Irminger Current. The stratification in the North Atlantic water mass supports a high primary production over most of spring and summer. This enhanced primary production can support, via the food web, growth and recruitment of cod.

Documents presented

L:01	W.R. Turrell, B. Hansen, S. Østerhus, S. Hughes, K. Ewart, and J. Hamilton	Direct observations of inflow to the Nordic Seas through the Faroe Shetland Channel 1994–1997
L:02	S.R. Dye, G.R. Bigg, and W.R. Turrell	Variability of flow through the Faroe-Shetland Channel
L:03	K.A. Mork and L. Asplin	Temperature and salinity fluctuations in the Norwegian Sea in relation to wind
L:05	R. Ingvaldsen, L. Asplin, and H. Loeng	Short time variability of the Atlantic inflow to the Barents Sea
L:06	S. Jónsson	The circulation in the northern part of the Denmark Strait and its variability
L:07	O.B. Titov	Influence of water exchange in the Barents Sea on the long-term variability in density in the Kola section
L:09	G. Budéus, G. Krause, S. Ronski, and A. Watson	Deep water warming and exchange in the Greenland Sea during the recent period of marginal winter convective activity

L:10	I.H. Harms, J.O. Backhaus, and D. Hainbucher	Modelling the seasonal variability of circulation and hydrography in the Iceland-Faroe-Shetland overflow area
L:11	M. Prange and R. Gerdes	Influence of Arctic river runoff on the circulation in the Arctic Ocean, the Nordic Seas, and the North Atlantic
L:12	F. Kauker, R. Gerdes, and C. Koeberle	Propagation of temperature and salinity anomalies in the Nordic Seas as derived from a multidecadal OGCM simulation
L:13	S.-Aa. Malmberg, J. Mortensen, and H. Valdimarsson	Decadal-scale climate and hydro-biological variations in Icelandic waters in relation to large-scale ocean-atmospheric conditions in the northern North Atlantic
L:14	S.-Aa. Malmberg and J. Désert	Hydrographic conditions in North Icelandic waters and annual air temperature in Iceland
L:15	S.-Aa. Malmberg and H. Valdimarsson	Satellite tracked surface drifters and "Great Salinity Anomalies" in the Subpolar Gyre and the Norwegian Sea
L:16	J. Mortensen and H. Valdimarsson	Thermohaline changes in the Irminger Sea
L:17	J. Verduin, R. Woodgate, E.J. Fahrbach, J. Meincke, S. Østerhus, U. Schauer, and V. Tverberg	Direct measurements of volume transports across Fram Strait
L:18	M. Karcher, J. Brauch, B. Fritsch, R. Gerdes, F. Kauker, C. Koeberle, and M. Prange	Variability in the Nordic Seas exchange – Model results 1979-1993
L:19	S. Østerhus, B. Hansen, R. Kristiansen, P. Lundberg, I. Lake, and K. Borenäs	The deep overflow through the Faroe Bank Channel
L:21	B. Hansen, S. Østerhus, R. Kristiansen, and K.M.H. Larsen	The Iceland-Faroe inflow of Atlantic water to the Nordic Seas
L:23	Bert Rudels, E. Fahrbach, and J. Meincke	The east Greenland Current from Fram Strait to beyond Denmark Strait in 1998: Observations from R/V Polarstern and R/V Valdivia
L:24	J. Blindheim	Wind driven decadal fluctuations in water mass structure in the Nordic Seas
L:25	R. Gerdes, C. Koeberle, and F. Kauker	Mechanisms determining Fram Strait ice export variability
L:26	V.L. Buehler, C. Clemmesen, and E. Svendsen	Growth of Atlantic herring larvae (<i>Clupea harengus</i> L.) in response to climatic long term trends (NAO) and to hydrographical features in the Northern North Sea in the period 1990-1997
L:27	Irene Lake, Karin Borenäs, and Peter Lundberg,	On the occurrence of an intermediate water mass in the Faroe-Bank Channel
L:28	J. Brauch, R. Gerdes, and M. Karcher	Response experiments with NAO related forcing
L:29	K.A. Orvik, Ø. Skagseth, P. Jaccard, and M. Mork	Atlantic inflow to the Nordic Seas. Volume fluxes and structure from long- term current measurements in the Svinøy section
L:30	Ø. Skagseth, K.A. Orvik, and M. Mork	On the heat flux associated with the Norwegian Atlantic current
L:32 Poster	J. Piechura and W. Walczowski	Exchanges between the Norwegian Sea and the Greenland Sea
L:33 Poster	I.H. Harms, J.O. Backhaus, and D. Hainbucher	The circulation in the EU-TASC region during the "Calanus years" 1996/1997

THEME SESSION ON 4-D SAMPLING OF THE OCEANS AT MICRO- TO MESOSCALES (M)

Conveners: Dr J.H. Steele, USA, Dr G. Griffiths, UK, and Dr O.A. Misund, Norway
Rapporteur: Dr O.A. Misund, Norway

In opening the Theme Session, Dr J.H. Steele explained that its motivation was the recent substantial technological development of instruments for sampling of oceanic parameters. The precision, resolution, and range of such instruments has increased substantially, and platforms and units for synoptic sampling of many different parameters in space and time have been realised. The Theme Session reviewed recent developments in this field of marine research.

The development of underwater acoustics for ecosystem research was highlighted in Doc. M:2. Recent improvements in technology for sensing the acoustic environment in the littoral zone has enhanced resolution by three orders of magnitude, and an application at a mooring in Puget Sound, Washington was described. The improved resolution enabled detection, visualisation, and quantification of ecosystem processes in the littoral zone. The resulting discussion centred on the developments in computer technology which enabled the improved resolution, and on the biological sampling of acoustic targets by a pump sampler.

An integrated instrument platform for coupled biological and physical measurements in coastal and oceanic regimes were presented in Doc. M:7. The BIOMAPPER II that combines optics, acoustics, and physical sampling, was described. The Van unit with controlling and processing computers and the new Dynacon handling system were described. Ecosystem data recorded with the unit on Georges Bank, Bay of Maine, USA were analysed. Back-scatter models that predict back-scatter on the basis of species and size composition from MOCNESS tows indicated that a substantial fraction of the back-scatter originated from gelatinous organisms. There were good relationships between observed and modelled S_v . The resulting discussion was on the sampling volume of net-tows and acoustics which focused on the problem to ground truth objects not in the net-tows. There was also discussion on the critical sound speed profile and contrast parameters in the back-scatter models, and about acoustic discrimination of bubbles and plankton near the surface.

Doc. M:6 explained the processes regulating distribution and abundance of plankton. Instrumentation combining a Video Plankton Recorder (VPR) with a high frequency acoustic sampling unit was presented. Development of an automated classifier based on artificially intelligent classification and pattern recognition algorithms was described. The automated classifier enables real-time processing of observations. The present instrumentation opens up for an evaluation of the outcome of ecosystem models through direct sampling. A stimulating discussion about the neural network of the identification system, the dynamic range of the system, and the

advantage compared to optical plankton recorders, which lack species identification followed the presentation.

The Continuous Underway Fish Egg Sampler (CUFES) was presented in Doc. M:5. The application of the unit to map the distribution of Anchoveta eggs in the Bay of Biscay together with the Environmental Data Acquisition System (EDAS) were described. The correlation with fish egg distribution and sea temperature were explored. The development of Machine Vision for real-time identification of fish eggs was described. CUFES and CalVET net sample estimates of fish eggs compare well. An interesting discussion about the vertical distribution of fish eggs, number of people needed for at-sea analysis of fish eggs, mesh size in filter unit, and avoidance of the sampling unit followed the presentation.

The Autosub I autonomous vehicle was presented and application during the North Sea herring survey by R/V "Scotia" described in Doc. M:1. The AUV undertook thirteen successful missions to collect acoustic data (38 and 120 kHz) for 1) survey precision enhancement by inter-transect recordings, 2) surface school observations, and 3) vessel avoidance evaluation. The presentation was followed by an engaged discussion on the positioning of AUV's, limitations of their range of operation, costs of operation, and general application.

A Long-Term Ecosystem Observatory (LEO) off New Jersey, USA, was described in Doc. M:8. Independent, moored sensors and autonomous vehicles with docking stations were used for multi-dimensional monitoring of physical and biological sampling of a dynamic coastal ecosystem. The sensory units delivered data to an onshore station through bottom cables.

Doc. M:3 described the combined results from two research cruises to map the distribution of herring migrating towards the cold front in the Norwegian Sea in April 1997. Acoustics, trawling, environmental sampling with CTD, MOCNESS, and a SeaSoar towed vehicle were used to measure the temperature structure in the cold front from the surface to 300 m depth. Herring were shown to migrate from the surface at night to 400 m depth during the day, thereby experiencing a reduction in ambient temperature from 4-5° C at the surface to 1-2.5° C in the depth. The temperature influenced the migration speed of the herring. The resulting discussion was on herring migrations and its relation and effect on *Calanus* populations.

Dr G. Griffiths summed up the Session, acknowledging the impressive development in sampling of the ocean with regard to resolution and synoptic measurement in multiple dimensions. The expression 4-D indicates synoptic sampling of four dimensions in the oceans. The

Theme Session drew attention to recently developed biological dimensions.
tools used to explore the ocean in multiple physical and

Documents presented

M:01	P.G. Fernandes and A.S. Brierley	Using an Autonomous Underwater Vehicle as a platform for mesoscale acoustic sampling in marine environments
M:03	O.A. Misund, K.A. Orvik, B. Hoddevik, and L. Nøttestad	Influence of sea temperature on herring distribution and migration in the Norwegian Sea in April 1997
M:05	D.M. Checkley Jr, L. Motos, A. Uriarte, M. Santos, M. Trivedi, and S. Iwamoto	Continuous, underway sampling of pelagic fish eggs and the environment: The Bay of Biscay anchovy and machine vision research
M:06	D.S. Cabell, M.C. Benfield, Peter H. Wiebe, S.M. Gallagher, T.K. Stanton, and C.H. Green	Real time image analysis: instrument to model
M:07	P.H. Wiebe, T.K. Stanton, Charles H. Greene, M. Benfield, and T. Austin	BIOMAPER II: an integrated instrument platform for coupled biological and physical measurements in coastal and oceanic regimes

THEME SESSION ON MANAGEMENT AND MITIGATION FOR HARMFUL ALGAE (N)

Conveners: H. Dahlin (Sweden), Dr L. Edler (Sweden), and H. Enevoldsen (IOC)

Doc. N:1 gave an excellent background for the Session and structured the measures into prevention, control, and mitigation of harmful algal blooms. In the discussion of the paper the question on human impact was raised. Are toxic blooms an effect of anthropogenic load? With reference to Japanese investigations it was shown that the frequency of blooms had decreased after regulation of the chemical oxygen demand, but only partly.

Docs. N:5 and N:6 described a well-developed monitoring of the occurrence of toxic blooms in Norwegian coastal waters, showing blooms as a natural phenomenon, which has to be adapted to. A public information system exists, and also trials with forecasting of blooms were practised. However, the forecasting had not given any successful results. Warnings were, instead, issued at a certain stage in the development of the blooms based on the monitoring. By experience this gave enough time for the user community, the fish farmers, to take action.

The actions were concentrated on reducing the exposure of fish and mussels to the toxic algae, by moving the cages into fjords or to deeper waters.

Doc. N:8 showed that the development of toxins could be species specific, which meant that it could exit bivalves, which could be harvested at the same time a toxic event occurred. The discussion revealed that this had not only been observed in Sweden, but also in Scotland and Ireland.

Doc. N:6 showed "the mussel-grower approach", based on scientific experiments. Arrays of mussel strings were proposed to be used as filters in the openings of sounds and fjords with a stable direction of currents. Investigations of large natural mussel banks in the Danish Sound had proven the capacity of mussels to reduce the amount of algae and effectively change the composition of the water quality "downstream" of the banks.

As a conclusion it was stated that mitigation was still in a very early phase and needed continued research. Practised mitigation was either experimental, e.g. using mud, or mechanical measures, which had shown decreased effects of the harmful algae on fish and mussels.

Documents presented

N:01	D.M. Anderson	Monitoring and management of harmful algal blooms: A global perspective
N:02	S.N. Semionova	Toxic phytoplankton of the Pregola-Vistula Lagoon estuary system
N:04	A.-S. Rehnstam-Holm, L. Edebo, J. Haamer, O. Lindahl, B. Hernroth, and F. Norén	Diarrhetic shellfish toxins (DST) in mussels along the Swedish west coast
N:05	E. Dahl and K. Tangen	The life with harmful algae in Norway – management
N:06	J. Haamer, J. Rodhe, and F. Norén	Possibilities to change harmful algae community to less harmful with mussel (<i>Mytilus edulis</i>) farms
N:08	S. Svensson, C. André, A.-S. Rehnstam-Holm and J. Hansson	Consistent differences in content of diarrhetic shellfish toxins (DST) among three bivalve species, <i>Mytilus edulis</i> , <i>Ostrea edulis</i> , and <i>Cerastoderma edule</i> along the Swedish west coast.

THEME SESSION ON GLOBAL CHANGE ASPECTS (O)

Co-Conveners: R. Hendry and S. Jonsson
Rapporteur: S. Narayanan

Background

The Theme Session on Global Change Aspects sought a broad range of studies. The goal was to allow a cross-disciplinary exploration. The Call for Papers encouraged contributions from a wide range of physical and biological subject areas.

Presentations

Seven oral presentations and two posters addressed topics varying from paleo-oceanography through decadal and inter-annual timescale variability, to near synoptic time scales. The topics covered included long- and short-term variations in the thermohaline circulation, direct impacts of climate variability on society, realistic regional numerical modelling, and several examples of coupled physical and biological variability in coastal and marginal seas. The wide range of geographical locations covered included an interesting and relevant North Pacific contribution.

Discussions

There was general agreement that change is now the expected state of affairs. Paleo studies are valuable and should be encouraged, including both observational and modelling approaches. Long time series are needed to study past changes. For the past, historical data recovery is important. For the future, continued conventional measurements and new measurement technologies and approaches are needed to create long-term series. Both remote sensing and *in situ* measurements are needed, including direct flow measurements of the sub-surface

circulation. It was recognised that EuroGOOS is now trying to do this. Expanded use of ship of opportunity measurements can also contribute.

All participants felt that the broad scope of the Theme Session in both time scales and geographical settings was useful. The mix of governmental and non-governmental contributions was recognised and felt to be beneficial.

Several examples of rapid physical variability and associated regime shifts were presented. It was recognised that such shifts are an important mode of climate variability and might be a subject for a future Theme Session.

Should the State of the Ocean be expanded to include the northwest North American coastal seas?

It was felt that the inclusion of relevant Arctic and North Pacific studies in ICES scientific meetings is valuable as analogues of North Atlantic processes and for putting such processes in a larger context.

Conclusions

Change is a constant. The regional studies discussed in the Theme Session suggest that a larger synthesis would be valuable. From that point of view, the forthcoming ICES Decadal Symposium (<http://www.ices.dk/symposia/>) is timely. The Theme Session did not receive a large number of papers, but it was successful in attracting a wide range of interests. It seemed well received and could serve as a possible model for future theme sessions.

Documents presented

O:01	O.V. Titov	Long-term cyclic succession of the Barents Sea ecosystem and prognostication of recruitment of commercial fish populations
O:04	S.-A. Malmberg and S. Jónsson	Global change aspects Icelandic oceanographic research and greenhouse effects
O:05	C. Schrum, F. Janssen, and U. Hübner	Modelling the interannual variability of hydro- and thermodynamics in the North Sea and the Baltic Sea
O:06	G.L. Hunt, C.L. Baduini, R.D. Brodeur, K.O. Coyle, J.M. Napp, J.D. Schumacher, P.J. Stabeno, D.A. Stockwell, T.E. Withledge, and S.I. Zeeman	Ecosystem responses of the southeastern Bering Sea to abnormal weather patterns in 1997 and 1998
O:07	T. Rossby	Current switching as a mechanism for rapid climate change
O:08	K.F. Drinkwater, D.B. Mountain, and A. Herman	Variability in the slope water properties off eastern North America and their effects on the adjacent shelves

- O:09 I.M. Yashayaev, J.R.N. Lazier, Decadal changes in deep water properties in the Northwest North Atlantic
R.A. Clarke, and R.M. Hendry
- O:10 A. Alvarez, A. Orfila, G. Forecasting climate variability for better management of marine resources
Poster Vizoso, P. Vélez, S.
Montserrat, and J. Tintoré
- O:11 A. Lavín, H. Bryden and G. Mechanisms of heat, freshwater, oxygen, and nutrients transport at 24.5° N in
Poster Parilla the subtropical North Atlantic

THEME SESSION ON SUSTAINABILITY CRITERIA (P)

Co-chairs: Drs K. Stokes and R. Stephenson

The word 'sustainable' is used widely in objectives related to management of fisheries and marine ecosystems. It appears in the Code of Conduct for Responsible Fishing and in various international agreements. However, the concept applies to several disciplines and is not well defined, and is therefore difficult to make operational and to implement. This Theme Session was intended to explore practical definitions of sustainability and case studies in which these definitions had been used.

Four papers were presented.

Doc. P:01 reviewed three approaches to defining the minimum fishing mortality rate which, if maintained indefinitely, would drive a stock to extinction, and explored issues surrounding the use of sustainable recruitment measures in assessment and management.

Doc. P:02 considered biological and economic aspects of the fishery system – and suggested that since the maximization of profit is the primary objective of fishers, the concept of 'Maximum Sustainable Profit', rather than 'sustainability', should be an objective.

Doc. P:03 showed an apparent change in sustainability in the Baltic Sea herring and cod fisheries due to changes in the carrying capacity of the ecosystem.

Doc. P:04 gave an overview of the FAO Guidelines for the development and use of indicators for sustainable development of marine fisheries, and presented an Australian case study which was based on a sustainable development reference system (SDRS).

There was considerable discussion of the context for the definition of 'sustainability' – and the recognition that it requires a social economic, in addition to a biological perspective. While from an ecological perspective one can define an undesirable state (to be avoided), there are several possible stable states, and the objective of sustainability required a social, and economic perspective. There was discussion on frameworks and indicators that include biological, economic, social and institutional issues, and their relationship to frameworks being developed for 'ecosystem management'. There was a suggestion arising from paper P:04 that ICES might attempt to evaluate the FAO Guidelines by applying them to case studies.

Further work on this topic is required if ICES is to deal with its strategic issue of developing the scientific basis for sustainable use and protection of the marine environment. It was suggested that this be considered in developing the workplan for the Resource Management Committee.

Documents presented

P:01	M.V. Bravington, C.M. O'Brien, and T. Kevin Stokes	Sustainable recruitment: the bottom line
P:03	J.P. Hillis	Optimisation versus sustainability as objectives in fisheries management
P:04	F. Thurow	On herring biomass in the Baltic Sea during the 20th century
P:05	S.M. Garcia, D.J. Staples, and J. Chesson	The FAO Guidelines for the development and use of indicators for sustainable development of marine capture fisheries and an Australian example of their application

THEME SESSION ON THE LANGUAGE OF FISHERIES SCIENCE AND MANAGEMENT (Q)

Co-Conveners: Dr E.D. Anderson (USA) and O. Hagström (EU)
Rapporteur: S. Cadrin (USA)

Emory Anderson introduced the challenge faced by fisheries scientists to clearly communicate technical information to people who are not trained as scientists. The increasing complexity of stock assessments and incorporating relatively new concepts such as uncertainty make the task even more difficult. Frequent use of scientific jargon continues to be a problem in the language of fisheries science. Unlike previous meetings on the subject, such as the series of Dialogue Meetings organized by ACFM beginning in 1980, which focused on improving communication of scientific advice to managers primarily, this session was organized with the goal of developing a more effective dialogue between scientists and all clients, such as industry members. A recent trend that has demonstrated some success is inviting stakeholders into the processes of stock assessment, peer review, and formulation of management advice.

Olle Hagström reviewed the use of scientific advice in the European Union. Some of the problems experienced are that advice is not drafted for the clients, rationale for advice is not explained, too many acronyms are used, advice is not consistent, time frames implied in advice are not clear, alternative management options are not provided, and changes in perceptions about stock status are not discussed. Progress in communicating advice has been achieved by framing advice in the context of the precautionary approach, thereby improving consistency; focusing on medium-term objectives rather than effects in the next year; risk assessment of alternative management options; and clear communication of results through graphs. Regional meetings with the industry reveal that users value stability and medium-term results rather than maximum yield and short-term effects. The audience noted that all stakeholders, such as conservation groups or consumers, are not included in the dialogues. However, including all stakeholders would require more time.

Laura Richards and Athana Mentzelopoulos described how the scientific advisory process has evolved in Pacific Canada. In the past, the advisory process concentrated on government management of commercial production from single stocks, but has changed to involve partnerships among all users, including recreational interests and first nations, for the conservation of ecosystems. Several episodes in fisheries management demonstrate that fishermen will protest when they cannot understand the basis for scientific advice. These animosities are typically worsened when the media and the public sympathize with fishermen. New methods are needed to include stakeholders in assessment and management processes, initiate communications with the media and the public, and effectively communicate risks. The audience was curious about how information from fishermen can be

appropriately incorporated into assessments. Some suggestions were to use anecdotal information as prior constraints for Bayesian estimators, or to adopt methods from the social sciences for establishing veracity of narrative information.

Terry Smith presented a description of the Stock Assessment Workshop process in the Northeast United States which defines management questions, completes stock assessment analyses through cooperative working group meetings, provides peer review of methods and results, and delivers advice for fisheries management. Two observed problems are that stock assessment information is too technically sophisticated for managers or fishermen to understand, and delivering bad news to the industry is a sensitive issue. Some elements of the process that promote industry support, credibility, and constancy are inclusion of industry representatives in assessment meetings, standardized advisory documents, presentations with simple text and clear figures, and accompanying technical documents with comprehensive discussion of rationale for conclusions. The audience raised the issue that when a peer-review panel decides to reject assessments, management advice is still needed.

Max Stocker presented an analysis of Canada's Pacific Scientific Advice Review Committee which reviews stock assessments and evaluates management advice. The strengths of the process are its openness, reliability, jargon-free status reports, and timely delivery of comprehensive public documents. Some problems with the process are that a mechanism for requesting advice is needed, data-poor fisheries need advice, workshops are needed to address technical details, and communication with managers is needed to establish guidelines for reference points.

Jóhann Sigurjónsson described how scientific information is communicated to the Icelandic community. Some complaints from the community are that scientific methods cannot measure all available resources, scientific information is not realistic, and accuracy of results cannot be assessed. However, confidence in scientific advice is fostered through constant interactions with fishermen and leaders, involvement of industry in data collection and research, educating the public on fisheries biology, simple harvest control rules, and improved stock assessment methods. There was some disagreement in the audience about the relative difficulties of implementing advice from a control rule when stock size is low, which involves severe restrictions, or when stock size is high, when some potential yield is foregone.

Bob O'Boyle delivered an investigation of peer-review methods in a variety of scientific fields and applicability

to fisheries management. Four critical features of effective peer-review were defined, and methods were offered for implementing features and measuring performance. *Relevance*, the appropriateness of questions and completeness of answers, can be achieved by formulating remits through dialogue with managers and can be measured by satisfaction and continued desire for advice. *Objectivity*, the independence of review and repeatability of conclusions, can be promoted by adherence to a code of conduct and continually changing the group of reviewers and can be measured by blind comparisons of separate reviews and evaluation of personnel. *Reliability*, the accuracy and precision of results, can be developed through maintaining quality of input data and scheduling adequate time for assessments and reviews and can be measured by estimates of uncertainty and retrospective performance. *Credibility*, the amount of confidence inspired by the process, can be fostered through transparency and including stakeholders in the process and can be evaluated by the extent to which advice is implemented. The audience noted that agencies are more reluctant to provide advice when the message is undesirable; the rebuttal was that clients generally want effective and clear communication, no matter what the message is.

Tore Jakobsen reviewed features of providing advice for management of fisheries in the Barents Sea. Technical advice is generally provided by the ICES Advisory Committee on Fisheries Management, and advice on alternatives is provided by national institutes. Economics are generally not considered in the advice to avoid internal conflicts. No single management strategy has emerged because each fishery (Norway and Russia) has different features. The process has produced a good rapport among fishermen, managers, and scientists. Advice is generally implemented, with few exceptions, and scientists have been invited to recent deliberations on final decisions.

Peter Bailey presented a sociological perspective on discourse in fisheries to explain how managers incorporate scientific knowledge into decisions. Fisheries managers and scientists share the same discourse, a set of practices that channel power by promoting the authority of some sources of information and reducing contributions of others. A discourse reduces alternative possibilities, predisposes causality, and steers management strategies. For example, ecosystem considerations are difficult to account for in fisheries because the stock concept is integral to the current fisheries discourse. Concerns about ecosystems and including input from a wider group of stakeholders have challenged the fisheries discourse to open up somewhat, but changes have been patchy and incomplete. A revised fisheries discourse could improve dialogues among scientists and clients and include a broader range of expertise. The audience felt that the fisheries discourse has been evolving and was concerned that a more open discourse may have substantially greater transaction costs. A suggestion was made to evaluate performance of information sources before institutionalizing them into a revised discourse.

There was general consensus that the current fisheries discourse was flawed and improved communication with clients is needed. The challenge is to evaluate the information provided by fishermen. The audience felt that fishermen should provide input to fisheries science, but should not be making management decisions. Advantages of improved communications are confidence in standard fisheries techniques, such as demonstrating the advantages of stratified random survey designs. Although instant results should not be expected, demonstrating the value of accurate logbook information can improve the way fishermen describe how, where, and what they catch. Several presentations demonstrated successes with more open dialogues, and hopefully these experiences will breed further progress.

Documents presented

Q:01	T. Jakobsen	Fisheries management in the Barents Sea
Q:02	L.J. Richards and A. Mentzelopoulos	Evolving scientific advisory processes from Pacific Canada
Q:03	R. O'Boyle, J. Rice, and A. Sinclair	The peer review of science in the management of living aquatic resources
Q:04	M. Stocker	An analysis of Fisheries and Oceans Canada's Pacific Scientific Advice Review Committee (PSARC) advisory process
Q:05	T.P. Smith	The Northeast U.S. Regional Stock Assessment Workshop process: communicating with fishery managers
Q:06	J. Sigurjónsson	Communicating of science to the Icelandic fisheries community
Q:08 Poster	A.M.P. Santos, L. Oliveira, and J. Aurélio	BASBLACK Project: an example of good collaboration between scientists and fishermen (No paper)
Q:09	P.D. Bailey and S. Yearley	Discourse in fisheries: constructing vessel monitoring systems and overfishing

THEME SESSION ON THE RELATIONSHIP BETWEEN FISHING CAPACITY, EFFORT, AND MORTALITY (R)

Co-Conveners: E. Kirkegaard (Denmark), J.J. Maguire (Canada), and M. Pastoors (Netherlands)

Theme Session R was organised by the Resource Management Committee with Eskild Kirkegaard, Martin Pastoors and Jean-Jacques Maguire as Co-Conveners. The aim was to provide a multidisciplinary forum for the presentation of studies of the temporal variation in relationships among capacity, effort, and fishing mortality. Speakers from different disciplinary backgrounds presented their views on these issues. Ten papers and three posters were presented (Annex 1). The Session was very well attended.

Understanding and quantifying the relationships between fishing capacity, effort, and mortality is of increasing interest to customers of ICES advice. In the European Community, reductions in capacity and effort have been agreed and implemented under the MAGP framework. However, the exact relationship between effort reduction measures and the resulting exploitation rate of various stocks is complex and largely unknown. Such analyses require a multidisciplinary approach, involving gear technologists, economists, and biologists. The ICES Study Group on the Use of Selectivity and Effort Measurement in Stock Assessment, which met in September 1998, recommended that work on these issues should be continued – particularly with special reference to the temporal variation in variables which influence fishing effort, including selectivity, technical measures, technical developments in vessels, gear and operations, and quota restrictions.

Doc. R:01 showed that the exact location of square mesh panels on the cod-end greatly influenced the trawl selectivity for cod. Doc. R:02 found that catching capacity was not a simple relationship of vessel size, vessel power, and gear size, suggesting that other, possibly harder to quantify parameters may also play a role. R04 clearly demonstrated that TAC management in the North Sea demersal fisheries has not had the intended effect of decreasing fishing mortality and that fishing mortality, particularly for cod, appeared to be a robust property of the system; despite relatively large changes in TACs, fishing mortality appears to have remained remarkably stable. Doc. R:10 developed a means of estimating changes in catchability from CPUE only, without the need to use results from VPA or similar

populations models. Somewhat surprisingly, the results did not show much temporal trends in catchability although the short term variability was, as expected, quite large. Doc. R:11 was on the same topic, comparing various methods to estimate changes in catchability over time. Doc. R:05 showed that CPUE in a particular location of the Dutch beam trawl fishery was related to the number of vessels present in the area. This implies that catchability might increase if effort reductions were implemented through a reduction in the number of vessels fishing at any one time, thereby reducing the effectiveness of the effort reduction in terms of decreased fishing mortality. Doc. R:06 investigated the same problem, but in a South African squid fishery where implementation shortcomings, if they materialised could result in increased fishing mortality, instead of the intended decrease. Doc. R:03 used equilibrium calculations to evaluate the theoretical implications of changes in species selectivity to reduce fishing mortality on traditional groundfish species currently considered overexploited and depleted off New England. The results were often ambiguous when multispecies considerations were included. Doc. R:10 examined the financial costs of inflicting fishing mortality. Doc. R:08 concluded that research survey data is too sparse to characterise small-scale distribution. Differences between results using commercial data and those using research survey data were largest in areas of high abundance variability.

The large variability of individual parameters emerged as a common thread throughout the papers. This implies that there is considerable scope to vary the parameters in response to regulations. Therefore, simplistic implementation of reduction in fishing effort is unlikely to have the desired effect of reducing fishing mortality in the medium term.

The aim of providing a multidisciplinary forum for the presentation of studies on capacity, effort, and fishing mortality was met. The presentations as well as discussions indicated that developments in multidisciplinary research have made interesting progresses, and that ICES can provide a forum to initiate and stimulate this type of research.

Documents presented

R:01	N. Madsen, L. Foldager, and R. Holst	The escape window as a management option to improve the size selectivity of the Baltic Sea cod fishery
R:02	V. Tschernij and R. Holst	Evidence of factors at vessel-level affecting codend selectivity in Baltic cod demersal trawl fishery
R:03	J.J. Agar and J.G. Sutinen	Bioeconomic implication of modifying the species selectivity properties of fishing gears

R:04	F.A. van Beek and M. Pastoors	Evaluating ICES catch forecasts: The relationships between implied and realized fishing mortality
R:05	A.D. Rijnsdorp, W. Dol, M. Hooyer, and M.A. Pastoors	Effects of fishing power and competitive interactions among vessels on the effort allocation on the trip level of the Dutch beam trawl fleet
R:06	B.A. Roel and G. Maharaj	Fishing effort and fishing capacity in the chokka squid jig fishery off South Africa
R:08	P. Petitgas, J.C. Poulard, and A. Biseau	Comparison of commercial and scientific cpue data to analyse catchability: megrim in the Celtic Sea
R:09	J.P. Hillis	The importance of financial costs of inflicting fishing mortality
R:10	P. Marchal, J. Rasmus Nielsen, H. Hovgård, and H. Lassen	Time changes in fishing power in Baltic Sea cod fisheries
R:11	P. Marchal, M. Pastoors, J.-W. de Wilde, S. Pascoe, H. Hovgård, and J. Andersen	A comparison of biological and economic indicators to estimate efficiency creeping in the Dutch flatfish fisheries in the North Sea
R:14 Poster	R. Ercoli, J. García, A. Aubone, L. Salvini, and A. Izzo	Single-grid sorting device (DEJUPA): selectivity evaluation in the Argentine hake (<i>Merluccius hubbsi</i>) fishery with regulatory mesh size in the trawl codend
R:15 Poster	A. Aubone, M. Renzi, R. Ercoli, and J. García	Optimal selectivity for biological rebuilding objectives in hake (<i>Merluccius hubbsi</i>) and the single-grid sorting device DEJUPA
R:16 Poster	C. Palma, P. Sousa, J. Ramos, T. Martinho, R. Martins, G. Pestana, P. Barros, and M. Afonso-Dias	Multivariate analysis of the Portuguese artisanal fishery: trip types and fishing effort

THEME SESSION ON EVALUATION OF COMPLETE FISHERIES SYSTEMS: ECONOMIC, SOCIAL, AND ECOLOGICAL ANALYSES (S)

Co-Conveners: Dr G. Stefánsson (Iceland), Dr D. Lane (Canada), and Prof. J. Sutinen (USA)

Rapporteurs: D. Lane and J. Sutinen

At the 1998 Annual Science Conference, the Resource Management Committee proposed a Theme Session related to ongoing interests within ICES for the broader, multidisciplinary issues of fisheries management. This led to Theme Session S at the 1999 Annual Science Conference held in Stockholm on

Evaluation of Complete Fisheries Systems: Economic, Social, and Ecological Analyses

Co-Conveners: Dr G. Stefánsson, Marine Research Institute, P.O. Box 1390, Skúlagata 4, IS-121 Reykjavík, Iceland; e-mail: gunnar@hafro.is. Dr D. Lane, Faculty of Administration, University of Ottawa, 136 Jean Jacques Lussier Drive, Ottawa, ONT K1N 6N5, Canada; e-mail: dlane@uottawa.ca. Prof. J.G. Sutinen, Department of Environmental & Natural Resource Economics, University of Rhode Island, Kingston, RI 02881, USA; e-mail: jsutinen@uri.edu.

Description: The development of methods to evaluate economic, social, governance, and ecological aspects of fisheries management systems is a strategic issue of the ICES Resource Management Committee. This Session will provide a forum for the presentation of papers on methods of evaluation of multidisciplinary aspects of fisheries management systems and on case studies in which such methods have been applied. It is hoped that the Session will attract the participation of scientists from a variety of disciplines, including a variety of social scientists who would not normally attend the ASC, and that it will improve cross-disciplinary discussion.

The Session attracted 7 papers and 1 poster featuring collaborative research on aspects of the "fishery system". The Session attracted approximately 65 participants.

Two papers described simulation models that integrate biological and economic considerations for two fisheries systems: the Northeast Atlantic mackerel, and the multispecies fisheries of the English Channel. The English Channel research noted the close collaboration among biologists and economists in France and England in the development of the work. These studies provided insight into the interaction of stock dynamics, fishing effort, and catch value.

Two papers reported on a system for tracking and recording statistics on the numbers of marine mammals stranded on the west Atlantic coast, especially in Galicia and along the Portuguese coast. The authors estimated that of mammals stranded annually, the dominant species is the Common dolphin, *Delphinus delphis*. It was estimated that 12-24% of the approximately 400 average annual recorded strandings between 1996 and 1998,

suffered from interaction with fishing gear, mainly gill nets. Poor weather in 1996 was cited for a higher incidence of strandings. The authors noted the collaboration with the coastal community (in awareness of the program, and increased incidences in reporting), and with the research institutions in recovering live animals where possible, and fresh carcasses.

The results of scientific tagging programs in major Russian salmon rivers were presented in two papers. It was reported that the commercial and recreational fisheries have been in decline in recent years. The tagging studies provided new information about the multiple exposure of migrating stocks to fishing gear at different times of the year. The results have been used to influence management decisions in order to protect the stocks.

The last paper of the Session reported on a collaboration of academics in biology and sociology on the topic of fishers' ecological knowledge (FER). Authors of the paper proposed research strategies to obtain and use the traditional knowledge of fishers for stock assessment and management of artisanal fisheries in northwest Spain. They proposed using artificial intelligence methods to formalize, objectify, and integrate FER in biological and ecological analysis. The proposed research will continue to involve a collaboration of anthropologists and biologists.

The open discussion at the end of the Theme Session noted the relevance and importance of multidisciplinary, collaborative systems research for ICES, especially with regard to the management advice mandate of the organization. It was pointed out that to be effective, ICES must continue to become more involved in providing advice relevant to operational management decisions and as such, the inclusion of the full range of management impacts (e.g., socioeconomic and other considerations) must be better understood. As a result of providing management advice, it was noted that ICES is obligated to work in close collaboration with other disciplines to understand better the consequences of advice and how this advice can best be implemented in practical terms to achieve the desired biological and other outcomes. It was also noted that the inclusion of other scientists, e.g., from the social sciences, permits the opportunity for a richer variety of management alternatives to evolve that would be beneficial to achieving the marine environment goals of ICES.

Finally, it was acknowledged in the discussion that Theme Sessions at the Annual Science Conference were one opportunity to continue the dialogue among interdisciplinary fishery scientists and to expose ICES to

the ongoing research that is being done in the general area of fisheries systems analysis. At the same time, it was suggested that a greater level of acceptance for this work would be recognized with the presentation of more evidence of success from actual cases.

In summary, there appears to be a consensus among ICES participants that the theme of 'systems' and collaborative work of ICES scientists with others (e.g., academics and other researchers not directly affiliated outside ICES) represents a contribution to the work of ICES.

The Session concluded by recommending that:

- future ICES Annual Science Conferences also include a theme session that would permit the

inclusion of fisheries system research and the participation of fisheries researchers who may be outside normal ICES circles.

- a series of fishery system case studies be developed to illustrate and provide evidence of the results of theme-related work.
- ICES make a concerted effort to disseminate the work of the ASC to other fisheries science organizations (e.g., OECD, IIFET, etc.,) with the objective of (1) exposing other fisheries scientists (in disciplines outside of biology and hydrology) to the mandate and work of ICES, and (2) attracting (e.g., through research awards, travel stipends, etc.,) other fisheries researchers not normally associated with ICES especially in academia to become more directly involved in the ICES infrastructure.

Documents presented

S:01	D. Kolody and K. Patterson	Evaluation of NE Atlantic mackerel stock assessment models on the basis of simulated long-term management performance
S:02	S.V. Prusov, B.F. Prischepa, S.S. Krylova, V.P. Antonova, and V.F. Bugaev	Fisheries status of stocks and management of Atlantic salmon in Russia in 1998
S:03	A.V. Zubchenko, A.G. Potutkin, M.A. Svenning, S.M. Kalyuzhin, and F. Økland	Salmon rivers of the Kola Peninsula. Some specific features of management of Atlantic salmon stock in the Varzuga river in the light of new information on its in-river migrations (in-river behaviour)
S:04	C. Ulrich, B. Le Gallic, and M.R. Dunn	Bioeconomic modelling of English Channel fisheries and their technical interactions: presentation of the simulation model BECHAMEL (BioEconomic CHannel Model)
S:05	A. López, M.B. Santos, G.J. Pierce, A.F. González, A.F. Guerra, X. Valeiras, and J. Wang	Trends in strandings of marine mammals on the Galician coast during the 1990s
S:06	A.F. Gonzalez	Strandings and by-catches of marine mammals on the Spanish and Portuguese coasts from 1996 to 1998
S:07	J. Freire and A. García-Allut	Integration of fishers ecological knowledge in fisheries biology and management. A proposal for the case of the artisanal coastal fisheries of Galicia (NW Spain)
S:08 Poster	L. Silva, J. Gil, and I. Sobrino	Definition of fleet components in the Spanish artisanal fishery of the Gulf of Cadiz (SW Spain, ICES Division IXa)

THEME SESSION ON BAYESIAN APPROACH TO FISHERIES ANALYSIS (T)

Co-Conveners: R. Conser (USA) and M. Azevedo (Portugal)

Theme Session T was convened on 1 October 1999 at 11:00. The objectives of the TS were twofold: (i) to raise the general awareness and understanding of Bayesian approaches within the ICES community, and (ii) to encourage an open discussion of the pros and cons of wider utilization of these approaches within ICES assessment working groups.

Bayesian approaches applied to fisheries analysis have become quite common in the fisheries literature – more than 100 papers have been published over the past decade. In other areas (e.g. New Zealand), these approaches form the mainstay of assessment work and scientific management advice. While Bayesian approaches have been applied for some stock assessment work within ICES working groups (at least two known cases), they have not been used commonly for stock assessment and for the provision of management advice in the ICES arena. The question of whether or not ICES should be moving more rapidly in this direction was posed by the co-conveners for the TS consideration and discussion.

Professor M.A. Turkman (University of Lisbon) was invited to provide a brief introductory lecture on Bayesian analysis. She highlighted the strengths of the Bayesian approaches and discussed some of the computational and implementation difficulties in applying these methods. She also described the importance of modern computer software for practical implementation of these methods, and provided web sites where much of the software is freely available (Attachment 1).

Five papers were presented during this TS. Docs. T:03 and T:04 provided an overview of the Bayesian approach as applied to fisheries research problems. Docs. T:01 and T:02 demonstrated applications for stock-recruitment modelling, and Doc. T:05 discussed a Bayesian-like procedure for assigning ages to eggs of synchronous spawning fish.

Following the presented papers, the co-conveners suggested that discussion be focused on the following questions.

Compare Bayesian approaches to fisheries analysis using our *status quo* approaches. Do the Bayesian approaches:

- 1) Provide a better basis for quantifying the uncertainty in our stock assessments?
- 2) Provide a better means of communicating this uncertainty to fishery managers?
- 3) Provide a better mechanism for incorporating qualitative or even anecdotal information into our assessments through use of the prior distribution?

- 4) Does Item 3), above, represent a strength or a weakness of the Bayesian approach?

Due to the short duration of the TS (90 minutes), discussion time was quite limited and consequently, not all of the above questions were addressed explicitly by the TS attendees. The general sense of the discussion was that while the Bayesian approaches have significant conceptual advantages for fisheries analysis generally and for ICES assessments in particular, practical implementation difficulties may warrant a cautious strategy when advocating their increased usage among ICES assessment working groups. For example, the increased computational demands of these methods may not be practical within the current ICES working group framework. The added model complexity (over ICES *status quo* models) will require additional efforts to educate fishery managers so that assessment results can be readily and accurately communicated. The ICES experience has generally been that both quality control and the provision of management advice are made more difficult when complicated models and analyses are employed.

However, Bayesian approaches do provide a systematic means for more fully expressing uncertainty in ICES management advice. In particular, the potential to incorporate the uncertainty associated with structural model choices (in addition to parameter estimation uncertainty) is quite important, and is not fully accounted for in present ICES advice. In the short term, Bayesian approaches may be most useful in the ICES arena for addressing more focused research issues (e.g. the stock-recruitment work illustrated in TS Docs. T:01 and T:02) rather than for stock assessments *per se*. But further research among ICES scientists and perhaps within the Assessment Methods WG is encouraged.

Attachment 1

Software for Implementing Bayesian Approaches

SBAYES <http://lib.stat.cmu.edu/S/sbayes>
Programmed in the S language. Package contains S functions for approximate Bayesian analysis.

BATS <http://lib.stat.cmu.edu/S/bicreg>
Bayesian Analysis of Time Series. Includes dynamic linear and nonlinear models, including Kalman Filter models.

Neural Networks <http://www.cs.toronto.edu/~radford/>

First Bayes <http://www.maths.nott.ac.uk/personal/aoh/>
Useful as a learning tool and for simple Bayesian Analysis.

BUGS and CODA
<http://www.mrc-bsu.cam.ac.uk/work/bugs>

BUGS uses MCMC and Gibbs resampling. CODA is used to analyze BUGS outputs.

Documents presented

T:01	C.M. O'Brien	An approach to stock-recruitment modelling based upon GLMs, HGLMs and DLMs
T:02	C.M. O'Brien	Time series models in fish recruitment – a journey from classical statistics to dynamic models and Bayesian forecasting
T:03	T.R. Hammond and C.M. O'Brien	An application of the Bayesian approach to stock assessment model uncertainty
T:04	S. Kuikka	Parameter and structural uncertainties in Bayesian decision analysis
T:05	M. Bernal, D.L. Borchers, S.T. Buckland, A. Lago de Lanzós, and L. Valdés	A new procedure for the assignment of ages to eggs of synchronous spawning fish

THEME SESSION ON THE M74 SYNDROME AND SIMILAR REPRODUCTIVE DISTURBANCES IN MARINE ANIMALS (U)

Co-Conveners: B.-E. Bengtsson (Sweden) and S. Brown (Canada)
Rapporteur: D. Honeyfield (USA)

Salmonids in the Baltic Sea and from the Great Lakes basin in North America exhibit a similar embryonic mortality, called M74 or early mortality syndrome (EMS), respectively. Clinical symptoms of M74/EMS include loss of equilibrium, swimming in a spiral pattern, lethargy, hyperexcitability, haemorrhage, and death occurring between hatch and first feeding. Low egg thiamin levels and enhanced survival following thiamin treatments are common characteristics of M74/EMS. Species from the Baltic Sea and the Great Lakes basin exhibiting mortality include Atlantic salmon (*Salmo salar*), lake trout (*Salvelinus namaycush*), coho salmon (*Oncorhynchus kisutch*), chinook salmon (*Oncorhynchus tshawytscha*), steelhead (rainbow) trout (*Oncorhynchus mykiss*), and brown trout (*Salmo trutta*).

Scientific Programme Summary

Since 1990 salmon originating from the Bothnian Bay rivers displaying M74 feed mainly in the Baltic Proper, with only a small fraction of the fish feeding in the Bothnian Sea. Some evidence suggests that Baltic salmon have changed their feeding habits to include greater feeding during the winter. The significance of this is unknown. However, Latvian salmon in the Gulf of Riga from River Daugava exhibit no M74. In these Latvian stocks, spawning migration is shorter and occurs later in the season. Consistent with later maturation, blood oestrogen values also peaked later in these fish. Thiamin content of liver, muscle, and gonads in Baltic salmon stocks varied depending on sampling location and time of year. It was suggested that the diet of salmon in the period preceding the spawning run may be important for the development of M74.

Different views were expressed on the importance of dietary herring (*Clupea harengus*) and sprat (*Sprattus sprattus*) with respect to M74 in Baltic salmon. It was reported that an increase in sprat biomass was associated with the higher incidence of M74 ($r^2=0.86$). However, the proportion of sprat in salmon diets appears to have decreased since the 1960s, so diet composition does not reflect biomass. Moreover, it was reported that Baltic forage fish size and body condition have also decreased since the 1960s. The significance of the greater proportions of three-spine stickleback (*Gasterosteus aculeatus*) in the diet of Baltic salmon is unknown. The thiamin content of Baltic sprat was reported to be 7 nmol g⁻¹. The thiamin content of Baltic herring ranged from 6–9 nmol g⁻¹ in age 1–2 year class to 9–10 nmol g⁻¹ in 3 year class. These values are well above the dietary requirement for salmonid growth.

Finnish researchers reported that higher muscle concentrations of dioxin-like planar halogenated

hydrocarbons in female salmon from the River Simojoki stock coincided with greater M74-mortality in offspring in the early 1990s. These compounds increase in sprat and herring as the animal ages. A cautionary note was made that Baltic salmon feed primarily on one-year age class (clupeid size ~10 cm) fish, therefore older fish with higher contaminant concentrations may not directly translate to an increased burden in the salmon. Progress is being made in characterising histopathology and sub-structure changes in the liver, brain, and heart of M74-affected Baltic salmon. Single-cell brain lesions and liver organelle patterns were reported. To determine mechanisms of mortality in salmon fry, studies are being conducted to differentiate the effects due to oxidative stress, excess NADPH oxidation, and thiamin deficiency using thiamin antagonists. Glutathione peroxidase and glutathione reductase increase in M74-affected animals.

Essential nutrients in addition to thiamin may be important in early-life stage mortality. A case was made for assessing potential interactions among antioxidant vitamins and essential fatty acids. Decreased astaxanthin concentrations have been observed in Baltic salmon. In Baltic cod, poor reproduction was associated with a shift in fatty acid content from arachidonic acid (20:4 n-6) to docosahexaenoic acid (22:6 n-3). It was suggested that these changes reflect changes in food web items such as phytoplankton populations.

The incidence of early mortality syndrome (EMS) in Lake Michigan coho is now lower than the high incidences observed in 1996, but varies by sub-population. Coho salmon taken at the Platte River exhibited less than 15 % EMS mortality in 1997 and 1998, but Thompson Creek coho exhibit 27 % EMS mortality. The suggestion that the prey fish composition differs between the sub-populations warrants study that is more detailed. There was a higher incidence of EMS in chinook salmon from Swan River, Lake Huron (16.7 %) relative to those collected from the Little Manistee River in Lake Michigan (6.7 %).

Studies were conducted to establish the conditions required to preserve the thiamin content of sampled alewife (*Alosa pseudoharengus*). To prevent losses when sampling for total thiamin, it was found that the samples need to be placed on dry ice within 20 minutes of capture, regardless of holding temperatures between 4 °C and 21 °C. In Lake Michigan, thiamin concentrations in alewife differed with respect to location and season (range 4–13 nmol g⁻¹). Alewife collected in the southern part of Lake Michigan contained about half the thiamin as those in the northern areas. Of the species examined, rainbow smelt (*Osmerus mordax*) contained low thiamin

concentrations (1–2 nmol g⁻¹) that marginally exceeded levels recommended for salmonid growth.

The level of thiamin degrading activity in the two non-indigenous forage fish species (alewife and smelt) was up to a hundred times the activity observed in the native bloater chub (*Coregonus hoyi*) (alewife, 6.6 nmol g⁻¹; rainbow smelt, 2.6 nmol g⁻¹; bloater chub, 0.02 nmol g⁻¹). The thiaminase content of alewife also showed a four-fold between-lake variability. Two microbial strains of thiaminase-positive bacteria were isolated from alewife viscera; *Bacillus thiaminolyticus* and an unnamed *Bacillus* species, thereby suggesting a possible source of thiaminase in these prey species.

Feeding lake trout a diet low in thiamin in combination with added bacterial thiaminase produced the clinical symptoms of EMS in the offspring. Histopathological examination of the fry exhibiting EMS-like symptoms showed the presence of focal necrotic brain lesions. In lake trout, feeding the experimental diet lowered egg thiamin concentrations to levels similar to those observed in feral fish displaying EMS. Egg injections with specific thiamin antagonists (pyrithiamin and oxythiamin) were also shown to be capable of producing EMS-like symptoms. Lake trout sac-fry from Lake Ontario and other thiamin-deficient stocks were almost a thousand-fold more sensitive to oxythiamin than those from Lake Manitou, even though their background thiamin levels only varied by four-fold. This observation suggests that there are unanswered questions about the factors affecting the sensitivity of thiamin-deficient stocks.

Summary of Discussion

Early-life stage mortality from M74 and early mortality syndrome (EMS) continues to impact salmonid populations in the Baltic Sea and Great Lakes basins. There are sub-population differences that, when investigated, may provide important clues to resolving this reproductive disorder.

Research in recent years has focused the work on M74/EMS. The cause of low thiamine remains undefined, but in salmonid embryos, M74/EMS is a result of thiamin deficiency. Three pieces of evidence support this conclusion: a) thiamin is therapeutic, and water-hardening eggs in a thiamin bath, injecting female broodstock with thiamin prior to spawning, or treating sac-fry with thiamin prevents death; b) treating of normal healthy offspring with thiamin antagonists (e.g., oxythiamin or pyrithiamin) results in their expressing EMS-like clinical symptoms; and c) low-thiamin diets containing bacterial thiaminase fed to lake trout broodstock result in low egg thiamin and the offspring exhibiting the EMS-like symptoms similar to those observed in feral fish.

Forage fish body stores of thiamin were found adequate to meet dietary thiamin requirements for growth of salmonids. Thiamin content of prey fish is variable

between sampling locations and between species, presumably reflecting the differing nutritional status of these animals.

Thiamine-degrading (thiaminase) activity in Great Lakes salmonid prey (alewife, rainbow smelt, bloater chub) was variable. Variation was observed across lakes, within species, and the activity varied with the time of year. Although the source for the variation is currently unknown, it is plausible that these differences may account for some of the observed temporal, regional, and species variability in the extent of EMS. Thiaminase I activity requires both thiamin and co-substrate to be functional, and present assays use optimal levels of both substrate and co-substrate. Thiamine degradation potential in Baltic prey species (sprat, herring, sticklebacks) is largely unknown. Non-enzymatic degradation of thiamin is a possibility, but so far assay validation experiments suggest enzymatic degradation.

There have been changes observed in the primary production and trophic structure in both the Baltic Sea and the Great Lakes. If thiaminase levels in biota are altered by these changes in the base of the food web and salmonids have no alternative food sources, natural reproduction of salmonids could be disturbed. There are relationships between changes in abundance of planktonic food items and historical incidences of M74/EMS; however, the biological significance of these relationships is presently unclear. Associations between the incidence of M74/EMS and planktonic species capable of producing thiaminase (e.g., some blue-green bacteria) and salmonid prey species warrants further investigation. No data were presented, but thiaminase in cyanobacteria and algal toxins also represents aspects of potential importance. In the Baltic Sea there has been a long period since the last major inflow of oxygenated salty water from the North Sea. This stagnation, in combination with eutrophication and overfishing of Baltic cod, has resulted in major declines in cod as the top predator in the Baltic. Thus, the interrelationships among the food web, water quality, and M74/EMS are probably important.

Priority Areas for M74/EMS Research

The following areas of research needs for M74 were proposed by meeting participants. Core information needs have also been included from a recent workshop on EMS: Scott Brown and Dale Honeyfield, 1999, Great Lakes Fishery Commission, Board of Technical Experts, Research Task Report, Early Mortality Syndrome Workshop, 17–18 May, 1999, Ann Arbor, MI, USA.

- The aetiology of M74/EMS is complex and, while there has been some significant progress in understanding, there is a clear need for financial support for coordinated research programmes on M74/EMS.

- There is a need to know more about thiaminase and potential sources of its variability. In the Great Lakes information about thiaminase is developing, but there is little baseline information for Baltic species. Is the thiamin/thiaminase content of forage fish influenced by the nutritional status of the animals? Food web factors influencing forage thiaminase activity are not well defined. Investigations are needed to determine the source of enzyme activity. Both endogenous physiological factors (e.g., stress and condition) and exogenous sources (e.g., bacteria, cyanobacteria, non-indigenous species) may influence the elaboration of enzyme activity in forage species. The possible role of contaminants or environmental factors to affect thiaminase activity is a large question. Research is needed to determine whether anthropogenic chemicals or natural factors act as nucleophile/base-co-substrate and thus enhance thiaminase activity or generate endogenous thiamin antagonists.
- To facilitate a better understanding of cause-and-effect relationships and to identify stocks at risk, there is a need to continue monitoring of M74/EMS in the various salmonid populations and to measure egg and tissue thiamin concentrations.
- Sub-lethal consequences of low thiamin on fry survival, recruitment, and long-term viability need to be assessed. Feral fry that survive the acute stages of thiamin deficiency may have transitory or permanent behaviour abnormalities from brain lesions or metabolic deficiencies. Low thiamine may decrease the ability to avoid predators or to capture food items. The present levels of dioxin-like contaminants are unlikely to cause acute mortality; however, there are potential synergistic interactions between these contaminants and low thiamin that may impact behavioural or other responses and lead to poor survival and inadequate recruitment. The sub-lethal consequences of low thiamin also raise concerns about when thiamin treatment should be occurring: at water-hardening or when symptoms are observed in fry?
- There is a need to provide an unambiguous set of criteria to identify M74/EMS across species and to identify key disease mechanisms, characteristic histopathology, biochemical mechanisms, physiological processes (e.g., apoptosis), and behavioural responses that result in M74/EMS mortality across species. This includes studies on routine thiamin uptake, metabolic pathways and characterisation of the processes involved with prey digestion, and absorption of thiamin as well as its transport and deposition into the developing ovary.
- To delineate potential differences in predator-prey relationships among stocks expressing these syndromes, information is needed from stable isotopes, fatty acid analysis, and carotinoid analysis in salmon tissues and food web items.
- Studies to determine contaminant interactions with low thiamin are warranted. Thiamin is a cofactor of thiamin-containing enzymes, but thiamin may have other biochemical functions. We do not know, for example, whether thiamin forms an adduct during the metabolism of contaminants. In addition to the direct effect of thiamin deficiency, we do not know whether there are possible interactions with other vitamins, especially the antioxidant vitamins and biochemicals (Vitamin E, Vitamin A, beta-carotene, astaxanthin, ascorbate, and glutathione).

Documents presented

U:01	E. Ikonen and A. Soivio	Does the feeding area choice of Atlantic salmon (<i>Salmo salar</i> L.) affect M74 mortality?
U:05	J. Pickova, P.-O. Larsson, and A. Kiessling	Some possible explanations to Baltic Cod (<i>Gadus morhua</i> L.) reproduction disturbances with special emphasis on lipids – an overview
U:07	E. Ikonen, L. Karlsson, A. Mitans, and S. Hansson	Yolk-sac-fry mortality (M74) in Baltic salmon (<i>Salmo salar</i> L.): Indications from where and when they feed
U:08	L. Karlsson, E. Ikonen, S. Hansson, and A. Mitans	Yolk-sac-fry mortality (M74) in Baltic Sea salmon (<i>Salmo salar</i> L.): Its relation to thiamine levels during migration and at spawning
U:09	S. Hansson, L. Karlsson, E. Ikonen, O. Christensen, A. Mitans, D. Uzars, E. Petersson, and B. Ragnarsson	Yolk-sac-fry mortality (M74) in Baltic salmon (<i>Salmo salar</i> L.): Analyses of its relation to the diet
U:12	P.J. Vuorinen, J. Paasivirta, M. Keinänen, T. Vartiainen, and R. Parmanne	Organochlorines and thiamine in salmon (<i>Salmo salar</i>) and prey species, Baltic herring (<i>Clupea harengus</i>) and sprat (<i>Sprattus sprattus</i>), in connection with the M74 syndrome
U:13 Poster	A.-K. Eriksson and B. Sundelin	Reproduction disturbances in amphipods

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| U:14
Poster | C. Hill, S. Nellbring, and
B.-E. Bengtsson | The FiRe and REDFISH projects: Swedish and Nordic research on
reproductive disturbances in Baltic fish |
| U:15 | P. Amcoff, L. Asplund,
H. Börjeson, M. Hovén, and
L. Norrgren | Thiamine levels and experimental induction of M74 in Baltic Salmon
(<i>Salmo Salar</i>) |
| U:16 | J. Lundström and L. Norrgren | Ultrastructural studies of Baltic salmon yolk sac fry developing M74, a
comparison to experimental studies. |

THEME SESSION ON THE NORTH EAST ATLANTIC ENVIRONMENT — THE CURRENT STATUS (V)

Co-Conveners: Dr P.C. Reid (UK) and S. Carlberg (Sweden)
Rapporteur: M.V. Angel (UK)

This Session reviewed the methodologies used in and the initial results of the Quality Status Reports (QSRs) of the Northeast Atlantic prepared on behalf of OSPAR. R. Salchow began by describing the background events that led to the preparation of the QSRs. Monitoring is a key component in achieving OSPAR aims and is needed to assess the effectiveness of the measures taken and to determine prioritisation for future actions. The QSRs are based on actual data, which are drawn from all available sources, and so their conclusions should guide and stimulate future policy, so long as the reports are perceived to be comprehensive, authoritative, convincing, and reliable. The reports also need to be written in a language that is comprehensible to non-scientists. For this exercise, the OSPAR area has been subdivided into five regions: I. the Arctic Seas; II. the North Sea; III. the Celtic Seas; IV. Biscay and the Iberian Seas; and V. the Wider Atlantic. A regional QSR (rQSR) has been prepared for each region; they are currently being used as the basis for the drafting of a holistic QSR covering the whole of the OSPAR area. Although OSPAR is a regional convention, this exercise is seen as a model for the assessments that will be needed by other regional seas.

Trend monitoring is the key to these evaluations. However, natural variability tends to obscure any trends, but there is also a lack of high quality data. There are other difficulties. For example, there is a lack of knowledge as to what levels of contaminants can be tolerated by ecosystems and in the human food-chain. So inevitably decisions have to be taken that are subjective and precautionary. Thus, ecotoxicological reference values have been adopted that are based on inadequate experimental data, and have to be tempered by large safety margins and the results of risk analysis.

C. Reid and S. Carlberg then described the process leading up to the final acceptance of most of the draft QSRs. When the new OSPAR Convention came into existence in 1992, the evaluation exercise by the North Sea Task Force was well under way. The decision to undertake a similar exercise for the whole OSPAR area was taken at the end of 1993, but no further action was taken until January 1996. This led to a compression of the drafting procedures that has created difficulties and resulted in delays in achieving many of the procedural milestones. Half way through the drafting period it was realised that, if the production of the holistic assessment was to progress smoothly, all the rQSRs would need to be written with a common format, also detailed drafting instructions would be needed. The preparation of illustrations presented problems, partly because of technical difficulties associated with the different GIS packages used. Certain types of data have remained elusive, for example, there is a lack of socio-economic data. Electronic communication has been widely used,

and all the drafts have been subjected to internal and external peer-review.

There then followed presentations on all but one of the rQSRs. As might have been expected, despite following a common format, the individual reports have varied extensively in their content and their prioritisation. The rQSR for Region II was presented by L. Enserink. It was originally thought that the drafting of a new evaluation of the North Sea would be a relatively simple task. However, in this region the flow of monitoring data has been profuse, but the data have not always proved to be compatible. In addition, the representatives of the eight North Sea countries, together with the European Commission who participated in the drafting, adopted a method based on Multi Criteria Analysis (MCA) to assess and prioritise the relative importance of anthropogenic pressures. A total of 32 pressures were assessed, taking into account their severity, spatial scale, and persistence. It was concluded that currently the most serious impacts originate from fishing activities, inputs of trace organic contaminants, and inputs of excess amounts of nutrients.

The report for Region II was supported by a poster, presented by S. Beddig and J. Sündermann introducing SYCON — a large multidisciplinary project supported by the Centre for Marine and Climate Research in Hamburg and the German Research Ministry. This programme is critically evaluating current knowledge of the North Sea. It is seeking to provide insights into its current status, evaluate the extent and causes of variability, assess the degree to which anthropogenic impacts are responsible for these changes, and how best to conserve the environmental quality of the North Sea.

The approach adopted in the preparation of the rQSR for Region III, the Celtic Seas, was rather different, since only the two coastal states Ireland and the UK were involved. The region was subdivided into three subdivisions for which individual reports were prepared by different lead agencies. Ireland has used the exercise as an opportunity to produce its own national maritime QSR. These three separate reports were then amalgamated by R. Boelans and J. Portmann to produce the rQSR. They assessed the severity of impacts according to their effects on human health and well-being and on marine resources. They identified the most serious impacts as originating from: 1) fishing activities, 2) tensions between coastal development and conservation, 3) effects of possible climate change currently seen in the increases in storminess and wave action and hence in coastal erosion, and 4) impacts of TBT and other endocrine disrupters. During question time, the omission of any comment about the risks associated with discharges of radioactivity into the Irish Sea focused attention on how widely criteria of

acceptability can differ between policy-makers and individuals. While radiological evidence indicates that risks from these discharges are extremely small, it is clear that some stakeholders have a strong aversion to any such use of the sea.

The drafting of the rQSR for Region IV – the Biscayan and the Iberian regions – was slow to get underway. A. Rodriguez de León initially described just how different are the coastlines of the three coastal states, France, Spain, and Portugal. For much of the region, there had been no previous assessments. One important outcome of the exercise was that it initiated the development of national assessment procedures. So the present draft lacks balance, and the general lack of information means that authoritative assessments cannot be made. Extensive parts of the coasts there show minimal impact, but there are hotspots near population and industrial centres where contaminant levels are excessive. Fishing activities were once again highlighted as being of serious concern. Eutrophication effects are also seen in some of the estuaries and rias.

L. Valdés summarised the efforts made to assess the status of biodiversity in the region and the extent of human impacts in Region IV. The evaluation process stimulated collaboration between 75 scientists in the collation of the available information on ecosystem biology and human impact. Their report runs to over 400 pages and includes 700 references. The exercise has identified the need for improved understanding of ecosystem functioning and the sources of variability. A specific need for time series data was identified if anthropogenically-induced change is to be unambiguously discriminated from natural variability.

The reports on the rQSR for Region IV were supplemented by the poster presented by A. Jorge da Silva on the physical environment in the region. The poster illustrated the main features of coastal and ocean circulation and the importance of mesoscale eddies in the region. It also illustrated some of the systematic changes in the climate that have been occurring over the last decade.

The report on Region V – the Wider Atlantic – was presented by M. Angel. He pointed out that our concepts of what is important, and how they should be prioritised, are very much determined by the time/space characteristics of the way we observe the ocean, as well as being subjectively conditioned by our individual experience and interests. OSPAR faces a major challenge in its attempts to discriminate between natural long-term cycles of variation and change. The characteristics of the

physical environment and the prevailing weather conditions mean that Region V receives inputs from outside the OSPAR region via ocean currents and atmospheric deposition. Hence, if OSPAR is to realise its strategic objectives, it must find ways of reducing inputs from beyond the bounds of its competence. Once again, major concern was expressed about the unsustainability of many current fishing practices in the region and the habitat destruction that results from some of the methods used. The reporting is inadequate, because the discards and by-catches are extremely large, and many of the stocks being exploited have very limited resilience to fishing pressure. However, global issues associated with carbon dioxide emission and increases in UV-B radiation threaten more serious impacts in the foreseeable future. OSPAR must be active in stimulating global assessment of environmental health.

In the ensuing discussions, it was generally agreed that despite the many problems encountered, many of which remain unresolved, the QSR exercise has resulted in the production of reports that will be invaluable to policy-makers. Much of the preparatory work will be valid for future evaluations. However, it was recognised that there is an excessive time lag between the achievement of advances in scientific knowledge and understanding and their translation into products that can be used by policy-makers. One way to remove this block might be to have an annual iterative review of the new QSRs. Other clear needs that were identified were:

1. To improve our understanding of the impact of climate change on marine ecosystems, particularly on living resources.
2. To improve knowledge of the background levels of naturally occurring elements and compounds, and to refine ecotoxicological reference values.
3. To improve the quality of monitoring protocols and procedures, and to target monitoring activities more strategically to improve trend analyses.
4. To maintain all existing time series and, where possible, to initiate new ones.
5. To find effective methods of maintaining up-to-date advice to decision-makers.
6. To develop links with other regional sea authorities.
7. To develop better interactive working relations between OSPAR, ICES, and some of the newly emerging programmes such as GOOS.
8. A major concern expressed was the lack of any lead organisation taking responsibility for an assessment of global marine environmental health.

Documents presented

V:01	R. Boelens and J. Portmann	The quality status of the Celtic Seas
V:02	M.V. Angel	The quality status report of OSPAR Region V - the Wider Atlantic
V:03	R. Salchow	Towards a first ocean-wide assessment

V:04	F. van der Valk, L. Enserink, and B. Oudshoorn	Regional Quality Status Report 1999 – the current status of the Greater North Sea
V:06	P.C. Reid and S.R. Carlberg,	The mechanics of QSR 2000
V:07	L. Valdes	Biodiversity and human impact in the OSPAR region IV marine ecosystem (Strait of Gibraltar – Brest): Logistic and results
V:09 Poster	A. Jorge de Silva	The physical environment in the Iberian-Biscay area (OSPAR Region IV)
V:10 Poster	S. Beddig and J. Sündermann	Synthesis and a new conception of North Sea Research (SYCON)

THEME SESSION ON THE HEALTH AND WELFARE OF CULTIVATED AQUATIC ANIMALS (W)

Co-Conveners and Rapporteurs: Dr G. Claireaux (France) and Dr J.C. Holm (Norway)

Background

Even though potential stress factors affecting welfare are relatively well identified, their interactions and the dynamics of their effects are not as well documented. Consequently, to date there exist no unequivocal and easily implemented methods to assess the reactions of an animal to its rearing environment. The complexity of this problem requires that the Session examine the question from as many points of view as possible. This includes, but is not limited to, biological and physiological aspects as well as connections with behaviour and pathology.

There is a need to prepare an ICES position paper on this topic as EU regulations on farmed fish welfare are being prepared. As yet, well-documented scientific arguments on the subject are scarce and it is urgent to review the results of relevant research programmes that have been conducted in ICES Member Countries.

Presentations

The Session comprised seven contributions, one of them given as a poster.

When investigating the effect of food supply and rearing temperature on the growth of juvenile cuttlefish, positive correlation was found between temperature and the size of mantle muscle blocks. Cuttlebone and somatic growth varied when the higher combination of either temperature or feeding was applied (Doc. W:03, poster).

In a study of survival rate in released Atlantic salmon fry in the Gowienica River (northern Poland), it was shown that average weight at release strongly influenced the survival to smoltification (Doc. W:02).

In a larger study of possible causes of observed malformations in farmed Atlantic salmon in Norway, it was shown that an increase of 2.5 °C from 7.9 °C in incubation temperature drastically increased the incidence of malformations. The malformations registered were failures of organ development as well as deformed vertebrae. Temperature sensitivity was greatest during the first stages of embryogenesis. Feed mineral content related to feed conversion and water quality were also identified as critical factors for normal organogenesis (Doc. W:04).

A maximised metabolic scope is synonymous with reduced energy budget conflicts, increased welfare, and thus with maximised ecosystem or farm yield. In an experimental and modelling procedure to analyse the environmental impact on fish metabolic scope, the

hypothesis that fish optimise their aerobic metabolic capacity by behaviour was tested. The metabolic scope seems to be a suitable welfare indicator in fish (Doc. W:05).

Too high densities can become stressful for the fish and constrain the growth rate. In a density experiment with rainbow trout, it was demonstrated that within densities of 25–100 kg m⁻³, routine metabolism does not seem to decrease the growth rate (Doc. W:07).

In a density experiment with rainbow trout (25–125 kg m⁻³), behavioural plasticity as a potential welfare indicator was monitored. Swimming activity was measured by acoustic telemetry. Differences in swimming activity appeared for activity patterns and amplitude, as well as for space use, swimming complexity, and instantaneous swimming speeds (Doc. W:01).

It has been postulated that cardiac disorders might be a reason for observed high mortality in brown trout reared in sea water (Brittany, France). During an experiment with fish tagged externally with acoustic heart transmitters, it was shown that the fish, although inactive, had a heart beat rate estimated to be between 85 % and 100 % of the myocardium topmost performance. It is likely that the reason for this was a combination of high water temperature, high salinity, and season-related decreased osmoregulatory abilities (Doc. W:06).

Conclusions

1. The health and welfare of cultivated aquatic animals is a new issue on which the ICES scientific community is likely to have to give advice within a few years. The lack of relevant ongoing research is substantial. It is therefore important to promote research and exchange of ideas and scientists between different ICES Member Countries. This is important because the topic is multidisciplinary, and the level of awareness is different.
2. In order to develop a mutual understanding, both definitions of terms as well as standardised methods of assessment should be further refined and developed.
3. The Theme Session participants supported the conduct of a workshop on welfare in farmed aquatic species, to be arranged in 2001, as recommended by the Mariculture Committee.

Documents presented

W:01	M.-L. Bégout Anras and J. P. Lagardère	Effects of stocking densities on swimming characteristics of rainbow trout: applying acoustic telemetry to the culture environment
W:02	J.D. Domagala and R. Bartel	Survival to stage smolt of one summer old Atlantic salmon (<i>Salmo salar</i>) released into the River Gowienica (northern Poland)
W:03	P. Martínez, V. Bettencourt, Á. Guerra, and N. Moltschaniwskyj	How temperature influences muscle and cuttlebone growth under food-stress conditions on juvenile <i>Sepia elliptica</i> (Mollusca: Cephalopoda)
W:04	G. Baeverfjord, T. Åsgård, I. Lein, and M. Rye	Egg incubation temperature is a critical factor for normal embryonic development in Atlantic salmon
W:05	G. Claireaux	Metabolic scope: An indicator of welfare in fish?
W:06	C. Mercier, G. Claireaux, J. Aubin, and C. Lefrançois	Cardiac disorders in adult brown trout (<i>Salmo trutta</i>) raised in seawater in Brittany (France)
W:07	C. Lefrançois, C. Mercier, and G. Claireaux	Effect of rearing density on the routine metabolic expenditure of farmed rainbow trout (<i>Oncorhynchus mykiss</i>)

THEME SESSION ON SIZE-BASED PROCESSES IN THE SEA (POSTER SESSION) (X)

Convener: Prof. J.G. Pope

This Session was designed to develop the idea that size is the dominant structuring feature of marine ecosystems and thus a sound basis for many investigations. During the Session four posters were presented; these were:

Doc. X:3 Length-dependent swimming cost and predation risk in herring larvae (*Clupea harengus* L.). This showed the results of a model of size-based larval behavior based upon optimal foraging theory. The predictions (which the presenter Magni Hjertenes Flyum suggested were counterintuitive and which the audience found intriguing) were that larvae would swim most actively when food was most abundant. Eye development and visual ability, however, modified this result.

Doc. X:4 Diversity, abundance, and biomass size spectra of pelagic fish in Chesapeake Bay. This poster (presented by Ed Houde) showed a very informative overview of the complex fish resources of Chesapeake Bay using length distributions as the unifying feature. The poster provided a feast of information on how catch-rates, species diversity, and fish size distributions were distributed in the complex hydrography of the bay. It gave a clear idea of both the similarities and the differences between area, years, and seasons. Comparisons of overall size spectra between years and seasons suggested regularity at this level despite variations at the species level. Regionally size distributions were broadly similar between the upper (fresh water) parts of the bay and the lower saline region. There was, however, a break in the middle mixed waters.

Doc. X:6 The influence of size-selective mortality on growth back-calculation of hard calcified structures such as otoliths. This poster (presented by the author) showed the results of investigation of the effect of size-selective fishing on perceived growth rates using computer simulations. These effects make it hard to distinguish the effects of density-dependent or genetic changes in growth.

Doc. X:8 Why size spectra are useful. This poster (presented by the author) was designed as a simple exposition of the size spectra (the graph of log numbers against either length or weight) as an emergent property of at least some marine ecosystems. The author argued that they appear to be remarkably robust and regular features of marine ecosystems such as the North Sea or Georges Bank, and that they appear to indicate levels of overall fishing mortality. Thus they allow simple comparisons over time, between areas, and also within areas.

All posters were interesting, and their authors' presentations and the informal atmosphere of a poster session lead to lively and wide-ranging discussions. There was broad agreement that the construction of size spectra was a useful way of describing the overall condition of a system and that some form of data base, possibly organized in collaboration with the "Census of the Fishes" would be a valuable research aid. It was recognized that as well as spectra of abundance it would be useful to develop the size spectra of removal to test the hypothesis that the abundance spectra slope was an indication of overall fishing pressure.

Documents presented

X:02 Poster	A.V. Dolgov and Yu. A. Kovalev	Predator size-prey size relationships between cod and its preys in the Barents Sea
X:03 Poster	M. Hjertenes Flyum, Ø. Fiksen, and A. Folkvord	Length-dependent swimming cost and predation risk in herring larvae (<i>Clupea harengus</i> L.)
X:04 Poster	S. Jung and E. D. Houde	Diversity, abundance, and biomass size spectra of pelagic fish in Chesapeake Bay
X:06 Poster	A.D. Rijnsdorp	The influence of size-selective mortality on growth back-calculation of hard calcified structures such as otoliths
X:08 Poster	J. Pope	Why size spectra are useful

THEME SESSION ON COD AND HADDOCK RECRUITMENT PROCESSES – INTEGRATING STOCK AND ENVIRONMENTAL EFFECTS (Y)

Co-Convenors: M. Heath, UK; B. MacKenzie, Denmark; and G. Marteinsdottir, Iceland

The Session included 32 programmed presentations and one poster. The authors of two papers were not present to present their manuscripts (Docs. Y:12 and Y:33). Manuscripts were not available for 2 presentations, although they were logged as having been received in Copenhagen, and were dispatched to Stockholm within the specified time.

Overall, the Session stimulated considerable interest among the Symposium participants and vigorous question and discussion sessions.

The Session was born out of two papers presented at the 1998 ASC which described results from field programmes directed at haddock early life stages in the North Sea and cod reproductive parameters at Iceland, conducted as part of an EU-funded project entitled "Recruitment processes in cod and haddock: Developing new approaches" (1996-1998) (FAIR-CT95-0084). The participants in this project subsequently obtained further EU-funding ("Stock Effects on Recruitment Relationships (STEREO)" (1998-2001) (FAIR-CT98-4122)), and 12 of the papers presented in the Session were attributable to the members of these two projects. A further 12 papers were derived from the Baltic CORE and STORE projects, also funded by the EU FAIR programme. There is clear overlap of approach between the STEREO and Baltic research groups, and the Session was a valuable opportunity for interaction between the investigators.

The first paper in the Session (Doc. Y:10) described the underpinning philosophy of STEREO, which is that the survivors of the recruitment processes are a select subset of the initial egg production by virtue of their parental, spatial, and temporal properties. Various evidence indicates that the feeding conditions and age composition of the adult stock have a profound effect on the timing, intensity, and duration of spawning, and on egg size. In general, large eggs produce fitter larvae, and slow-growing larvae suffer lower survival to the size of recruitment than fast-growing individuals. The hypothesis underlying the projects is that a high proportion of the survivors to recruitment can be traced back to fractions of the spawning stock producing high quality eggs at times and locations which confer high growth potential on larvae. These concepts are being assembled into coupled biological-physical models of cod and haddock stocks in the North Sea and Icelandic shelf waters. Ultimately, these rather complex models will be used to inform the production of new types of stock-recruitment relationships which take account of spatial and temporal features in a simpler way, and which may be of value in fisheries management procedures.

Four papers on the first day focussed on studies of larval haddock growth and survival in the North Sea. Doc. Y:01 showed that the survivors are indeed drawn from rather discrete parts of the temporal distribution of spawning, but that there is considerable year-to-year variation in the particular part of the spawning season which contributes most recruits. Docs. Y:13 and Y:14 focused on studies of larval growth rates as estimated from otolith microstructure analysis and on environmental factors affecting vertical distribution. Doc. Y:11 discussed the processes that might be acting to control survival at around the time when juveniles switch a pelagic life-history to demersal. For North Sea haddock there are indications that the 1-2 months around settlement is extremely influential in setting the level of recruitment.

Patch studies are being used in the North Sea (Doc. Y:14; haddock) and off western Iceland (Doc. Y:30; cod) to investigate the ontogeny of various processes. There are parallels between some aspects of these studies and those carried out in the NW Atlantic during the Canadian OPEN programme and US-GLOBEC.

Very similar approaches to analysis of historical data from stage-abundance surveys were presented by Doc. Y:11 (North Sea haddock), Docs. Y:15 and Y:20 (northeast Arctic cod). Correlations between sequential measures of stage abundance over several years were used to infer when the influential processes in recruitment were occurring. On face value there appears to be a difference between cod and haddock in that pelagic juvenile stages of cod correlated with abundance at age 1 and 2, whilst the equivalent correlation in haddock is not established until after settlement.

Hydrodynamic and particle tracking models are being used in both STEREO (Doc. Y:10) and STORE (Doc. Y:04) to investigate the dispersal of eggs and larvae in the North Sea, the Baltic and will ultimately be used at Iceland during STEREO. At Iceland, an impressive analysis of historical data from surveys of pelagic juvenile abundance (Doc. Y:28) exposed previously unsuspected mixing of offspring from spawning grounds distributed widely around the coast of Iceland. The main spawning grounds are in the SW area, and it is suggested that the various dispersed spawning sites may provide a buffer against survival or egg production failure at the main site. These data will provide a strong foundation for investigation with particle-tracking. In the Baltic, particle-tracking was in use to try to resolve questions about the mixed spawning origins of juveniles found along the Polish coast. Westerly winds were found to promote dispersal of cod eggs and larvae from the western stock into the Arkona Basin and Polish coast. It appears that ultimately the survivors of this dispersal

may return to the west, but there is some debate as to whether they contribute to spawning in the eastern region before returning to the west. Length distributions of juveniles sampled by trawl surveys in the eastern Baltic were used to 'verify' the conclusions of the particle-tracking models (Doc. Y:08). Almost exactly analogous approaches are being used to tackle similar problems involving haddock spawning on Browns Bank, NW Atlantic (Theme Session K, Docs. K:05 and K:10). There is a clear requirement to develop molecular, chemical, meristic, or other probes of the spawning origins of juveniles to diagnose the mixing of progeny in field samples of juveniles.

A number of Docs. (Y:02, Y:06, Y:07, Y:25, Y:27, Y:19, Y:29, Y:31, Y:34) focused on field studies, experimental investigations and modelling of the reproductive biology of cod. It is clear that not only does the annual fecundity per unit body mass of fish vary with age and size, but also the timing and duration of spawning, and the size and quality of the eggs. Taken together this means that Spawning Stock Biomass is an extremely poor measure of potential population egg production. Elimination of old fish from the stock by exploitation severely depletes the egg production per unit biomass and potentially shifts the timing and duration of the spawning season (Docs. Y:25, Y:34), which may have consequences for the match-mismatch of larvae with conditions for survival. Docs. Y:06 and Y:07 demonstrated that recruitment also responds to the condition of the spawning stock. In northeast Arctic cod stock, variation in the liver condition index introduced more variation into total egg production than did the age or size composition. The liver index was related to the abundance of capelin which are the major food of Arctic cod. These papers showed that cod stocks dominated by recruit spawners are especially vulnerable to failure of egg production due to ecosystem effects leading to feeding conditions. Doc. Y:19 showed that that maturation rates, as indicated by the age and size at maturity of northeast Arctic cod, are also related to feeding conditions. In poor condition the year classes mature at age 5, whilst in good condition they may mature at least 1 year earlier. There was some discussion of the potential and benefits of introducing better indices of total egg production than spawning biomass into fisheries management procedures. Routine monitoring of spawning stock conditions may be demanding due to seasonal variation in the various available indices. Age structure information is clearly readily available for many stocks, but the necessary information on age-specific reproductive traits for relatively few. Doc. Y:23 provided some information on the development of histological indices of the maturation state for Baltic cod that will be necessary for 'operational' collection of reproductive data. Doc. Y:05 presented analysis of Baltic cod otolith annual increments which may provide a methodology for estimating inter-annual variations in spawning time within age classes.

In discussion, it was suggested that there may be an interaction between spawning stock abundance and age

structure, and the spatial and temporal structure of larval survival as indicated by the field and modelling studies. In some cases, different age classes have different spatial distributions of spawning, whilst there is evidence from some stocks and species that as abundance is reduced so the stock retreats into core areas of the spawning range.

Docs. Y:03, Y:16, Y:29, and Y:32 described the unique impact of mesoscale oceanographic processes on the reproduction of Baltic cod. The deep layers of the basins of the western Baltic have a propensity to stagnate, resulting in oxygen depletion beneath the halocline. The spawning volume of cod is defined by the envelope of oxygen concentration and water density, which influences the neutral buoyancy depth of eggs. During prolonged stagnation this volume is diminished, and is not renewed until deep inflow events involving saline oxygenated water from the Kattegat and Belt Seas. Y:32 showed that interannual variations in the proportion of the adult stock participating in the spawning in March is very influential on recruitment to the western stock, and appears to be related to the incidence of inflow events during the previous winter. The situation in the 1990's, when most of the process-orientated studies of recruitment were carried out, has been very different from conditions prior to 1970. The carrying capacity of the system appears to have declined since the 1950's, and seems to be related to inflow events and the spawning volume. Doc. Y:16 elaborated on this hypothesis and identified a mismatch during the 1980's between the spatial distribution of spawning and the distribution of spawning volume between the various basins, as being the likely cause of the decline in carrying capacity. Positive spawning volume is seen to be a necessary, but not sufficient condition for good recruitment.

Doc. Y:21 began to explore the consequences of variations in egg quality, as indicated by the amount of yolk, for the development and early survival of larvae. An elegant combination of rearing experiments and strategic modelling was being applied to investigate the problem.

There was a vigorous discussion following the presentations on the first day, and much interest in the notions that survivors are a select subset of the initial egg production, and that spawning biomass is a poor index of total egg production. It was questioned whether incorporating age structure and condition into stock-recruitment models would provide a significant benefit in terms of better resolving the underlying relationship. Data presented during the Session clearly showed that at least for Arctic cod there is considerable benefit, and that the use of spawning biomass in management procedures risks overestimating recruitment potential in years when the stock is dominated by small fish and conditions are poor.

Historical data were central to Docs. Y:17, Y:18 and Y:26, which focused on methods for improving the traditional stock-recruitment relationship models for cod

stocks. Throughout the Baltic, there has been a marked decline in the recruitment per unit spawning stock between the mid-1970's and mid-1990's (Doc. Y:26). This is related to the spawning volume (Docs. Y:03 and Y:16), and also to predation on cod eggs and larvae by planktivorous fish (herring and sprat). Spawning volume explains only part of the variability in the survival from late egg stage to larvae. A statistical model of recruitment was developed which incorporated the potential egg production (from stock age abundance and maturity ogives), predation on eggs (from MSVAP data), effects of spawning volume, and a transport index, and Doc. Y:26 presented an in-depth analysis of its performance in relation to observations. Similar combination of stock and environmental factors into a multivariate model of recruitment processes was presented for Bay of Biscay anchovy (Doc. Y:22).

Docs. Y:17 and Y:18 presented results from a meta-analysis of stock and recruitment data across the range of cod stocks in the North Atlantic. The carrying capacity (recruit per spawner) differs widely between stocks, but there was a remarkable coherence of mean stock biomass and mean recruitment across the geographical range. By sharing data between stocks and accounting for the differences in carrying capacity, it may be possible to considerably refine the parameterisation of traditional stock-recruitment models.

Session Y, Summing up points

- The distribution of properties such as growth rate and size in individuals surviving to various stages in the recruitment process becomes progressively skewed relative to that of the initial population. The implication is that there is selective pressure for larger, faster growing individuals. The incorporation of this feature into bio-physical models of the early life history indicates that we can expect rich patterns of spatial, temporal, and maternal structure to the origins of the survivors of the recruitment process.
- Model predictions of temporal pattern to the spawning origin of survivors is borne out by field observations. We do not yet have the methodology to verify predictions regarding spatial or maternal origins.
- The locus of density-dependent survival steps in the early life history of most fish stocks is still not known, despite the fact that such processes are clearly dominant in setting the functional form of the stock-recruitment relationship. More research effort needs to be directed towards this topic.
- In many cases, populations of demersal juveniles are thought to be composed of surviving offspring from several disparate spawning locations. Identification of the spawning origins of juveniles sampled in the field remains a significant problem. Particle tracking

models have been used in many studies to investigate such issues.

- There is still no significant information on the predation mortality of eggs, larvae or juveniles.
- Regarding maternal effects, investigations show that spawning stock biomass is a poor index of total egg production. Age and size structure, and in particular the physiological condition of the adult stock have a strong influence on total egg production. Stocks dominated by recruit spawners are more vulnerable to egg production failure due to poor feeding conditions than those with a more complete age structure.
- The timing and duration of spawning is strongly related to the age and size composition of the spawning stock. Temperature and feeding conditions of the adult stock may also influence spawning times.
- Egg condition vary with the age, size, and condition of females, and has implications for the development and survival of early larvae.
- Fisheries management models traditionally employ spawning stock biomass as an index of total egg production in yield and recruitment simulations. There is evidence that these models would benefit from incorporating the newly emerging evidence on effects of spawning stock condition and age structure on egg production, where the relevant biological information is available. This is an immediate, practical way in which the outputs of recruitment process research can be utilised by management activities.
- Stock condition and age structure effects also have implications for the functional form of stock-recruitment models, and may explain some of the autocorrelation in recruitment time series. Combining these effects with simple representations of the spatial and temporal structures in survival exposed by computationally intensive bio-physical models should be a focus for studies in the coming years.
- Meta-analyses of stock and recruitment data across the range of cod stocks in the North Atlantic was presented as an alternative way of improving stock-recruitment relationships. The carrying capacity (recruit per spawner) differs widely between stocks. By sharing data between stocks and accounting for the differences in carrying capacity, it may be possible to considerably refine the parameterisation of traditional stock-recruitment models.
- The activities of the forthcoming Study Group on Incorporation of Process Information into Stock-

Recruitment Models (first meeting, Lowestoft, UK, 23-26 November 1999), and the Recruitment Processes Working Group (Bergen, 7-9 March

2000), are highly relevant to the activities of the participants in this Theme Session.

Documents presented

Y:01	P.J. Wright, F.M. Kennedy, I.M. Gibb, J.R.G. Hislop, and W.S. MacDonald	The significance of age-related differences in spawning time to reproductive success in North Sea haddock
Y:02	B. Scott, G. Marteinsdottir, P. Wright, and O. Kjesbu	Sensitivity of potential recruitment to stock structure in the presence of temporally varying survival
Y:03	F. Thurow	On the biomass of cod in the Baltic Sea during the 20th century
Y:04	H.-H. Hinrichsen, U. Böttcher, R. Oeberst, R. Voss, and A. Lehmann	Drift patterns of cod early life stages in the Baltic: exchange between the western and eastern stock, a physical modelling approach
Y:05	T. Baranova and I. Shics	Reproduction of Eastern Baltic cod (<i>Gadus morhua callarias</i> L.) and formation of annual growth zones on the otoliths in the 1990s
Y:06	M. Kvalsund and C.T. Marshall	Condition and size composition effects on the simulated relationship between spawner biomass and total egg production for Northeast Arctic cod (<i>Gadus morhua</i> L.)
Y:07	C. Tara Marshall, O.S. Kjesbu, A. Thorsen, and P. Solemdal	Spawner quality effects on two measures of reproductive potential: have we been counting our eggs before they've hatched?
Y:08	R. Oeberst	Exchanges between the western and eastern Baltic cod stocks using the length distributions of trawl surveys
Y:10	B. MacKenzie, M.R. Heath, B. Ardlandsvik, J. Backhaus, B. Bogstad, A. Gallego, B. Godo, A. Gudmundsdottir, I. Harms, J. Heilemann, S. Jonsson, O. Kjesbu, E. MacKenzie, G. Marteinsdottir, E. Nielsen, B. Scott, G. Strugnell, G. Stefansson, A. Thorsen, A. Visser, and P. Wright	Overview of the EU FAIR Project 'STEREO' (Stock Effects on Recruitment Relationships)
Y:11	M.R. Heath, A. Gallego, J. R.G. Hislop, C. Needle, B. Scott, and P.J. Wright	The importance of the late pelagic and demersal settlement phases for recruitment dynamics in North Sea haddock
Y:12	V.L. Tretyak	On possibility of the use of the Ricker's model "stock-recruitment" for estimation of recruitment of North-Eastern Arctic cod population
Y:13	A. Gallego, M.R. Heath, P. Wright, and G. Marteinsdóttir	An empirical model of growth in the pelagic early life history stages of North Sea haddock
Y:14	A. Gallego and M.R. Heath	Short-term changes in the vertical distribution of haddock larvae as a function of environmental factors
Y:15	N.V. Mukhina	The use of Russian ichthyoplankton survey data in the forecasting of recruitment to Arcto-Norwegian cod stock
Y:16	B. MacKenzie, M. Plikshs, F. Köster, and H.-H. Hinrichsen	Does spatial match-mismatch of spawning and environmental conditions affect recruitment in Baltic cod?
Y:17	B. MacKenzie, R.A. Myers, and K. Bowen	Stock-recruitment meta-analyses reveal differences in fish stock productivity between marine ecosystems
Y:18	R.A. Myers, B.R. MacKenzie, and K. Bowen	Empirical models of carrying capacity, maximum reproductive rate, and species interactions using a meta-analytic approach

Y:19	H.-H. Eikeseth and O. Nakken	Maturation in North-East Arctic haddock
Y:20	K. Helle, B. Bogstad, C.T. Marshall, K. Michalsen, G. Ottosen, and M. Pennington	An evaluation of recruitment indices for northeast Arctic cod (<i>Gadus morhua</i> L.)
Y:21	Ø. Fiksen and A. Folkvord	Maternal effects and the benefit of yolk supply in cod larvae in different environments – a simulation model
Y:22	G. Allain, P. Petitgas, and P. Lazure	Environmental and stock effects on the recruitment of anchovy in the Bay of Biscay: a multivariate analysis
Y:23	L. Tybjerg and J. Tomkiewicz	Histological evaluation of gonadal and sexual maturity in female Baltic cod (<i>Gadus morhua</i>): preliminary results
Y:25	J. Tomkiewicz and F.W. Köster	Maturation processes and spawning time of cod in the Bornholm Basin of the Baltic Sea: preliminary results
Y:26	F.W. Köster, H.-H. Hinrichsen, D. Schnack, M.A. St. John, B. MacKenzie, J. Tomkiewicz, and M. Plikshs	Stock-recruitment relationships of Baltic cod incorporating environmental variability and spatial heterogeneity
Y:27	G. Kraus, A. Müller, K. Trella, and F.W. Köster	Temporal and spacial variability in fecundity of Baltic cod
Y:28	G.A. Begg and G. Marteinsdóttir	Historical spawning distribution and origin of pelagic juvenile cod (<i>Gadus morhua</i>) in Icelandic waters
Y:29	E.I. Karasiova	On the possible relation of the cod peak spawning time with the environmental conditions in the Gdansk Deep of the Baltic Sea
Y:30	K. Thorisson and T.H. Asgeirsson	Short term changes in a cod larval patch west of Iceland 1997
Y:31	M. Plikshs, H.-H. Hinrichsen, F.W. Köster, J. Tomkiewicz, and V. Berzins	Baltic cod reproduction in the Gotland Basin: annual variability and possible causes
Y:32	R. Oeberst and M. Bleil	Relations between the year-class strength of the western Baltic cod and inflow events in the autumn
Y:34	G. Marteinsdóttir and H. Björnsson	Time and duration of spawning of cod in Icelandic waters

THEME SESSION ON ECOSYSTEM MANAGEMENT – CAN WE MAKE IT OPERATIONAL? (Z)

Co-Conveners and Rapporteurs: Prof. J. Pope (UK) and J. Rice (Canada)

This Theme Session included eleven scientific papers, most of which were of direct relevance to the Theme Session's topic. There were several areas of important commonality among the contributions. Many groups have considered the issue of operational ecosystem management under various national sponsorships, and their reports are both useful and generally complementary. Several presentations and the discussion all highlighted that explicit operational objectives are both crucial for progress on achieving an ecosystem context for our work, and are possible to propose, defend, and use with current knowledge. Of course, there are important unknowns and sources of uncertainty which mean that operational ecosystem objectives will evolve in the future, but that is the case for single species objectives as well. Objectives are a major step forward, but a larger framework in which to approach the many aspects of ecosystem issues in sustainable management is also needed. The framework discussed in both the Theme Session on Sustainability Indicators and in the Resource Management Committee complements the concerns in this Theme Session. The importance of consideration of spatial scale for ecosystem management was stressed in several presentations and in the discussion. There will be needs for approaches which can be applied at a variety of nested scales, and to confront and overcome problems presented by differences in boundaries between biological and political systems.

There was wide agreement that significant progress could be made without presenting either the challenges

or solutions as more complex than they need to be. Just reducing overfishing on regional and global scales would go very far towards achieving many of the long-term objectives usually associated with marine management in an ecosystem context. Once that is achieved, there was some support for the idea that attention would be better focused on other types of stressors of marine ecosystems (e.g., contaminants, climate change impacts, etc.) rather than digging more deeply into second-order consequences of these lower rates of fishing. Finally, there was unanimity that we do not manage ecosystems, we manage the activities of people in the ecosystems. This is best done by including persons whose activities are to be managed, as well as other interested parties, in the discussions about objectives, measures, and monitoring.

No specific recommendations arose from this session, because of the late position of the session in the ASC schedule. However, there was strong support for continued ICES activity on this topic, in many fora. The Advisory Committees, Science Committees, and several existing working groups could take measures to place ICES activities into a more ecosystem context for management advice and scientific investigations. Focused discussion and scientific presentations at future Annual Science Conferences would also be appropriate, to pool experience and developments in ICES, the wider science community, and many management jurisdictions.

Documents presented

Z:01	D.E. Duplisea and M.V. Bravington	Harvesting a size-structured ecosystem
Z:02	C.W. Fowler and R.J.M. Crawford	Sustainable fisheries management for ecosystems – with examples for seasonal allocation
Z:03	M. Sinclair, R. O'Boyle, L. Burke, and S. D'Entremont	Incorporating ecosystem objectives within fisheries management plans in the maritime region of Atlantic Canada
Z:04	S. Hansson	Ecological aspects on fisheries management
Z:05	C. Ulrich, D. Gascuel, and M. Dunn	Analysis of the impact of fishing activities on exploited marine resources at the ecosystem scale: the case of English Channel fisheries
Z:06	T. Gytte	Operational data acquisition and internet presentation of marine environmental data from ships of opportunity and fixed monitoring stations
Z:07	J. Rice	How complex should operational ecosystem objectives be?
Z:08	F. Ribeiro, S. Ramos, and P. Santos	Evaluation of the amount of undersized sand sole (<i>Solea lascaris</i> Risso, 1810) caught in the Portuguese fisheries
Z:09	E.I. Naumenko	Trophic chain length of the zooplankton community in the Vistula Lagoon and environment factors impact
Z:10	R.L.P. Lanter	Basic elements for the implementation of an ecosystem approach in marine management
Z:11	K. Sherman and A.M. Duda	A strategic approach to marine ecosystems management

THEME SESSION ON MICROPROCESSORS AND THINGS THAT SWIM IN THE OCEAN: SMART TAGS IN THE STUDY OF MARINE LIFE (AA)

Co-Conveners: Dr K. Friedland, Dr G. Arnold, Dr G. Stenson, and Dr L. Karlsson
Rapporteur: J. Metcalfe (UK)

Introduction

Advances in computer technology have made it possible to design and build increasingly smaller and more sophisticated microprocessor-based electronic tags that can be attached to a wide range of marine animals. Such devices allow scientists to collect a range of environmental, behavioural, and physiological data from individual animals over extended periods (months to years), and from areas where other methods might be ineffective, impractical, or prohibitively costly. As a result, data storage tags (DSTs) and other telemetry devices are expanding our ability to understand and analyse important aspects of the behaviour and ecology of marine animals on both daily and seasonal time scales.

As tags become smaller and less expensive, the range of species and life history stages that become amenable to study has increased. This Session focused on new developments in tag technology, and how these innovations are being applied to fisheries and ecological problems of interest to the ICES scientific community.

Presentation of papers

Fourteen oral papers were presented during two half-day sessions. Although the majority (11) of these dealt with studies of a variety of fish species, including cod (Doc. AA:02), plaice (Doc. AA:01), and salmon (Docs. AA:05, 06, 07, 08, 09, & 15), there were also papers describing studies involving marine mammals (Docs. AA:12 & 13) and crustaceans (Doc. AA:14).

Many of the papers relating to fish described techniques that allow simple environmental data (ambient daylight, environmental temperature, and hydrostatic pressure) to be used to deduce geolocation, and hence geographical movements, of individuals and of populations. In addition there were important contributions about the implementation of "best practice" in tagging methods (Doc. AA:03), and about tag performance characteristics. A number of papers dealt with the movements of salmon

in relation to environmental temperature, not only as a means of deducing geographical movement, but also for providing evidence for vision-based orientation mechanisms and vertical movements in relation to thermal tolerance.

Other contributions covered the development of a digital acoustic recording tag for monitoring the avoidance behaviour of whales in response to ship noise, diel patterns of diving behaviour of fin whales in the Mediterranean sea in relation to prey availability, and the migratory movements of spider crabs.

Two additional oral contributions not included in the formal program were also presented. The first, given by P. Eveson, dealt with the methodology of using ambient daylight for geolocation. The second, given by F. Poyot, described the movements of hooded seals in the Northwest Atlantic in relation to breeding and feeding areas.

General discussion and summing up

There was a wide-ranging discussion of tag attachment techniques and data analysis approaches during the general discussion.

Conclusion and proposals

It was acknowledged that electronic tagging technology is a rapidly developing area with wide potential applications in many areas of interest to ICES (fish behaviour in relation to acoustic and fishing survey, behaviour in relation to fishing gear, recruitment processes, migration, stock identity etc.) The Theme Session was not in a position to develop a formal recommendation for a workshop or study group at this time; but, it was felt that there is a need for additional work on electronic tags in the ICES area. Scientists interested in assisting in these efforts should contact J. Metcalfe, Lowestoft, UK or K. Friedland, University of Massachusetts, USA, during the intersession.

Documents presented

AA:01	J.D. Metcalfe, E. Hunter, B.H. Holford, and G.P. Arnold	The application of electronic data storage tags to spatial dynamics of fish populations
AA:02	P. Steingrund	Studies of vertical migration of wild Faroe Plateau cod using data storage tags
AA:03	M. Holm, G.P. Arnold, and K.Ø. Midling	Capture and handling of fish for electronic tagging – a review

- AA:05 L. Karlsson, E. Ikonen, H. Westerberg, and J. Sturlaugsson Data storage tag study of salmon (*Salmo salar*) migration in the Baltic: The spawning migration of wild and hatchery-reared fish and a comparison of tagging methods
- AA:06 H. Westerberg, J. Sturlaugsson, E. Ikonen, and L. Karlsson Data storage tag study of salmon (*Salmo salar*) migration in the Baltic: Behaviour and the migration route as reconstructed from SST data
- AA:07 H. Westerberg, P. Eveson, D. Welch, L. Karlsson, and E. Ikonen Data storage tag study of salmon (*Salmo salar*) migration in the Baltic: The performance of tags
- AA:08 K.D. Friedland, R.V. Walker, N.D. Davies, K.W. Myers, G.W. Boehlert, S. Urawa, and Y. Ueno Inference on open-ocean orientation of chum salmon during their return migration based on data from data storage tags
- AA:09 Robert V. Walker, K.W. Myers, N.D. Davis, K.Y. Aydin, K.D. Friedland, H. R. Carlson, G.W. Boehlert, S. Urawa, Y. Ueno, and G. Anma Ambient temperatures and diurnal behavior as indicated by data storage tags on salmonids in the North Pacific
- AA:11 Christopher J. Bridger, Richard K. Booth, R. Scott McKinley, David A. Scruton, and R. Lindstrom Monitoring fish behaviour with a remote, bi-modal (acoustic/radio) biotelemetry system
- AA:12 P. Tyack, M. Johnson, D. Nowacek A digital acoustic recording tag for measuring the response of marine mammals to sound
- AA:13 S. Panigada, M. Zanardelli, S. Canese, and M. Jahoda Fin whales tracked with Velocity-Time-Depth-Recorder radio tags in the western Mediterranean Sea
- AA:14 E. González-Gurriarán and C. Bernárdez Migratory patterns in the spider crab (*Maja squinado*) using telemetry and electronic tags
- AA:15 D.G. Reddin, J.B. Dempson, P. Downton, C.C. Mullins, and K.D. Friedland Migration of Atlantic salmon kelts (*Salmo salar* L.) in relation to sea water temperature in Newfoundland, 1998

Supplement 3: List of Participants at the 1999 ICES Annual Science Conference

**LIST OF PARTICIPANTS AT THE 1999 ANNUAL SCIENCE CONFERENCE/
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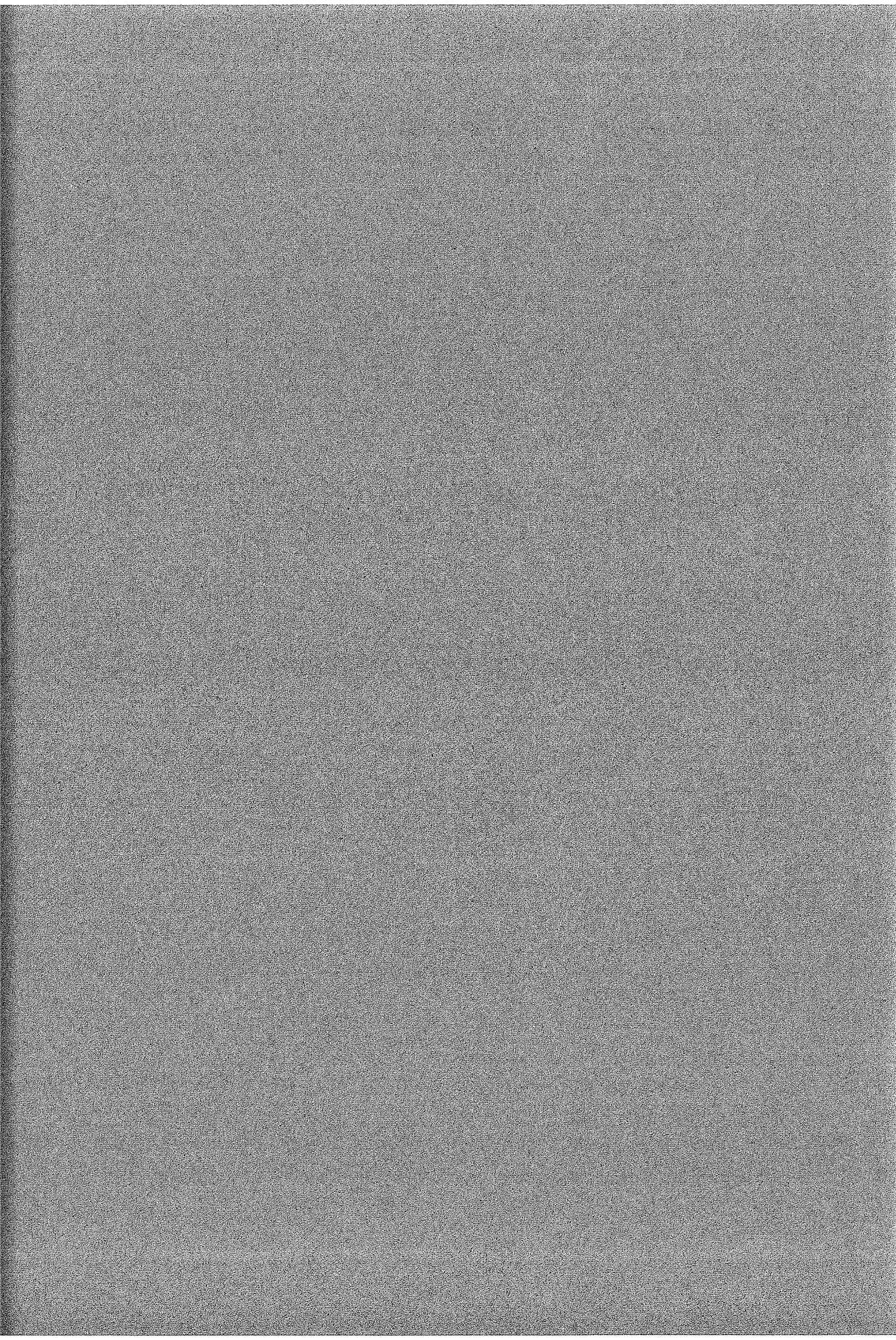
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COLLABORATION, AND ACRONYMS APPEARING IN THE
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Study Group on Methods for Measuring the Selectivity of Static Gear (SGMMG)
Study Group on Mesh Measurement Methodology (SGMESH)

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Workshop on Dynamics of Growth in Cod (WKDGC)

Resource Management Committee (RMC)

Working Group on Fishery Systems (WGFS)
International Bottom Trawl Survey Working Group (IBTSWG)
Study Group on Market Sampling Methodology (SGMSM)
Planning Group on Surveys on Pelagic Fish in the Norwegian Sea (PGSPFN)
Study Group to Evaluate the Effects of Multispecies Interactions (SGEEMI)
Workshop on an International Analysis of Market Sampling and the Evaluation of Raising Procedures and Data-Storage (software) (WKIMS)
Workshop on a Synthesis on Pelagic Fish in the Norwegian Sea and Adjacent Areas (WKSSPF)

Marine Habitat Committee (MHC)

Benthos Ecology Working Group (BEWG)

Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem (WGEXT)
Working Group on Biological Effects of Contaminants (WGBEC)
Working Group on Statistical Aspects of Environmental Monitoring (WGSAEM)
Working Group on Marine Mammal Habitats (WGMMHA)
Working Group on Marine Sediments in Relation to Pollution (WGMS)
Marine Chemistry Working Group (MCWG)
Study Group on Marine Habitat Mapping (SGMHM)
Study Group on Ecosystem Assessment and Monitoring (SGEAM)

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)

Living Resources Committee (LRC)

Stock Identification Methods Working Group (SIMWG)
Working Group on Mackerel and Horse Mackerel Egg Surveys (WGMEGS)
Working Group on *Crangon* Fisheries and Life History (WGCRAN)
Working Group on Cephalopod Fisheries and Life History (WGCEPH)
Working Group on Marine Mammal Population Dynamics and Trophic Interactions (WGMMPD)
Working Group on Beam Trawl Surveys (WGBEAM)
Study Group on Elasmobranch Fishes (SGEF)
Study Group on the Life History of *Nephrops* (SGNEPH)
Study Group on the Biology and Life History of Crabs (SGCRAB)
Planning Group for Herring Surveys (PGHERS)
Planning Group for Pelagic Acoustic Surveys in ICES Sub-Areas VIII and IX (PGPAS)
Workshop on the Estimation of Spawning Stock Biomass of Sardine (WKSBS)
Workshop on the Identification and Staging of Mackerel and Horse Mackerel Eggs (WKMHE)

Baltic Committee (BCC)

Baltic International Fish Survey Working Group (WGBIFS)
Study Group on Baltic Cod Age-Reading (SGBCAR)

Baltic Herring Age-Reading Study Group (BHARSG)
Study Group on the Scientific Basis for Ecosystem
Advice in the Baltic (SGBEAB)
Study Group on Multispecies Predictions in the Baltic
(SGMPB)
Study Group on Salmon Scale-Reading Problems
(SGSSR)

ACFM

EIFAC/ICES Working Group on Eels (WGEEL)
Working Group on *Nephrops* Stocks (WGNEPH)
Joint ICES/NAFO Working Group on Harp and Hooded
Seals (WGHARP)
Working Group on the Assessment of Demersal Stocks
in the North Sea and Skagerrak (WGNSSK)
Working Group on the Assessment of Mackerel, Horse
Mackerel, Sardine, and Anchovy (WGMHSA)
Working Group on the Assessment of Northern Shelf
Demersal Stocks (WGNSDS)
North-Western Working Group (NWWG)
Northern Pelagic and Blue Whiting Fisheries Working
Group (WGNPBW)
Baltic Salmon and Trout Assessment Working Group
(WGBAST)
Baltic Fisheries Assessment Working Group (WGBFAS)
Working Group on North Atlantic Salmon (WGNAS)
Arctic Fisheries Working Group (AFWG)

Working Group on the Assessment of Southern Shelf
Demersal Stocks (WGSSDS)
Pandalus Assessment Working Group (WGPAND)
Herring Assessment Working Group for the Area South
of 62°N (HAWG)
Study Group on the Biology and Assessment of Deep-Sea
Fisheries Resources (SGDEEP)
Study Group on Baltic Herring and Sprat Maturity
(SGBHSM)
Study Group on Discard and By-Catch Information
(SGDBI)

ACME

Working Group on Introductions and Transfers of
Marine Organisms (WGITMO)
Working Group on Ecosystem Effects of Fishing
Activities (WGECO)
ICES/HELCOM Steering Group on Quality Assurance of
Chemical Measurements in the Baltic Sea (SGQAC)
ICES/HELCOM Steering Group on Quality Assurance of
Biological Measurements in the Baltic Sea (SGQAB)
ICES/OSPAR Steering Group on Quality Assurance of
Biological Measurements Related to Eutrophication
Effects (SGQAE)
ICES/IOC/IMO Study Group on Ballast Water and Other
Ship Vectors (SGBOSV)
Study Group on the Estimation of the Annual Amount of
Discards and Fish Offal in the Baltic Sea (SGDIB)

DIRECTORY OF ICES COMMITTEES AND SUBSIDIARY GROUPS AND ASSOCIATED 1999 COUNCIL RESOLUTIONS

Resolutions originating from the organisational structure at the 1999 Annual Science Conference. This is not identical to the Organisational Overview of ICES Subsidiary Groups on pp. 278 – 279.

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Baltic Salmon and Trout Assessment Working Group.....	2ACFM06	95	284
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Study Group on Estimation of the Annual Amount of Discards and Fish Offal in the Baltic Sea	2ACME06	103	285
Working Group on Introductions and Transfers of Marine Organisms	2ACME07	104	285
ICES/IOC/IMO Study Group on Ballast and Other Ship Vectors.....	2ACME08	104	285
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Living Resources Committee			
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Name	Council Resolution		Chair
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CHAIRS OF ICES SUBSIDIARY GROUPS ASSIGNED TO PARENT COMMITTEE

PRÉSIDENCE DES GROUPES SUBSIDIAIRES CIEM AFFECTÉS À LEUR COMITÉ DE SOURCE

The Membership Lists for the following Study/Working 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 265–270, or from the Chairs themselves.

ADVISORY COMMITTEE ON FISHERY MANAGEMENT/ COMITÉ D'AVIS SUR LA GESTION DE LA PÊCHE

EIFAC/ICES Working Group on Eels/Groupe de travail EIFAC/CIEM sur les anguilles

Dr Larry Marshall (Canada), Chair

Working Group on *Nephrops* Stocks/Groupe de travail sur les stocks de *nephrops*

Dr Frank Redant (Belgium), Chair

Joint ICES/NAFO Working Group on Harp and Hooded Seals/Groupe de travail CIEM/NAFO conjoint sur les phoques du Groenland et les phoques à capuchon

Dr Tore Haug (Norway), Chair

Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak/Groupe de travail sur l'évaluation des stocks démersaux dans la Mer du Nord et le Skagerrak

Frans van Beek (Netherlands), Chair

Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy/Groupe de travail sur l'évaluation des stocks de maquereaux, de chinchards, de sardines et d'anchois

Dankert Skagen (Norway), Chair

Working Group on the Assessment of Northern Shelf Demersal Stocks/Groupe de travail sur l'évaluation des stocks démersaux du plateau continental nord

Stuart Reeves (UK), Chair

North-Western Working Group/Groupe de travail nord-ouest

Jesper Boje (Denmark), Chair

Northern Pelagic and Blue Whiting Fisheries Working Group/Groupe de travail sur la pêche pélagique du nord et du merlan bleu

Dr Jim Carscadden (Canada), Chair

Baltic Salmon and Trout Assessment Working Group/Groupe de travail sur l'évaluation des stocks de saumon et de truite dans la Baltique

Tapani Pakarinen (Finland), Chair

Baltic Fisheries Assessment Working Group/Groupe de travail sur l'évaluation de la pêche dans la Baltique

Dr Tiit Raid (Estonia), Chair

Working Group on North Atlantic Salmon/Groupe de travail sur le saumon de l'Atlantique Nord

Dr Niall O'Maoileidigh (Ireland), Chair

Arctic Fisheries Working Group/Groupe de travail sur la pêche de l'Arctique

Dr Ray Bowering (Canada), Chair

Working Group on the Assessment of Southern Shelf Demersal Stocks/Groupe de travail sur l'évaluation des stocks démersaux du plateau continental du sud

Alain Biseau (France), Chair

Pandalus* Assessment Working Group/Groupe de travail sur l'évaluation du *pandalus

Bengt Sjöstrand (Sweden), Chair

Herring Assessment Working Group for the Area South of 62°N/Groupe de travail sur l'évaluation des stocks de hareng pour la zone au sud de 62°N

John Simmonds (UK), Chair

Study Group on the Biology and Assessment of Deep-Sea Fisheries Resources/Groupe d'étude sur la biologie et l'évaluation des stocks de ressources halieutiques des grands fonds

Dr John D. M. Gordon (UK), Chair

Study Group on Baltic Herring Maturity/Groupe d'étude sur la maturité du hareng de la Mer Baltique

Hildrun Müller (Germany), Chair

Study Group on Discard and By-Catch Information/Groupe d'étude sur les données rejets et prises accessoires

Dr J. Cotter (UK) Chair

**ADVISORY COMMITTEE ON THE MARINE ENVIRONMENT/
COMITÉ D'AVIS SUR L'ENVIRONNEMENT MARIN**

Working Group on Introductions and Transfers of Marine Organisms/Groupe de travail sur les introductions et les transferts d'organismes marins

Prof. James T. Carlton (USA), Chair

ICES/HELCOM Steering Group on Quality Assurance of Chemical Measurements in the Baltic Sea/Groupe directeur CIEM/HELCOM sur l'assurance de qualité des mesures chimiques dans la Mer Baltique

Dr Mikael Krysell (Sweden), Chair

ICES/HELCOM Steering Group on Quality Assurance of Biological Measurements in the Baltic Sea/Groupe directeur CIEM/HELCOM sur l'assurance de qualité des mesures biologiques dans la Mer Baltique

Dr G. Martin (Estonia), Chair

ICES/OSPAR Steering Group on Quality Assurance of Biological Measurements Related to Eutrophication Effects/Groupe directeur CIEM/OSPAR sur l'assurance de qualité des mesures biologiques relatives aux effets de l'eutrophication

Dr Hubert L. Rees (UK), Chair

ICES/IOC/IMO Study Group on Ballast Water and Other Ship Vectors/Groupe d'étude CIEM/COI/OMI sur les eaux de ballast et autres modes d'introduction par les navires

Prof. James T. Carlton (USA), Chair

Study Group on Estimation of the Annual Amount of Discards and Fish Offal in the Baltic Sea/Groupe d'étude sur l'estimation des quantités annuelles de rejets et de déchets de poissons en mer Baltique

Jørgen Dalskov (Denmark), Chair

Working Group on Ecosystem Effects of Fishing Activities/Groupe de travail sur les effets écologiques des activités de pêche

Dr Jake Rice (Canada), Chair

**FISHERIES TECHNOLOGY COMMITTEE/
COMITÉ SUR LA TECHNOLOGIE DE PÊCHE**

Working Group on Fisheries Acoustics Science and Technology/Groupe de travail sur l'étude de la science et la technologie acoustique de la pêche

François Gerlotto (France), Chair

Working Group on Fishing Technology and Fish Behaviour/Groupe de travail sur la technologie de pêche et le comportement des poissons

Dr Arill Engås (Norway), Chair

Joint Session of the Working Group on Fishing Technology and Fish Behaviour and the Working Group on Fisheries Acoustics Science and Technology

Dr Jacques Massé (France), Chair

Study Group on Methods for Measuring the Selectivity of Static Gear/Groupe d'étude sur la sélectivité des engins fixes

A. Carr (USA), Chair

Study Group on Mesh Measurement Methodology/Groupe d'étude sur les méthodes de mesure des maillages

R. Fonteyne (Belgium), Chair

**OCEANOGRAPHY COMMITTEE/
COMITÉ SUR L'OCÉANOGRAPHIE**

Working Group on Recruitment Processes/Groupe de travail sur les processus de recrutement

Dr Pierre Pepin (Canada), Chair

ICES/GLOBEC Working Group on Cod and Climate Change/Groupe de travail CIEM/GLOBEC sur la morue et les changements du climat

Dr Kenneth Drinkwater (Canada), Chair

Working Group on Oceanic Hydrography/Groupe de travail sur l'hydrographie océanique

Dr Bill Turrell (UK), Chair

Working Group on Marine Data Management/Groupe de travail sur la gestion des données marines

Bob Gelfeld (USA), Chair

Working Group on Seabird Ecology/Groupe de travail sur l'écologie des oiseaux de mer

Dr Mark Tasker (UK), Chair

Working Group on Zooplankton Ecology/Groupe de travail sur l'écologie du zooplancton

Dr L. Valdés (Spain), Chair

Working Group on Phytoplankton Ecology/Groupe de travail sur l'écologie du phytoplancton

Dr D. Mills (UK), Chair

Working Group on Shelf Seas Oceanography/Groupe de travail sur l'océanographie des plateaux continentaux

Dr B. Sjöberg (Sweden), Chair

Working Group on Harmful Algal Bloom Dynamics/Groupe de travail sur la dynamique des éclosions planctoniques nuisibles

Dr K. Kononen (Finland), Chair

Study Group on an ICES/IOC Checklist of Phytoplankton/Groupe d'étude sur une liste de contrôle CIEM/COI du phytoplancton

Dr Lars Elder (Sweden), Chair

Study Group on Incorporation of Process Information into Stock-Recruitment Models/Groupe d'étude sur la prise en compte des informations sur les processus dans les modèles stock-recrutement

Dr C. O'Brien (UK) Chair

ICES/IOC Steering Group on GOOS

Roald Sætre (Norway) and IOC Representative (To be appointed), Co-Chairs

Steering Group for the ICES/GLOBEC North Atlantic Regional Office/Groupe directeur du bureau CIEM/GLOBEC pour la région atlantique nord

Dr Mike Reeve (USA) and Dr Mike Sinclair (Canada), Co-Chairs

Workshop on the Dynamics of Growth in Cod/Atelier sur les dynamiques de croissance de la morue

N. Andersen (Denmark), G. Ottersen (Norway), and D. Swain (Canada), Co-Chairs

**RESOURCE MANAGEMENT COMMITTEE/
COMITÉ SUR LA GESTION DES RESSOURCES**

International Bottom Trawl Survey Working Group/Groupe de travail sur les campagnes internationales de chaluts de fond

A. Newton (UK), Chair

Study Group on Market Sampling Methodology/Groupe d'étude sur la méthodologie d'échantillonnage au marché

M. A. Pastoors (Netherlands), Chair

Planning Group on Surveys of Pelagic Fish in the Norwegian Sea/Groupe de planification sur les campagnes des poissons pélagiques dans la Mer Norvégienne

Dr Jens Christian Holst (Norway), Chair

Working Group on Fishery Systems/Groupe de travail sur les systèmes pêche

Poul Degnbol (Denmark) and Dr J. Sutinen (USA), Co-Chairs

Study Group to Evaluate Effects of Multispecies Interactions/Groupe d'étude pour évaluer les effets des interactions multi-espèces

M. Bravington (UK), Chair

Workshop on International Analysis of Market Sampling and the Evaluation of Raising Procedures and Data-Storage (software)/Atelier d'analyse internationale de l'échantillonnage des captures commerciales, les méthodes d'élévation des échantillons et le stockage des données (logiciels)

M. A. Pastoors (Netherlands), Chair

Workshop on a Synthesis of Surveys on Pelagic Fish in the Norwegian Sea and Adjacent Areas/Atelier de synthèse des campagnes sur le poissons pélagiques en mer de Norvège et dans les zones adjacentes

Dr Jens Christian Holst (Norway), Chair

**MARINE HABITAT COMMITTEE/
COMITÉ SUR L'HABITAT MARIN**

Benthos Ecology Working Group/Groupe de travail sur l'écologie de la faune benthique

Dr Karel Essink (Netherlands), Chair

Working Group on the Effects of Extraction of Marine Sediments on the Marine Ecosystem/Groupe de travail sur les effets d'extraction des sédiments marins sur l'écosystème marin

Dr John Side (UK), Chair

Working Group on Biological Effects of Contaminants/Groupe de travail sur les effets biologiques des contaminants

Dr Peter Matthiessen (UK), Chair

Working Group on Statistical Aspects of Environmental Monitoring/Groupe de travail sur les aspects statistiques de la surveillance de l'environnement

Dr Steffen Uhlig (Germany), Chair

Working Group on Marine Mammal Habitats/Groupe de travail sur les habitats des mammifères marins

Dr Arne Bjørge (Norway), Chair

Working Group on Marine Sediments in Relation to Pollution/Groupe de travail sur les sédiments marins par rapport à la pollution

Dr M. Kersten (Germany), Chair

Marine Chemistry Working Group/Groupe de travail sur la chimie marine

Dr Britta Pedersen (Denmark), Chair

Study Group on Marine Habitat Mapping/Groupe d'étude sur la cartographie de l'habitat marin

Dr Eric Jagtman (Netherlands), Chair

Study Group on Ecosystem Assessment and Monitoring/Groupe d'étude sur l'évaluation et la surveillance des écosystèmes

Dr Lars Føyn (Norway), Chair

**MARICULTURE COMMITTEE/
COMITÉ SUR LA MARICULTURE**

Working Group on Marine Fish Culture/Groupe de travail sur la culture marine des poissons

Dr J. Castell (Canada), Chair

Working Group on the Application of Genetics in Fisheries and Mariculture/Groupe de travail sur l'application de la génétique dans la pêche et la mariculture

M. Møller Hansen (Denmark), Chair

Working Group on Environmental Interactions of Mariculture/Groupe de travail sur les interactions environnementales de la mariculture

Dr Ian Davies (UK), Chair

Working Group on Pathology and Diseases of Marine Organisms/Groupe de travail sur la pathologie et les maladies des organismes marins

Dr Stig Møllergaard (Denmark), Chair

**LIVING RESOURCES COMMITTEE/
COMITÉ SUR LES RESSOURCES VIVANTES**

Stock Identification Methods Working Group/Groupe de travail sur les méthodes d'identification des stocks

Dr Kevin Friedland and Dr J. Waldman (USA), Co-Chairs

Working Group on Mackerel and Horse Mackerel Egg Surveys/Groupe de travail sur les études d'oeufs de maquereaux et de chinchards

Dr Cornelius Hammer (Germany), Chair

Working Group on Crangon Fisheries and Life History/Groupe de travail sur la pêche et stades de vie des crangon

Prof. Axel Temming (Germany), Chair

Working Group on Cephalopod Fisheries and Life History/Groupe de travail sur la pêche et stades de vie des céphalopodes

Dr G. Pierce (UK), Chair

Working Group on Marine Mammal Population Dynamics and Trophic Interactions/Groupe de travail sur la dynamique des populations de mammifères marins et les interactions trophiques

Dr Gordon T. Waring (USA), Chair

Working Group on Beam Trawl Surveys/Groupe de travail sur les campagnes de chaluts à perche

Dr G. Piet (Netherlands), Chair

Study Group on Elasmobranch Fishes/Groupe d'étude sur les poissons élastombranches

Dr Paddy Walker (Netherlands), Chair

Planning Group for Herring Surveys/Groupe de planification sur les études du hareng

Else Torstensen (Norway) and Karl-Johan Stæhr (Denmark), Co-Chairs

Planning Group for Pelagic Acoustic Surveys in ICES Sub-Areas VIII And IX/Groupe de planification sur les campagnes acoustiques pélagiques dans les sous-zones VIII et IX du CIEM

V. Marques (Portugal), Chair

Study Group on Life Histories of *Nephrops*/Groupe d'étude sur les stades de vie des *nephrops*

Dr Nick Bailey (UK), Chair

Study Group on the Biology and Life History of Crabs/Groupe d'étude sur la biologie et stades de vie des crabes

Dr R. Dufour (Canada), Chair

Workshop on the Estimation of Spawning Stock Biomass of Sardine/Atelier sur l'estimation de la biomasse du stock de ponte de sardine

A. Lago de Lanzos (Spain), Chair

Workshop on Identification and Staging of Mackerel and Horse Mackerel Eggs/Groupe d'étude sur l'identification et la détermination des stades des oeufs de maquereau et de chinchard

S. Milligan (UK), Chair

BALTIC COMMITTEE/COMITÉ SUR LA BALTIQUE

Baltic International Fish Survey Working Group/Groupe de travail sur les campagnes internationales des poissons baltiques

Eero. Aro (Finland), Chair

Study Group on Multispecies Predictions in the Baltic/Groupe d'étude sur les prévisions multispécifiques en mer Baltique

Eero Aro (Finland), Chair

Study Group on Baltic Cod Age-Reading/Groupe d'étude sur la lecture d'âge de la morue dans la Baltique

Dr Y. Walther (Sweden), Chair

Baltic Herring Age-Reading Study Group/Groupe d'étude sur la lecture d'âge du hareng baltique

G. Kornilovs (Latvia), Chair

Study Group on the Scientific Basis for Ecosystem Advice in the Baltic/Groupe d'étude sur les bases scientifiques pour un avis sur les écosystèmes de la mer Baltique

Prof. Tom Osborn (USA) and M. Plikshs (Latvia), Co-Chairs

Study Group on Salmon Scale-Reading Problems/Groupe d'étude sur les problèmes de lectures des écailles de saumon

Dr E. Ikonen (Finland), Chair

NAMES AND ADDRESSES OF COUNCIL OFFICIALS AND CHAIRS OF COMMITTEES AND GROUPS

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- 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 Comision Tecnica 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-Fisheries)
 - 12.2 Directorate-General for Science, Research and Development (DG-Environment)
 - 12.3 Directorate-General for Environment, Consumer Protection and Nuclear Safety
- 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 Science Foundation
 - 18.1 European Marine and Polar Science (EMaPS) Boards
- 19 Fisheries Society of the British Isles
- 20 Global International Water Assessment (GIWA)
- 21 Institute for Fisheries Research and Development (INIDEP) (Argentina)
- 22 Institute of Marine Biology of Crete (Greece)
- 23 Instituto de Formento Pesquero (IFOP) (Chile)
- 24 International Arctic Science Committee (IASC)
- 25 International Association for Biological Oceanography (IABO)
- 26 International Baltic Sea Fishery Commission (IBSFC)
- 27 International Center for Living Aquatic Resource Management (ICLARM)
- 28 International Commission for the Conservation of Atlantic Tunas (ICCAT)
- 29 International Council of Scientific Unions (ICSU)
- 30 International Institute of Fisheries Economics & Trade (IIFET)
- 31 International Maritime Organization (IMO)
 - 31.1 London Convention on Dumping
- 32 International Pacific Halibut Commission (IPHC)
- 33 International Union for the Conservation of Nature and Natural Resources (IUCN)

- 34 International Whaling Commission (IWC)
- 35 National Institute of Water and Atmospheric Research (NIWA) (New Zealand)
- 36 Nordic Council of Ministers
- 37 North Atlantic Marine Mammal Commission (NAMMCO)
- 38 North Atlantic Salmon Conservation Organization (NASCO)
- 39 North-East Atlantic Fisheries Commission (NEAFC)
- 40 North Pacific Anadromous Fish Commission (NPAFC)
- 41 North Pacific Marine Science Organization (PICES)
- 42 Northwest Atlantic Fisheries Organization (NAFO)
- 43 Organization for Economic Cooperation and Development (OECD)
- 44 Oslo and Paris Commissions (OSPAR)
- 45 Scientific Committee on Oceanic Research (SCOR)
- 46 Sea Fisheries Research Institute (South Africa)
- 47 Statistical Office of the European Communities (EUROSTAT)
- 48 United Nations Educational, Scientific and Cultural Organization (UNESCO)
 - 48.1 Intergovernmental Oceanographic Commission (IOC)
- 49 United Nations Environment Programme (UNEP)
- 50 United Nations Food and Agriculture Organization (FAO)
 - Fisheries Department
- 51 World Wide Fund for Nature (WWF)

ACRONYMS APPEARING IN ICES ANNUAL REPORT
(Acronyms of ICES Committees and their Subsidiary Groups are given on pp

Abbreviation	Title
ADP	Automatic Data Processing
AMAP	Arctic Monitoring and Assessment Programme
AOSB	Arctic Ocean Science Board
APPEAL	Academic Press Print and Electronic Access Licence
ASC	ICES Annual Science Conference
ASMO	Environmental Assessment and Monitoring Committee (OSPAR)
BALTDAT	Surveying the pelagic fish resources and establish an acoustic database in the Baltic Sea
BEQUALM	Biological Effects Quality Assurance in Monitoring Programme
BITS	Baltic Survey Database
BWG	Bureau Working Group
BWG100	Bureau Working Group on Planning for the ICES Centenary
BWGADVP	Bureau Working Group on the ICES Advisory Process
CEFAS	The Centre for Environment, Fisheries & Aquaculture Science (UK)
CGADV	Coordinating Group on ICES Advice
CIEM	Conseil International pour l'Exploration de la Mer (ICES)
CM	ICES Council Meeting
CONSSO	Committee of North Sea Senior Officials
CORE	Consortium for Oceanographic Research and Education
CPUE	Catch Per Unit Effort
CRR	ICES Cooperative Research Report
CSIRO	Commonwealth Scientific and Industrial Research Organization (Australia)
CTD	Conductivity, Temperature and Depth
CUFES	Continuous Underway Fish Egg Sampler
CWP	Coordinating Working Party on Fishery Statistics
DDT	dichlorodiphenyltrichloroethanes
DEL	Delegate
DFO	Department of Fisheries and Oceans, Canada
DG	Directorate-General
DIFRES	Danish Institute for Fisheries Research
DKK	Danish Kroner
DST	data storage tags
EC	European Commission
EC-MON	Working Group on Monitoring and Assessment
ECQOs	Workshop on Ecosystem Quality Objectives
EDP	Electronic Data Processing
EEA	European Environment Agency
EIFAC	European Inland Fisheries Advisory Commission
EMaPS	European Marine and Polar Science Committee
EMS	Early Mortality Syndrome
ESOP	European Subpolar Ocean Programme
FAO	Food and Agriculture Organization (UN)
FER	Fishers ecological knowledge
GBP	British pound (i.e. £ sterling)
GEF	Global Environment Facility
GEOHAB	Global Ecology and Oceanography of Harmful Algal Blooms
GIWA	Global International Waters Assessment
GLOBEC	Global Ocean Ecosystem Dynamics Programme
GOOS	Global Ocean Observing System
HELCOM	Helsinki Commission (Baltic Marine Environment Protection Commission)
IABO	International Association for Biological Oceanography
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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
ICLARM	International Center for Living Aquatic Resource Management

ICSU	International Council of Scientific Unions
IDEAL	International Digital Electronic Access Library
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer (France)
IGBP	International Geosphere - Biosphere Programme
IIFET	International Institute of Fisheries Economics & Trade
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IMM	Intermediate Ministerial Meeting
IMO	International Maritime Organization
INIDEP	Instituto Nacional de Investigación y Desarrollo Pesquero (Argentina)
INPUT	Working Group on Inputs to the Marine Environment
IOC	Intergovernmental Oceanographic Commission
IPHC	International Pacific Halibut Commission
IPIMAR	Instituto Português de Investigação Marítima (Portugal)
ISDBITS	Improvement of stock assessment and data collection by calibration, standardisation, and design improvement of the Baltic international bottom trawl surveys for fishery resources assessment
ISM	Inter-Sessional Meeting
IUCN	International Union for the Conservation of Nature and Natural Resources
IWC	International Whaling Commission
JMS	<i>ICES Journal of Marine Science</i>
KPMG	KPMG C. Jespersen, State Authorized Public Accountants
LEO	Long-Term Ecosystem Observatory
LMR-GOOS	Living Marine Resource Panel of Global Ocean Observing System
MAST	Marine Science and Technology (EC)
MCA	Multi Criteria Analysis
MOD	Meeting Organization and Documentation Group of ICES Secretariat
MoU	Memorandum of Understanding
MSS	ICES Marine Science Symposia
NAFO	Northwest Atlantic Fisheries Organization
NAMMCO	North Atlantic Marine Mammal Commission
NAO	North Atlantic Oscillations
NASCO	North Atlantic Salmon Conservation Organization
NE	Northeastern
NEAFC	North-East Atlantic Fisheries Commission
NINA	Norwegian Institute for Nature Management
NIWA	National Institute of Water and Atmospheric Research
NMFS	National Marine Fisheries Service (USA)
NOAA	National Oceanic and Atmospheric Administration (USA)
NOPP	National Oceanographic Partnership Program
NPAFC	North Pacific Anadromous Fish Commission
NSTF	North Sea Task Force
NW	Northwestern
OECD	Organization for Economic Cooperation and Development
OSPAR	Oslo and Paris Commissions
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PICES	North Pacific Marine Science Organization
PINRO	Polar Research Institute of Marine Fisheries and Oceanography (Russia)
QA	Quality Assurance
QSR	Quality Status Report
QUASIMEME	Quality Assurance of Information for Marine Environmental Monitoring in Europe
RIKZ	Rijksinstituut voor Kust en Zee (the Netherlands)
SCOR	Scientific Committee on Oceanic Research
SETAC	Society for Environmental Toxicology and Chemistry
SIME	Working Group on Concentrations, Trends, and Effects of Substances in the Marine Environment
SMHI	Swedish Meteorological and Hydrological Institute
SOAEFD	Scottish Office Agriculture, Environment and Fisheries Department
SOLAS	Surface Ocean - Lower Atmosphere Study
STEREO	Stock Effects on Recruitment Relationships
SW	Southwest
TAC	Total Allowable Catch

TBT	Tributyltin
TCPMe	Tris(4-chlorophenyl)methane
TIMES	<i>ICES Techniques in Marine Environmental Sciences</i>
TS	Target strength
UK	United Kingdom
UN	United Nations
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USA	United States of America
USD	United States Dollar
VEINS	Variability of Exchange In the Nordic Seas
VNIRO	Russian Federal Research Institute of Fisheries and Oceanography
VPA	Virtual Population Analysis
VPR	video plankton recorder
WGCOOP	ICES/Commissions Working Group on Cooperative Procedures
WMO	World Meteorological Organization
WWF	World Wide Fund for Nature
WWW	World Wide Web